BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Petition by MCI Telecommunications Corporation for arbitration with United Telephone Company of Florida and Central Telephone Company of Florida concerning interconnection rates, terms, and conditions, pursuant to the Federal Telecommunications Act of 1996.	DOCKET NO. 961230-TP

FIRST DAY -- AFTERNOON SESSION

VOLUME 5

Pages 537 through 613

PROCEEDINGS:	Hearing
BEFORE:	CHAIRMAN SUSAN F. CLARK COMMISSIONER J. TERRY DEASON COMMISSIONER JULIA L. JOHNSON COMMISSIONER DIANE K. KIESLING COMMISSIONER JOE GARCIA
DATE:	Wednesday, December 18, 1996
PLACE:	Betty Easley Conference Center Room 148 4075 Esplanade Way Tallahassee, Florida
REPORTED BY:	CATHY H. WEBSTER C & N Reporters

APPEARANCES:

(As heretofore noted.)

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WITNESSES - VOLUME 5

EXHIBITS - VOLUME 4

PROCEEDINGS

(Transcript follows in sequence from Volume 4.)

RANDY G. FARRAR

having been called as a witness on behalf of United and Central Telephone Company of Florida, and being duly sworn, continues his testimony as follows:

CONTINUED CROSS EXAMINATION

BY MR. MELSON (Continuing):

Q And is it fair to say that in general the combined factors, the annual charge factor plus this other direct factor for the various network elements, were in this same range as this 29.8%? They were roughly 30%, say, plus or minus 5, 5 percentage points?

A I don't really recall.

Q Do you happen to have in front of you a copy of your Confidential Answer to Staff's First Set of Interrogatories No. 44A? And I'm looking at page Bate stamp 36.

MR. MELSON: And, Commissioners, this is not one of the documents in your package at this point. I'm trying to use it to refresh the witness' recollection.

WITNESS FARRAR: Yes, I have it.

BY MR. MELSON (Continuing):

Q Looking at that, would you agree that in general the 30%, plus or minus 5%, is a pretty good representation of the annual charge factors?

A Sure.

Q Okay. And if we look in your study for the network interface device, which is a nonconfidential study, that shows that factor actually got there as high as almost 42%; is that correct?

A For that particular element, yes, that's correct.

Q Now once you've developed the TELRIC cost for the element by taking the investment times this annual charge factor, how did you then develop a price for that element?

A A common factor was applied to the TELRIC cost to develop a price.

Q And what goes in to that common factor?

A Primarily the overhead accounts, the 6700 accounts in a general ledger. There's a few other miscellaneous ones in there but it's primarily the two 6700 accounts.

Q Would another way to say that be that it was costs that you could not, that really are common costs to the firm that you did not have a basis to allocate down to any specific element?

A Well, by definition, a common common cost is not attributable to any element.

Q And did you use common costs, as you've just defined that term -- Is that the only thing in this common cost factor is those firm-wide common costs?

A Yes.

Q And unlike your annual charge factor, that number didn't vary depending on the network elements you were looking at; that was the same across all elements, is that correct?

A That's correct. In the process of developing, you know, we did consider at one time attempting to do just that, but, again, the definition of a common cost is something which cannot be attributed. So devising any kind of methodology was really kind of an oxymoron.

Q And ultimately what was that common cost factor?

A 14.58%.

Q Okay. So in the little example we did for unbundled loops, if you had developed a hypothetical cost of $25, TELRIC cost of $25 a month for a loop, you would price that at roughly 28.65 a month or the 14.58% above the $25; is that correct?

A I'll trust your math, and, yes.

Q Okay. Now just as a matter of mathematics, if either of these factors was higher than it should have been, either the annual charge factor or the other direct operating expense factor or the common cost factor, the effect would be to overstate the final cost and final price; is that correct?

A Sure.

Q Let's go back to the first element of the annual charge factor. I want to look in a little more detail at the specific things that are included in that. I believe one item was cost of capital or return on investment; is that correct?

A Yes.

Q And I believe in your studies you used a 15.81% cost of equity; is that right?

A We used an 11.25 overall rate of return, and then backing that into the existing capital structure, the implied return equity was indeed 15.81%.

Q Do you know what cost of equity was authorized for either United or Centel in their last rate cases before this Commission?

A No, I do not.

Q Now another item that feeds into that annual charge factor is a maintenance factor; is that correct?

A Yes.

Q And was that -- Did you calculate that essentially by taking historic maintenance costs as a percentage of embedded investment?

A Well, yes, with the caveat that at the time they were done it was the most recent information available, the most recent calendar year.

Q Would you turn to page 120 of your Exhibit RGF-3, which is, again, Exhibit 21. And I'm looking about half way down the top of the page, it says "local switch and tandem switch" and then what appears to be a weighted average total for switching. That shows a maintenance factor over in column C of roughly 1.55%; do you see that?

A Yes.

Q And you also see on that same page, second line at the bottom of the page -- I'm sorry -- third line at the bottom of the page for aerial drop of maintenance factor 13.56%?

A Okay.

Q Now on page 122, where you develop the overall annual charge factor, there are different maintenance factors from what we just looked at on page 120; is that right?

A Yes.

Q And, in fact, for the two we looked at for switching and for -- I forgot what the other one I looked at was -- aerial drop, the numbers were carried forward into the factor actually used in your study were higher than what we looked at on page 120; is that right?

A Yes.

Q Now do you happen to have a copy of your response to Staff's Request No. 43 -- Production of Document Request No. 43 where they ask for work papers that support the calculation of your maintenance factors?

Could you compare the numbers on that work paper to the numbers on page, maintenance factors on page 122 and the maintenance factors on page 120 and tell me if that work paper in fact shows a third set of numbers for these various categories of plant?

A Yes. Let me point out that the numbers that appear on

page 122 were not used in any way to develop the annual charge factors. The purpose of page 120 is simply to summarize the common expense and other direct operating factor. And part of developing those two factors is we included all of the direct expenses in the derivation, in the program which calculated the other direct and the common expense factors to make sure, for one, that we weren't double counting any expenses and also to make sure that we weren't leaving anything on the table.

So, the purpose of this here is simply showing all the direct as well as the other direct as well as the common. The actual calculation of the annual charge factor, that was done on page 122. And the maintenance factors there were developed totally independent of what was being done on page 120.

The response in Interrogatory 43 -- I guess it's just 43; I don't see a letter attached with it -- this is incomplete. When this particular interrogatory was completed, the only thing that was sent was the justification for the account switching, the 3.339; you will see that here penciled in in the far right happened column to the right hand side of the page. So this interrogatory response is incomplete and it does not show the actual derivation of the rest of these figures. And that's something which I just became aware of this morning and there are people working on that as we speak to complete this interrogatory.

Q Let's stay with maintenance just a minute. Well, let

me ask this: That exhibit, that interrogatory answer that you did provide does show maintenance factors for other categories; they simply don't match the ones on either page 120 or 122; is that correct?

A Yeah. And a part of that is -- I'm not 100% sure what this is, but to the best of my knowledge this is for one company only and the numbers you see here are combined for the Centel and United and that's why the numbers will not match. But, again, this is an incomplete interrogatory response.

Q Let's stay with maintenance just a minute longer. The top of page -- Well, strike that.

In calculating the maintenance factor, I believe you testified earlier you took historical maintenance expenses for the most recent year divided by investment; is that correct?

A Yes.

Q And if I look on page 120, on the third line, where it says "loop total," is that the investment that you used to calculate ultimately the maintenance factor for loops?

A I really don't know, because, again, the information on page 120 was not used to develop the annual charge factors.

Q Do you have any document where you can tell me the dollars of investment in loop that was used as a basis for calculating the maintenance factor?

A That will be included when this interrogatory is properly answered.

Q Do you know -- Let me ask this: On the top of page 120, what do you understand the $1,759,000,000 figure to represent in the column labeled "Embedded Investment"?

A That would be total embedded investment for year end 1995.

Q In loop plant?

A Yes.

Q Now you didn't use embedded investment as the starting point in your development of a rate for unbundled loops; is that correct?

A That's correct.

Q And, in fact, what you used was a forward-looking loop investment figure that was produced by the BCM2 model?

A Yes.

Q Do you know whether that forward-looking estimate of loop investment is higher or lower than this embedded investment?

I think if you turn to page 5 of your cost study may be at least one source of that number.

A The TELRIC investment is 1.7 billion and total loop versus -- They're both right around 1.7 billion. The TELRIC is slightly less.

Q Slightly would be on the order of 64 million dollars lower?

A Out of a base of 1.76 billion dollars, yes.

Q All right. In calculating the maintenance expense factor, did you make any adjustment to your historical maintenance expense to reflect that your forward-looking loop investment was going to be different than your embedded loop investment?

A No. We made the assumption that the most recent experience of the telephone company is the best picture we have of what maintenance expenses will be in the near future given the lack of a crystal ball.

Q And when you say in the near future, does that mean you were attempting to -- Let me ask the question a different way.

In a long-run incremental cost study, should you be looking at what costs will be in the near future or should you be attempting to determine a forward-looking cost over the long term?

A Well, I guess the real answer to that question depends upon how long do you expect these rates to be in effect. And in a perfect world if I knew these rates were going to be in effect for five years, then I would try to base all my costs upon what the actual costs would be in the next five years.

Q Another item in your annual charge factor is depreciation and that is calculated based on the estimated or projected economic lives of various assets; is that correct?

A That's correct.

Q And the lives on which those depreciation rates used in your study were based were taken out of a study by Technology Futures, Inc.; is that correct?

A Technology Futures generally provided a range in many cases. And, generally, our projected lives fall within those ranges.

Q Do you know whether this depreciation study has ever been furnished by Sprint to the Commission for review prior to your document production on Thursday or Friday of last week?

A I don't know if Sprint ever provided it. It was a public document which has been widely distributed. I would be surprised if someone with the State, if the State Commission here, you know, hadn't seen it, but I have no idea.

Q Okay. Let's leave the first part of your annual charge factor and go to the second part, which is your other direct operating expense factor. And if I understand correctly, that's where you basically take operating expenses that would be shared at the service level and assign them down to individual elements in doing a cost study of unbundled elements; is that right?

A Basically, yes. I'm not sure about the word "assigning." These expenses are in fact direct at the element level.

Q And your starting point for doing that study is Sprint's historical costs for 1995?

A Yes. That was the most recent information available when we did the study.

Q And you didn't adjust those historical costs in any way to attempt to make them more forward looking; is that correct?

A They were adjusted to remove things like the retail marketing type costs, but, no, again, short of a crystal ball, we believe the most recent information is the best we can use.

Q And the methodology that you use to develop these factors on an element-by-element basis was basically to look at categories of shared costs and to spread them across the various unbundled network elements based on one principle or another; is that correct?

A Yes. We tried to identify a driver which made sense and had some relationship to the expense category. And we used that driver to drive these expenses to a specific network element.

Q Now except for some marketing expenses that you treated as avoided in an unbundled network environment, all of Sprint's historical costs in these shared categories for 1995 were spread to one of these unbundled elements or to sort of a bucket at the end called "excluded;" is that right?

A There were expenses excluded from the study and they are identified as, like you said, in an excluded study. So you kind of said "all" and then you said "excluded," so.

Q Okay. For a given account you started with your general ledger?

A Yes.

Q Expense number?

A Yes.

Q You determined whether any portion of that was a marketing expense that should be treated as avoided and not allocated to unbundled elements; is that correct?

A That's correct.

Q How did you then spread that remaining investment amongst the various unbundled network elements?

A Again, at the 7-digit detail or even at whatever level, sometimes you are able to identify a specific expense which was not associated with a network element and it was excluded from the study outright. Most of the expenses were assigned, were driven to one of the network elements, again, based upon the appropriate driver.

Q And some point some portion of those in some cases was driven to another category that you labeled "excluded"?

A Yes.

Q All right. Is it fair to think of the dollars in that excluded category as representing an assignment of costs to things that are not going to be offered on an unbundled basis, such as intraLATA toll or access or private line service?

A That, in addition there were -- There simply were many

accounts -- Or I shouldn't say that. There were some accounts which simply could be directly assigned to excluded because they simply had nothing to do with an unbundled element. Whether it was being, you know, offered or not, it simply was not associated with unbundled element by definition.

Q Just so I understand, can you give me an example of what one of those might be?

A Yeah. In fact, they're, again, this is in response to one of the interrogatories, but we submitted a four-page summary of this model. And on page 2 of that exhibit they're listed here. No. 1 is Account 6311, station apparatus expense. Station apparatus has nothing to do with unbundled elements, so it was automatically excluded.

Q Now on top of these shared costs that were spread across your unbundled elements, costs, common costs were spread across the categories and ultimately used to develop a common cost, the common cost factor we talked about earlier, the fourteen and a half percent that applied equally to each of those categories; is that correct?

A Again, following the, how the other direct expense were treated, the model goes through the mathematical exercise of assigning common costs and network element, but, again, it doesn't make any sense to really treat it in that manner and we simply come up with a single overall discount -- I'm sorry -- a single factor and apply it to all network elements.

Q Now when this whole exercise of allocating the shared and common expenses to various categories is finished, you've essentially taken all of the historical expense dollars in those accounts and either assigned or attributed them to unbundled elements or, by excluding them on the front end, you in essence have attributed them to retail services or you've put them in this back-end category of excluded because they don't have anything to do with unbundled elements?

A That's correct.

Q And while the methodology is different, isn't the effect of that what we used to call a fully distributed cost study where you take every dollar of expense and assign it to one service or another?

A Well, no; a fully distributed cost study applies all of your expenses to the services that you're going to be providing service to. In this case, specifically for common costs, we have excluded seventeen, over seventeen and a half percent of expenses and those expenses are not going to be picked up as part of our unbundled elements. So, it is not a fully distributed cost. Fully distributed costs would be recovering all of that expenses from your unbundled elements.

Q But you will offer services in addition to unbundled elements? Sprint will continue to offer retail services? You'll continue to offer access services? You'll continue to offer toll services?

A Well, again, I think you're mixing apples and oranges. When you're talking about services -- You can't talk about services and elements because the services are provided through the elements. So you're really mixing apples and oranges when you try to make that analysis.

Q Are there any elements that are used to provide private line service, for example, that are not included in your ten categories of unbundled network elements?

A No.

Q What is station apparatus used to provide?

A That is an equipment type expense which has nothing to do with any of the unbundled elements.

Q But it has something to do with something. You incur station apparatus expense for a reason. Why do you incur it?

A The provision of station apparatus, but that is not an unbundled element. It is not associated with the provision of the unbundled elements.

Q Okay. And I guess what I'm asking is at the end of this exercise you have allocated, have you not, to unbundled elements everything that you -- You've allocated -- Strike that. Let me start over again.

At the end of this exercise you've taken every historical dollar of expense and assigned it either to an unbundled element or you've said it goes with something else we do that's not an unbundled element?

A Physical investments, not services.

Q But you incur physical investments only to enable you to provide services?

A Or unbundled elements.

Q Okay. Let's talk for a minute -- And I'm getting close to finished. So I don't think I'm going to take quite as long as I feared I might.

Let's talk a minute about the individual cost studies. Let me start with the unbundled loop study. If I understand correctly, the loop investment that went into this study was an output of the BCM2; is that right?

A Yes.

Q And the BCM2 runs that produced those estimates used annual cost factors that you had developed for loop and loop electronics; is that right?

A Yes.

Q And the only -- Is the only output of BCM2 that you used in any of your studies the loop investment number?

A Yes.

Q The switching cost study, that cost study was conducted using a couple of models called SCIS, S-C-I-S, and SWIM; is that correct?

A Yes.

Q And SCIS is a proprietary Bellcore model?

A That's correct.

Q And Bellcore doesn't let people see typically the complete list of inputs or outputs from that model or the complete model documentation; is that correct?

A Well, I know they typically do if there are the appropriate legal safeguards in place, but it's certainly not a public document.

Q And, in fact, those are not inputs or outputs that have been -- The complete model documentation, the complete model inputs and outputs, have not been provided in this proceeding to Staff or to the other parties; is that correct?

A That's correct.

Q And SWIM is simply a spreadsheet model developed by Sprint; is that right?

A That's correct.

Q Now BCM2 has got the capability to produce switching costs; is that right?

A From a very high level, yes, it does.

Q Okay. But you didn't use those in your study at all?

A That's correct. The SCIS model is much more detailed and much more accurate for purposes of this proceeding.

Q Okay. The SCIS model, you -- What types of switches does Sprint have in its Florida network?

A The DMS is the most prevalent. There's also five ESS offices and there are some 1210 offices as well.

Q Okay. And I believe you ran the SCIS model only for

the DMS switches; is that correct?

A That's correct.

Q And, in fact, you didn't run it for all of them?

A I'm sorry.

Q You did not run it even for all of your DMS offices; is that correct?

A There were a few that we did not model; that's correct.

Q And this traffic data that fed into that study was of various vintages going back to the early 1990's; is that correct?

A I'm not sure I understand your question, sir.

Q Okay. To input to SCIS you have to have some switch specific information; is that correct?

A That's correct.

Q What vintage was the data that you input into SCIS? Did it vary from switch to switch?

A It varies from switch to switch. You know, we have asked the companies to -- You know, we did ask the companies to update their studies and specifically for this purpose, but I can't tell you what the vintage was of each SCIS study here.

Q Now the final cost study I'm going to ask you about is your study for STP signaling links. You did not perform a TELRIC cost study for that element; is that correct?

A I'm sorry, which service was that?

Q I'm sorry. STP signaling links.

A Oh, okay. Yeah, that's correct.

Q And you propose at this point to use current interstate tariff rates for that element; is that correct?

A That's correct.

Q And I believe you state on page 33 of your direct testimony that those rates were recently developed and approximate TELRIC costs?

A Yes.

Q Isn't it true that the cost study that supported those rates calculated both a direct cost, which was used to set a minimum price, and then a fully distributed cost, which was used to set a maximum price?

A I really don't recall.

MR. MELSON: Bear with me just a minute.

BY MR. MELSON (Continuing):

Q Your counsel has been kind enough to show you a copy of Sprint's Response to Document Production Request No. 2. Again, it's a confidential document. If you could look, and it's Bate stamp page numbers 44 through 106. If you could look at that document and refresh your recollection of whether the cost study determined a minimum cost or, excuse me, direct costs that established the minimum price and a fully distributed cost to serve as a maximum price.

A That's correct.

Q And, in fact, the rates were set very close to that fully distributed cost maximum price; is that correct?

A I'll accept that.

MR. MELSON: All right. That's all I've got, Mr. Farrar. Thank you.

CHAIRMAN CLARK: You are done, Mr. Melson?

MR. MELSON: Yes, ma'am.

CHAIRMAN CLARK: Mr. Farrar, can you hang on and we'll give Staff an opportunity to cross examine you and then we can take a break and you can go?

WITNESS FARRAR: That's fine.

CHAIRMAN CLARK: Okay.

MS. BROWN: Chairman Clark, we'll need just one minute for Mr. Keating to get back; sorry.

CHAIRMAN CLARK: Mr. Keating, are you ready to cross examine Mr. Farrar?

MR. KEATING: I am now prepared.

CHAIRMAN CLARK: Good.

CROSS EXAMINATION

BY MR. KEATING:

Q Good afternoon, Mr. Farrar. My name is Cochran Keating. I'm representing the Florida Public Service Commission staff.

A Good afternoon.

Q Mr. Farrar, in your discussion with Mr. Melson, you

indicated that you were gathering some additional information. Could you clarify for me what information that was?

A I believe the question you're referring to is Interrogatory No. 43.

MR. WAHLEN: It's Request for Production of Document No. 43.

WITNESS FARRAR: Okay.

MR. KEATING: Thank you.

BY MR. KEATING (Continuing):

Q Could you file that information as a late-filed exhibit in this hearing?

A Whatever.

MR. FONS: Yes.

CHAIRMAN CLARK: That's probably a good idea to label it as Late-Filed Exhibit 23 and it is a completion?

MR. WAHLEN: Supplement.

CHAIRMAN CLARK: Supplement to Request for Production of Documents 43.

MR. KEATING: Thank you.

(Late-Filed Exhibit 23 marked for identification.)

BY MR. KEATING (Continuing):

Q Mr. Farrar, based on the avoided cost information that Sprint provided in this docket, can a separate discount for residential and business be determined?

A Yes.

Q Mr. Farrar, could you please turn to page 65 of your Direct Testimony and take a look at line 16 to 21. In your testimony you have stated that the appropriate avoided expense percent will be applied to each of Sprint's retail rates to determine the service-specific wholesale rate quoted in dollars. I believe that you explained that concept in your deposition, but would you clarify why you're proposing to translate percentage discount into a dollar amount of discount and then to fix that dollar amount?

A Yes. It's really two reasons. First, as you look at, as rates vary very much across the country and we developed a methodology here which will be applied in 19 different states, whereas companies like MCI typically come in, say, okay, it should be a flat percent, 20, 25% everywhere; we have states like New Jersey and Nevada which have very low residential rates, 6, $7. We have states like Virginia and Ohio have very high residential rates, $17. And it makes absolutely no sense to have a 20 to 25% discount of residential service in a place at a $6 rate and the same 25% discount in a place that has a $17 rate. That simply doesn't make any sense.

Well, we have noticed in our studies, as we do them across different states across the country, is the answer is always the same. It's always, you know, to throw a number out, it's about two bucks per line for residential service. It's two bucks in Nevada; it's two bucks in Ohio. And you think

about it, that makes sense. The avoided cost has nothing to do with the retail rate. You are going to avoid some costs associated with reselling the service, but it has nothing to do with the rate. It doesn't magically increase because the Commission has set a higher rate. So, the discount is really not a function of the rate. It's a function of the service.

Secondly, we don't want to be put into a situation where every time you change a retail rate you have to go and do an avoided cost study again. Under competitive conditions rates are going to rise, rates are going to go down. And when that happens, what you'll actually see is, again, the avoided cost is $2. If the rate goes up, if the rate goes down, the avoided cost is still $2. We can go through the exercise of doing a new avoided cost study every year and you'll come up, instead of being, you know, 10%, it will be 12%, but I bet you anything the answer still is going to be two bucks.

So, you know, that is simply the most, the easiest way to administer it. You don't have to keep doing cost studies every year. You don't have to keep refiling wholesale tariffs every year. It's the easiest way to administer it and intellectually it just makes the most sense.

Q Okay. Thank you. Could you please turn to your Exhibit RGF-3, on page 73 of 122, and that's in your Supplemental Testimony.

A Page 73?

Q Yes. Looking at the bottom of that page, there's an item titled "Average Tandem/MOU rate." Is this average tandem/MOU rate the actual cost of tandem switching for MOU?

A Yes. This would be the actual TELRIC for tandem switching.

Q Just beneath that line there's an item titled "Common Additive." How was the -- Let's see. The figure there is 1.145832. Could you tell me how that figure was determined?

A That is the -- That is our generic common cost factor which we are applying to all unbundled network elements and it is derived back on page -- the summary is shown on page 120 of RGF-3.

Q Okay. Mr. Farrar, do you have Staff's Exhibit RGF-4, which consists of Sprint/Centel/United's Response to Staff's First Set of Interrogatories?

A No, I do not.

Yes, I do.

Q Have you had a chance to review that exhibit?

A Yes.

Q If you would like to take a minute right now, you may.

A I'm familiar with most of the responses.

Did you refer me to a specific one?

Q Excuse me?

A Did you refer me to a specific response?

MR. KEATING: Yes. I would like that exhibit marked

for identification.

CHAIRMAN CLARK: Mr. Farrar, he's only attempting to determine that you've reviewed these interrogatories and they're true and correct to the best of your knowledge.

WITNESS FARRAR: Yes.

MR. KEATING: Thank you, Chairman Clark.

CHAIRMAN CLARK: All right. We will label that as Exhibit 24, and that is RGF-4.

(Exhibit 24 marked for identification.)

BY MR. KEATING (Continuing):

Q Referring to page 37 of that exhibit, you indicate that Centel offices have not been included in the tandem study because these offices have not been modeled to date?

A Yes.

Q Okay. Could you please explain why you believe it is appropriate to set rates for tandem switching for Centel based on costs determined for tandem switching in United's territory?

A Well, the Centel and United offices, the two companies are being merged and we will have a single set of tariffs throughout the state. But what we've done in states which we do not have a -- I'm sorry. In exchanges which we do not have a SCIS model run, we have used as a surrogate another DMS office which we have modeled within the state of Florida which has the same physical characteristics. And one thing we have found is that the cost of switching, the investment per switch

really does not change very much from office to office if you have the same physical characteristics. Let's say a 40,000 line office in Tallahassee costs the same as a 40,000 line office in Orlando as it does in Las Vegas, Nevada. The costs are -- The investment per office, given similar type office, is always going to be about the same.

Q Okay. I would like to turn back to your Direct Testimony, Exhibit RGF-2, page 4.

A I'm sorry, RGF-2, page 4?

Q Yes.

A Okay.

Q Okay. On that page, no amounts associated with accounts No. 6711 through 6728 or Account 5301 are shown as being wholesale avoided expenses. Am I correct that it is your view that these expenses are common costs that cannot be attributable to any particular service or services?

A That's correct. And also moving from -- And because of that, moving from a retail environment from a wholesale environment will not change the effect of those overhead costs.

Q Where would I find in your exhibit Sprint Florida's 1995 amounts for the accounts that I just mentioned, 6711 through 6728 and 5301?

A You probably can't see in hard copy here. In the actual copy of the model which was provided, all those general ledger accounts are included in a worksheet titled "Avoided

Expenses." And there is a listing of every -- The very first couple of columns on that worksheet are the general ledger amount for every account at the 7-digit detail

MR. KEATING: I believe that Staff has no more questions for the witness. We would like Exhibits RGF-5, RGF-9 and RGF-10 marked for identification.

CHAIRMAN CLARK: Okay. We'll go ahead and label RGF-5 as Exhibit 25, Confidential Exhibit RGF-9 as Exhibit 26, and Confidential Exhibit RGF-10 as Exhibit 27.

(Exhibits 25, 26 and 27 marked for identification.)

MR. KEATING: I should note that on RGF-9, I believe that -- Did you have that -- I think Sprint had had that previously identified, marked for identification, or parts of our exhibit.

MR. FONS: That would be -- That was Exhibit 22, the portions of --

CHAIRMAN CLARK: Well, let me ask a question: Does RGF-10 contain information beyond what is in Exhibit 22?

MR. FONS: It does, and we're not going to move Exhibit 22 if this other exhibit is admitted into evidence.

CHAIRMAN CLARK: Okay. I think we should do the more extensive exhibit.

MR. FONS: Exactly.

CHAIRMAN CLARK: All right. And, Mr. Farrar, to the best of your knowledge, the information contained in those

exhibits are true and correct?

WITNESS FARRAR: Yes.

MR. WAHLEN: Just as a matter of clarification, our Response to the Request for Production of Documents that's included in RGF-10 does not include the computer disks that we submitted at that time.

CHAIRMAN CLARK: Is that Staff's understanding that the disks are not included in that confidential exhibit?

MR. KEATING: Yes, that is our understanding.

CHAIRMAN CLARK: Okay.

MR. KEATING: I wanted to back up for a second and make sure that we had RGF-4 marked for identification.

CHAIRMAN CLARK: I marked it as Exhibit 24 and if I didn't tell you, I'm sorry.

MR. KEATING: Okay. Thank you.

CHAIRMAN CLARK: All right. Is there redirect of Mr. Farrar?

MR. FONS: Just one question.

REDIRECT EXAMINATION

BY MR. FONS:

Q Mr. Farrar, early in Mr. Melson's cross examination he referred you to page 122 of 122 pages in Exhibit RGF-3, which is Exhibit 21, and he asked you what is the cost of capital. And I believe you stated it was 11.25%?

A That's correct.

Q Is that the FCC authorized interstate rate of return?

A Yes.

MR. FONS: I have no further questions.

CHAIRMAN CLARK: All right. Exhibits.

MR. KEATING: Staff moves RGF-4, RGF-5, RGF-9 and RGF-10.

CHAIRMAN CLARK: I'm sorry, I didn't hear you. What exhibits are you moving?

MR. KEATING: RGF-4, which I believe is marked as 24.

CHAIRMAN CLARK: All right. That will be entered in the record without objection. RGF-5 is Exhibit 25; that will be entered in the record without objection. RGF-9 is Exhibit 26 and that will be entered in the record without objection. RGF-10 is Exhibit 27 and that will be entered in the record without objection.

Mr. Fons.

MR. FONS: And we will move Exhibits 20 and 21.

CHAIRMAN CLARK: They will be entered in the record without objection. And it's my understanding that Exhibit 22 will not be entered in the record.

MR. FONS: Right.

MR. MELSON: And, Commissioner Clark, just to clarify, Exhibit 21, there were a number of replacement pages. I assume the exhibit as admitted, the old pages are gone and the new pages are substituted in?

CHAIRMAN CLARK: That's correct. It will be -- The substituted pages will be part of the record.

MR. MELSON: Thank you.

(Exhibits 20, 21, 24, 25, 26 and 27 admitted into evidence.)

CHAIRMAN CLARK: All right. We'll take a break until quarter of 5:00 and we will begin with Mr. Dunbar.

(Brief recess.)

CHAIRMAN CLARK: Shall we call the hearing back to order.

Mr. Dunbar.

WITNESS DUNBAR: Yes, ma'am.

JAMES D. DUNBAR, JR.

was called as a witness on behalf of United Telephone Company of Florida and Central Telephone Company of Florida, having been duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. FONS:

Q Would you state for the record your full name and your business and occupation, Mr. Dunbar.

A James D. Dunbar, Jr.. I'm employed by Sprint/United Management Company as a manager of pricing and regulatory.

COMMISSIONER KIESLING: Mr. Dunbar, could you put your mike in front of your mouth instead of off to the side; thank you.

WITNESS DUNBAR: Yes, ma'am.

BY MR. FONS (Continuing):

Q Mr. Dunbar, on November the 5th of 1996 did you have cause to be filed in this proceeding Direct Testimony consisting of 11 pages of questions and answers?

A Yes, I did.

Q Do you have any corrections or changes to that testimony?

A I do not.

Q If I were to ask you the same questions today that were posed to you in your Prefiled Direct Testimony, would your answers be the same today?

A Yes, they would.

MR. FONS: Madam Chairman, I would ask that Mr. Dunbar's Direct Testimony be inserted in the record as though read.

CHAIRMAN CLARK: It will be inserted in the record as though read.

BY MR. FONS (Continuing):

Q And, Mr. Dunbar, on November the 5th -- that can't possibly be the right date -- but did you also have cause to be filed in this proceeding Supplemental Direct Testimony consisting of two pages of questions and answers?

A Yes, I did.

Q Are there any changes or corrections to your

Supplemental Direct Testimony?

A No, there are not.

Q And if I were to ask you the same questions today as were posed to you in your Supplemental Direct Testimony, would your answers be the same today?

A Yes, they would.

MR. FONS: Madam Chairman, I would ask that Mr. Dunbar's Supplemental Direct Testimony be inserted in the record as though read.

CHAIRMAN CLARK: It will be inserted in the record as though read.

BY MR. FONS (Continuing):

Q And, Mr. Dunbar, did you cause to be filed in this proceeding on November 22, 1996 Rebuttal Testimony consisting of 13 pages of questions and answers?

A Yes, I did.

Q Are there any corrections or changes to your rebuttal testimony?

A No, there are not.

Q If I were to ask you the same questions today as were posed to you in your Rebuttal Testimony, would your answers be the same today?

A Yes, they would.

MR. FONS: Madam Chairman, I would ask that Mr. Dunbar's Rebuttal Testimony be inserted in the record as

though read.

CHAIRMAN CLARK: It will be inserted in the record as though read.

BY MR. FONS (Continuing):

Q And, Mr. Dunbar, in association with your Direct Testimony, did you have an exhibit which is described as JDD-1, which is the Benchmark Cost Model attached to your Direct Testimony?

A Yes, I did.

MR. FONS: Madam Chairman, I would ask that JDD-1 be marked as an exhibit.

CHAIRMAN CLARK: I have the next exhibit number as Exhibit 28.

(Exhibit 28 marked for identification.)

BY MR. FONS (Continuing):

Q Mr. Dunbar, are there any corrections or changes to this exhibit?

A No, there are not.

Q Was this exhibit prepared by you or under your direction and supervision?

A Yes, it was.

Q And, Mr. Dunbar, did you have attached to your Supplemental Direct Testimony Exhibit JDD-2?

A Yes.

Q And that consists of 42 pages?

A That's correct.

MR. FONS: Madam Chairman, I would ask that that be marked as Exhibit 29.

CHAIRMAN CLARK: It will be marked as Exhibit 29.

(Exhibit 29 marked for identification.)

BY MR. FONS (Continuing):

Q Do you have any changes or corrections to Exhibit 29?

A No, there are not.

Q And was this exhibit prepared by you or under your direction and supervision?

A Yes, it was.

Q And attached to your Rebuttal Testimony, was there an Exhibit JDD-3?

A Yes, there was.

Q And that consists of one page?

A Yes.

MR. FONS: Madam Chairman, I would ask that JDD-3 be marked as Exhibit No. 30.

CHAIRMAN CLARK: It will be marked as Exhibit 30.

(Exhibit 30 marked for identification.)

BY MR. FONS (Continuing):

Q And was this exhibit -- Do you have any changes or corrections to this Exhibit 30?

A No, I do not.

Q And was this Exhibit 30 prepared by you or under your

direction and supervision?

A Yes, it was.

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

DIRECT TESTIMONY

OF

JAMES D. DUNBAR, JR.

Q. Please state your name, place of employment, and business address.

A. My name is James D. Dunbar, Jr. I am employed by Sprint/United Management Company, an affiliate of United Telephone Company of Florida and Central Telephone Company of Florida, as a Manager - Pricing and Regulatory, at 2330 Shawnee Mission Parkway, Westwood, Kansas, 66205.

I. Background and Qualifications

Q. What is your educational background?

A. I received a Bachelor of Science in Engineering degree from Pennsylvania Military College (now Widener University), Chester, Pennsylvania with a split emphasis in Computer and Nuclear Engineering. In 1983, I received a Master of Business Administration degree from James Madison University, Harrisonburg, Virginia with an

emphasis in Business. I have also completed numerous industry engineering and related courses in General Engineering, Outside Plant Engineering, the Bell Technical Center Course in Long Range Technical Planning, Transmission Engineering, Traffic Engineering, and Transmission Noise Mitigation.

Q. What is your work experience?

A. From 1966 to 1970, I served as an Officer in the U.S. Army Signal Corps leading or commanding signal units on various communications assignments including command of a U.S. Strike Force International Communications Team. Responsibilities included the provision of FM, UHF, microwave radio, radio/wire integrated links, land line, switching, network control, and secure communications. Following active duty, I continued in a reserve status assigned primarily to the U.S. Army Air Defense School at Ft. Bliss, Texas as a senior communications instructor and course analyst.

From 1970 to 1973, I was employed by the Denver & Ephrata Telephone & Telegraph Company in Ephrata, Pennsylvania. My duties included Outside Plant Engineering, Traffic Engineering, COE Engineering, development of certain cost

studies, and some Circuit Equipment maintenance.

I have been employed by Sprint Corporation or one of its predecessor companies since 1973. From 1973 to 1985, I was located in Virginia. From 1973 to 1974, I was an Outside Plant Engineer with responsibility for many projects including a complete rework of the University of Virginia loop plant. I worked as a Transmission Engineer during 1974 and then was assigned to manage the state capital budget and outside plant planning group for the 1974 to 1976 period. This group was assigned responsibility for engineering all outside plant capital projects in excess of $25,000 and budgeting for all classes of plant. From 1976 to 1978, I was District Plant Manager for the 1800 square mile Southern Virginia District where I managed the Construction, Maintenance, and Installation forces.

From 1978 to 1984, I managed various Regulatory costing functions, including the state depreciation and cost separations group. From 1984 to 1985, I was General Manager - Interexchange Services where I managed the cost separations, rates and tariffs, depreciation, and the interexchange carrier billing/contract and interface functions. I was a member of the Virginia Telephone

Association Separations Committee.

From 1985 to 1993, I was General Staff Manager - Separations for the predecessor Centel Corporate Staff in Chicago, Illinois. My job functions included managing the cost separations staff, the revenues and earnings monitoring function, the programmer and modeling support for those functions, and cost issue analysis activities such as rate of return versus price caps and FCC/NARUC rule changes. I was the primary corporate interface with USTA and NARUC for technical issues. I served on the USTA Technical Operations Committee, the Price Caps Team (from 1987 to 1991), and the Policy Analysis Committee. I also taught a portion of the USTA Separations Classes.

From 1993 to the present, I have been assigned to the Sprint/United Management Company Local Telephone Division Staff in Westwood, Kansas. From 1993 to 1994, I was Manager - Separations with responsibility for the merger of the Centel and Sprint separations functions and various other costing and monitoring activities. Since 1994, I have been in my current position with responsibility for analysis and modeling of costing issues, such as LIDB and 800, broadband implementation, and the development of the Benchmark Costing Model (BCM)

sponsored by Sprint, MCI, NYNEX, and US West. I am a coauthor of Benchmark Cost Model 2 (BCM 2). In addition to the BCM activities, I have been a member of the Telecommunications Industries Analysis Project (TIAP) industry team currently sponsored by the University of Florida since its inception and am a member of the current TIAP Broadband Model development team.

II. Purpose of Testimony

Q. What is the purpose of your testimony today?

A. The purpose of my testimony is to explain the Benchmark Costing Model 2 (BCM 2). I explain the BCM 2, its assumptions, and how it develops investments and monthly cost for basic telephone service by Census Block Group (CBG). Additionally, I explain how BCM 2 determines costs of loops, from which prices can be developed.

It was my intention to address the Hatfield Model Version 2.2 mentioned in MCI's Petition and its witness Don J. Woods' Direct Testimony. However, MCI has not furnished either the Hatfield Model or its outputs in this proceeding. I will address the Hatfield Model in my rebuttal testimony, assuming that MCI will file the Model

and its outputs sufficiently in advance of the date Sprint's rebuttal testimony is due. If not, then I request the right to file rebuttal testimony after that date.

III. Benchmark Costing Model 2 (BCM 2)

Q. What is the origin of the BCM 2?

A. BCM 2 was developed as a joint effort by Sprint Corporation and US West to address critical comments filed with the FCC in CC docket 80-286 in response to the Joint Board's request for comments regarding universal service and specifically the original BCM. In this testimony, when I refer to Sprint, I am talking about United Telephone Company of Florida and Central Telephone Company of Florida. I will refer to these companies' parent company as Sprint Corporation. The BCM was developed by Sprint Corporation, NYNEX, MCI and US West (joint sponsors) in response to the FCC's expressed interest in considering a model which develops "proxy" costs for the provision of basic telephone service at the CBG level. BCM 2 was filed with the FCC on July 3, 1996, for consideration in CC Docket 96-45 (Federal-State Joint Board On Universal Service).

Q. What is the purpose of BCM 2?

A. The purpose of BCM 2 is to identify those CBGs in which the cost of providing basic telephone service is so high that some form of explicit high-cost support may be necessary as part of a universal service solution at both the federal and individual state levels, including Florida. It is also a comparative tool to test the reasonableness of other costing mechanisms.

Q. What are the results of BCM 2?

A. BCM 2 produces a benchmark cost range for a defined set of basic residential telephone services assuming efficient engineering and design criteria and the deployment of current state-of-the-art transmission and switching technology. It uses the current national local exchange network topology. BCM 2 provides a benchmark measurement of the relative costs of serving customers residing in given areas such as a CBG.

Q. What does BCM 2 not do?

A. BCM 2 does not define the actual cost for any telephone company, nor the embedded cost that a company might

experience in providing telephone service today. That is, it is a proxy for current engineering costs, developed from inputs such as loop distance, subscriber density, and the terrain characteristics that typically influence the investment and expenses of a carrier providing telephone facilities.

Q. Please define a Census Block Group (CBG).

A. A Census Block Group (CBG) is a geographic unit defined by the Bureau of the Census which ideally contains approximately 400 households. There are 9,087 CBGs in the State of Florida.

Q. Please define basic telephone service as it relates to the benchmark costs developed by BCM 2.

A. Basic telephone service is defined as voice grade access to the public switched network with the ability to place and receive calls, residential one party service, touch tone, a white page directory listing, and access to directory assistance, operator service, and emergency services, e.g., 911/E911.

Q. Please explain how monthly costs for basic telephone

service are developed within BCM 2.

A. All cost calculations are derived in terms of efficient and state-of-the-art investment. The technology used in the model must be forward looking and actually in use today. In order to determine a monthly cost for basic local service by CBG, the individual investments for the piece parts must be summed to include loop and structure investments, electronic circuit equipment investments and switching investments. In order to determine a monthly cost for basic local service by CBG, BCM 2 uses both investment related expense factors and line related expense factors. The investment related factors are developed separately for three plant categories: cable and wire facilities, switching equipment, and circuit equipment. A separate annual cost factor is developed for line-related expenses. These factors are applied to investment or access lines, as appropriate, and the result is divided by 12 to estimate a monthly cost of basic local service.

Q. What are the three major steps of the BCM 2 process?

A. 1. Build the data input file to be used in the model.

Since CBGs consist of about 400 households, there are many times more CBGs than central offices. Each CBG is associated with the nearest central office using the distance between the centroid or geographical center of the CBG and the central office (CO) location from the Bellcore Local Exchange Routing Guide (LERG). The CBG is also assigned to a North, East, South, West quadrant based on the polar angle of the CBG from the CO. To the CO and CBG census data are added the terrain data from the U.S. Department of Agriculture Soil Conservation Service. This is accomplished using commercially available mapping programs. This results in a CBG specific data input file to load into the BCM 2 model.

2. Determine the appropriate feeder and distribution plant for the relative location of the CBGs.

The BCM assigns all CBGs in a quadrant to a single shared feeder and selects the appropriate loop technology for each CBG. The model then sizes and prices the feeder and distribution cables.

The appropriate placement costs are then developed.

This step uses U.S. government data for terrain and density to develop estimates of loop placement costs within the CBG.

3. Develop the appropriate switching costs.

This step develops the switching costs associated with serving each CBG.

IV. Methodology of BCM 2

Q. Have you prepared an exhibit that describes the methodology used in BCM 2 to develop proxy costs for basic exchange service?

A. Yes. It is attached to my testimony as Exhibit No. JDD-1.

Q. Does this conclude your testimony?

A. Yes.

UNITED TELEPHONE COMPANY
OF FLORIDA
CENTRAL TELEPHONE COMPANY
OF FLORIDA
DOCKET NO. 961230-TP
FILED: November 5, 1996

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

SUPPLEMENTAL DIRECT TESTIMONY

OF

JAMES D. DUNBAR, JR.

Q. Please state your name, place of employment, and business address.

A. My name is James D. Dunbar, Jr. I am employed by Sprint/United Management Company, an affiliate of United Telephone Company of Florida and Central Telephone Company of Florida, as a Manager - Pricing and Regulatory, at 2330 Shawnee Mission Parkway, Westwood, Kansas, 66205.

Q. Did you file Direct Testimony in this proceeding on November 5, 1996?

A. Yes, I did.

Q. What is the purpose of your supplemental direct testimony?

A. To present BCM 2 costs for Sprint's operations in Florida.

Q. Have you produced BCM 2 costs for Sprint's operations in Florida?

A. Yes.

Q. Have you developed the deaveraged loop investments by census block group ("CBG")?

A. Yes. The deaveraged investments by CBG are provided as Exhibit No. JDD-2.

Q. Does this conclude your supplemental direct testimony.

A. Yes, it does.

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UNITED TELEPHONE COMPANY
OF FLORIDA
CENTRAL TELEPHONE COMPANY
OF FLORIDA
DOCKET NO. 961230-TP
FILED: November 22, 1996

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

REBUTTAL TESTIMONY

OF

JAMES D. DUNBAR, JR.

Q. Please state your name, address and present employment.

A. My name is James D. Dunbar, Jr. My business address is 4220 Shawnee Mission Parkway, Fairway, Kansas 66205. I am employed as Manager - Pricing and Regulatory with Sprint/United Management Company.

Q. Are you the same James D. Dunbar, Jr. who filed Direct and Supplement Direct Testimony in this proceeding?

A. Yes.

Q. What is the purpose of your rebuttal testimony?

A. I will point out a number of serious flaws in the Hatfield Model Version 2.2 Release 2 (HM2). In addition, I will show that the cost input values used in the model, which are purported to represent Sprint's Florida costs, make the results totally unusable for unbundled pricing in Sprint's Florida operating areas. I will also show

that using Florida-specific data the BCM 2 produces results which are only slightly different from what was previously filed by Sprint in this proceeding.

Q. Have you reviewed the HM2 and reached any conclusions on the effectiveness of the model?

A. Yes, I have reviewed the Direct and Supplemental Testimony of Don J. Wood on behalf of MCI and the exhibits which he represents are the HM2 and inputs. Although Sprint has requested the actual CD-ROM which contains the HM2, MCI has not furnished that information. Until I have had an opportunity to review the CD-ROM, this rebuttal testimony is preliminary, and I may need to supplement it. Nevertheless, in my review of what has been furnished to date, I have found a number of serious shortcomings in the network design and costs produced by HM2.

Q. Please state your findings.

A. There are a number of serious flaws that make HM2 unusable for pricing unbundled elements. First, the outside plant cost assumptions are inconsistent with loop plant design and the costs are understated. With the

wide variation in loop length, the single cable cost curve used in the HM2 is not consistent with the long loop design attempted by the model.

Second, the larger feeder and distribution cables used in the underground portion of the loops must be 26 gauge to fit in the single 4" duct placed by the model. To be most economical, the shortest loops should be comprised of 24 or 26 gauge copper. In turn, the longest loops used by the model must be 22 or 19 gauge. Each gauge change requires a different set of cable costs with 19 gauge being much more expensive per foot than the smaller gauges. Typical cost differences for 26 gauge versus 19 gauge cable are 40 to 50 percent.

Third, long loops also require the addition of load coils and line amplifiers to maintain any quality of signal and even simple dial tone. Loops over 18,000 must be loaded. Loading, however, prohibits the use of digital carrier or higher speed modems. Forward looking technology does not use long loop design but extends fiber and carrier systems well out along the loop. In forward looking design, the cooper beyond the carrier or serving area interface is provided with the more economical smaller gauge cables that are held within the 18,000 feet or

shorter (15,000 feet for 26 gauge) loop lengths that do not need the additional costs of loading, amplification or heavier gauges. The shorter lengths are not only less costly but ensure quality of signal transmission for the higher modem speeds such as the 28.8KB that is so common today for home and business computer access to bulletin boards and Internet services. Long loaded loops are not capable of modem speeds at quality beyond 9600 baud.

Fourth, the loop material costs used in the HM2 are far less than reasonable to cover the cost of cable, electronics, and loop treatment. The loop plant will not provide quality service, or in many cases, any level of dial tone to a customer at the end of the loop. A proxy model must have reasonable levels of cost that match the engineering assumptions used in that model. The HM2 does not achieve that match at all.

Q. You have discussed the cable and wire variances. Please describe your switch cost analysis.

A. Switching investment produced by the HM2 are understated by more than $125 to $130 per line across all size switches. Exhibit No. JDD-3 shows the switch investment curve produced by all of the switch complexes within

Florida. Current switch investments assume 59% of the processor is used for basic service. In addition, software costs for Centrex, custom calling features, ISDN, and CLASS features have been excluded from the switch investments. Further, all current software and hardware discounts are reflected. Switch engineering is held to 3.2%. In spite of these exclusions, the $125 to $130 per line increase over HM2 still is present.

Q. What are your findings with the digital carrier modeling?

A. The HM2 does not correctly calculate the number of fibers required to carry the Digital Loop Carrier to its correct maximum capacity. Neither does it correctly configure the carrier terminal equipment. It omits many of the costs necessary to make the terminals functional.

The smaller AFC carrier system used in HM2 is capable of multiple terminal locations on 4 fibers up to a total of 672 lines. The AFC carrier system will not go to 2016 lines as the HM2 calculates. This results in a significant understatement of the number of fibers used in the feeder and distribution plant. The HM2 also omits the costs for the AFC Local Exchange Terminal (LET) which includes the DS-1 and fiber optic transreceivers that

convert the TR 303 central office DS-1 connections to the proprietary optics used by the systems. The HM2 further omits the cost of the fiber optic termination frame required for the termination and distribution to the multiple carrier terminals of all the fiber cables.

Q. What have you found with regard to the distribution facilities?

A. The total length of distribution cable placed by the HM2 is insufficient to reach all subscribers. The HM2 assumes a square distribution area in its calculations and serves the area with a number of cables that are 5/8ths of the length of the side of the square (3/4ths if rock is present within 1 foot of the surface or soil is difficult). The HM2 uses two distribution cables for rural exchanges whose density is less than 5 subscribers per square mile. In the HM2 calculations, this results in very large areas being served by two cables that only go 5/8ths of a side. It is not possible for two cables that are 5/8ths of a side to cover in one case 78 square miles (cables are a little over 29,000 feet) or in another example 96 square miles (cables are 32,300 feet). In census block groups such as this, a substantial amount of cable, structure, and placement costs are omitted from

the price-out.

Q. Are there other areas of concern where significant costs are omitted?

A. Yes, there are. First, the HM2 incorrectly calculates the cost of all supporting structures such as poles and conduit systems. Excluding placement costs, the HM2 uses a material cost of $1.00 per foot for all conduit distances. This, according to Mr. Wood, represents the cost of a single conduit. The HM2 places the appropriate number of maximum size feeder cables and one overflow feeder cable for feeder routes with large numbers of copper pairs. It also calculates the number of fiber cables along with the same route. However, the HM2 provides only <u>one</u> 4" duct for all of the cables in the route even though each maximum-sized cable used in the route totally fills a 4" duct.

Additionally, the HM2 in its sharing ratio (33%) assumes that power and TV cable will simultaneously place facilities in the same trench used by the telephone duct. Underground runs are not shared with power facilities for safety reasons. Furthermore, sharing of the duct trench is not possible. Accordingly, the placement costs for

the conduit which are then allocated 67% to non-telephone services are less than that necessary to place the telephone facilities.

Further, the HM2 divides the total aerial facility distance by the distance between poles input. This fails to recognize the first pole in the aerial plant that is used to bring the cable above ground. Aerial distances less than the distances between poles are priced with one pole. No aerial facility will function with just one pole. In fact, HM2 understates all pole lines by the cost of at least 1 pole for each aerial segment.

Next, the HM2 reduces the impacts of terrain on the cost of cable placement from that which was in BCM version 1. All impacts from the presence of water near the surface were removed from the HM2 calculations. While rock presence is recognized by the HM2 if it is hard, this impacts costs only if the bedrock depth is within one foot of the surface. Although cables continue to be placed at depths at or beyond 24", no cost penalty is recognized in the HM2 for rock that is present between one foot down and the placement depth. Also, no penalty is recognized for any amount of soft rock, at any depth. The HM2 assumes that all impacts of terrain will simply

result in longer cable distances because the telephone company can avoid the terrain difficulty by going around it. While this occasionally happens in open rural areas, cable placement in most areas must follow the roads, rights-of-way, and easements assigned for utilities. This attempt by the HM2 to reduce the impact of terrain totally understate the real cost of placing facilities.

Q. Can these serious flaws be corrected with simple input changes?

A. No. These flaws are inherent parts of the model logic and cannot be changed by the user. These result in the HM2 being totally unusable without major internal revisions.

Q. Because the BCM 2 is also a computer model, doesn't it also suffer from the same defects as you indicate exist with the HM2?

A. No. And let me tell you why. BCM 2 in response to suggestions filed by parties in various federal and state proceedings has been revised in the following manner:

1. Adjustments were made to the distribution area to prohibit the placement of cable in unoccupied areas

that is based on individual census block group (CBG) geographic data. (BCM 2 uses roads specific to each CBG to make this adjustment.)

2. There has been a complete engineering redesign of the plant facilities within each CBG. The design incorporates the extension of feeder to an appropriate number of serving area interfaces, the placement of plant to coincide with the rear lot lines, the recognition of unique distribution facilities in urban and suburban areas, and the proper sizing, number, and lengths of all fibers and cables. In high-capacity CBGs such as found in urban or suburban areas, the BCM 2 model provides for a capacity-driven, low-cost fiber alternative. It also recognizes that in these densities, there is a high propensity for cable/conduit congestion, and recognizes the economies of fiber replacing copper in lieu of additional conduit relief. None of these changes are reflected in the HM.

3. At the specific request of the Joint Board, the slope of the terrain in a CBG was added to BCM 2 as an additional variable that impacts placement cost. The Joint Board Staff also requested that logic be added for an additional, yet-to-be-determined, generic terrain variable.

4. Smaller cable sizes for copper feeder and distribution cables are now incorporated in response to small companies stating that the original BCM used too large a minimum size.
5. The model tables the fixed and variable cost nature of digital line carrier with all standard size cabinets for AFC and SLC 2000 equipment included. BCM 2 uses the minimum size available cabinet required to serve the actual demand shown for each terminal location within the CBG.

Q. Have you attempted to run the HM2 with Florida-specific inputs?

A. Yes, without success. Because full runs were not possible, I reserve the right to file additional comments following receipt and analysis of the full set of data files and inputs.

Q. Could you describe the results?

A. Mr. Wood did not provide the full set of Sprint Florida-specific data inputs used to run the model such as the tandem and STP distances. Sprint has requested the fully populated model with all data files and inputs used in

the Florida runs but has not yet received it. No final results could be pulled from HM2 without receiving the full set of input data or all distance calculations for tandem, STP, and switch locations being completely duplicated.

Q. Does the BCM 2 have the same limitations?

A. No.

Q. Have you also used these same Florida-specific inputs with the BCM 2?

A. Yes. I have. The average monthly cost per line with the Florida-specific data changed as follows:

- The run with national defaults produced an average monthly cost per line of $24.77.
- The run with the Florida-specific data produced an average cost of $24.86.

The results between the BCM 2 Florida default and Florida-specific cost runs showed very little change.

Q. Please summarize your testimony.

A. The Hatfield Model in its present state (the HM2) is not

workable or meaningful. It incorrectly designs a network that will not in many of the locations provide a working dial tone for the subscriber. It does not place sufficient plant to serve the customer. It totally understates the cost of providing service by omitting units, incorrectly allocating cost units, or understating unit costs.

The HM2 is not reliable, does not produce enough network units to cost a workable network, and totally understates the cost of the loop. It requires major revisions before any loop costs can be accepted as close to reasonable.

The HM2 has continued the use of many of the flaws that were recognized in BCM version 1 and fixed in BCM 2, as well as introducing many new design errors that were not in BCM 1. The HM2 should not be used for any level of costing in this proceeding.

Q. Does this conclude your rebuttal testimony?

A. Yes, it does.

BY MR. FONS (Continuing):

Q Mr. Dunbar, would you please summarize your testimony?

A Madam Chairman and Commissioners, there has been a lot of discussion today about how much cost and what levels of cost are right and whether there is enough cost in the model.

On behalf of Sprint I will represent that there is cost that has been omitted in certain portions of the Hatfield Model that are included correctly in the numbers that Sprint has provided; that the facility that is out there when we talk about enough costs must meet current service standards. They must be able to provide dial tone to a customer at the service levels that are expected within this state.

I believe the BCM2 used here by Sprint reasonably identifies the investment numbers that are appropriate for it and recognizes the correct cost elements. There are a number of elements that are used by any person in terms of developing investment, certainly relative to the loop, to which three key areas apply. One is the effect of terrain on costs. The second is the effect of distance on costs. The third is the effect of density. Each of those has major impacts on the cost of providing the loop facility.

The enhancements that are certainly included in BCM2, that were not included in BCM1, nor in that version of BCM that was used within the Hatfield Model, include a significant number of changes to make sure that the network that is

provided out there in terms of unit costs meets all the standards that are required for providing the proper customer service loop at normal standards that would be expected for that loop, such as your dial tone level and your law, standards, and all that are with that.

I would suggest that contrary to what Mr. Wood said earlier, that there are a number of elements that are missing, certainly from the Hatfield Model that are present in the Benchmark Cost Model. There are a number of things when you talk about how much cost is correct or whether cost is enough that must be present in terms of elements. If elements are missing, cost is missing. And I would suggest that certainly within the Hatfield Model there are a whole series of elements that are missing.

There was some discussion and question on conduit. The Hatfield Model produces or places one conduit wherever underground is placed and no more. Yet, for example, here in Tallahassee, going south out of the office, the Hatfield Model places 7 cables. You cannot put 7 cables, 5 of which are large size 4200-pair cables, in a 4-inch duct. It just isn't possible. There is not enough cost there for the telephone facilities, let alone the facilities that would be used or could be shared by someone else.

If facilities such as poles are being shared and it is recognized as an expense, as was done with the Sprint numbers,

they should not be recognized as an investment. You don't recognize it twice or you double count it. In our particular case we recognized it as an expense adjustment and not as an investment adjustment.

The digital loop carrier technology is sized wrong, is assigned a capacity that it is physically not capable of having. It says that there are 2,016 services in the Hatfield Model that can ride on that facility if it's AFC or advanced fiber type communication. The manufacturer does not make equipment that will provide that type. It's limited to 672. So the fibers that serve those terminals are under counted. Without putting unique line cards in that carrier equipment, they can't serve the long copper loops that MCI proposes or Hatfield proposes to be used in its model.

When you look at the terrain characteristics and the way terrain assigns costs, the Hatfield Model ignores water that is present within the placement area. So if I go to place a cable in the ground and there is water present where I go to place the cable, there is no additional cost assigned to recognize that water is present. And certainly in Florida there is a lot of water present in the placement area.

It also ignores the rock that is below one foot of depth between that and the cable placement area.

The last point that I would wish to make is in the area of expenses and that is in the numbers that Sprint has

presented today: Those are forward-looking expense elements that have been identified and used in running the numbers and not the ARMIS numbers or the default numbers as Mr. Wood suggested.

Q Does that conclude your summary?

A Yes, sir, it does.

MR. FONS: Mr. Dunbar is available for cross examination.

CHAIRMAN CLARK: Mr. Melson.

CROSS EXAMINATION

BY MR. MELSON:

Q Good afternoon, Mr. Dunbar. I'm Rick Melson representing MCI. I've got just a few questions for you this afternoon.

A Certainly.

Q Could you turn to your JDD-1, which has been marked as Exhibit 28, and turn to page 19 of that document?

A Okay.

Q At the top of the page there are three default factors that BCM normally uses in calculating loop and switching investment; is that correct?

A Yes, sir.

Q Can you tell me whether those defaults were used in your loop study for Florida or whether you used some other factors?

A We used Florida specific factors and not the defaults.

Q Can you tell me what specific numbers we would associate with each of those three items for your Florida study?

A The cable and wire factor was 29.88%; it was produced by Mr. Farrar. And the circuit equipment number was 30.37% or .3037.

Q And what about switching equipment?

A Switching was zero.

Q All right. And was the 30.37% also a number provided to you by Mr. Farrar?

A Yes, it was.

Q All right. There's also a reference on page, in the paragraph just below those factors on page 19 to an annual cost per line of $133.39. Was that number used at all in the run you did for Florida?

A No, it was not.

Q And was that in essence replaced by the 14.5% common cost factor that was applied outside of the model at the end to produce a price?

A I believe that would have been produced -- That would have been used to produce the price, but it was not a part of BCM2.

Q Now, BCM2 is designed to determine the cost of basic local service; is that correct?

A It's designed to identify the cost of a local service loop and a local service portion of a switch.

Q But for purposes of Florida, is it fair to say that you essentially zeroed out the switching component, so that BCM2 was used only to provide loop investment figures?

A That is correct.

MR. MELSON: That's all I've got. No further questions. Thank you.

CHAIRMAN CLARK: Thank you. Staff.

CROSS EXAMINATION

BY MS. BROWN:

Q Good afternoon, Mr. Dunbar. I'm Martha Brown representing the Commission Staff.

A Good afternoon.

Q First I have two exhibits I'd like you to review. They are Staff Exhibit JDD-4; do you have that?

A Yes, I do.

Q It's Sprint/Centel's/United's response to Staff's First Set of Interrogatories. Have you had a chance to look those over?

A Yes, I have.

Q To the best of your knowledge and belief are they true and correct?

A Yes, they are.

MS. BROWN: Chairman Clark, I'd like to have Exhibit

JDD-4 marked for identification.

CHAIRMAN CLARK: It will be marked as Exhibit 31.

(Exhibit 31 marked for identification.)

BY MS. BROWN (Continuing):

Q Mr. Dunbar, do you have Staff's Exhibit JDD-5 before you?

A Yes, I do.

Q It is your deposition transcript and Late-Filed Exhibit Nos. 1 through 2?

A Yes.

Q Have you had a chance to look at those?

A Yes, I have.

Q Are they true and correct?

A Yes, they are.

MS. BROWN: Chairman Clark, may I have that exhibit marked for identification?

CHAIRMAN CLARK: That exhibit will be marked as Exhibit 32.

(Exhibit 32 marked for identification.)

BY MS. BROWN (Continuing):

Q And one more, Mr. Dunbar: JDD-6, a confidential exhibit, Sprint/Centel's/United's Response to Staff's First Set of Request for Production of Documents; do you have that?

A I have the cover sheet for that. That's the disk for BCM. I do not have the disk here.

MS. BROWN: Oh, all right. Chairman Clark, I'm going to withdraw that request. I haven't gotten that far, but.

CHAIRMAN CLARK: Okay. So the yellow page you have as JDD-6, we don't need to identify that?

MS. BROWN: No, we don't need to mark that.

CHAIRMAN CLARK: Okay. Thank you.

MS. BROWN: Thank you.

BY MS. BROWN (Continuing):

Q Just a very few questions, Mr. Dunbar.

A Certainly.

Q Have you -- Were you provided a copy of the Hatfield Model used by MCI Witness Wood to yield the results he's sponsoring in this proceeding?

A Yes, I have his input files and the model's runs.

Q Did you review that?

A Yes, I did.

Q Other than the specific comments you've made in your testimony, do you have any -- and in your summary -- do you have any other observations after having had the chance to review the model to make with respect to the Hatfield Model?

A Well, I think it's a model that I certainly could not support from an engineering standpoint or a correct costing standpoint. I think I've mentioned a number of elements that are missing. There's one set of cable costs that are in there. One set of cable costs cannot be representative of what cables

are. And, if you make a comment, say, well, I oversize it in order to recognize a comparable level of cost, that's still not enough cost. A 200-pair cable is less expensive. Let me back up. One hundred feet of 200-pair cable is less expensive than 200 feet of 100-pair cable. And it also ignores all the placement costs for that second 100 feet. So, even oversizing your cable will not recognize enough costs.

Q On page 11 of your Rebuttal Testimony at lines 12 through 25, can you turn to that?

A Yes, I have it.

Q All right. And continuing on through page 12, line 5, you indicate that you were unable to run the Hatfield Model with Florida specific inputs because you didn't have all the input file used by Mr. Wood; is that correct?

A That was at the time certainly that I filed the Rebuttal Testimony.

Q Since that time have you been able to generate a run of the Hatfield Model using Florida specific inputs?

A Yes, I have.

Q What specific, Florida specific inputs did you use in this run?

A I'm not sure I can tell you all of them right off the top of my head. I changed cable costs. I changed all of the expense factors. I changed all of the placement costs. I changed the engineering factors. Everything that we could

identify as Florida specific costs were all changed.

Q And what were the results of that Florida specific run?

A The cost per loop went up about $7.

MS. BROWN: All right. Thank you. We have no further questions.

CHAIRMAN CLARK: Redirect?

MR. FONS: I have no redirect.

CHAIRMAN CLARK: Okay. Exhibits.

MR. WAHLEN: Before we finish, we have a question about this compact disk. Could I have just a second to talk with the witness?

CHAIRMAN CLARK: Yes.

(Brief pause.)

CHAIRMAN CLARK: Mr. Wahlen, are we ready?

MR. WAHLEN: Yes, ma'am; we are. The disk that was produced in response to Request for Production of Documents 29 and 30 is a compact disk containing the BCM2 material on it. We had inadvertently identified that as confidential. It is not confidential. We have not provided the Staff with a hard copy of it and I have confirmed with the witness that we don't have any objection to inserting --

CHAIRMAN CLARK: Wait a minute. Could you turn off your mikes. Go ahead.

MR. WAHLEN: -- that compact disk into the record.

And so my suggestion would be that we identify that as an exhibit. And if Staff would like to move it into the record, that would be fine.

MS. BROWN: Yes, Chairman Clark, we would like to do that, but we'll do that.

CHAIRMAN CLARK: Well, let's identify it as Exhibit 33 and it is compact disk with what on it?

MR. WAHLEN: BCM2.

CHAIRMAN CLARK: With BCM2.

MS. BROWN: It's Response to Staff's First Set of Request for Production of Documents Nos. 29 and 30.

CHAIRMAN CLARK: Okay. All right. That will be marked as Exhibit 33 and it is not confidential.

MR. WAHLEN: That's correct.

CHAIRMAN CLARK: Okay.

(Exhibit 33 marked for identification.)

MR. FONS: And Sprint moves Exhibits 28, 29 and 30.

CHAIRMAN CLARK: Without objection, those exhibits are entered in the record.

Staff will enter Exhibits 31, 32 and 33 without objection.

MS. BROWN: Yes; thank you, Chairman Clark.

(Exhibits 28, 29, 30, 31, 32 and 33 received into evidence.)

CHAIRMAN CLARK: Let me ask a question. We have two

late-filed exhibits: One, the late-filed exhibits from Mr. Wood's deposition; the other being the supplement to POD 43.

Mr. Fons, can you tell me when the supplement will be ready? And, Mr. Melson, when will the Wood late-filed deposition exhibits be ready?

MR. FONS: I believe Late-Filed Exhibit 23, which is the supplement to POD 43, may be provided shortly, within the next couple of days.

CHAIRMAN CLARK: Okay. Mr. Melson.

MR. MELSON: I have not been very accurate in predicting late-filed exhibits lately. I would say the first of next week.

CHAIRMAN CLARK: Why don't we make it -- It's sort of pointless to have it due on the 24th, however.

MR. MELSON: Briefs are due January 3rd, I believe.

CHAIRMAN CLARK: Staff, when do you need those exhibits?

MR. KEATING: We could handle next Friday, December 27th, I believe.

CHAIRMAN CLARK: Okay.

MR. MELSON: That will be fine, and we'll get them in earlier if we can and I hope we can.

CHAIRMAN CLARK: Then we'll set a deadline close of business December 27th for Late-Filed Exhibit 23 and Late-Filed

Exhibit 18.

Anything else we need to take up?

Mr. Keating.

MR. KEATING: Yes. Transcripts from the hearing will be due December 23rd. Briefs will be due in this docket on January 3rd, 1997. Staff's recommendation is scheduled for January 23rd, 1997. This docket will go to regular agenda on February 4th, 1997.

CHAIRMAN CLARK: Okay. Thank you very much. Is there anything else we have to take up at this time?

I'd like to thank everyone for getting the hearing done in one day. It's a nice Christmas present. Thank you all and have a happy holiday season.

MR. FONS: Thank you.

MR. MELSON: Thank you.

(Hearing concluded at 5:15 p.m..)

STATE OF FLORIDA)
: CERTIFICATE OF REPORTERS
COUNTY OF LEON)

We, ROWENA NASH HACKNEY and H. RUTHE POTAMI, RPR, CSR, Official Commission Reporters; and NANCY S. METZKE, RPR, CSR, and CATHY H. WEBSTER, RPR,

DO HEREBY CERTIFY that the Hearing in Docket No. 961230-TP was heard by the Florida Public Service Commission at the time and place herein stated; it is further

CERTIFIED that we stenographically reported the said proceedings; that the same has been transcribed under our direct supervision; and that this transcript, consisting of 612 pages, Volumes 1 through 5., constitutes a true transcription of our notes of said proceedings and the insertion of the prescribed prefiled testimony of the witness.

DATED this 23rd day of December, 1996.

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Official Commission Reporter
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ORDERS FOR OFFICIAL RECOGNITION
DOCKET NO. 961230-TP

Federal Communications Commission (FCC) Orders

1. FCC 96-325, released August 8, 1996 (First report and order regarding the implementation of local competition provisions in the Telecommunications Act of 1996).

2. FCC 96-333, released August 8, 1996 (Second report and order and memorandum opinion and order regarding the implementation of local competition provisions in the Telecommunications Act of 1996).

3. FCC 96-394, released September 27, 1996 (Order on Reconsideration regarding the implementation of local competition provisions in the Telecommunications Act of 1996).

4. FCC 94-190, released date July 25, 1994 (Memorandum option and order regarding expanded interconnection).

Florida PSC Orders

1. Order No. PSC-96-0668-FOF-TP, issued May 20, 1996, in Docket No. 950985-TP (Interconnection).

2. Order No. PSC-96-1148-FOF-TP, issued September 12, 1996, in Docket No. 950985-TP (Interconnection Order on Reconsideration).

3. Order No. PSC-96-0811-FOF-TP, issued June 24, 1996, in Docket No. 950984-TP (Unbundling and Resale).

4. Order No. PSC-96-1160-FOF-TP, issued September 17, 1996, in Docket No. 950984-TP (Unbundling and Resale Order on Reconsideration).

5. Order No. PSC-94-0285-FOF-TP, issued March 10, 1994, in Docket No. 921074-TP (Expanded interconnection Phase I).

6. Order No. PSC-95-0034-FOF-TP, issued January 9, 1995, in Docket Nos. 921074-TP, 930955-TL, 940014-TL, 940020-TL, 931196-TL, and 940190-TL (Expanded interconnection Phase II & Local Transport Restructure).

7. Order No. PSC-95-0680-FOF-TP, issued June 6, 1995, in Docket No. 921074-TP (Expanded interconnection Phase II Reconsideration and Clarification).

FLORIDA PUBLIC SERVICE COMMISSION
DOCKET NO. 961230-TP EXHIBIT NO 1
COMPANY/
WITNESS: STAFF
DATE: 12/18/96

8. Order No. PSC-95-1188-FOF-TP, issued September 21, 1995, in Docket No. 921074-TP (Expanded interconnection Phase I Reconsideration and Clarification).

EXHIBIT NO. _____

DOCKET NO: 961230-TP

WITNESS: RANDY G. FARRAR

PARTY: SPRINT CENTEL/UNITED

DESCRIPTION:

CONFIDENTIAL
SPRINT CENTEL/UNITED'S ORIGINAL RESPONSES TO STAFF'S 1ST SET OF INTERROGATORIES NO. 1 (DOCKET NO. 950985-TP).

SPRINT CENTEL/UNITED'S ORIGINAL RESPONSES TO STAFF'S 2ND SET OF INTERROGATORIES NO. 64B (DOCKET NO. 950985-TP).

SPRINT CENTEL/UNITED'S ORIGINAL RESPONSES TO STAFF'S 1ST REQUEST FOR PRODUCTION OF DOCUMENTS NO. 1 (DOCKET NO. 950985-TP).

PROFFERING PARTY: STAFF

I.D. # RGF-6

FLORIDA PUBLIC SERVICE COMMISSION
DOCKET NO. 961230-TP EXHIBIT NO 2
COMPANY/ WITNESS: STAFF
DATE: 12/18/96

EXHIBIT NO. _____

DOCKET NO: 961230-TP

WITNESS: RANDY G. FARRAR

PARTY: SPRINT CENTEL/UNITED

DESCRIPTION:

CONFIDENTIAL

SPRINT CENTEL/UNITED'S REVISED RESPONSES TO STAFF'S 1ST SET OF INTERROGATORIES NO. 1 (DOCKET NO. 950985-TP).

SPRINT CENTEL/UNITED'S REVISED RESPONSES TO STAFF'S 2ND SET OF INTERROGATORIES NO. 64B (DOCKET NO. 950985-TP).

PROFFERING PARTY: STAFF

I.D. # RGF-7

FLORIDA PUBLIC SERVICE COMMISSION
DOCKET NO. 961230-TP EXHIBIT NO. 3
COMPANY/ WITNESS: STAFF
DATE: 12/18/96

EXHIBIT NO. _____

DOCKET NO: 961230-TP

WITNESS: RANDY G. FARRAR

PARTY: SPRINT CENTEL/UNITED

DESCRIPTION:

CONFIDENTIAL

SPRINT CENTEL'S COST DATA SUPPORTING ZONE DENSITY TARIFF (DOCKET NO. 921074-TP).

SPRINT UNITED'S COST DATA SUPPORTING LOCAL TRANSPORT RESTRUCTURE TARIFF (DOCKET NO. 921074-TP).

PROFFERING PARTY: STAFF

I.D. # RGF-8

FLORIDA PUBLIC SERVICE COMMISSION
DOCKET
NO. 961230 EXHIBIT NO. 4
COMPANY/
WITNESS: STAFF
DATE: 10/18/96

EXHIBIT 1
MCI/SPRINT ARBITRATION

MCI Telecommunications
Corporation
8521 Leesburg Pike
Vienna, VA 22182

May 6, 1996

Mr. Alan J. Sykes
Vice President, Revenues
Sprint LTD
Local Telecommunications Division
2330 Shawnee Mission Parkway
Shawnee Mission, KS 66205

FLORIDA PUBLIC SERVICE COMMISSION
DOCKET NO. 961230-TP EXHIBIT NO. 5
COMPANY/
WITNESS:
DATE: 12-18-97

Dear Mr. Sykes:

MCI hereby requests Sprint LTD to promptly commence good faith negotiations concerning Sprint LTD's duties under the Telecommunications Act of 1996 (Act) including, among others, its obligations to immediately provide intraLATA equal access (dialing parity) throughout its network. MCI is anxious to work with Sprint LTD to resolve each of the issues necessary to allow the development of full and effective competition, thereby avoiding the need to seek regulatory resolution should agreement not be achieved.

At MCI, we intend to use all of the options available to us under the terms of both Federal and state laws, plus applicable state commission rulings to bring about facilities-based competition in the local market. We intend to purchase unbundled network elements, unbundled service attributes (including directory listings, E911, 411, and others), leased facilities, leased transport, wholesale service for subsequent resale and other approaches combined with our own local network investment to accelerate the process of bringing competitive choice to all telecommunications markets.

We expect Sprint LTD to immediately provide dialing parity capabilities throughout its network. Given MCI's and Sprint LTD's experience in the states on this issue, deployment should be quick and efficient. We would like to meet with Sprint LTD as soon as possible to discuss the methods, procedures and timing of dialing parity deployment.

MCI seeks access and interconnection under the Act for the full range of local exchange, exchange access and interexchange services that MCI will provide. Accordingly, we need MCI's negotiations with Sprint LTD to be comprehensive. They should cover the terms and conditions of our mutual network interconnection, MCI s use of unbundled network elements, resale, removal of any anticompetitive terms and conditions in your current tariff, and any other provisions encompassed by the Act, including access. These negotiations will be on behalf of MCI Telecommunications and all of its affiliates, including MCImetro, and we would also expect to cover all of the Sprint LTD Operating Company operations in these negotiations.

To further expedite these negotiations, MCI has conducted a comprehensive review of the Act and is prepared to provide Sprint LTD with MCI's positions and requirements. MCI would appreciate similar information from Sprint LTD. Sprint LTD should also provide MCI with copies of incremental cost studies of Sprint LTD services and network elements. These steps will allow us to more promptly reach agreement.

We would also appreciate promptly receiving, from Sprint LTD, copies of existing agreements with all other local exchange carriers -- including agreements with incumbent LECs (such as EAS agreements) as well as with new entrants -- plus agreements entered into before February 8, 1996 consistent with Section 252 (a) (1). This information should be sent to me at my offices at the above address.

Since the way in which these issues are resolved will affect all telecommunications carriers we have no objection to making any other parties aware of the nature and content of our discussion with you. This will allow for the open and shared negotiation process that is clearly intended by the Act and is clearly needed to make the process fair and efficient.

I would suggest that a small group of (2-3) executives from each of our companies meet at our offices in Vienna, Virginia to begin discussions. I will be MCI s contact for establishing these negotiations and can be reached at 703-918-6049 to set a mutually convenient date and time.

Sincerely,

Michael A. Beach
Vice President - Local Markets
CC: DON PRICE

EXHIBIT 2
MCI/SPRINT ARBITRATION

MCImetro/ILEC
INTERCONNECTION AGREEMENT
1996

FLORIDA PUBLIC SERVICE COMMISSION
DOCKET NO. 961230-TP EXHIBIT NO 6
COMPANY/ MCI
WITNESS
DATE 12/18/96

MCImetro/ILEC
INTERCONNECTION AGREEMENT 1996

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MCImetro/ILEC
INTERCONNECTION AGREEMENT 1996

This MCImetro/ILEC Interconnection Agreement 1996 (the "Agreement"), effective *[insert date]*, 1996 (the "Effective Date"), is entered into by and between MCImetro Access Transmission Services, Inc. ("MCIm"), a Delaware corporation, on behalf of itself and its Affiliates, and ILEC, a *[insert state of incorporation]* corporation, on behalf of itself and its Affiliates, to establish the rates, terms and conditions for local interconnection, local resale, and purchase of unbundled network elements (individually referred to as the "service" or collectively as the "services").

WHEREAS, the parties wish to interconnect their local exchange networks in a technically and economically efficient manner for the transmission and termination of calls, so that customers of each can seamlessly receive calls that originate on the other's network and place calls that terminate on the other's network, and for MCIm's use in the provision of exchange access ("Local Interconnection"); and

WHEREAS, MCIm wishes to purchase Telecommunications Services for resale to others "Local Resale" or "Services for Resale", and ILEC is willing to provide such service; and

WHEREAS, MCIm wishes to purchase on an unbundled basis network elements, ancillary services and functions and additional features ("Network Elements"), separately or in any combination, and to use such services for itself or for the provision of its Telecommunications Services to others, and ILEC is willing to provide such services; and

WHEREAS, the parties intend the rates, terms and conditions of this Agreement, and their performance of obligations thereunder, to comply with the Communications Act of 1934, as amended by the Telecommunications Act of 1996 (the "Act"), the Rules and Regulations of the Federal Communications Commission ("FCC"), and the orders, rules and regulations of the *[insert public utility commission]* (the "Commission");

Now, therefore, in consideration of the terms and conditions contained herein, MCIm and ILEC hereby mutually agree as follows:

PART A -- GENERAL TERMS AND CONDITIONS

Section 1. Scope of this Agreement

1.1 This Agreement, including Parts A, B, and C, specifies the rights and obligations of each party with respect to the purchase and sale of Local Interconnection, Local Resale and Network Elements. This PART A sets forth the general terms and conditions governing this Agreement. Certain

terms used in this Agreement shall have the meanings defined in PART B -- DEFINITIONS, or as otherwise elsewhere defined throughout this Agreement. Other terms used but not defined herein will have the meanings ascribed to them in the Act and the FCC's Rules and Regulations. PART C sets forth, among other things, descriptions of the services, pricing, technical and business requirements, and physical and network security requirements.

LIST OF ATTACHMENTS COMPRISING PART C:

I. Price Schedule
II. Local Resale
III. Network Elements
IV. Interconnection
V. Collocation
VI. Rights of Way
VII. Number Portability
VIII. Business Process Requirements
IX. Security Requirements
X. Credits for Performance Standards Failures

1.2 ILEC shall provide the services pursuant to this Agreement. ILEC shall provide the services in any combination requested by MCIm. ILEC shall not discontinue or refuse to provide any service provided or required hereunder without MCIm's prior written agreement, nor shall ILEC reconfigure, reengineer or otherwise redeploy its network in a manner which would impair MCIm's ability to offer Telecommunications Services in the manner contemplated by this Agreement, the Act or the FCC's Rules and Regulations. ILEC agrees that all obligations undertaken pursuant to this Agreement, including without limitation, performance standards, intervals, and technical requirements are material obligations hereof and that time is of the essence.

Section 2. Regulatory Approvals

2.1 This Agreement, and any amendment or modification hereof, will be submitted to the Commission for approval in accordance with Section 252 of the Act. In the event any governmental authority or agency rejects any provision hereof, the parties shall negotiate promptly and in good faith such revisions as may reasonably be required to achieve approval.

2.2 In the event the FCC or the Commission promulgates rules or regulations, or issues orders, or a court with appropriate jurisdiction issues orders, which make unlawful any provision of this Agreement, the parties shall negotiate promptly and in good faith in order to amend the Agreement to substitute contract provisions which are consistent with

such rules, regulations or orders. In the event the parties cannot agree on an amendment within thirty (30) days from the date any such rules, regulations or orders become effective, then the parties shall resolve their dispute under the applicable procedures set forth in Section 23 (Dispute Resolution Procedures) hereof.

2.3 In the event ILEC is required by any governmental authority or agency to file a tariff or make another similar filing in connection with the performance of any action that would otherwise be governed by this Agreement, ILEC shall (i) consult with MCIm reasonably in advance of such filing about the form and substance of such filing, (ii) provide to MCIm its proposed tariff and obtain MCIm's agreement on the form and substance of such tariff prior to such filing, and (iii) take all steps reasonably necessary to ensure that such tariff or other filing imposes obligations upon ILEC that are as close as possible to those provided in this Agreement and preserve for MCIm the full benefit of the rights otherwise provided in this Agreement. In no event shall ILEC file any tariff that purports to govern the services provided hereunder that is inconsistent with the rates and other terms and conditions set forth in this Agreement.

2.4 In the event any governmental authority or agency orders ILEC to provide any service covered by this Agreement in accordance with any terms or conditions that individually differ from one or more corresponding terms or conditions of this Agreement, MCIm may elect to amend this Agreement to reflect any such differing terms or conditions contained in such decision or order, with effect from the date MCIm makes such election. The other services covered by this Agreement and not covered by such decision or order shall remain unaffected and shall remain in full force and effect.

2.5 The parties intend that any additional services requested by either party relating to the subject matter of this Agreement will be incorporated into this Agreement by amendment.

Section 3. Term of Agreement

This Agreement shall become binding upon execution by the parties and continue for a period of _____ years, unless earlier terminated or withdrawn in accordance with Section 20 (Termination). Renewal after the initial term for successive one-year terms shall be at MCIm's option upon written notice to ILEC.

Section 4. Charges and Payment

In consideration of the services provided by ILEC under this Agreement, MCIm shall pay the charges set forth in Attachment I. The billing and payment procedures for charges incurred by MCIm hereunder are set forth in Attachment VIII.

Section 5. Assignment and Subcontract

5.1 Any assignment or delegation by either party to any non-affiliated entity of any right, obligation or duty, or of any other interest hereunder, in whole or in part, without the prior written consent of the other party shall be void. A party assigning or delegating this Agreement or any right, obligation, duty or other interest hereunder to an Affiliate shall provide written notice to the other party. All obligations and duties of any party under this Agreement shall be binding on all successors in interest and assigns of such party. No assignment or delegation hereof shall relieve the assignor of its obligations under this Agreement.

5.2 ILEC may not subcontract the performance of any obligation under this Agreement without MCIm's prior written consent. If any obligation is performed by a subcontractor or Affiliate, ILEC shall remain fully responsible for the performance of this Agreement in accordance with its terms.

Section 6. Compliance with Laws

All terms, conditions and operations under this Agreement shall be performed in accordance with all applicable laws, regulations and judicial or regulatory decisions of all duly constituted governmental authorities with appropriate jurisdiction, and this Agreement shall be implemented consistent with the FCC's First Report and Order in CC Docket No. 96-98, released August 8, 1996 (the "FCC Interconnection Order"). Each party shall be responsible for obtaining and keeping in effect all FCC, state regulatory commission, franchise authority and other regulatory approvals that may be required in connection with the performance of its obligations under this Agreement. In the event the Act or FCC Rules and Regulations applicable to this Agreement are held invalid, this Agreement shall survive, and the parties shall promptly renegotiate any provisions of this Agreement which, in the absence of such invalidated Act, Rule or Regulation, are insufficiently clear to be effectuated.

Section 7. Governing Law

This Agreement shall be governed by and construed in accordance with the Act and the FCC's Rules and Regulations, except insofar as state law may control any aspect of this Agreement, in which case the domestic laws of the State of _____, without regard to its conflicts of laws principles, shall govern.

Section 8. Relationship of Parties

It is the intention of the parties that ILEC be an independent contractor and nothing contained herein shall constitute the parties as joint venturers, partners, employees or agents of one another, and neither party shall have the right or power to bind or obligate the other.

Section 9. No Third Party Beneficiaries

The provisions of this Agreement are for the benefit of the parties hereto and not for any other person, provided, however, that this shall not be construed to prevent MCIm from providing its Telecommunications Services to other carriers. This Agreement shall not provide any person not a party hereto with any remedy, claim, liability, reimbursement, claim of action, or other right in excess of those existing without reference hereto.

Section 10. Intellectual Property Rights and Indemnification

10.1 Any intellectual property which originates from or is developed by a party shall remain in the exclusive ownership of that party. Except for a limited license to use patents or copyrights to the extent necessary for the parties to use any facilities or equipment (including software) or to receive any service solely as provided under this Agreement, no license in patent, copyright, trademark or trade secret, or other proprietary or intellectual property right now or hereafter owned, controlled or licensable by a party, is granted to the other party or shall be implied or arise by estoppel. It is the responsibility of each party to ensure at no additional cost to the other party that it has obtained any necessary licenses in relation to intellectual property of third parties used in its network that may be required to enable the other party to use any facilities or equipment (including software), to receive any service, or to perform its respective obligations under this Agreement.

10.2 The party providing a service pursuant to this Agreement will defend the party receiving such service or data provided as a result of

such service against claims of infringement arising solely from the use by the receiving party of such service and will indemnify the receiving party for any damages awarded based solely on such claims in accordance with Section 11 of this Agreement.

Section 11. Indemnification

11.1 Notwithstanding any limitations in remedies contained in this Agreement, each party (the "Indemnifying Party") will indemnify and hold harmless the other party ("Indemnified Party") from and against any loss, cost, claim, liability, damage and expense (including reasonable attorney's fees) to third parties, relating to or arising out of the libel, slander, invasion of privacy, misappropriation of a name or likeness, negligence or willful misconduct by the Indemnifying Party, its employees, agents, or contractors in the performance of this Agreement or the failure of the Indemnifying Party to perform its obligations under this Agreement. In addition, the Indemnifying Party will, to the extent of its obligations to indemnify hereunder, defend any action or suit brought by a third party against the Indemnified Party.

11.2 The Indemnified Party will notify the Indemnifying Party promptly in writing of any written claim, lawsuit, or demand by third parties for which the Indemnified Party alleges that the Indemnifying Party is responsible under this Section 11 and tender the defense of such claim, lawsuit or demand to the Indemnifying Party. The Indemnified Party also will cooperate in every reasonable manner with the defense or settlement of such claim, demand, or lawsuit. The Indemnifying Party shall keep the Indemnified Party reasonably and timely apprised of the status of the claim, demand or lawsuit. The Indemnified Party shall have the right to retain its own counsel, at its expense, and participate in but not direct the defense, provided, however, that if there are reasonable defenses in addition to those asserted by the Indemnifying Party, the Indemnified Party and its counsel may raise and direct such defenses, which shall be at the expense of the Indemnifying Party.

11.3 The Indemnifying Party will not be liable under this Section 11 for settlements or compromises by the Indemnified Party of any claim, demand, or lawsuit unless the Indemnifying Party has approved the settlement or compromise in advance or unless the defense of the claim, demand, or lawsuit has been tendered to the Indemnifying Party in writing and the Indemnifying Party has failed to promptly undertake the defense.

Section 12. Limitation of Liability

Neither party shall be liable to the other for any indirect, incidental, special or consequential damages arising out of or related to this Agreement or the provision of service hereunder. Notwithstanding the foregoing limitation, a party's liability shall not be limited by the provisions of this Section 12 in the event of its willful or intentional misconduct, including gross negligence, or its repeated breach of any one or more of its material obligations under this Agreement. A party's lost revenue caused by the other party's breach of this Agreement shall be deemed direct damages. A party's liability shall not be limited with respect to its indemnification obligations.

Section 13. Warranties

13.1 Except as otherwise provided herein, each party shall perform its obligations hereunder at a performance level no less than the highest level which it uses for its own operations, or those of its Affiliates, but in no event shall a party use less than reasonable care in the performance of its duties hereunder.

13.2 ILEC warrants that Local Interconnection will be provided in a competitively neutral fashion, at any technically feasible point within its network at MCIm's request, and that such interconnection will contain all the same features, functions and capabilities, and be at least equal in quality to the highest level provided by ILEC to itself or its Affiliates. ILEC shall have the full burden of proving that a requested Interconnection Point ("IP") is not technically feasible. To the extent ILEC proves infeasibility, ILEC shall be required to provide to MCIm an alternative IP which will not impair MCIm's ability to provide its Telecommunications Services. Such alternative IP shall be technically equivalent to the requested IP and shall be subject to the same terms, conditions and price as the requested IP.

13.3 ILEC warrants that it will provide to MCIm on a nondiscriminatory basis unbundled Network Elements and ancillary services, including but not limited to local loop, local switching, tandem switching/transit switching, transport, data switching, intelligent network and advanced intelligent network, operator service, directory assistance, 911, white and yellow pages, and repair and maintenance, at any technically feasible points requested by MCIm, and all operations support systems used and useful in the preordering, ordering, provisioning, design, engineering, maintenance, repair, tracking, management, billing and any other function or functionality associated directly or indirectly with unbundled Network Elements and ancillary services. ILEC further warrants that these services, or their functional components, will contain all the same

features, functions and capabilities and be provided at a level of quality at least equal to the highest level which it provides to itself or its Affiliates. ILEC shall have the full burden of proving that access requested by MCIm is not technically feasible. To the extent ILEC proves infeasibility, ILEC shall be required to provide to MCIm an alternative service, which will not impair MCIm's ability to provide its Telecommunications Services. Such alternative service shall be technically equivalent to the requested service and shall be subject to the same terms, conditions and price as the requested service.

13.4 ILEC warrants that it will provide to MCIm nondiscriminatory access to poles, pole attachments, ducts, innerducts, conduits, building entrance facilities, building entrance links, equipment rooms, remote terminals, cable vaults, telephone closets, building risers, rights of way, and other pathways owned or controlled by ILEC, using capacity currently available or that can be made available. ILEC shall have the full burden of proving that such access is not technically feasible. To the extent ILEC proves infeasibility, ILEC shall be required to provide to MCIm alternative suitable access which will not impair MCIm's ability to provide its Telecommunications Services. Such alternative access shall be technically equivalent to the requested access and shall be subject to the same terms, conditions and price as the requested access.

13.5 ILEC warrants that it will provide to MCIm, in a competitively neutral fashion, unbundled local loops, network interface devices or units, loop distribution, digital loop carrier/analog cross connect, and loop feeders, that contain all the same features, functions, and capabilities that ILEC makes available to itself in provision of its Telecommunications Services or to its Affiliates, with at least the same quality of service, order processing, provisioning and installation, trouble resolution, maintenance, customer care, and billing, as the highest quality ILEC provides equivalent features, functions and capabilities to itself, its Affiliates, or its own subscribers. ILEC shall have the full burden of proving that access to the unbundled local loop or any of its unbundled components is not technically feasible. To the extent ILEC proves infeasibility, ILEC shall be required to provide to MCIm alternative suitable facilities which will not impair MCIm's ability to provide its Telecommunications Services. Such alternative facilities shall be technically equivalent to the requested access and subject to the same terms, conditions and price as the requested access.

13.6 ILEC warrants that it will provide to MCIm unbundled transport and its components, including common transport, dedicated transport, with and without electronics, and multiplexing/digital cross connect, with all the same features, functions and capabilities, and with at least the same quality level which ILEC provides to itself or its Affiliates in provision of its,

or such Affiliate's, Telecommunications Services, and that such services will be provided in a competitively neutral fashion. ILEC shall have the full burden of proving that access to unbundled transport or any unbundled transport components is not technically feasible. To the extent ILEC proves infeasibility, ILEC shall be required to provide to MCIm alternative suitable facilities which will not impair MCIm's ability to provide its Telecommunications Services. Such alternative facilities shall be technically equivalent to the requested access and subject to the same terms, conditions and price as the requested access.

13.7 ILEC warrants that it will provide unbundled local switching and its functional components, including line port, trunk port, and switching capacity, including all features, functions and capabilities, and nondiscriminatory access via electronic interface to databases and associated signaling needed for call routing, call completion, and service creation, and to create and bill the communications path, all at the same or better grade of service that ILEC provides to itself or its Affiliates, unless service degradation is due to MCIm purchasing insufficient capacity to meet its own demand. ILEC further warrants that unbundled local switching and its functional components will be provided in a competitively neutral fashion. ILEC shall have the full burden of proving that access to unbundled local switching or its functional components is not technically feasible. To the extent ILEC proves infeasibility, ILEC shall be required to provide to MCIm alternative suitable facilities which will not impair MCIm's ability to provide its Telecommunications Services. Such alternative facilities shall be technically equivalent to the requested access and subject to the same terms, conditions and price as the requested access.

13.8 ILEC warrants that it will provide nondiscriminatory access to telephone numbers.

13.9 ILEC warrants that it will provide to MCIm, in a competitively neutral fashion, interim number portability with the same features, functions and capabilities that ILEC provides to itself or its Affiliates, and with as little impairment of functioning, quality, reliability, and convenience as possible, and that it will provide such service as required by the FCC in Telephone Number Portability, CC Docket No. 95-116, First Report and Order, released July 2, 1996.

13.10 ILEC warrants that it will provide to MCIm, in a competitively neutral fashion, dialing parity for local exchange service and interexchange service with the same features, functions and capabilities that ILEC provides to itself or its Affiliates, and that it will provide such service as required by the FCC in Implementation of the Local Competition Provisions of the Telecommunications Act of 1996, Second Report and

Order and Memorandum Opinion and Order, FCC 96-333, released Aug. 8, 1996, so that MCIm's subscribers experience no greater post-dial delay than similarly-situated ILEC subscribers, and are not required to dial any greater number of digits than similarly situated ILEC subscribers.

13.11 ILEC warrants that with respect to Local Resale, order entry, provisioning, installation, trouble resolution, maintenance, customer care, billing, and service quality will be provided at least as expeditiously as ILEC provides for itself or for its own retail local service or to others, or to its Affiliates, and that it will provide such services to MCIm in a competitively neutral fashion and at a level of quality which allows MCIm in turn to provide Local Resale at a level of quality equal to the highest level of quality ILEC provides for itself for its own retail local service or to others, or to its Affiliates. ILEC warrants further that it will impose no restrictions on MCIm's resale of these services unless specifically sanctioned by the FCC.

13.12 ILEC warrants that it will provide on a nondiscriminatory basis space on its premises for physical or virtual collocation, as MCIm may specify, for equipment necessary for MCIm's interconnection and access to unbundled network elements.

Section 14. Notices

Except as otherwise provided herein, all notices or other communication hereunder shall be deemed to have been duly given when made in writing and delivered in person or deposited in the United States mail, certified mail, postage prepaid, return receipt requested and addressed as follows:

To MCIm: MCImetro Access Transmission Services, Inc.
8521 Leesburg Pike
Vienna, VA 22182

Copy to: General Counsel
MCI Communications Corporation
1801 Pennsylvania Ave, N.W.
Washington, DC 20006

To ILEC:

If personal delivery is selected to give notice, a receipt of such delivery shall be obtained. The address to which notices or communications may be given to either party may be changed by written notice given by such party to the other pursuant to this Section 14.

Section 15. Remedies

15.1 The obligations of ILEC and the services offered under this Agreement are unique. Accordingly, in addition to any other available rights or remedies, MCIm may sue in equity for specific performance and ILEC expressly waives the defense that a remedy in damages would be adequate.

15.2 In the event ILEC fails to switch a subscriber to MCIm service as requested through an MCIm service request, within the intervals set forth in this Agreement, the continued provision of Telecommunications Services by ILEC to such subscriber shall be deemed an illegal change in subscriber carrier selection commencing with the time at which ILEC failed to switch such subscriber. In such event, ILEC shall reimburse MCIm in an amount equal to all charges paid by such subscriber to ILEC from the time of such failure to switch to the time at which the subscriber switch is accomplished. This remedy shall be in addition to all other remedies available to MCIm under this Agreement or otherwise available.

15.3 All rights of termination, cancellation or other remedies prescribed in this Agreement, or otherwise available, are cumulative and are not intended to be exclusive of other remedies to which the injured party may be entitled at law or equity in case of any breach or threatened breach by the other party of any provision of this Agreement. Use of one or more remedies shall not bar use of any other remedy for the purpose of enforcing the provisions of this Agreement. The parties agree that the credits for performance standards failures contained in Attachment X are not inconsistent with any other remedy and are intended only to compensate MCIm, partially and immediately, for the loss in value to MCIm for ILEC's failure to meet Performance Standards.

Section 16. Waivers

16.1 No waiver of any provisions of this Agreement and no consent to any default under this Agreement shall be effective unless the same shall be in writing and properly executed by or on behalf of the party against whom such waiver or consent is claimed.

16.2 No course of dealing or failure of any party to strictly enforce any term, right, or condition of this Agreement in any instance shall be construed as a general waiver or relinquishment of such term, right or condition.

16.3 Waiver by either party of any default by the other party shall not be deemed a waiver of any other default.

Section 17. Survival

The following provisions of this Part A shall survive the expiration or termination of this Agreement: Sections 10, 11, 12, 21, 22, 26 and 27.

Section 18. Force Majeure

Neither party shall be held liable for any delay or failure in performance of any part of this Agreement from any cause beyond its control and without its fault or negligence, such as acts of God, acts of civil or military authority, embargoes, epidemics, war, terrorist acts, riots, insurrections, fires, explosions, earthquakes, nuclear accidents, floods, power blackouts, or unusually severe weather. No delay or other failure to perform shall be excused pursuant to this Section 18 unless delay or failure and consequences thereof are beyond the control and without the fault or negligence of the party claiming excusable delay or other failure to perform. In the event of any such excused delay in the performance of a party's obligation(s) under this Agreement, the due date for the performance of the original obligation(s) shall be extended by a term equal to the time lost by reason of the delay. In the event of such delay, the delaying party shall perform its obligations at a performance level no less than that which it uses for its own operations. In the event of such performance delay or failure by ILEC, ILEC agrees to resume performance in a nondiscriminatory manner and not favor its own provision of Telecommunications Services above that of MCIm.

Section 19. Non-Discriminatory Treatment

In addition to provisions under the Act and the FCC's Rules and Regulations, in the event ILEC provides any of the services provided hereunder to any other entity by tariff or agreement, ILEC will permit MCIm an opportunity to inspect such tariff or agreement and upon MCIm's request, ILEC will immediately offer MCIm such service on the same material terms, with effect from the date ILEC first made such tariff effective or entered into such arrangement and for the remainder of the term of this Agreement. The other services covered by this Agreement shall remain unaffected and as to such services this Agreement shall remain in full force and effect.

Section 20. Termination

20.1 In the event of breach of any material provision of this Agreement by either party, the non-breaching party shall give the other party written notice thereof, and:

20.1.1 If such material breach is for non-payment of amounts due hereunder pursuant to Attachment VIII, Section 3.1.18, the breaching party shall cure such breach within thirty (30) days of receiving such notice. The non-breaching party shall be entitled to pursue all available legal and equitable remedies for such breach. Amounts disputed in good faith and withheld or set off shall not be deemed "amounts due hereunder" for the purpose of this provision.

20.1.2 If such material breach is for any failure to perform in accordance with this Agreement, which, in the sole judgment of the non-breaching party, adversely affects the non-breaching party's subscribers, the non-breaching party shall give notice of the breach and the breaching party shall cure such breach to the non-breaching party's reasonable satisfaction within ten (10) days or within a period of time equivalent to the applicable interval required by this Agreement, whichever is shorter, and if breaching party does not, the non-breaching party may, at its sole option, terminate this Agreement, or any parts hereof. The non-breaching party shall be entitled to pursue all available legal and equitable remedies for such breach. Notice under this Subsection 20.1.2 may be given electronically or by facsimile and in such case shall be deemed received when sent.

20.1.3 If such material breach is for any other failure to perform in accordance with this Agreement, the breaching party shall cure such breach to the non-breaching party's reasonable satisfaction within forty-five (45) days, and if it does not, the non-breaching party may, at its sole option terminate this Agreement, or any parts hereof. The non-breaching party shall be entitled to pursue all available legal and equitable remedies for such breach.

20.2 MCIm may terminate this Agreement in whole or in part at any time for any reason upon sixty (60) days prior written notice, except with respect to termination of any particular service(s), in which case, upon thirty (30) days prior written notice. MCIm's sole liability shall be payment of amounts due for services provided up to the date of termination.

20.3 In the event of any termination under this Section 20, ILEC agrees to provide for an uninterrupted transition of services to MCIm or another vendor designated by MCIm.

20.4 Notwithstanding any termination hereof, the parties shall continue to comply with their obligations under the Act to provide interconnection.

Section 21. Confidentiality and Publicity

21.1 All confidential or proprietary information disclosed by either party during the negotiations and the term of this Agreement shall be protected by the parties in accordance with the terms of this Section 21. All information which is disclosed by one party ("Disclosing Party") to the other ("Recipient") in connection with this Agreement, or acquired in the course of performance of this Agreement, shall be deemed confidential and proprietary to the Disclosing Party and subject to this Agreement, such information including but not limited to, orders for services, usage information in any form, and Customer Proprietary Network Information ("CPNI") as that term is defined by the Act and the rules and regulations of the FCC ("Confidential Information").

21.1.1 For a period of ten (10) years from receipt of Confidential Information, Recipient shall (i) use it only for the purpose of performing under this Agreement, (ii) hold it in confidence and disclose it only to employees who have a need to know it in order to perform under this Agreement, and (iii) safeguard it from unauthorized use or Disclosure using no less than the degree of care with which Recipient safeguards its own Confidential Information. Recipient must obtain written authorization from Disclosing Party before disclosing Confidential Information to any third party agent or consultant, and such third party must have executed a written agreement comparable in scope to the terms of this Section 21.

21.1.2 Recipient shall have no obligation to safeguard Confidential Information (i) which was in the Recipient's possession free of restriction prior to its receipt from Disclosing Party, (ii) which becomes publicly known or available through no breach of this Agreement by Recipient, (iii) which is rightfully acquired by Recipient free of restrictions on its Disclosure, or (iv) which is independently developed by personnel of Recipient to whom the Disclosing Party's Confidential Information had not been previously disclosed. Recipient may disclose Confidential Information if required by law, a court, or governmental agency, provided that Disclosing Party has been notified of the requirement promptly after Recipient becomes aware of the requirement, and provided that Recipient undertakes all lawful measures to avoid disclosing such information until Disclosing Party has had reasonable time to obtain a protective order. Recipient agrees to comply with any protective order that covers the Confidential Information to be disclosed.

21.1.3 Each party agrees that Disclosing Party would be irreparably injured by a breach of this Section 21 by Recipient or its

representatives and that Disclosing Party shall be entitled to seek equitable relief, including injunctive relief and specific performance, in the event of any breach of this Section 21. Such remedies shall not be exclusive, but shall be in addition to all other remedies available at law or in equity.

21.2 CPNI related to MCIm's subscribers obtained by virtue of Local Interconnection or any other service provided under this Agreement shall be MCIm's proprietary information and may not be used by ILEC for any purpose except performance of its obligations under this Agreement, and in connection with such performance, shall be disclosed only to employees with a need to know, unless the MCIm subscriber expressly directs MCIm to disclose such information to ILEC pursuant to the requirements of Section 222(c)(2) of the Act. If ILEC seeks and obtains written approval to use or disclose such CPNI from MCIm's subscribers, such approval shall be obtained only in compliance with Section 222(c)(2) and, in the event such authorization is obtained, ILEC may use or disclose only such information as MCIm provides pursuant to such authorization and may not use information that ILEC has otherwise obtained, directly or indirectly, in connection with its performance under this Agreement. CPNI related to ILEC's subscribers obtained by virtue of Local Interconnection shall be ILEC's proprietary information and may not be used by MCIm for any purpose except performance of its obligations under this Agreement, and in connection with such performance shall be disclosed only to employees with a need to know, unless the ILEC subscriber expressly directs ILEC to disclose such information to MCIm pursuant to the requirements of Section 222(c)(2) of the Act. If MCIm seeks and obtains written approval to use or disclose such CPNI from ILEC's subscribers, such approval shall be obtained only in compliance with Section 222(c)(2) of the Act and, in the event such authorization is obtained, MCIm may use or disclose only such information as ILEC provides pursuant to such authorization and may not use information that MCIm has otherwise obtained, directly or indirectly, in connection with its performance under this Agreement.

21.3 Unless otherwise mutually agreed upon, neither party shall publish or use the other party's logo, trademark, service mark, name, language, pictures, or symbols or words from which the other party's name may reasonably be inferred or implied in any product, service, advertisement, promotion, or any other publicity matter.

21.4 Neither party shall produce, publish, or distribute any press release or other publicity referring to the other party or its Affiliates, or to this Agreement, without the prior written approval of the other party. Each party shall obtain the other party's prior approval before discussing this Agreement in any press or media interviews. In no event shall either party

mischaracterize the contents of this Agreement in any public statement or in any representation to a governmental entity or member thereof.

21.5 Except as otherwise expressly provided in this Section 21, nothing herein shall be construed as limiting the rights of either party with respect to its customer information under any applicable law, including without limitation Section 222 of the Act.

Section 22. Audits and Examinations

22.1 As used herein "Audit" shall mean a comprehensive review of services performed under this Agreement; "Examination" shall mean an inquiry into a specific element of or process related to services performed under this Agreement. MCIm may perform up to four Audits per 12-month period commencing with the Effective Date. MCIm may perform Examinations as MCIm deems necessary.

22.2 Upon thirty (30) days written notice by MCIm to ILEC, MCIm shall have the right through its authorized representative to make an Audit or Examination, during normal business hours, of any records, accounts and processes which contain information bearing upon the provision of the services provided and performance standards agreed to under this Agreement. Within the above-described 30-day period, the parties shall reasonably agree upon the scope of the Audit or Examination, the documents and processes to be reviewed, and the time, place and manner in which the Audit or Examination shall be performed. ILEC agrees to provide Audit or Examination support, including appropriate access to and use of ILEC's facilities (e.g., conference rooms, telephones, copying machines).

22.3 Each party shall bear its own expenses in connection with the conduct of the Audit or Examination. The reasonable cost of special data extractions required by MCIm to conduct the Audit or Examination will be paid for by MCIm. For purposes of this Section 22.3, a "Special Data Extraction" shall mean the creation of an output record or informational report (from existing data files) that is not created in the normal course of business. If any program is developed to MCIm's specifications and at MCIm's expense, MCIm shall specify at the time of request whether the program is to be retained by ILEC for reuse for any subsequent MCIm Audit or Examination. Notwithstanding the foregoing, ILEC shall pay all of MCIm's expenses in the event an Audit or Examination results in an adjustment in the charges or in any invoice paid or payable by MCIm hereunder in an amount that is, on an annualized basis, greater than one percent (1%) of the aggregate charges for all services purchased under this Agreement.

22.4 Adjustments, credits or payments shall be made and any corrective action shall commence within thirty (30) days from ILEC's receipt of the final audit report to compensate for any errors or omissions which are disclosed by such Audit or Examination and are agreed to by the parties. The highest interest rate allowable by law for commercial transactions shall be assessed and shall be computed by compounding daily from the time of the overcharge to the day of payment.

22.5 Neither such right to examine and audit nor the right to receive an adjustment shall be affected by any statement to the contrary appearing on checks or otherwise, unless such statement expressly waiving such right appears in writing, is signed by the authorized representative of the party having such right and is delivered to the other party in a manner sanctioned by this Agreement.

22.6 This Section 22 shall survive expiration or termination of this Agreement shall for a period of two (2) years after expiration or termination of this Agreement.

Section 23. Dispute Resolution Procedures

The parties recognize and agree that the Commission has continuing jurisdiction to implement and enforce all terms and conditions of this Agreement. Accordingly, the parties agree that any dispute arising out of or relating to this Agreement that the parties themselves cannot resolve, may be submitted to the Commission for resolution. The parties agree to seek expedited resolution by the Commission, and shall request that resolution occur in no event later than sixty (60) days from the date of submission of such dispute. If the Commission appoints an expert(s) or other facilitator(s) to assist in its decision making, each party shall pay half of the fees and expenses so incurred. During the Commission proceeding each party shall continue to perform its obligations under this Agreement; provided, however that neither party shall be required to act in any unlawful fashion. This provision shall not preclude the parties from seeking relief available in any other forum.

Section 24. Bona Fide Request Process for Further Unbundling

24.1 The parties recognize that because MCIm plans to maintain a technologically advanced network it is likely to seek further unbundling of Network Elements or the introduction of new Network Elements. Accordingly, MCIm may request such new unbundled Network Elements or arrangements from time to time by submitting a request in writing ("Bona Fide Request" or "BFR"). ILEC shall acknowledge in writing such

BFR within twenty-four (24) hours of receipt, and shall acknowledge acceptance or rejection of the BFR and the reason(s) therefor within ten (10) days of receipt.

24.2 If ILEC accepts the BFR, ILEC shall provide time and cost estimates within ten (10) days of such acceptance. If ILEC does not accept the BFR, or the parties are unable to reach agreement on the time and cost within twenty (20) days of ILEC's provision of such time and cost estimates, MCIm may immediately file a petition with the Commission seeking the Commission's determination that ILEC be required to provide the requested Network Element. ILEC must respond to MCIm's petition within ten (10) days of its filing and must demonstrate either the technical infeasibility of providing such Network Element or harm to its network reliability. The full burden of proof shall be ILEC's. The parties agree to seek expedited Commission approval, to be completed within twenty (20) days of ILEC's response, and in no event more than thirty (30) days after the filing of MCIm's petition.

Section 25. Branding

25.1 In all cases in which ILEC has control over handling of services MCIm may provide using services provided by ILEC under this Agreement, ILEC shall, at MCIm's sole discretion, brand any and all such services at all points of customer contact exclusively as MCIm services, or otherwise as MCIm may specify, or be provided with no brand at all, as MCIm shall determine. ILEC may not unreasonably interfere with branding by MCIm.

25.2 MCIm shall provide the exclusive interface to MCIm subscribers, except as MCIm shall otherwise specify. In those instances where MCIm requires ILEC personnel or systems to interface with MCIm subscribers, such ILEC personnel shall identify themselves as representing MCIm, or such brand as MCIm may specify, and shall not identify themselves as representing ILEC or any other entity.

25.3 All forms, business cards or other business materials furnished by ILEC to MCIm subscribers shall be provided by MCIm unless otherwise agreed by MCIm, in its sole discretion, in which case, any such customer materials shall be subject to MCIm's prior review and approval, and shall bear no corporate name, logo, trademark or trade names other than MCIm or its Affiliates or such other brand as MCIm, in its sole discretion, shall determine.

25.4 Except as specifically permitted by MCIm, in no event shall ILEC provide information to MCIm subscribers about MCIm or MCIm's products or services.

25.5 ILEC shall provide, for MCIm's review and approval, the methods and procedures, training and approaches to be used by ILEC to assure that ILEC meets MCIm's branding requirements.

25.6 This Section 25 shall confer on ILEC no rights to the service marks, trademarks and trade names owned by or used in connection with services by MCIm or its Affiliates, except as expressly permitted by MCIm.

Section 26. Taxes

Any Federal, state or local excise, license, sales, or use taxes (excluding any taxes levied on income) resulting from the performance of this Agreement shall be borne by the party upon which the obligation for payment is imposed under applicable law, even if the obligation to collect and remit such taxes is placed upon the other party. Any such taxes shall be shown as separate items on applicable billing documents between the parties. The party so obligated to pay any such taxes may contest the same in good faith, at its own expense, and shall be entitled to the benefit of any refund or recovery, provided that such party shall not permit any lien to exist on any asset of the other party by reason of the contest. The party obligated to collect and remit taxes shall cooperate fully in any such contest by the other party by providing records, testimony and such additional information or assistance as may reasonably be necessary to pursue the contest.

Section 27. Responsibility for Environmental Contamination

27.1 MCIm shall in no event be liable to ILEC for any costs whatsoever resulting from the presence or release of any environmental hazard that MCIm did not introduce to the affected work location. ILEC shall, at MCIm's request, indemnify, defend, and hold harmless MCIm, each of its officers, directors and employees from and against any losses, damages, claims, demands, suits, liabilities, fines, penalties and expenses (including reasonable attorneys fees) that arise out of or from (i) any environmental hazard that ILEC, its contractors or agents introduce to the work locations or (ii) the presence or release of any environmental hazard for which ILEC is responsible under Applicable Law.

27.2 ILEC shall in no event be liable to MCIm for any costs whatsoever resulting from the presence or release of any environmental hazard that ILEC did not introduce to the affected work location. MCIm shall, at ILEC's request, indemnify, defend, and hold harmless ILEC, each of its officers, directors and employees from and against any losses, damages, claims, demands, suits, liabilities, fines, penalties and expenses (including reasonable attorneys' fees) that arise out of or result from (i) any environmental hazard that MCIm, its contractors or agents introduce to the work locations or (ii) the presence of release of any environmental hazard for which MCIm is responsible under applicable law.

27.3 In the event any suspect materials within ILEC-owned, operated or leased facilities are identified to be asbestos-containing, MCIm will ensure that to the extent any activities which it undertakes in the facility disturb such suspect materials, such MCIm activities will be in accordance with applicable local, state and federal environmental and health and safety statutes and regulations. Except for abatement activities undertaken by MCIm or equipment placement activities that result in the generation of asbestos containing material, MCIm shall not have any responsibility for managing, nor be the owner of, not have any liability for, or in connection with, any asbestos containing material. ILEC agrees to immediately notify MCIm if ILEC undertakes any asbestos control or asbestos abatement activities that potentially could affect MCIm equipment or operations, including, but not limited to, contamination of equipment.

Section 28. Amendments and Modifications

No provision of this Agreement shall be deemed waived, amended or modified by either party unless such a waiver, amendment or modification is in writing, dated, and signed by both parties.

Section 29. Severability

Subject to Section 2 - Regulatory Approvals, if any part of this Agreement is held to be invalid for any reason, such invalidity will affect only the portion of this Agreement which is invalid. In all other respects this Agreement will stand as if such invalid provision had not been a part thereof, and the remainder of the Agreement shall remain in full force and effect.

Section 30. Headings Not Controlling

The headings and numbering of Sections, Parts and Attachments in this Agreement are for convenience only and shall not be construed to define or limit any of the terms herein or affect the meaning or interpretation of this Agreement.

Section 31. Entire Agreement

This Agreement, including all Parts and Attachments and subordinate documents attached hereto or referenced herein, all of which are hereby incorporated by reference herein, constitute the entire matter thereof, and supersede all prior oral or written agreements, representations,

statements, negotiations, understandings, proposals, and undertakings with respect to the subject matter thereof.

Section 32. Counterparts

This Agreement may be executed in counterparts. Each counterpart shall be considered an original and such counterparts shall together constitute one and the same instrument.

Section 33. Successors and Assigns

This Agreement shall be binding upon, and inure to the benefit of, the parties hereto and their respective successors and permitted assigns.

IN WITNESS WHEREOF, each of the parties has caused this Agreement to be executed by its duly authorized representatives.

MCImetro Access Transmission Services, Inc.	**ILEC**
By:_____	By: _____
Name:_____	Name:_____
Title:_____	Title:_____
Date:_____	Date:_____

PART B -- DEFINITIONS

"911 SITE ADMINISTRATOR" is a person assigned by MCIm to establish and maintain E911 service location information for its subscribers.

"911 SERVICE" means a universal telephone number which gives the public direct access to the Public Safety Answering Point (PSAP). Basic 911 service collects 911 calls from one or more local exchange switches that serve a geographic area. The calls are then sent to the correct authority designated to receive such calls.

"ASR" (ACCESS SERVICE REQUEST) means the industry standard forms and supporting documentation used for ordering Access Services. The ASR may be used to order trunking and facilities between MCIm and ILEC for Local Interconnection.

"ACCESS SERVICES" refers to interstate and intrastate switched access and private line transport services.

"ACT" means the Communications Act of 1934 as amended.

"AIN" (ADVANCED INTELLIGENT NETWORK) is a network functionality that permits specific conditions to be programmed into a switch which, when met, directs the switch to suspend call processing and to receive special instructions for further call handling instructions in order to enable carriers to offer advanced features and services.

"AFFILIATE" is an entity that directly or indirectly owns or controls, is owned or controlled by, or is under common ownership or control with,another entity. In this paragraph, "own" or "control" means to own an equity interest (or equivalent) of at least 10% with respect to ILEC, or the right to control the business decisions, management and policy of another entity.

"GATEWAY" (ALI GATEWAY) is a telephone company computer facility that interfaces with MCIm's 911administrative site to receive Automatic Location Identification (ALI) data from MCIm. Access to the Gateway will be via a dial-up modem using a common protocol.

"AMA" means the Automated Message Accounting structure inherent in switch technology that initially records telecommunication message information. AMA format is contained in the Automated Message Accounting document, published by Bellcore as GR-1100-CORE which defines the industry standard for message recording.

"ALI" (AUTOMATIC LOCATION IDENTIFICATION) is a proprietary database developed for E911 systems that provides for a visual display of the caller's

telephone number, address and the names of the emergency response agencies that are responsible for that address. The Alternative Local Exchange Company will provide ALI record information in National Emergency Number Association (NENA) Version #2 format. The ALI also shows an Interim Number Portability (INP) number if applicable.

"ALI/DMS" (AUTOMATIC LOCATION IDENTIFICATION/DATA MANAGEMENT SYSTEM) means the emergency service (E911/911) database containing customer location information (including name, address, telephone number, and sometimes special information from the local service provider) used to determine to which Public Safety Answering Point (PSAP) to route the call.

"ANI" (AUTOMATIC NUMBER IDENTIFICATION) is a feature that identifies and displays the number of a telephone that originates a call.

"ARS" (AUTOMATIC ROUTE SELECTION) is a service feature that provides for automatic selection of the least expensive or most appropriate transmission facility for each call based on criteria programmed into the system.

"BLV/BLI" (BUSY LINE VERIFY/BUSY LINE INTERRUPT) means an operator call in which the end user inquires as to the busy status of, or requests an interruption of, a call on an Exchange Service.

"CABS" means the Carrier Access Billing System which is defined in a document prepared under the direction of the Billing Committee of the OBF. The Carrier Access Billing System document is published by Bellcore in Volumes 1, 1A, 2, 3, 3A, 4 and 5 as Special Reports SR-OPT-001868, SR-OPT-0011869, SR-OPT-001871, SR-OPT-001872, SR-OPT-001873, SR-OPT-001874, and SR-OPT-001875, respectively, and contains the recommended guidelines for the billing of access and other connectivity services.

"CPN" (CALLING PARTY NUMBER) is a Common Channel Signaling parameter which refers to the number transmitted through the network identifying the calling party.

"CCS" is Common Channel Signaling.

"CENTRAL OFFICE SWITCH" or "CENTRAL OFFICE" means a switching entity within the public switched network, including but not limited to end office switches and tandem office switches. Central office switches may be employed as combination End Office/Tandem Office Switches (Combination Class 5/Class 4).

"CENTREX" means a Telecommunications Service that uses central office switching equipment for call routing to handle direct dialing of calls, and to provide numerous private branch exchange-like features.

"CHARGE NUMBER" is a CCS parameter which refers to the number transmitted through the network identifying the billing number of the calling party.

"CLASS" (Belcore Service Mark) -- Set of call-management service features that utilize the capability to forward a calling party's number between end offices as part of call setup. Features include Automatic Callback, Automatic Recall, Caller ID, Call Trace, and Distinctive Ringing.

"CLEC" means a Competitive Local Exchange Carrier.

"COLLOCATION" means the right of MCIm to place equipment of its choice in the ILEC's central offices or other ILEC locations. This equipment may be placed via either a physical or virtual collocation arrangement. With physical collocation, MCIm obtains dedicated space to place and maintain its equipment. With virtual collocation, the ILEC will install and maintain equipment that MCIm provides to ILEC.

"COMBINATIONS" means provision by ILEC of two or more connected Network Elements ordered by MCIm to provide its telecommunication services in a geographic area or to a specific customer and that are placed on the same order by MCIm.

"COMMISSION" means the [*insert name of state public utility commission*].

"CCS" (COMMON CHANNEL SIGNALING) means a method of digitally transmitting call set-up and network control data over a digital signaling network fully separate from the public switched telephone network that carries the actual call.

"CONDUIT" means a tube or protected pathway that may be used to house communication or electrical cables. Conduit may be underground or above ground (for example, inside buildings) and may contain one or more inner ducts.

"CONFIDENTIAL INFORMATION" has the meaning set forth in Section 21 of Part A -- General Terms.

"CONTRACT YEAR" means a twelve (12) month period during the term of the contract commencing on the Effective Date and each anniversary thereof.

"CONTROL OFFICE" is an exchange carrier center or office designated as its company's single point of contact for the provisioning and maintenance of its portion of local interconnection arrangements.

"CUSTOM CALLING FEATURES" -- Set of call-management service features available to residential and single-line business customers including call-waiting, call-forwarding and three-party calling.

"DBMS" (DATABASE MANAGEMENT SYSTEM) is a computer system used to store, sort, manipulate and update the data required to provide selective routing and ALI.

"DIRECTORY ASSISTANCE DATABASE" refers to any subscriber record used by the ILEC in its provision of live or automated operator-assisted directory assistance including but not limited to 411, 555-1212, NPA-555-1212.

"DIRECTORY ASSISTANCE SERVICES" provides Listings to callers. Directory Assistance Services may include the option to complete the call at the caller's direction.

"DIRECTORY LISTINGS" refers to subscriber information, including but not limited to name, address and phone numbers, that is published in any media, including but not limited to traditional white/yellow page directories, specialty directories, CD ROM, and other electronic formats.

"DISCLOSER" means that party to this Agreement which has disclosed Confidential Information to the other party.

"E911 Message Trunk" is a dedicated line, trunk or channel between two central offices or switching devices which provides a voice and signaling path for E911 calls.

"EFFECTIVE DATE" is the date indicated in Part A on which the Agreement shall become effective.

"EMERGENCY RESPONSE AGENCY" is a governmental entity authorized to respond to requests from the public to meet emergencies.

"ESN" (EMERGENCY SERVICE NUMBER) is a number assigned to the ALI and selective routing databases for all subscriber telephone numbers. The ESN designates a unique combination of fire, police and emergency medical service response agencies that serve the address location of each in-service telephone number.

"EMR" means the Exchange Message Record System used among ILECs for exchanging telecommunications message information for billable, non-billable, sample, settlement and study data. EMR format is contained in BR-010-200-010 CRIS Exchange Message Record, published by Bellcore and which defines the industry standard for exchange message records.

"E911" (ENHANCED 911 SERVICE) means a telephone communication service which will automatically route a call dialed "911" to a designated public safety answering point (PSAP) attendant and will provide to the attendant the calling party's telephone number and, when possible, the address from which the call is

being placed and the emergency response agencies responsible for the location from which the call was dialed.

"ENHANCED DIRECTORY ASSISTANCE" refers to directory Assistance services, including but not limited to reverse search, talking yellow pages, and locater services.

"ENHANCED WHITE PAGES" means optional features available for White Pages Directory listings (e.g., bold, all capitals, logos).

"ENHANCED YELLOW PAGES" means optional features available for Yellow Pages Directory listings (e.g., red type, bold, all capital, additional line of text, indented).

"EIS" (EXPANDED INTERCONNECTION SERVICE) is the collocation arrangement which ILEC provides in its designated wire centers.

"FCC Interconnection Order" is the Federal Communications Commission's First Report and Order in CC Docket No. 96-98 released August 8, 1996.

"ILEC" means the incumbent local exchange carrier.

"IXC" (INTEREXCHANGE CARRIER) means a provider of interexchange telecommunications services.

"INP" (INTERIM NUMBER PORTABILITY) is a service arrangement whereby subscribers who change local service providers may retain existing telephone numbers without impairment of quality, reliability, or convenience when remaining at their current location or changing their location within the geographic area served by the initial carrier's serving central office.

"IP" (INTERCONNECTION POINT) is a mutually agreed upon point of demarcation where the networks of ILEC and MCIm interconnect for the exchange of traffic.

"LIDB" (LINE INFORMATION DATA BASE(S)) A Service Control Point (SCP) database that provides for such functions as calling card validation for telephone line number cards issued by ILECs and other entities and validation for collect and billed-to-third services.

"NP" (NUMBER PORTABILITY) or "Number Portability" or "NP" means the ability of users of telecommunications services to retain, at the same location, existing telecommunications numbers without impairment of quality, reliability, or convenience when switching from one telecommunications carrier to another.

"MSAG" (MASTER STREET ADDRESS GUIDE (MSAG)) is a database defining the geographic area of an E911 service. It includes an alphabetical list of the street

names, high-low house number ranges, community names, and emergency service numbers provided by the counties or their agents to ILEC.

"MCI" means MCI Telecommunications Corporation.

"MCIm" means MCImetro Access Transmission Services, Inc.

"MCIm 911 DATABASE RECORDS" are the MCIm customer records to be provided by MCIm to ILEC for inclusion in ILEC's E911 database.

"MECAB" refers to the Multiple Exchange Carrier Access Billing (MECAB) document prepared by the Billing Committee of the Ordering and Billing Forum (OBF), which functions under the auspices of the Carrier Liaison Committee (CLC) of the Alliance for Telecommunications Industry Solutions (ATIS). The MECAB document, published by Bellcore as Special Report SR-BDS-000983, contains the recommended guidelines for the billing of an access service provided by two or more LECs (including a LEC and a CLEC), or by one LEC in two or more states within a single LATA.

"MECOD" refers to the Multiple Exchange Carriers Ordering and Design (MECOD) Guidelines for Access Services - Industry Support Interface, a document developed by the Ordering/Provisioning Committee under the auspices of the Ordering and Billing Forum (OBF), which functions under the auspices of the Carrier Liaison Committee (CLC) of the Alliance for Telecommunications Industry Solutions (ATIS). The MECOD document, published by Bellcore as Special Report SR STS-002643, establishes recommended guidelines for processing orders for access service which is to be provided by two or more LECs (including a LEC and a CLEC). It is published by Bellcore as SRBDS 00983.

"NANP" means the "North American Numbering Plan," the system or method of telephone numbering employed in the United States, Canada, and certain Caribbean countries. It denotes the three digit Numbering Plan Area code and a seven digit telephone number made up of a three digit Central Office code plus a four digit station number.

"NENA" (NATIONAL EMERGENCY NUMBER ASSOCIATION (NENA)) is an association with a mission to foster the technological advancement, availability and implementation of 911 nationwide.

"NETWORK ELEMENT" means a facility or equipment used in the provision of a telecommunications service including all features, functions and capabilities that are embedded in such facility or equipment.

"NP" (NUMBER PORTABILITY) means the use of the Local Routing Number (LRN) database solution to provide fully transparent NP for all customers and all providers without limitation.

"NPA" (NUMBERING PLAN AREA) (sometimes referred to as an area code). Is the three digit indicator which is designated by the first three digits of each 10-digit telephone number within the NANP. Each NPA contains 800 possible NXX Codes. There are two general categories of NPA, "Geographic NPAs" and "Non-Geographic NPAs." A "Geographic NPA" is associated with a defined geographic area, and all telephone numbers bearing such NPA are associated with services provided within that Geographic area. A "Non-Geographic NPA," also known as a "Service Access Code (SAC Code)" is typically associated with a specialized telecommunications service which may be provided across multiple geographic NPA areas; 500, 800, 900, 700, and 888 are examples of Non-Geographic NPAs.

"NXX," "NXX CODE," OR "CENTRAL OFFICE CODE," OR "CO CODE" is the three digit switch entity indicator which is defined by the fourth, fifth and sixth digits of a 10 digit telephone number within the North America Numbering Plan ("NANP").

"OBF" means the Ordering and Billing Forum, which functions under the auspices of the Carrier Liaison Committee (CLC) of the Alliance for Telecommunications Industry Solutions (ATIS).

"OPERATOR SYSTEMS" is the Network Element that provides operator and automated call handling with billing, special services, customer telephone listings, and optional call completion services.

"OPERATOR SERVICES" provides (1) operator handling for call completion (e.g. collect calls); (2) operator or automated assistance for billing after the customer has dialed the called numbed (e.g. credit card calls); and (3) special services (e.g. BLV/ELI, Emergency Agency Call).

"P.01 TRANSMISSION GRADE OF SERVICE (GOS)" means a trunk facility provisioning standard with the statistical probability of no more than one call in 100 blocked on initial attempt during the average busy hour.

"PLU" (PERCENT LOCAL USAGE) is a calculation which represents the ratio of the local minutes to the sum of local and intraLATA toll minutes between exchange carriers sent over Local Interconnection Trunks. Directory assistance, BLV/BLVI, 900, 976, transiting calls from other exchange carriers and switched access calls are not included in the calculation of PLU.

"POLE ATTACHMENT" means the connection of a facility to a utility pole. Some examples of facilities are mechanical hardware, grounding and transmission cable, and equipment boxes.

"POP" means an IXC's point of presence.

"PROPRIETARY INFORMATION" shall have the same meaning as Confidential Information.

"PSAP" (PUBLIC SAFETY ANSWERING POINT (PSAP)) is the public safety communications center where 911 calls placed by the public for a specific geographic area will be answered.

"RATE CENTER" means the geographic point and corresponding geographic area which are associated with one or more particular NPA-NXX codes which have been assigned to ILEC (or MCIm) for its provision of Basic Exchange Telecommunications Services. The "rate center point" is the finite geographic point identified by a specific V&H coordinate, which is used to measure distance-sensitive end user traffic to/from the particular NPA-NXX designations associated with the specific Rate Center. The "rate center area" is the exclusive geographic area identified as the area within which ILEC (or MCIm) will provide Basic Exchange Telecommunications Services bearing the particular NPA-NXX designations associated with the specific Rate Center. The Rate Center point must be located within the Rate Center area.

"REAL TIME" means the actual time in which an event takes place, with the reporting on or the recording of the event simultaneous with its occurrence.

"RECIPIENT" means that party to this Agreement (a) to which Confidential Information has been disclosed by the other party or (b) who has obtained Confidential Information in the course of providing services under this Agreement.

"RESELLER" is a category of Local Exchange service providers who obtain dial tone and associated telecommunications services from another provider through the purchase wholesale priced services for resale to their end user customers.

"ROW" (RIGHT OF WAY (ROW)) means the right to use the land or other property of another party to place poles, conduits, cables, other structures and equipment, or to provide passage to access such structures and equipment. A ROW may run under, on, or above public or private property (including air space above public or private property) and may include the right to use discrete space in buildings, building complexes or other locations.

"ROUTING POINT" means a location which ILEC or MCIm has designated on its own network as the homing (routing) point for traffic inbound to Basic Exchange Services provided by the ILEC or MCIm which bear a certain NPA-NXX designation. The Routing Point is employed to calculate mileage measurements for the distance-sensitive transport element charges of Switched Access Services. Pursuant to Bellcore Practice BR 795-100-100, the Routing Point may be an "End Office" location, or a "LEC Consortium Point of Interconnection." Pursuant to that same Bellcore Practice, examples of the latter shall be designated by a common language location identifier (CLLI) code with (x)KD in positions 9, 10, 11, where (x) may by

any alphanumeric A-Z or 0-9. The above referenced Bellcore document refers to the Routing Point as the Rating Point. The Rating Point/Routing Point need not be the same as the Rate Center Point, nor must it be located within the Rate Center Area, but must be in the same LATA as the NPA-NXX.

"SECAB" means the Small Exchange Carrier Access Billing document prepared by the Billing Committee of the OBF. The Small Exchange Carrier Access Billing document, published by Bellcore as Special Report SR OPT-001856, contains the recommended guidelines for the billing of access and other connectivity services.

"SELECTIVE ROUTING" is a service which automatically routes an E911 call to the PSAP that has jurisdictional responsibility for the service address of the telephone that dialed 911, irrespective of telephone company exchange or wire center boundaries.

"SWITCH" -- See Central Office Switch

"TANDEM OFFICE SWITCHES" which are Class 4 switches which are used to connect and switch trunk circuits between and among end office switches and other tandems.

"TECHNICALLY FEASIBLE" refers solely to technical or operational concerns, rather than economic, space, or site considerations.

"TELECOMMUNICATIONS" means the transmission, between or among points specified by the user, of information of the user's choosing, without change in the form or content of the information as sent and received.

"TELECOMMUNICATION SERVICES" means the offering of telecom-munications for a fee directly to the public, or to such classes of users as to be effectively available directly to the public, regardless of the facilities used. As used in this definition.

"THOUSANDS BLOCK OF NUMBERS" shall mean 1000 or more consecutive numbers beginning and ending on a digit boundary, e.g., 949-1000 to 949-1999.

"TRCO" means Trouble Reporting Control Office.

"VOLUNTARY FEDERAL CUSTOMER FINANCIAL ASSISTANCE PROGRAMS" are Telecommunications Services provided to low-income subscribers, pursuant to requirements established by the appropriate state regulatory body.

"WIRE CENTER" denotes a building or space within a building which serves as an aggregation point on a given carrier's network, where transmission facilities and circuits are connected or switched. Wire center can also denote a building in which one or more central offices, used for the provision of Basic Exchange Services and

access services, are located. However, for purposes of EIC service, Wire Center shall mean those points eligible for such connections as specified in the FCC Docket No. 91-141, and rules adopted pursuant thereto.

ATTACHMENT I

PRICE SCHEDULE

1. **General Principles**

1.1 All rates provided under this Agreement shall remain in effect for the term of this Agreement unless they are not in accordance with all applicable provisions of the Act, the Rules and Regulations of the FCC, or the Commission's rules and regulations, in which case Part A, Section 2 shall apply.

1.2 Except as otherwise specified in this Agreement, ILEC shall be responsible for (i) all costs and expenses it incurs in complying with its obligations under this Agreement and (ii) the development, modification, technical installation and maintenance of any systems or other infrastructure which it requires to comply with and to continue complying with its responsibilities and obligations under this Agreement.

2. **Non-Discriminatory Treatment**

ILEC shall offer rates to MCIm in accordance with Part A, Sections 2.4, 13 and 19.

3. **Local Service Resale**

The rates that MCIm shall pay to ILEC for Local Resale shall be an amount equal to ILEC's tariffed rates for each note element as reduced by a percentage amount equal to the Total Applicable Discount (defined below). If ILEC reduces such tariffed rates during the term of this Agreement, the Total Applicable Discount shall be applied to the reduced tariffed rates.

3.1 Total Applicable Discount

The Total Applicable Discount is the sum of two separate discounts: (i) the state by state Base Line Resale Discount; and (ii) the Volume Discount. The Volume Discount is described in Section 6 of this Attachment I.

3.2 Base Line Resale Discount

The Base Line Resale Discount is included in Table 1 of this Attachment.

4. Interconnection and Reciprocal Compensation

4.1 Each party will be responsible for bringing their facilities to the Interconnection Point. MCIm may designate an IP at any technically feasible point including but not limited to any electronic or manual cross-connect points, collocations, telco closets, entrance facilities, and mid-span meets.

4.2 At the discretion of MCIm, Local Interconnection may be accomplished via one-way local trunks, or two-way local trunks, or MCIm may choose to deliver both Local Traffic and toll traffic over the same trunk group(s). In the event MCIm chooses to deliver both types of traffic over the same trunk, and desires application of the Local Interconnection rate, it will provide Percent Local Usage (PLU) to ILEC.

4.3 Compensation for the exchange of Local Traffic is set forth in Table 1 of this Attachment and shall be based on per-minutes -of-use.

4.4 When the interconnection is at an ILEC Tandem switch, MCIm shall pay ILEC the rates for tandem switching, an average transport rate and a termination rate. ILEC will pay MCIm a reciprocal compensation and symmetrical compensation rate.

4.5 MCIm may choose to establish trunking to any given end office when there is sufficient traffic to route calls directly to such end office. If MCIm leases one-way trunks from ILEC, MCIm will pay the transport charges for dedicated or common transport. For two-way trunks the charges will be shared equally by both parties.

4.6 When the interconnection is at the ILEC end office, ILEC will pay MCIm compensation based on tandem switching, average transport and termination when ILEC originated calls are terminated to MCIm's subscribers. For calls originating on MCIm's network and terminating to ILEC subscribers, MCIm will pay ILEC compensation based on end office termination only.

4.7 Compensation for the termination of toll traffic and the origination of 800 traffic between the interconnecting parties shall based on the applicable access charges in accordance with FCC Rules and Regulations.

4.8 Where a toll call is completed through ILEC's INP arrangement (e.g., remote call forwarding, flexible DID, etc.) to MCIm's subscriber, MCIm shall be entitled to applicable access charges in accordance with FCC Rules and Regulations.

4.9 MCIm shall pay a transit rate as set forth in Table 1 of this Attachment when MCIm uses an ILEC access tandem to terminate a call to a third party LEC or another CLEC. ILEC shall pay MCIm a transit rate equal to the ILEC rate

referenced above when an ILEC uses an MCIm switch to terminate a call to a third party LEC or another CLEC.

5. **Unbundled Network Elements**

The charges that MCIm shall pay to ILEC for Network Elements are set forth in Table 1 of this Attachment I .

6. **Volume Discount**

An additional Volume Discount will be applied to any services purchased under this Agreement. The Volume Discount will be based on total revenue generated by MCIm for all services covered by this agreement across all regions served by the ILEC.

Quarterly Revenue ($Millions)	Volume Discount
	%
	%
	%
	%
	%
	%
	%

7. **Directory Listings**

7.1 ILEC shall not charge MCIm or its subscribers for (i) basic white page listings for residential customers; (ii) basic yellow page and business white page listings (as available to ILEC subscribers) for business subscribers; or (iii) distribution of white and yellow page directories. ILEC shall offer for resale enhanced directory listings at an amount equal to retail rates, less the Total Applicable Discount, and pursuant to terms and conditions no less favorable than those offered to ILEC subscribers.

7.2 MCIm is responsible for providing ILEC with accurate directory information in an established format and in a timely manner.

TABLE 1
PRICING
State: _____

Item	Type	Explanation	Price Proposal	$ Per Month				
			Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6
Network Interface Device	Twisted Pair	2- or 4-wire	$ per month					
	Smart Jack	T-1 line	$ per month					
	Fiber		$ per month					
	Coax		$ per month					
Loop distribution	Twisted pair		$ per month					
	Fiber		$ per month					
	Coax		$ per month					
	Hybrid		$ per month					
	Other alternatives		$ per month					
Digital Loop Carrier/Analog cross connect	Virtual remote terminal at DS0 and DS1 levels		$ per month					
Combined loop feeder, DLC and distribution	Twisted pair	2-wire 4-wire ISDN ADSL HDSL	$ per month					
	DS1		$ per month					
	DS3		$ per month					
	SONET OCn		$ per month					

Item	Type	Explanation	Price Proposal Recurring
Baseline Resale Discount			%
Interconnection and Reciprocal Compensation	Tandem End Office Transit		$ per minute $ per minute $ per minute
Local Switching	Line Port		$ per month
		Coin includes public, semi-public, COCOT and options	$ per month
		2 wire ISDN	$ per month
		DS1 ISDN	$ per month
		2 wire/4 wire analog interface to PBX	$ per month
		DS1 interface to PBX or other CPE	$ per month
		Switched Fractional DS1	$ per month
		Direct Inward Dial interface	$ per month
	Rotary Port		$ per month
	Trunk Port	CAMA ANI	$ per month
		FGB	$ per month
		FGD/IEC Operator	$ per month
		DS3	$ per month
		64 kbps clear channel	$ per month
		Switched digital - 56&64 kbps	$ per month
	Switching capacity	includes intraoffice,	$ per minute

		interoffice local originating and terminating	
	Features	Residence	none
		Business	none
		CLASS	none
		Centrex	none
		AIN	none
Local Operator Services	0+ calling card	0+ card automated card	$ per call
	Station	0- card	$ per call
		0- bill to third	$ per call
		0- collect	$ per call
		0- no attempt	$ per call
		Automated bill to third	$ per call
		0+ collect	$ per call
		Automated collect	$ per call
		Sent paid	$ per call
	Person	0- card	$ per call
		0- bill to third	$ per call
		0- collect	$ per call
		0+ calling card	$ per call
		0+ bill to third	$ per call
		0+ collect	$ per call
	Dialing instructions		$ per call
	Route 0- to live operator		none
	Time and Charges		$ per work minute
	Busy line verification		$ per call
	Emergency interrupt		$ per call
	Emergency call trace		$ per call
Local Operator Services	Operator transport		$ per month
Local Directory Assistance	Directory Assistance		$ per call
	DA Transport		$ per month
	DA interconnection		$ per month
	DA database		
	Direct access to DA database		
	DA call completion		
	Call completion		

	termination		
	Intercept		
Common Transport	Interoffice transmission path between LEC network elements		$ per minute
Dedicated transport	Voice grade	2 Wire	$ per month
		4 Wire	$ per month
		IO Channel	$ per month
	DS0	2 Wire	$ per month
		4 Wire	$ per month
		IO Channel	$ per month
	DS1	Local Channel	$ per month
		IO Channel	$ per month
	DS3	Local Channel	$ per month
		IO Channel	$ per month
	STS-1		$ per month
	Capacity on Shared circuit		$ per month
	SONET ring system		$ per month
Digital Cross Connect Systems	DCS 1/0		$ per month
	DCS 3/1	28 DS1 Channel system Per DS1 basis	$ per month
	DCS 3/3		
	STS-1 crossconnect		$ per month
Tandem Switching			$ per minute
STPs	ISUP message		$ per message
	TCAP message		$ per message
	Usage surrogate		$ per mo. per 56 kbps facility
Signaling link transport	A or D link facility	56 kbps	$ per month
Signaling Link Transport	Signaling facility termination		$ per month
SCPs databases	Line Information database LIDB	Storage	
		Use of ILEC LIDB data	

		Validation	
	NP database		
	ALI/DMS database		
	SCE/SMS/AIN access		
Additional Directory Listings			
CMDS Hosting			
Non-sent paid Reporting system			
Poles, Ducts, Conduits and ROW	Maps		
	Pole Attachment Conduit		
	Innerduct		
Virtual Collocation	Space		
	Power		
	Entrance Facilities		
	DS1 Cross Connections		
	DS3 Cross Connections		
Physical Collocation	Space		
	Power		
	Entrance Facilities		
	DS1 Cross Connections		
	DS3 Cross Connections		
Lease of unused transmission media			

ATTACHMENT II

LOCAL RESALE

Section 1. Telecommunications Services Provided for Resale

1.1 At the request of MCIm, and pursuant to the requirements of the Act, and FCC Rules and Regulations, ILEC shall make available to MCIm for unrestricted resale any Telecommunications Service that ILEC currently provides or may offer hereafter. ILEC shall also provide Service Functions, as set forth in this Attachment II. The Telecommunications Services and Service Functions provided by ILEC to MCIm pursuant to this Agreement are collectively referred to as "Local Resale."

1.2 To the extent that this Attachment describes services which ILEC shall make available to MCIm for resale pursuant to this Agreement, this list of services is neither all inclusive nor exclusive. All Telecommunications Services of ILEC which are to be offered for resale are subject to the terms herein.

1.3 **Features and Functions Subject to Resale.** ILEC shall make all of its Telecommunications Services available for resale to MCIm on terms and conditions that are reasonable and nondiscriminatory.

1.4 ILEC will provide MCIm with at least the capability to provide an MCIm subscriber at least the same level of service quality as ILEC provides its own subscribers with respect to all Telecommunications Services and shall provide such capability in accordance with the specific requirements of Attachment VIII.

1.5 The specific business process requirements and systems interface requirements are set forth in Attachment VIII.

Section 2. General Terms and Conditions for Resale

2.1 **Pricing.** The prices charged to MCIm for Local Resale are set forth in Attachment I of this Agreement.

2.2 **No Restrictions on Resale.** MCIm may resell to any and all classes of end-users Telecommunications Services obtained from

ILEC under this Agreement, except for Lifeline Assistance and Link-Up or similar services, which MCIm may only resell to those subscribers who are eligible for such services. ILEC will not prohibit, nor impose unreasonable or discriminatory conditions or limitations on the resale of its Telecommunications Service. ILEC agrees to remove all tariff restrictions which prohibit or limit the aggregation and resale of any such Telecommunication Services, including, but not limited to, CENTREX aggregation, feature and service aggregation, and resale of Telecommunications Services to another reseller.

2.3 Requirements for Specific Services

2.3.1 CENTREX Requirements

2.3.1.1 At MCIm's option, MCIm may purchase the entire set of CENTREX features or a subset of any one or any combination of such features. The CENTREX Service provided for resale will meet the requirements of this Subsection 2.3.1.

2.3.1.2 All features and functions of CENTREX Service, including CENTREX Management System (CMS), whether offered under tariff or otherwise, shall be available to MCIm for resale, without any geographic or subscriber class restrictions.

2.3.1.3 ILEC shall make CMS information available to MCIm at the End Office level via an electronic interface as specified in Attachment VIII.

2.3.1.4 ILEC shall provide to MCIm a list by central office of all CENTREX or CENTREX-like features and functions offered by ILEC within ten (10) days of the Effective Date of this Agreement, and shall provide updates to such list as specified in Attachment VIII.

2.3.1.5 All service levels and features of CENTREX Service provided by ILEC for resale by MCIm shall meet the service parity requirements set forth in Attachment VIII.

2.3.1.6 MCIm may aggregate the CENTREX local exchange and IntraLATA traffic usage of MCIm subscribers to qualify for volume discounts on the basis of such aggregated usage.

2.3.1.7 MCIm may aggregate multiple MCIm subscribers on dedicated access facilities. MCIm may require that ILEC suppress the need for MCIm subscribers to dial "9" when placing calls outside the CENTREX System.

2.3.1.8 MCIm may use among other methods remote call forwarding in conjunction with CENTREX Service to provide service to MCIm local service subscribers residing outside of the geographic territory in which ILEC provides local exchange service.

2.3.1.9 MCIm may purchase any and all levels of CENTREX Service for resale, without restriction on the minimum or maximum number of lines that may be purchased for any one level of service.

2.3.1.10 ILEC shall make available to MCIm for resale, at no additional charge, intercom calling among all MCIm subscribers who utilize resold CENTREX Service.

2.3.1.11 MCIm may utilize Automatic Route Selection ("ARS") to provision access.

2.3.2 **Voluntary Federal and State Subscriber Financial Assistance Programs**

Local Resale provided to low-income subscribers, pursuant to requirements established by the appropriate state regulatory body, include programs such as Voluntary Federal Subscriber Financial Assistance Program and Link-Up America. When an ILEC subscriber eligible for the Voluntary Federal Subscriber Financial Assistance Program or other similar state programs chooses to obtain Local Resale from MCIm, ILEC shall forward all information regarding such subscriber's eligibility to participate in such programs to MCIm in electronic format in accordance with the procedures set forth herein.

2.3.3 **Lifeline/Link-Up Service.** ILEC shall offer for resale Lifeline and Link-Up Service. ILEC will provide information about the certification process for the provisioning of Lifeline, Link-up, and similar services.

2.3.4 **Obsolete/Grandfathered Services.** ILEC shall offer for resale to MCIm all obsolete /grandfathered services. For purposes of this Agreement, an obsolete/grandfathered service is a service that ILEC offers to existing retail subscribers but not to new subscribers. MCIm shall have the right to review and approve any ILEC request for the termination of service and its grandfathering filed with the Commission.

2.3.5 **N11 Service**

2.3.5.1 ILEC agrees not to offer any new N11 services after the Effective Date of this Agreement unless ILEC makes any such service available for resale.

2.3.5.2 MCIm shall have the right to resell any N11 service, including but not limited to 411, 611 or 911 services, existing as of the Effective Date. These services shall be unbranded and routed to MCIm, as required by MCIm pursuant to Part A, Section 25.

2.3.6 **Contract Service Arrangements, Special Arrangements, and Promotions.** ILEC shall offer for resale all of its services available to any retail subscriber, including but not limited to Contract Service Arrangements, Special Arrangements, and Promotions, all in accordance with FCC Rules and Regulations.

2.3.7 **Discount Plans and Services.** ILEC shall offer for resale all Discount Plans and Services in accordance with FCC Rules and Regulations.

2.3.8 **Inside Wire Maintenance Service**. ILEC shall offer for resale inside wire maintenance service.

2.3.9 **Pay Phone Service**

ILEC shall offer for resale, at a minimum, the following: Coin Line, COCOT Line Coin, and COCOT Line Coinless features:

Billed Number Screening
Ability to "freeze" PIC selection
One bill per line
Point of demarcation at the Network Interface location
Detailed billing showing all 1+ traffic on paper, diskette or electronic format
Wire Maintenance option
Touch-tone service
Option for listed or non-listed numbers
Access to 911 service
One directory per line

2.3.9.1 ILEC shall offer for resale at a minimum, the following Coin Line features:

Access to all CO intelligence required to perform answer detection, coin collection, coin return, and disconnect
Answer Detection
Option to block all 1+ calls to international destinations
IntraLATA Call Timing
Option of one-way or two-way service on line
Flat Rate Service
Originating line screening
MCIm rate tables for local and intraLATA service
ILEC Central Office Intelligence for rating and other functions
Option of measured service
Ability to block any 1+ service that cannot be rated by the coin circuits/ TSPS/OSPS
Protect against clip on fraud
Protect against blue box fraud

2.3.9.2 ILEC shall offer for resale, at a minimum, the following COCOT Line Coin and COCOT Line Coinless features:

Originating line screening
Two-way service option
Flat rate service based on rate groups
Option of one-way service on the line
Option of measured service
Ability to keep existing serving telephone numbers if cutover to
MCIm resale line incoming/outgoing screening
Provision of Information Digit 29
Provision of International Toll Denial Recognition Tone

2.3.9.3 ILEC shall offer for resale, at a minimum, the following COCOT Line Coin feature:

Blocking for 1+ international, 10XXXX1 + international, 101XXXX1 + international, 1+900, N111, 976
Option to block all 1-700 and 1-500 calls
Line side supervision option

2.3.9.4 ILEC shall offer for resale, at a minimum, the following COCOT Line Coinless feature:

Blocking for 1 + international, 10XXXX1 + international, 101XXXX1 + International, 1+900, N11, 976, 7 digit local, 1 +000

2.3.9.5 ILEC shall offer for resale, at a minimum, the following SemiPublic Coin features:

Ability to keep existing serving telephone numbers if cutover to MCIm
Touch-tone Service
Option for listed, nonlisted, or non published numbers
Provision 911 service
Access to ANI information
Access to all CO intelligence

Ability to keep existing serving telephone numbers if cutover to MCIm required to perform answer supervision, collect and refund
Far end disconnect recognition
Call timing
PIC protection for all 1+ local, interLATA, and intraLATA traffic
Same call restrictions as available on ILEC phones for interLATA, international, intraLATA, and local calling
One bill per line
Detailed billing showing all 1+ traffic in paper or electronic format
Option to have enclosure installed with set
One directory per line installed
Install the station to at least ILEC standards
Option to block all 1+ international calls
Option of one-way or two-way service
Wire Maintenance option
Ability to block any 1+ service that cannot be rated by the coin circuits/ TSPS/OSPS
Use of MCIm rate tables for local and intraLATA service
Option to have ILEC techs collect, count, and deposit vault contents on behalf of MCIm
Monitor vault contents for slugs and spurious non US currency or theft and notify MCIm of discrepancies
Station or enclosure equipment should only bear the name/brand designated by MCIm on the order form
Protect against clip on fraud
Protect against red box fraud
Protect against blue box fraud
Provide option for use of "bright" station technology including debit cards
Provide revenue, maintenance, collection reports as specified by MCIm on order form on a periodic basis in paper or electronic format
Blocking of inbound international calls
Point of demarcation at the set location
Provide service restoration per MCIm's Performance Standards
Service outage transfers to MCIm help center
Special screen codes unique to MCIm and/or its subscribers

Single point of Contact for bills and orders dedicated to Public
Access to MCIm Directory Assistance
Access to MCIm's Network Access Interrupt
Access to ANI Information
Provide all information requested to ensure MCIm can bill for access line
Provide all information requested to ensure MCIm can bill for usage on the line
All calls originating from stations serviced by these lines should be routed to MCIm lines, except where designated
Provide the same monitoring and diagnostic routines on the line as ILEC would on its own facilities
Provide installation intervals per MCIm Performance Standards
Ordering per MCIm Performance Standards
Call Transfer per MCIm Performance Standards
Billing per MCIm Performance Standards
PIC per MCIm Performance Standards

2.3.10 **Voice Mail Service**

2.3.10.1 MCIm shall have the right to resell ILEC Voice Mail services.

2.3.10.2 ILEC shall make available the SMDI-E (Station Message Desk Interface-Enhanced) where available, or SMDI, Station Message Desk Interface where SMDI-E is not available, feature capability allowing for Voice Mail Services. ILEC shall make available the MWI (Message Waiting Indicator) stutter dialtone and message waiting light feature capabilities. ILEC shall make available CF-B/DA (Call Forward on Busy/Don't Answer), CF/B (Call Forward on Busy), and CF/DA (Call Forward Don't Answer) feature capabilities allowing for Voice Mail services.

2.3.11 **Hospitality Service**

2.3.11.1 ILEC shall provide all blocking, screening, and all other applicable functions available for hospitality lines.

2.3.12 **Telephone Line Number Calling Cards.** Effective thirty (30) days after the date of an end-user's subscription to MCIm service or within 24 hours after MCIm has notified ILEC that it has replaced the subscriber's calling card, whichever is earlier, ILEC will terminate its existing telephone line number-based calling cards and remove any ILEC-assigned Telephone Line Calling Card Number (including area code) ("TLN") from the LIDB. MCIm may issue a new telephone calling card to such subscriber, utilizing the same TLN, and MCIm shall have the right to enter such TLN in LIDB for calling card validation purposes. ILEC will direct-bill each subscriber on the subscriber's final bill.

Section 3. Advanced Intelligent Network

3.1 MCIm may purchase the entire set of Advanced Intelligent Network ("AIN") features or functions, or a subset of any one or any combination of such features or functions, on a subscriber-specific basis. The AIN services provided by ILEC to MCIm for resale shall meet the following requirements:

3.1.1 AIN, whether offered under tariff or otherwise, shall be available to MCIm for resale, without any geographic restrictions;

3.1.2 ILEC shall provide full functionality access to MCIm on behalf of MCIm subscribers, including the Service Control Point Database and Intelligent Functions;

3.1.3 All service levels, features and function components of AIN provided by ILEC shall meet the service parity requirements set forth in this Agreement; and

3.1.4 MCIm may purchase any and all levels of AIN service for resale, without restriction on the minimum or maximum number of lines or features that may be purchased for any one level of service.

Section 4. Service Functions

4.1 ILEC shall provide MCIm with the information MCIm will need to certify subscribers as exempt from charges (including taxes), or eligible for reduced charges associated with providing services, including but not limited to handicapped individuals, and certain governmental bodies and public institutions and shall not bill MCIm for such services.

4.2 ILEC shall provide MCIm with appropriate notification of all area transfers with line level detail 120 days before service transfer, and will also notify MCIm within 120 days before such change of any LATA boundary changes.

4.3 ILEC will work cooperatively with MCIm in practices and procedures regarding the handling of law enforcement and service annoyance calls.

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NETWORK ELEMENTS

ATTACHMENT III

NETWORK ELEMENTS

Section 1. Introduction

ILEC shall provide unbundled Network Elements in accordance with this Agreement, FCC Rules and Regulations. The price for each Network Element is set forth in Attachment I of this Agreement. Except as otherwise set forth in this Attachment, MCIm may order Network Elements as of the Effective Date.

Section 2. Unbundled Network Elements

2.1 ILEC shall offer Network Elements to MCIm on an unbundled basis on rates, terms and conditions that are just, reasonable, and non-discriminatory in accordance with the terms and conditions of this Agreement.

2.2 ILEC shall permit MCIm to connect MCIm's facilities or facilities provided to MCIm by third parties with each of ILEC's unbundled Network Elements at any point designated by MCIm that is technically feasible.

2.3 MCIm may use one or more Network Elements to provide any feature, function, capability, or service option that such Network Element(s) is capable of providing or any feature, function, capability, or service option that is described in the technical references identified herein, or as may otherwise be determined by MCIm.

2.3.1 MCIm may, at its option, designate any technically feasible method of access to unbundled elements, including access methods currently or previously in use.

2.4 ILEC shall offer each Network Element individually and in combination with any other Network Element or Network Elements in order to permit MCIm to provide Telecommunications Services to its customers.

2.5 For each Network Element, ILEC shall provide a demarcation point (e.g., at a Digital Signal Cross Connect, Light Guide Cross Connect panel or a Main Distribution Frame) and, if necessary, access to such

provides combined Network Elements at MCIm's direction, no demarcation point shall exist between such contiguous Network Elements.

2.6 Charges in Attachment I are inclusive and no other charges apply, including but not limited to any other consideration for connecting any Network Element(s) with other Network Element(s).

2.7 This Attachment describes the initial set of Network Elements which MCIm and ILEC have identified as of the effective date of this agreement:

Loop
Network Interface Device
Distribution
Local Switching
Operator Systems
Common Transport
Dedicated Transport
Signaling Link Transport
Signaling Transfer Points
Service Control Points/Databases
Tandem Switching
911
Directory Assistance

MCIm and ILEC agree that the Network Elements identified in this Attachment are not all possible Network Elements.

MCIm may identify additional or revised Network Elements as necessary to provide telecommunications services to its subscribers, to improve network or service efficiencies or to accommodate changing technologies, customer demand, or other requirements.

MCIm will request such Network Elements in accordance with the bona Fide request process described in Section 24 of Part A. Additionally, if ILEC provides any Network Element that is not identified in this Agreement, to itself, to its own subscribers, to an ILEC affiliate or to any other entity, ILEC shall make available the same Network Element to MCIm on terms and conditions no less favorable to MCIm than those provided to itself or to any other party at TELRIC prices.

Section 3. Standards for Network Elements

3.1 Each Network Element shall be furnished at a service level equal to or better than the requirements set forth in the technical references referenced in the following, as well as any performance or other

3.1 Each Network Element shall be furnished at a service level equal to or better than the requirements set forth in the technical references referenced in the following, as well as any performance or other requirements, identified herein. In the event Bell Communications Research, Inc. ("Bellcore"), or industry standard (e.g., American National Standards Institute ("ANSI")) technical reference or a more recent version of such reference sets forth a different requirement, MCIm may elect, where technically feasible, that such standard shall apply.

3.2 If one or more of the requirements set forth in this Agreement are in conflict, MCIm shall elect which requirement shall apply.

3.3 Each Network Element provided by ILEC to MCIm shall be at least equal in the quality of design, performance, features, functions, capabilities and other characteristics, including but not limited to levels and types of redundant equipment and facilities for power, diversity and security, that ILEC provides to itself, ILEC's own customers, to a ILEC affiliate or to any other entity.

3.3.1 ILEC shall provide to MCIm, upon request, engineering, design, performance and other network data sufficient for MCIm to determine that the requirements of this Section 3 are being met. In the event that such data indicates that the requirements of this Section 3 are not being met, ILEC shall, within 10 days, cure any design, performance or other deficiency and provide new data sufficient for MCIm to determine that such deficiencies have been cured.

3.3.2 ILEC agrees to work cooperatively with MCIm to provide Network Elements that will meet MCIm's needs in providing services to its customers.

3.4 Unless otherwise requested by MCIm, each Network Element and the connections between Network Elements provided by ILEC to MCIm shall be made available to MCIm on a priority basis, at any technically feasible point, that is equal to or better than the priorities that ILEC provides to itself, ILEC's own customers, to an ILEC affiliate or to any other entity.

Section 4. Loop

4.1 Definition

4.1.1 A loop is a transmission facility between a distribution frame [cross-connect], or its equivalent, in an ILEC central office or wire center, and the network interface device at a customer's premises,

to which MCIm's granted exclusive use. This includes, but is not limited to two-wire and four-wire analog voice-grade loops, and two-wire and four-wire loops that are conditioned to transmit the digital signals needed to provide ISDN, ADSL, HDSL, and DS1-level signals. A loop may be composed of the following components:

Loop Concentrator / Multiplexer
Loop Feeder
Network Interface Device (NID)
Distribution

Loop Distribution is a Network Element that is composed of two distinct component parts: a Network Interface Device and Distribution facilities. Each component part is defined in detail below.

4.1.2 If ILEC uses Integrated Digital Loop Carrier (DLCs) systems to provide the local loop, ILEC will make alternate arrangements to permit MCIm to order a contiguous unbundled local loop at no additional cost to MCIm. These arrangements may, at ILEC's option, include the following: provide MCIm with copper facilities or universal DLC that are acceptable to MCIm, deploy Virtual Remote Terminals, allow MCIm to purchase the entire Integrated DLC, or convert integrated DLCs to non-integrated systems.

4.2. **Technical Requirements**

Subdivided to each component as detailed below.

4.3 **Interface Requirements**

Subdivided to each component as detailed below.

4.4 **Loop Components**

4.4.1 Loop Concentrator/Multiplexer

4.4.1.1 **Definition**:

4.4.1.1.1 The Loop Concentrator/Multiplexer is the Network Element that:

(1) aggregates lower bit rate or bandwidth signals to

higher bit rate or bandwidth signals (multiplexing); (2) disaggregates higher bit rate or bandwidth signals to lower bit rate or bandwidth signals (demultiplexing); (3) aggregates a specified number of signals or channels to fewer channels (concentrating); (4) performs signal conversion, including encoding of signals (e.g., analog to digital and digital to analog signal conversion); and (5) in some instances performs electrical to optical (E/O) conversion.

4.4.1.1.2 The Loop Concentrator/Multiplexer function may be provided through a Digital Loop Carrier (DLC) system, channel bank, multiplexer or other equipment at which traffic is encoded and decoded, multiplexed and demultiplexed, or concentrated.

4.4.1.2 **Technical Requirements**

4.4.1.2.1 The Loop Concentrator/Multiplexer shall be capable of performing its functions on the signals for the following services, including but not limited to, (as needed by MCIm to provide end-to-end service capability to its customer):

4.4.1.2.1.1 two-wire & four-wire analog voice grade loops;

4.4.1.2.1.2 two-wire & four-wire loops that are conditioned to transmit the digital signals needed to provide services such as ISDN, ADSL, HDSL, and DS1-level signals.

4.4.1.2.1.3 4-wire digital data (2.4Kbps through 64Kbps and n times 64Kbps (where n $\leq$ 24);

4.4.1.2.1.4 DS3 rate private lines;

4.4.1.2.1.5 Optical SONET rate private lines;

4.4.1.2.2 The Loop Concentrator/Multiplexer shall perform the following functions as appropriate:

4.4.1.2.2.1 Analog to digital signal conversion of both incoming and outgoing (upstream and downstream) analog signals;

4.4.1.2.2.2 Multiplexing of the individual digital signals up to higher transmission bit rate signals (e.g., DS0, DS1, DS3, or optical SONET rates) for transport to the ILEC central office through the Loop Feeder; and

4.4.1.2.2.3 Concentration of end-user customer signals onto fewer channels of a Loop Feeder (The concentration ratio shall be as specified by MCIm, who shall have the right to change).

4.4.1.2.3 ILEC shall provide power for the Loop Concentrator /Multiplexer, through a non-interruptible source if the function is performed in a central office, or from a commercial AC power source with battery backup if the equipment is located outside a central office. Such power shall also adhere to the requirements stated herein.

4.4.1.2.4 The Loop Concentrator/Multiplexer shall be provided to MCIm in accordance with the following Technical References:

4.4.1.2.4.1 Bellcore TR-NWT-000057, Functional Criteria for Digital Loop Carrier Systems, Issue 2, January 1993.

4.4.1.2.4.2 Bellcore TR-NWT-000393, Generic Requirements for ISDN Basic Access Digital Subscriber Lines.

4.4.1.2.4.3 ANSI T1.106 - 1988, American National Standard for Telecommunications - Digital Hierarchy - Optical Interface Specifications (Single Mode).

4.4.1.2.4.4 ANSI T1.105-1995, American National Standard for Telecommunications - Synchronous Optical Network (SONET) - Basic

Description including Multiplex Structure, Rates and Formats.

4.4.1.2.4.5 ANSI T1.102-1993, American National Standard for Telecommunications - Digital Hierarchy - Electrical Interfaces.

4.4.1.2.4.6 ANSI T1.403-1989, American National Standard for Telecommunications - Carrier to Customer Installation, DS1 Metallic Interface Specification.

4.4.1.2.4.7 Bellcore GR-253-CORE, Synchronous Optical Network Systems (SONET), Common Generic Criteria..

4.4.1.2.4.8 Bellcore TR-TSY-000008, Digital Interface Between the SLC 96 Digital Loop Carrier System and a Local Digital Switch, Issue 2, August 1987.

4.4.1.2.4.9 Bellcore TR-NWT-000303, Integrated Digital Loop Carrier System Generic Requirements, Objectives and Interface, Issue 2, December 1992; Rev. 1, December 1993; Supplement 1, December 1993.

4.4.1.2.4.10 Bellcore TR-TSY-000673, Operations Systems Interface for an IDLC System, (LSSGR) FSD 20-02-2100, Issue 1, September 1989.

4.4.1.2.4.11 Bellcore Integrated Digital Loop Carrier System Generic Requirements, Objectives and Interface, GR-303-CORE, Issue 1, September 1995.

4.4.1.3 Requirements for an Intelligent Loop Concentrator/ Multiplexer

4.4.1.3.1 In addition to the basic functions described above for the Loop Concentrator/Multiplexer, the Intelligent Loop Concentrator/Multiplexer (IC/M) shall provide facility grooming, facility test functions, format conversion and signaling conversion as appropriate.

4.4.1.3.2 The underlying equipment that provides such IC/M function shall continuously monitor protected circuit packs and redundant common equipment.

4.4.1.3.3 The underlying equipment that provides such IC/M function shall automatically switch to a protection circuit pack on detection of a failure or degradation of normal operation.

4.4.1.3.4 The underlying equipment that provides such IC/M function shall be equipped with a redundant power supply or a battery back-up.

4.4.1.3.5 At MCIm's option, ILEC shall provide MCIm with real time performance monitoring and alarm data on IC/M elements that may affect MCIm's traffic. This includes IC/M hardware alarm data and facility alarm data on the underlying device that provides such IC/M function.

4.4.1.3.6 At MCIm's option, ILEC shall provide MCIm with real time ability to initiate tests on the underlying device that provides such IC/M function integrated test equipment as well as other integrated functionality for routine testing and fault isolation.

4.4.1.4 Interface Requirements

4.4.1.4.1 The Loop Concentrator/Multiplexer shall meet the following interface requirements, as appropriate for the configuration that MCIm designates:

4.4.1.4.2 The Loop Concentrator/Multiplexer shall provide an analog voice frequency copper twisted pair interface at the serving wire center, as described in the references in Section 4.4.1.2.4.

4.4.1.4.3 The Loop Concentrator/Multiplexer shall provide digital 4-wire electrical interfaces at the serving wire center, as described in the references in Section 4.4.1.2.4.

4.4.1.4.4 The Loop Concentrator/Multiplexer shall provide optical SONET interfaces at rates of OC-3, OC-12, OC-48, and OC-N, N as described in the references in Section 4.4.1.2.4.

4.4.1.4.5 The Loop Concentrator/Multiplexer shall provide the Bellcore TR-303 DS1 level interface at the serving wire center. Loop Concentrator/ Multiplexer shall provide Bellcore TR-08 modes 1&2 DS1 interfaces when designated by MCIm. Such interface requirements are specified in the references in Section 4.4.1.2.4.

4.4.1.5 The Intelligent Loop Concentrator/Multiplexer shall be provided to MCIm in accordance with the Technical References set forth in Sections 4.4.1.2.4.8 through 4.4.1.2.4.11 above.

4.4.2 Loop Feeder

4.4.2.1 **Definition**:

4.4.2.1.1 The Loop Feeder is the Network Element that provides connectivity between (1) a Feeder Distribution Interface (FDI) associated with Loop Distribution and a termination point appropriate for the media in a central office, or (2) a Loop Concentrator/Multiplexer provided in a remote terminal and a termination point appropriate for the media in a central office. ILEC shall provide MCIm physical access to the FDI, and the right to connect, the Loop Feeder to the FDI.

4.4.2.1.2 The physical medium of the Loop Feeder may be copper twisted pair, or single or multi-mode fiber or other technologies as designated by MCIm. In certain cases, MCIm will require a copper twisted pair loop even in instances where the medium of the Loop Feeder for services that ILEC offers is other than a copper facility.

4.4.2.2 **Requirements for Loop Feeder**

4.4.2.2.1 The Loop Feeder shall be capable of transmitting analog voice frequency, basic rate ISDN, digital data, or analog radio frequency signals as appropriate.

4.4.2.2.2 ILEC shall provide appropriate power for all active elements in the Loop Feeder. ILEC will provide appropriate power from a central office source, or from a commercial AC source with rectifiers for AC to DC conversion and 8-hour battery back-up when the equipment is located in an outside plant Remote Terminal (RT).

4.4.2.3 **Additional Requirements for Special Copper Loop Feeder Medium**

In addition to requirements set forth in Section 6.2 (above), MCIm may require ILEC to provide copper twisted pair Loop Feeder which is unfettered by any intervening equipment (e.g. filters, load coils, and range extenders), so that MCIm can use these Loop Feeders for a variety of services by attaching appropriate terminal equipment at the ends.

4.4.2.4 **Additional Technical Requirements for DS1 Conditioned Loop Feeder**

In addition to the requirements set forth in Section 4.4.2.2 above, MCIm may designate that the Loop Feeder be conditioned to transport a DS1 signal. The requirements for such transport are defined in the references below in Section 4.4.2.6.

4.4.2.5 **Additional Technical Requirements for Optical Loop Feeder**

In addition to the requirements set forth in Section 4.4.2.2 above, MCIm may designate that Loop Feeder will transport DS3 and OCn (where n is defined in the technical reference in Section 4.4.1.2.4.4. The requirements for such transport are defined in the references below in Section 4.4.2.6.

4.4.2.6 ILEC shall offer Loop Feeder in accordance with the requirements set forth in the following Technical References:

4.4.2.6.1 Bellcore Technical Requirement TR-NWT-000499, Issue 5, December 1993, section 7 for DS1 interfaces; and,

4.4.2.6.2 Bellcore TR-NWT-000057, Functional Criteria for Digital Loop Carrier Systems, Issue 2, January 1993.

4.4.2.6.2 Bellcore TR-NWT-000393, Generic Requirements for ISDN Basic Access Digital Subscriber Lines.

4.4.2.6.3 ANSI T1.106-1988, American National Standard for Telecommunications - Digital Hierarchy - Optical Interface Specifications (Single Mode).

4.4.2.6.4 ANSI T1.105-1995, American National Standard for Telecommunications - Synchronous Optical Network (SONET) - Basic Description including Multiplex Structure, Rates and Formats.

4.4.2.6.5 ANSI T1.102-1993, American National Standard for Telecommunications - Digital Hierarchy - Electrical Interfaces.

4.4.2.6.6 ANSI T1.403-1989, American National Standard for Telecommunications - Carrier to Customer Installation, DS1 Metallic Interface Specification

4.4.2.6.7 Bellcore GR-253-CORE, Synchronous Optical Network Systems (SONET), Common Generic Criteria.

4.4.2.7 Interface Requirements

4.4.2.7.1 The Loop Feeder point of termination (POT) within a ILEC central office will be as follows:

4.4.2.7.1.1 Copper twisted pairs shall terminate on the MDF;

4.4.2.7.1.2 DS1 Loop Feeder shall terminate on a DSX1, DCS1/0 or DCS3/1; and

4.4.2.7.1.3 Fiber Optic cable shall terminate on a LGX.

4.4.2.7.2 Loop Feeder shall be equal to or better than each of the applicable interface requirements set forth in the following technical references:

4.4.2.7.2.1 Bellcore TR-TSY-000008, Digital Interface Between the SLC 96 Digital Loop Carrier System and a Local Digital Switch, Issue 2. August 1987.

4.4.2.7.2.2 Bellcore TR-NWT-000303, Integrated Digital Loop Carrier System Generic Requirements, Objectives and Interface, Issue 2, December 19921- Rev. 1, December 1993-1 Supplement 1, December 1993.

4.4.2.7.2.3 Bellcore Integrated Digital Loop Carrier System Generic Requirements, Objectives and Interface, GR-303-CORE, Issue 1, September 1995.

Section 5. Network Interface Device

5.1 **Definition**:

5.1.1 The Network Interface Device (NID) is a single-line termination device or that portion of a multiple-line termination device required to terminate a single line or circuit. The function of the NID is to establish the network demarcation point between a carrier and its subscriber. The NID features two independent chambers or divisions which separate the service provider's network from the customer's inside wiring. Each chamber or division contains the appropriate connection points or posts to which the service provider, and the subscriber each make their connections. The NID provides a protective ground connection, provides protection against lightning and other high voltage surges and is capable of terminating cables such as twisted pair cable.

5.1.2 With respect to multiple-line termination devices, MCIm shall specify the quantity of NIDs it requires within such device.

5.1.3 Figure 1 shows a schematic of a NID.

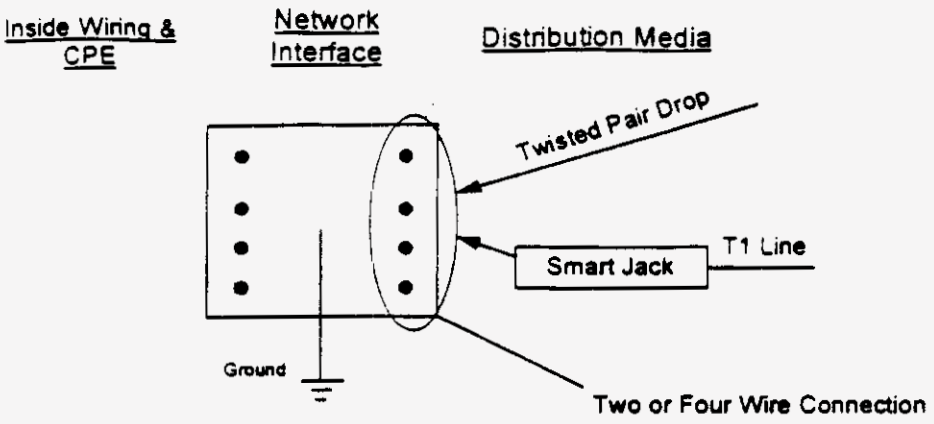

Figure 1 - Network Interface Device

5.2 Technical Requirements

5.2.1 The Network Interface Device shall provide a clean, accessible point of connection for the inside wiring and for the Distribution Media and/or cross connect to MCIm's NID and shall maintain a connection to ground that meets the requirements set forth below.

5.2.2 The NID shall be capable of transferring electrical analog or digital signals between the customer's inside wiring and the Distribution Media and/or cross connect to MCIm's NID.

5.2.3 All NID posts or connecting points shall be in place, secure, usable and free of any rust or corrosion. The protective ground connection shall exist and be properly installed. The ground wire shall be free of rust or corrosion and have continuity relative to ground.

5.2.4 The NID shall be capable of withstanding all normal local environmental variations.

5.2.5 Where the NID is not located in a larger, secure cabinet or closet, the NID shall be protected from physical vandalism. The NID shall be physically accessible to MCIm designated personnel. In cases where entrance to the customer premises is required to

give access to the NID, MCIm shall obtain entrance permission directly from the customer.

5.2.6 ILEC shall offer the NID together with, and separately from the Distribution Media component of Loop Distribution.

5.3 **Interface Requirements**

5.3.1 The NID shall be the interface to customers' premises wiring for all loop technologies.

5.3.2 The NID shall be equal to or better than all of the industry standards for NIDs set forth in the following technical references:

5.3.2.1 Bellcore Technical Advisory TA-TSY-000120 "Customer Premises or Network Ground Wire";

5.3.2.2 Bellcore Generic Requirement GR-49-CORE "Generic Requirements for Outdoor Telephone Network Interface Devices";

5.3.2.3 Bellcore Technical Requirement TR-NWT-00239 "Indoor Telephone Network Interfaces";

5.3.2.4 Bellcore Technical Requirement TR-NWT-000937 "Generic Requirements for Outdoor and Indoor Building Entrance"; and,

5.3.2.5 Bellcore Technical Requirement TR-NWT-0001 33 "Generic Requirements for Network Inside Wiring."

Section 6. Distribution

6.1 **Definition**:

6.1.1 Distribution provides connectivity between the NID component of Loop Distribution and the terminal block on the customer-side of a Feeder Distribution Interface (FDI). The FDI is a device that terminates the Distribution Media and the Loop Feeder, and cross-connects them in order to provide a continuous transmission path between the NID and a telephone company central office. There are three basic types of feeder-distribution connection: I) multiple (splicing of multiple distribution pairs onto one feeder pair); II) dedicated ("home run"); and iii) interfaced ("cross-connected"). While older plant uses multiple and dedicated

approaches, newer plant and all plant that uses DLC or other pair-gain technology necessarily uses the interfaced approach. The feeder-distribution interface (FDI) in the interfaced design makes use of a manual cross-connection, typically housed inside an outside plant device ("green box") or in a vault or manhole.

6.1.2 The Distribution may be copper twisted pair, coax cable, single or multi-mode fiber optic cable or other technologies. A combination that includes two or more of these media is also possible. In certain cases, MCIm shall require a copper twisted pair Distribution even in instances where the Distribution for services that ILEC offers is other than a copper facility.

6.2 Requirements for All Distribution

6.2.1 Distribution shall be capable of transmitting signals for the following services (as requested by MCIm):

6.2.1.1 Two-wire & four-wire analog voice grade loops;

6.2.1.2 Two-wire & four-wire loops that are conditioned to transmit the digital signals needed to provide services such as ISDN, ADSL, HDSL, and DS1-level signals.

6.2.2 Distribution shall transmit all signaling messages or tones. Where the Distribution includes any active elements that terminate any of the signaling messages or tones, these messages or tones shall be reproduced by the Distribution at the interfaces to an adjacent Network Element in a format that maintains the integrity of the signaling messages or tones.

6.2.3 Distribution shall support functions associated with provisioning, maintenance and testing of the Distribution itself, as well as provide necessary access to provisioning, maintenance and testing functions for Network Elements to which it is associated.

6.2.4 Where possible, Distribution shall provide performance monitoring of the Distribution itself, as well as provide necessary access for performance monitoring for Network Elements to which it is associated.

6.2.5 Distribution shall be equal to or better than all of the applicable requirements set forth in the following technical references:

6.2.5.1 Bellcore TR-TSY-000057, "Functional Criteria for Digital Loop Carrier Systems", and,

6.2.5.2 Bellcore TR-NWT-000393, "Generic Requirements for ISDN Basic Access Digital Subscriber Lines."

6.2.6 ILEC shall provide MCIm with physical access to, and the right to connect to, the FDI.

6.2.7 ILEC shall offer Distribution together with, and separately from the NID component of Loop Distribution.

6.3 **Additional Requirements for Special Copper Distribution**

In addition to Distribution that supports the requirements in Section 6.2. (above), MCIm may designate Distribution to be copper twisted pair which are unfettered by any intervening equipment (e.g., filters, load coils, range extenders) so that MCIm can use these loops for a variety of services by attaching appropriate terminal equipment at the ends.

6.4 **Additional Requirements for Fiber Distribution**

Fiber optic cable Distribution shall be capable of transmitting signals for the following services in addition to the ones under Section 6.2.1 above:

6.4.1 DS3 rate private line service;

6.4.2 Optical SONET OCn rate private lines (where n is defined in the technical reference in Section 4.4.1.2.4.4; and

6.4.3 Analog Radio Frequency based services (e.g., Cable Television (CATV)).

6.5 **Additional Requirements for Coaxial Cable Distribution**

Coaxial cable (coax) Distribution shall be capable of transmitting signals for the following services in addition to the ones under Section 6.2.1 above:

6.5.1 Broadband data, either one way or bi-directional, symmetric or asymmetric, at rates between 1.5 Mb/s and 45 Mb/s; and

6.5.2 Analog Radio Frequency based services (e.g., CATV).

6.6 **Interface Requirements**

6.6.1 Signal transfers between the Distribution and the NID and an adjacent Network Element shall have levels of degradation that are within the performance requirements set forth in Section 15.2 of this Attachment III.

6.6.2 Distribution shall be equal to or better than each of the applicable interface requirements set forth in the following technical references:

6.6.2.1 Bellcore TR-NWT-000049, "Generic Requirements for Outdoor Telephone Network Interface Devices," Issued December 1,1994;

6.6.2.2 Bellcore TR-NWT-000057, "Functional Criteria for Digital Loop Carrier Systems," Issued January 2, 1993;

6.6.2.3 Bellcore TR-NWT-000393, "Generic Requirements for ISDN Basic Access Digital Subscriber Lines";

6.6.2.4 Bellcore TR-NWT-000253, SONET Transport Systems: Common Criteria (A module of TSGR, FR-NWT-000440), Issue 2, December 1991;

Section 7. Local Switching

7.1 **Definition**:

7.1.1 Local Switching is the Network Element that provides the functionality required to connect the appropriate lines or trunks wired to the Main Distributing Frame (MDF) or Digital Cross Connect (DSX) panel to a desired line or trunk. The desired connection path for each call type will vary by customer and will be specified by MCIm as a routing scenario that will be implemented in advance as part of or after the purchases of the unbundled local switching. Such functionality shall include all of the features, functions, and capabilities that the underlying ILEC switch that is providing such Local Switching function is capable of providing, including but not limited to: line signaling and signaling software, digit reception, dialed number translations, call screening, routing, recording, call supervision, dial tone, switching, telephone number provisioning, announcements, calling features and capabilities (including call processing), Centrex, or Centrex like services,

Automatic Call Distributor (ACD), Carrier pre-subscription (e.g., long distance carrier, intraLATA toll), Carrier Identification Code (CIC) portability capabilities, testing and other operational features inherent to the switch and switch software. It also provides access to transport, signaling (ISDN User Part (ISUP) and Transaction Capabilities Application Part (TCAP), and platforms such as adjuncts, Public Safety Systems (911), operator services, directory services and Advanced Intelligent Network (AIN). Remote Switching Module functionality is included in the Local Switching function. Local Switching shall also be capable of routing local, intraLATA, interLATA, calls to international customer's preferred carrier, call features (e.g., call forwarding) and Centrex capabilities.

Local Switching, including the ability to route to MCIm's transport facilities, dedicated facilities and systems, shall be unbundled from all other unbundled Network Elements, i.e., Operator Systems, Common Transport, and Dedicated Transport.

7.2. **Technical Requirements**

7.2.1 Local Switching shall be equal to or better than the requirements for Local Switching set forth in Bellcore's Local Switching Systems General Requirements (FR-NWT-000064).

7.2.1.1 ILEC shall route calls to the appropriate trunk or lines for call origination or termination.

7.2.1.2 ILEC shall route calls on a per line or per screening class basis to (1) ILEC platforms providing Network Elements or additional requirements, (2) MCIm designated platforms, or (3) third-party platforms.

7.2.1.3 ILEC shall provide recorded announcements as designated by MCIm and call progress tones to alert callers of call progress and disposition.

7.2.1.4 ILEC shall change a customer from ILEC's services to MCIm's services without loss of feature functionality.

7.2.1.5 ILEC shall perform routine testing (e.g., Mechanized Loop Tests (MLT) and test calls such as 105, 107 and 108 type calls) and fault isolation on a schedule designated by MCIm.

7.2.1.6 ILEC shall repair and restore any equipment or any other maintainable component that may adversely impact MCIm's use of unbundled Local Switching.

7.2.1.7 ILEC shall control congestion points such as mass calling events, and network routing abnormalities, using capabilities such as Automatic Call Gapping, Automatic Congestion Control, and Network Routing Overflow. Application of such control shall be competitively neutral and not favor any user of unbundled switching or the ILEC.

7.2.1.8 ILEC shall perform manual call trace as designated by MCIm and permit customer originated call trace.

7.2.1.9 ILEC shall record all billable events and send the appropriate billing data to MCIm as outlined in Attachment 8.

7.2.1.10 For Local Switching used as 911 Tandems, ILEC shall allow interconnection from MCIm local switching elements and ILEC shall route the calls to the appropriate Public Safety Access Point (PSAP).

7.2.1.11 Where ILEC provides the following special services, it shall provide to MCIm:

7.2.1.11.1 Essential Service Lines;

7.2.1.11.2 Telephone Service Prioritization;

7.2.1.11.3 Related services for handicapped;

7.2.1.11.4 Soft dial tone where required by law; and

7.2.1.11.5 Any other service required by law or regulation.

7.2.1.12 ILEC shall provide Switching Service Point (SSP) capabilities and signaling software to interconnect the signaling links destined to the Signaling Transfer Point Switch (STPs). In the event that Local Switching is provided out of a switch without SS7 capability, the Tandem shall provide this capability as discussed in the section on

Tandem Switching. These capabilities shall adhere to Bellcore specifications TCAP (GR-1432-CORE), ISUP (GR-905-CORE), Call Management (GR-1429-CORE), Switched Fractional DS1 (GR-1357-CORE), Toll Free Service (GR-1428-CORE), Calling Name (GR-1597-CORE), Line Information Database (GR-954-CORE), and Advanced Intelligent Network (GR-2863-CORE).

7.2.1.13 ILEC shall provide interfaces to adjuncts through industry standard and Bellcore interfaces. These adjuncts can include, but are not limited to, Service Node, Service Circuit Node, Voice Mail and Automatic Call Distributors. Examples of existing interfaces are ANSI ISDN standards Q.931 and Q.932.

7.2.1.14 ILEC shall provide performance data regarding a customer line, traffic characteristics or other measurable elements to MCIm, upon MCIm's request.

7.2.1.15 ILEC shall offer all Local Switching features that are technically feasible and provide feature offerings at parity to those provided by ILEC to itself or any other party. Such feature offerings shall include but are not limited to:

7.2.1.15.1 Basic and primary rate ISDN;

7.2.1.15.2 Residential features;

7.2.1.15.3 Custom Local Area Signaling Services (CLASS/LASS);

7.2.1.15.4 Custom Calling Features

7.2.1.15.5 Centrex (including equivalent administrative capabilities, such as customer accessible reconfiguration and detailed message recording); and

7.2.1.15.6 Advanced intelligent network triggers supporting MCIm features. ILEC shall offer to MCIm all AIN triggers currently available to ILEC for offering AIN-based services in accordance with applicable technical references:

7.2.1.15.6.1 Off-Hook Immediate;

7.2.1.15.6.2 Off-Hook Delay;

7.2.1.15.6.3 Private EAMF Trunk;

7.2.1.15.6.4 Shared Interoffice Trunk (EAMF, SS7);

7.2.1.15.6.5 Termination Attempt;

7.2.1.15.6.6 3/6/10;

7.2.1.15.6.7 N11;

7.2.1.15.6.8 Feature Code Dialing;

7.2.1.15.6.9 Custom Dialing Plan(s) including 555 services; and

7.2.1.15.6.10 Automatic Route Selection.

7.2.1.16 ILEC shall assign each MCIm customer line the class of service designated by MCIm (e.g., using line class codes or other switch specific provisioning methods), and shall route directory assistance calls from MCIm customers as directed by MCIm at MCIm's option. This includes each of the following call types:

7.2.1.16.1 O+/O- calls

7.2.1.16.2 911 calls

7.2.1.16.3 411/DA calls

7.2.1.16.4 InterLATA calls specific to PIC or regardless of PIC

7.2.1.16.5 IntraLATA calls specific to PIC or regardless of PIC

7.2.1.16.6 800/888 calls, prior to database query

7.1.2.16.7 Call forwarding of any type supported on the switch, to a line or a trunk

7.1.2.16.8 Any other customized routing that may be supported by the ILEC switch

7.2.1.17 ILEC shall assign each MCIm customer line the class of services designated by MCIm (e.g., using line class codes or other switch specific provisioning methods) and shall route operator calls from MCIm customers as directed by MCIm at MCIm's option. For example, ILEC may translate 0- and 0+ intraLATA traffic, and route the call through appropriate trunks to an MCIm Operator Services Position System (OSPS). Calls from Local Switching must pass the ANI-II digits unchanged.

7.2.1.18 If an MCIm customer subscribes to MCIm provided voice mail and messaging services, ILEC shall redirect incoming calls to the MCIm system based upon presubscribed service arrangements (e.g., busy, don't answer, number of rings). In addition, ILEC shall provide a Standard Message Desk Interface-Enhanced (SMDI-E) interface to the MCIm system. ILEC shall support the Inter-switch Voice Messaging Service (IVMS) capability.

7.2.1.19 Local Switching shall be offered in accordance with the requirements of the following technical references and their future releases:

7.2.1.19.1 GR-1298-CORE, AIN Switching System Generic Requirements;

7.2.1.19.2 GR-1299-CORE, AIN Switch-Service Control Point (SCP)/Adjunct Interface Generic Requirements;

7.2.1.19.3 TR-NWT-001284, AIN 0.1 Switching System Generic Requirements;

7.2.1.19.4 SR-NWT-002247, AIN Release 1 Update.

7.2.2 **Interface Requirements**:

7.2.2.1 ILEC shall provide the following interfaces to loops:

7.2.2.1.1 Standard Tip/Ring interface including loopstart or groundstart, on-hook signaling (e.g., for

calling number, calling name and message waiting lamp);

7.2.2.1.2 Coin phone signaling;

7.2.2.1.3 Basic Rate Interface ISDN adhering to ANSI standards Q.931, Q.932 and appropriate Bellcore Technical Requirements;

7.2.2.1.4 Two-wire analog interface to PBX to include reverse battery, E&M, wink start and DID;

7.2.2.1.5 Four-wire analog interface to PBX to include reverse battery, E&M, wink start and DID;

7.2.2.1.6 Four-wire DS1 interface to PBX or customer provided equipment (e.g., computers and voice response systems);

7.2.2.1.7 Primary Rate ISDN to PBX adhering to ANSI standards Q.931, Q.932 and appropriate Bellcore Technical Requirements;

7.2.2.1.8 Switched Fractional DS1 with capabilities to configure Nx64 channels (where N = 1 to 24); and

7.2.2.1.9 Loops adhering to Bellcore TR-NWT-08 and TR-NWT-303 specifications to interconnect Digital Loop Carriers.

7.2.2.2 ILEC shall provide access to the following but not limited to:

7.2.2.2.1 SS7 Signaling Network or Multi-Frequency trunking if requested by MCIm;

7.2.2.2.2 Interface to MCIm operator services systems or Operator Services through appropriate trunk interconnections for the system; and

7.2.2.2.3 Interface to MCIm directory assistance services through the MCIm switched network or to Directory Services through the appropriate trunk interconnections for the system; and 950 access or

other MCIm required access to interexchange carriers as requested through appropriate trunk interfaces.

7.3 Integrated Services Digital Network (ISDN)

7.3.1 Integrated Services Digital Network (ISDN) is defined in two variations. The first variation is Basic Rate ISDN (BRI). BRI consists of 2 Bearer (B) Channels and one Data (D) Channel. The second variation is Primary Rate ISDN (PRI). PRI consists of 23 B Channels and one D Channel. Both BRI and PRI B Channels may be used for voice, Circuit Switched Data (CSD) or Packet Switched Data (PSD). The BRI D Channel may be used for call related signaling, non-call related signaling or packet switched data. The PRI D Channel may be used for call related signaling.

7.3.2 Technical Requirements — ISDN

7.3.2.1 ILEC shall offer Data Switching providing ISDN that, at a minimum:

7.3.2.2 Provides integrated Packet handling capabilities;

7.3.2.3 Allows for full 2B+D Channel functionality for BRI; and

7.3.2.4 Allows for full 23B+D Channel functionality for PRI.

7.3.2.5 Each B Channel shall allow for voice, 64 Kbps CSD, and PSD of 128 logical channels at minimum speeds of 19 Kbps throughput of each logical channel up to the total capacity of the B Channel.

7.3.2.6 Each B Channel shall provide capabilities for alternate voice and data on a per call basis.

7.3.2.7 The BRI D Channel shall allow for call associated signaling, non-call associated signaling and PSD of 16 logical channels at minimum speeds of 9.6 Kbps throughput of each logical channel up to the total capacity of the D channel.

7.3.2.8 The PRI D Channel shall allow for call associated signaling.

7.3.3 **Interface Requirements — ISDN**

7.3.3.1 ILEC shall provide the BRI U interface using 2-wire copper loops in accordance with TR-NWT-000393, January 1991, *Generic Requirements for ISDN Basic Access Digital Subscriber Lines.*

7.3.3.2 ILEC shall provide the BRI interface using Digital Subscriber Loops adhering to Bellcore TR-NWT-303 specifications to interconnect Digital Loop Carriers.

7.3.3.3 ILEC shall offer PSD interfaces adhering to the X.25, X.75 and X.75' ANSI and Bellcore requirements.

7.3.3.4 ILEC shall offer PSD trunk interfaces operating at 56 Kbps.

Section 8. Operator Systems

See Attachment VIII, Section 6.1.2 Directory Assistance Service and 6.1.3 Operator Service.

Section 9. Common Transport

9.1 **Definition:**

Common Transport is an interoffice transmission path between ILEC Network Elements (illustrated in Figure 2) shared by carriers. Where ILEC Network Elements are connected by intra-office wiring, such wiring is provided as a part of the Network Elements and is not Common Transport. ILEC shall offer Common Transport as of the effective date of the agreement, at DS0, DS1, DS3, STS-1 or higher transmission bit rate circuits. Common Transport consists of ILEC inter-office transport facilities and is distinct and separate from local switching.

Figure 2

9.2 Technical Requirements

9.2.1 ILEC shall be responsible for the engineering, provisioning, and maintenance of the underlying equipment and facilities that are used to provide Common Transport.

9.2.2 At a minimum, Common Transport shall meet all of the requirements set forth in the following technical references (as applicable for the transport technology being used):

9.2.3. ANSI T1.101-1994, American National Standard for Telecommunications - Synchronization Interface Standard Performance and Availability;

9.2.3.1 ANSI T1.102-1993, American National Standard for Telecommunications - Digital Hierarchy - Electrical Interfaces;

9.2.3.2 ANSI T1.102.01-199x, American National Standard for Telecommunications - Digital Hierarchy - VT1.5;

9.2.3.3 ANSI T1.105-1995, American National Standard for Telecommunications - Synchronous Optical Network (SONET) - Basic Description including Multiplex Structure, Rates and Formats;

9.2.3.4 ANSI T1.105.01-1995, American National Standard for Telecommunications - Synchronous Optical Network (SONET) Automatic Protection Switching;

9.2.3.5 ANSI T1.105.02-1995, American National Standard for Telecommunications - Synchronous Optical Network (SONET) - Payload Mappings;

9.2.3.6 ANSI T1.105.03-1994, American National Standard for Telecommunications - Synchronous Optical Network (SONET) - Jitter at Network Interfaces;

9.2.3.7 ANSI T1.105.03a-1995, American National Standard for Telecommunications - Synchronous Optical Network (SONET): Jitter at Network Interfaces - DS1 Supplement;

9.2.3.8 ANSI T1.105.05-1994, American National Standard for Telecommunications - Synchronous Optical Network (SONET) - Tandem Connection;

9.2.3.9 ANSI T1.105.06-199x, American National Standard for Telecommunications - Synchronous Optical Network (SONET) - Physical Layer Specifications;

9.2.3.10 ANSI T1.105.07-199x, American National Standard for Telecommunications - Synchronous Optical Network (SONET) - Sub STS-1 Interface Rates and Formats;

9.2.3.11 ANSI T1.105.09-199x, American National Standard for Telecommunications - Synchronous Optical Network (SONET) - Network Element Timing and Synchronization;

9.2.3.12 ANSI T1.106-1988, American National Standard for Telecommunications - Digital Hierarchy - Optical Interface Specifications (Single Mode);

9.2.3.13 ANSI T1.107-1988, American National Standard for Telecommunications - Digital Hierarchy - Formats Specifications;

9.2.3.14 ANSI T1.107a-1990 -American National Standard for Telecommunications - Digital Hierarchy - Supplement to Formats Specifications (DS3 Format Applications);

9.2.3.15 ANSI T1.107b-1991 -American National Standard for Telecommunications - Digital Hierarchy - Supplement to Formats Specifications;

9.2.3.16 ANSI T1.117-1991, American National Standard for Telecommunications - Digital Hierarchy - Optical Interface Specifications (SONET) (Single Mode - Short Reach);

9.2.3.17 ANSI T1.403-1989, Carrier to Customer Installation, DS1 Metallic Interface Specification;

9.2.3.18 ANSI T1.404-1994, Network-to-Customer Installation - DS3 Metallic Interface Specification;

9.2.3.19 ITU Recommendation G.707, Network node interface for the synchronous digital hierarchy (SDH);

9.2.3.20 ITU Recommendation G.704, Synchronous frame structures used at 1544, 6312, 2048, 8488 and 44736 kbit/s hierarchical levels;

9.2.3.21 Bellcore FR-440 and TR-NWT-000499, Transport Systems Generic Requirements (TSGR): Common Requirements;

9.2.3.22 Bellcore GR-820-CORE, Generic Transmission Surveillance: DS1 & DS3 Performance;

9.2.3.23 Bellcore GR-253-CORE, Synchronous Optical Network Systems (SONET); Common Generic Criteria;

9.2.3.24 Bellcore TR-NWT 000507, Transmission, Section 7, Issue 5 (Bellcore, December 1993). (A module of LSSGR, FR-NWT-000064.);

9.2.3.25 Bellcore TR-NWT-000776, Network Interface Description for ISDN Customer Access;

9.2.3.26 Bellcore TR-INS-000342, High-Capacity Digital Special Access Service-Transmission Parameter Limits and Interface Combinations, Issue 1 February 1991;

9.2.3.27 Bellcore ST-TEC-000052, Telecommunications Transmission Engineering Textbook, Volume 2: Facilities, Third Edition, Issue I May 1989;

9.2.3.28 Bellcore ST-TEC-000051, Telecommunications Transmission Engineering Textbook Volume 1: Principles, Third Edition. Issue 1 August 1987;

Section 10. Dedicated Transport

10.1 **Definition**:

10.1.1 Dedicated Transport is an interoffice transmission path between MCIm designated locations to which MCIm is granted exclusive use. Such locations may include ILEC central offices or other locations, MCIm network components, other carrier network components, or customer premises. Dedicated Transport is depicted below in Figure 3.

Figure 3

10.1.2 ILEC shall offer Dedicated Transport in each of the following manners:

10.1.2.1 As capacity on a shared facility.

10.1.2.2 As a circuit (e.g., DS1, DS3, STS-1) dedicated to MCIm.

10.1.2.3 As a system (i.e., the equipment and facilities used to provide Dedicated Transport such as SONET ring) dedicated to MCIm.

10.1.3 When Dedicated Transport is provided as a circuit or as capacity on a shared facility, it shall include (as appropriate):

10.1.3.1 Multiplexing functionality;

10.1.3.2 Grooming functionality; and,

10.1.3.3 Redundant equipment and facilities necessary to support protection and restoration.

10.1.4 When Dedicated Transport is provided as a system it shall include:

10.1.4.1 Transmission equipment such as multiplexers, line terminating equipment, amplifiers, and regenerators;

10.1.4.2 Inter-office transmission facilities such as optical fiber, dark fiber, copper twisted pair, and coaxial cable;

10.1.4.3 Redundant equipment and facilities necessary to support protection and restoration; and,

10.1.4.4 Dedicated Transport includes the Digital Cross-Connect System (DCS) functionality as an option. DCS is described below in Section 10.5.

10.2 Technical Requirements

This Section sets forth technical requirements for all Dedicated Transport.

10.2.1 When ILEC provides Dedicated Transport as a circuit or a system, the entire designated transmission circuit or system (e.g., DS1, DS3, STS-1) shall be dedicated to MCIm designated traffic.

10.2.2 ILEC shall offer Dedicated Transport using currently available technologies including, but not limited to, DS1 and DS3 transport systems, SONET (or SDH) Bi-directional Line Switched Rings, SONET (or SDH) Unidirectional Path Switched Rings, and SONET (or SDH) point-to-point transport systems (including linear add-drop systems), at all available transmission bit rates.

10.2.3 When requested by MCIm, Dedicated Transport shall provide physical diversity. Physical diversity means that two circuits are provisioned in such a way that no single failure of facilities or equipment will cause a failure on both circuits.

10.2.4 When physical diversity is requested by MCIm, ILEC shall provide the maximum feasible physical separation between transmission paths for all facilities and equipment (unless otherwise agreed by MCIm).

10.2.5 Upon MCIm's request, ILEC shall provide real time and continuous remote access to performance monitoring and alarm data affecting, or potentially affecting, MCIm's traffic.

10.2.6 ILEC shall offer the following interface transmission rates for Dedicated Transport:

10.2.6.1 DS1 (Extended SuperFrame - ESF/B8ZS, D4, and unframed applications shall be provided);

10.2.6.2 DS3 (C-bit Parity, M13, and unframed applications shall be provided);

10.2.6.3 SONET standard interface rates in accordance with ANSI T1.105 and ANSI T1.105.07 and physical interfaces per ANSI T1.106.06 (including referenced

interfaces). In particular, VT1.5 based STS-1s will be the interface at an MCIm service node.

10.2.6.4 SDH Standard interface rates in accordance with International Telecommunications Union (ITU) Recommendation G.707 and Plesiochronous Digital Hierarchy (PDH) rates per ITU Recommendation G.704.

10.2.7 ILEC shall provide cross-office wiring up to a suitable Point of Termination (POT) between Dedicated Transport and MCIm designated equipment. ILEC shall provide the following equipment for the physical POT:

10.2.7.1 DSX1 for DS1s or VT1.5s;

10.2.7.2 DSX3 for DS3s or STS-1s; and

10.2.7.3 LGX for optical signals (e.g., OC-3 and OC-12).

10.2.8 ILEC shall provide physical access to the POT for personnel designated by MCIm (for testing, facility interconnection, and other purposes designated by MCIm) 24 hours a day, 7 days a week.

10.2.9 For Dedicated Transport provided as a system, ILEC shall design the system (including but not limited to facility routing and termination points) according to MCIm specifications.

10.2.10 Upon MCIm's request, ILEC shall provide MCIm with electronic provisioning control of an MCIm specified Dedicated Transport.

10.2.11 ILEC shall offer Dedicated Transport together with and separately from DCS.

10.3 Technical Requirements for Dedicated Transport Using SONET Technology.

This Section sets forth additional technical requirements for Dedicated Transport using SONET technology including rings, point-to-point systems, and linear add-drop systems.

10.3.1 All SONET Dedicated Transport provided as a system shall:

10.3.1.1 Be synchronized from both a primary and secondary Stratum 1 level timing source.

10.3.1.2 Provide SONET standard interfaces which properly interwork with SONET standard equipment from other vendors. This includes, but is not limited to, SONET standard Section, Line and Path performance monitoring, maintenance signals, alarms, and data channels.

10.3.1.3 Provide Data Communications Channel (DCC) or equivalent connectivity through the SONET transport system. Dedicated Transport provided over a SONET transport system shall be capable of routing DCC messages between MCIm and SONET network components connected to the Dedicated Transport. For example, if MCIm leases a SONET ring from ILEC, that ring shall support DCC message routing between MCIm and SONET network components connected to the ring.

10.3.1.4 Support the following performance requirements for each circuit (STS-1, DS1, DS3, etc.):

10.3.1.4.1 No more than 10 Errored Seconds Per Day (Errored Seconds are defined in the technical reference at Section 10.4.5); and

10.3.1.4.2 No more than 1 Severely Errored Second Per Day (Severely Errored Seconds are defined in the technical reference at Section 10.4.5).

10.3.2 SONET rings shall:

10.3.2.1 Be provisioned on physically diverse fiber optic cables (including separate building entrances where available and diversely routed intraoffice wiring). "Diversely routed" shall be interpreted as the maximum feasible physical separation between transmission paths, unless otherwise agreed by MCIm.

10.3.2.2 Support dual ring interworking per SONET Standards.

10.3.2.3 Provide the necessary redundancy in optics, electronics, and transmission paths (including intra-office wiring) such that no single failure will cause a service interruption.

10.3.2.4 Provide the ability to disable ring protection switching at MCIm's direction (selective protection lock-out). This requirement applies to line switched rings only.

10.3.2.5 Provide the ability to use the protection channels to carry traffic (extra traffic). This requirement applies to line switched rings only.

10.3.2.6 Provide 50 millisecond restoration unless a ring protection delay is set to accommodate dual ring interworking schemes.

10.3.2.7 Have settable ring protection switching thresholds that shall be set in accordance with MCIm's specifications.

10.3.2.8 Provide revertive protection switching with a settable wait to restore delay with a default setting of 5 minutes. This requirement applies to line switched rings only.

10.3.2.9 Provide non-revertive protection switching. This requirement applies to path switched rings only.

10.3.2.10 Adhere to the following availability requirements, where availability is defined in the technical reference set forth in Section 10.4.5.

10.3.2.10.1 No more than 0.25 minutes of unavailability month; and

10.3.2.10.2 No more than 0.5 minutes of unavailability per year.

10.4 At a minimum, Dedicated Transport shall meet each of the requirements set forth in Section 9.2.3 and in the following technical references.

10.4.1 ANSI T1.105.04-1995, American National Standard for Telecommunications - Synchronous Optical Network (SONET) - Data Communication Channel Protocols and Architectures;

10.4.2 ANSI T1.119-1994, American National Standard for Telecommunications - Synchronous Optical Network (SONET) - Operations, Administration, Maintenance, and Provisioning (OAM&P) Communications;

10.4.3 ANSI T1.119.01-1995, American National Standard for Telecommunications - Synchronous Optical Network (SONET) Operations, Administration, Maintenance, and Provisioning (OAM&P) Communications Protection Switching Fragment;

10.4.4 ANSI T1.119.02-199x, American National Standard for Telecommunications - Synchronous Optical Network (SONET) Operations, Administration, Maintenance, and Provisioning (OAM&P) Communications Performance Monitoring Fragment;

10.4.5 ANSI T1.231-1993 -American National Standard for Telecommunications - Digital Hierarchy - Layer 1 In-Service Digital Transmission performance monitoring.

10.5 Digital Cross-Connect System (DCS)

10.5.1 **Definition**:

10.5.1.1 DCS is a function which provides automated cross connection of Digital Signal level 0 (DS0) or higher transmission bit rate digital channels within physical interface facilities. Types of DCSs include but are not limited to DCS 1/0s, DCS 3/1s, and DCS 3/3s, where the nomenclature 1/0 denotes interfaces typically at the DS1 rate or greater with cross-connection typically at the DS0 rate. This same nomenclature, at the appropriate rate substitution, extends to the other types of DCSs specifically cited as 3/1 and 3/3. Types of DCSs that cross-connect Synchronous Transport Signal level 1 (STS-1 s) or other Synchronous Optical Network (SONET) signals (e.g., STS-3) are also DCSs, although not denoted by this same type of nomenclature. DCS may provide the functionality of more than one of the aforementioned DCS types (e.g., DCS 3/3/1 which combines functionality of DCS 3/3 and DCS 3/1). For such DCSs, the requirements will be, at least, the aggregation of requirements on the "component" DCSs.

10.5.1.2 In locations where automated cross connection capability does not exist, DCS will be defined as the combination of the functionality provided by a Digital Signal Cross-Connect (DSX) or Light Guide Cross-Connect (LGX) patch panels and D4 channel banks or other DS0 and above multiplexing equipment used to provide the function of a manual cross connection.

10.5.1.3 Interconnection between a DSX or LGX, to a switch, another cross-connect, or other service platform device, is included as part of DCS.

10.6 **DCS Technical Requirements**

10.6.1 DCS shall provide completed end-to-end cross connection of the channels designated by MCIm.

10.6.2 DCS shall perform facility grooming, multipoint bridging, one-way broadcast, two-way broadcast, and facility test functions.

10.6.3 DCS shall provide multiplexing, format conversion, signaling conversion, or other functions.

10.6.4 The end-to-end cross connection assignment shall be input to the underlying device used to provide DCS from an operator at a terminal or via an intermediate system. The cross connection assignment shall remain in effect whether or not the circuit is in use.

10.6.5 ILEC shall continue to administer and maintain DCS, including updates to the control software to current available releases.

10.6.6 ILEC shall provide various types of Digital Cross-Connect Systems including:

10.6.6.1 DS0 cross-connects (typically termed DCS 1/0);

10.6.6.2 DS1/VT1.5 (Virtual Tributaries at the 1.5Mbps rate) cross-connects (typically termed DCS 3/1);

10.6.6.3 DS3 cross-connects (typically termed DCS 3/3);

10.6.6.4 STS-1 cross-connects; and

10.6.6.5 Other technically feasible cross-connects designated by MCIm.

10.6.7 ILEC shall provide immediate and continuous configuration and reconfiguration of the channels between the physical interfaces (i.e., ILEC shall establish the processes to implement cross connects on demand, or, at MCIm's option, permit MCIm control of such configurations and reconfigurations).

10.6.8 ILEC shall provide scheduled configuration and reconfiguration of the channels between the physical interfaces (i.e., ILEC shall establish the processes to implement cross connects on the schedule designated by MCIm, or, at MCIm's option, permit MCIm to control such configurations and reconfigurations).

10.6.9 DCS shall continuously monitor protected circuit packs and redundant common equipment.

10.6.10 DCS shall automatically switch to a protection circuit pack on detection of a failure or degradation of normal operation.

10.6.11 The underlying equipment used to provide DCS shall be equipped with a redundant power supply or a battery back-up.

10.6.12 ILEC shall make available to MCIm spare facilities and equipment necessary for provisioning repairs, and to meet MCIm's maintenance standards as specified in the Provisioning and Maintenance sections.

10.6.13 At MCIm's option, ILEC shall provide MCIm with real time performance monitoring and alarm data on the signals and the components of the underlying equipment used to provide DCS that actually impact or might impact MCIm's services. For example, this may include hardware alarm data and facility alarm data on a DS3 in which an MCIm DS1 is traversing.

10.6.14 At MCIm's option, ILEC shall provide MCIm with real time ability to initiate tests on integrated equipment used to test the signals and the underlying equipment used to provide DCS, as well as other integrated functionality for routine testing and fault isolation.

10.6.15 DCS shall provide SONET to asynchronous gateway functionality (e.g., STS-1 to DS1 or STS-1 to DS3).

10.6.16 DCS shall perform optical to electrical conversion where the underlying equipment used to provide DCS contains optical

interfaces or terminations (e.g., Optical Carrier level 3, i.e., OC-3, interfaces on a DCS 3/1).

10.6.17 DCS shall have SONET ring terminal functionality where the underlying equipment used to provide DCS acts as a terminal on a SONET ring.

10.6.18 DCS shall provide multipoint bridging of multiple channels to other DCSs. MCIm may designate multipoint bridging to be one-way broadcast from a single master to multiple tributaries, or two-way broadcast between a single master and multiple tributaries.

10.6.19 DCS shall multiplex lower speed channels onto a higher speed interface and demultiplex higher speed channels onto lower speed interfaces as designated by MCIm.

10.7 **DCS Interface Requirements**

10.7.1 ILEC shall provide physical interfaces on DS0, DS1, and VT1.5 channel cross-connect devices at the DS1 rate or higher. In all such cases, these interfaces shall be in compliance with applicable Bellcore, ANSI, ITU, and MCIm standards.

10.7.2 ILEC shall provide physical interfaces on DS3 channel cross-connect devices at the DS3 rate or higher. In all such cases, these interfaces shall be in compliance with applicable Bellcore, ANSI, ITU, and MCIm standards.

10.7.3 ILEC shall provide physical interfaces on STS-1 cross-connect devices at the OC-3 rate or higher. In all such cases, these interfaces shall be in compliance with applicable Bellcore, ANSI, ITU, and MCIm standards.

10.7.4 Interfaces on all other cross-connect devices shall be in compliance with applicable Bellcore, ANSI, ITU, and MCIm standards.

10.8 DCS shall, at a minimum, meet all the requirements set forth in the following technical references:

10.8.1 ANSI T1.102-1993, American National Standard for Telecommunications - Digital Hierarchy - Electrical Interfaces;

10.8.2 ANSI T1.102.01-199x, American National Standard for Telecommunications - Digital Hierarchy - VT1.5;

10.8.3 ANSI T1.105-1995, American National Standard for Telecommunications - Synchronous Optical Network (SONET) - Basic Description including Multiplex Structure, Rates and Formats;

10.8.4 ANSI T1.105.03-1994, American National Standard for Telecommunications - Synchronous Optical Network (SONET) - Jitter at Network Interfaces;

10.8.5 ANSI T1.105.03a-1995, American National Standard for Telecommunications - Synchronous Optical Network (SONET): Jitter at Network Interfaces - DS1 Supplement;

10.8.6 ANSI T1.105.06-199x, American National Standard for Telecommunications - Synchronous Optical Network (SONET) - Physical Layer Specifications;

10.8.7 ANSI T1.106-1988, American National Standard for Telecommunications - Digital Hierarchy - Optical Interface Specifications (Single Mode);

10.8.8 ANSI T1.107-1988, American National Standard for Telecommunications - Digital Hierarchy - Formats Specifications;

10.8.9 ANSI T1.107a-1990, American National Standard for Telecommunications - Digital Hierarchy - Supplement to Formats Specifications (DS3 Format Applications);

10.8.10 ANSI T1.107b-1991, American National Standard for Telecommunications - Digital Hierarchy - Supplement to Formats Specifications;

10.8.11 ANSI T1.117-1991, American National Standard for Telecommunications - Digital Hierarchy - Optical Interface Specifications (SONET) (Single Mode - Short Reach);

10.8.12 ANSI T1.403-1989, Carrier to Customer Installation, DS1 Metallic Interface Specification:

10.8.13 ANSI T1.404-1994, Network-to-Customer Installation - DS3 Metallic Interface Specification;

10.8.14 ITU Recommendation G.707, Network node interface for the synchronous digital hierarchy (SDH);

10.8.15 ITU Recommendation G.704, Synchronous frame structures used at 1544, 6312, 2048, 8488 and 44736 kbit/s hierarchical levels;

10.8.16 FR-440 and TR-NWT-000499, Transport Systems Generic Requirements (TSGR): Common Requirements;

10.8.17 GR-820-CORE, Generic Transmission Surveillance: DS1 & DS3 Performance;

10.8.18 GR-253-CORE, Synchronous Optical Network Systems (SONET); Common Generic Criteria; and

10.8.19 TR-NWT-000776, Network Interface Description for ISDN Customer Access.

Section 11. Signaling Link Transport

11.1 **Definition**:

Signaling Link Transport is a set of two or four dedicated 56 Kbps transmission paths between MCIm-designated Signaling Points of Interconnection (SPOI) that provides appropriate physical diversity and a cross connect at an ILEC STP site.

11.2 **Technical Requirements**

11.2.1 Signaling Link Transport shall consist of full duplex mode 56 Kbps transmission paths.

11.2.2 Of the various options available, Signaling Link Transport shall perform in the following two ways:

11.2.2.1 As an "A-link" which is a connection between a switch or SCP and a home Signaling Transfer Point Switch (STPs) pair; and

11.2.2.2 As a "D-link" which is a connection between two STPs pairs in different company networks (e.g., between two STPs pairs for two Competitive Local Exchange Carriers (CLECs)).

11.2.3 Signaling Link Transport shall consist of two or more signaling link layers as follows:

11.2.3.1 An A-link layer shall consist of two links.

11.2.3.2 A D-link layer shall consist of four links.

11.2.4 A signaling link layer shall satisfy a performance objective such that:

11.2.4.1 There shall be no more than two minutes down time per year for an A-link layer, and

11.2.4.2 There shall be negligible (less than 2 seconds) down time per year for a D-link layer.

11.2.5 A signaling link layer shall satisfy interoffice and intraoffice diversity of facilities and equipment, such that:

11.2.5.1 No single failure of facilities or equipment causes the failure of both links in an A-link layer (i.e., the links should be provided on a minimum of two separate physical paths end-to-end); and

11.2.5.2 No two concurrent failures of facilities or equipment shall cause the failure of all four links in a D-link layer (i.e., the links should be provided on a minimum of three separate physical paths end-to-end).

11.3 **Interface Requirements**

11.3.1 There shall be a DS1 (1.544 Mbps) interface at the MCIm-designated SPOIs. Each 56 Kbps transmission path shall appear as a DS0 channel within the DS1 interface.

Section 12. Signaling Transfer Points (STPs)

12.1 **Definition**:

Signaling Transfer Points (STPs) provide functionality that enable the exchange of SS7 messages among and between switching elements, database elements and signaling transfer points. Figure 4 depicts Signaling Transfer Points.

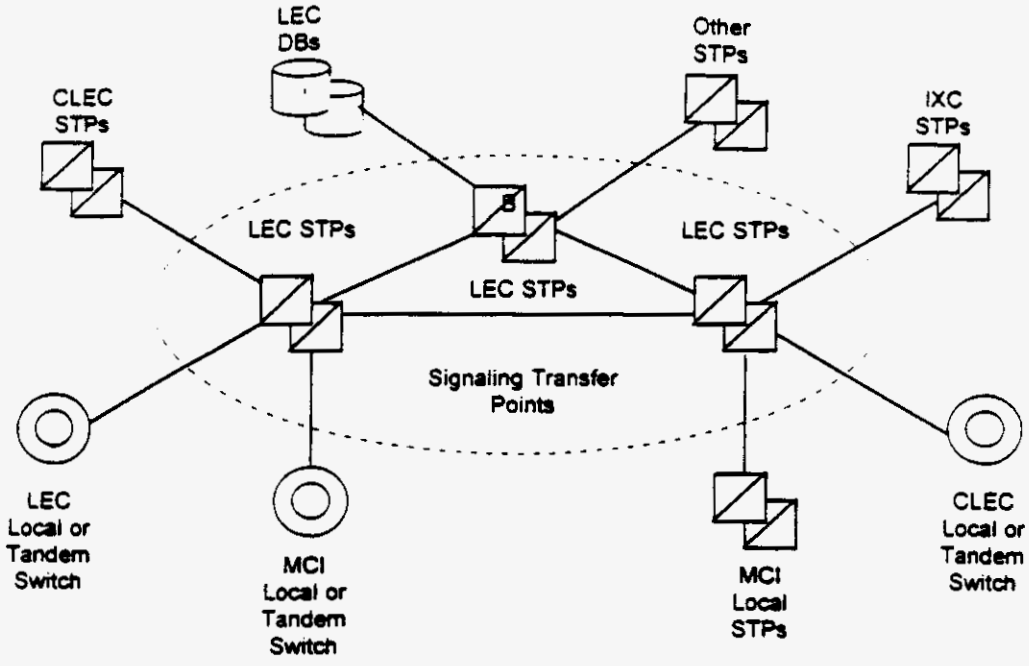

Figure 4

12.2 Technical Requirements

12.2.1 STPs shall provide access to all other Network Elements connected to the ILEC SS7 network. These include:

12.2.1.1 ILEC Local Switching or Tandem Switching;

12.2.1.2 ILEC Service Control Points/DataBases;

12.2.1.3 Third-party local or tandem switching systems; and

12.2.1.4 Third-party-provided STPs.

12.2.2 The connectivity provided by STPs shall fully support the functions of all other Network Elements connected to ILEC's SS7 network. This explicitly includes the use of ILEC's SS7 network to convey messages which neither originate nor terminate at a signaling end point directly connected to the ILEC SS7 network (i.e., transit messages). When the ILEC SS7 network is used to

convey transit messages, there shall be no alteration of the Integrated Services Digital Network User Part (ISDNUP) or Transaction Capabilities Application Part (TCAP) user data that constitutes the content of the message.

12.2.3 If a ILEC tandem switch routes calling traffic, based on dialed or translated digits, on SS7 trunks between an MCIm local switch and third party local switch, ILEC's SS7 network shall convey the TCAP messages that are necessary to provide Call Management features (Automatic Callback, Automatic Recall, and Screening List Editing) between the MCIm local STPs and the STPs that provide connectivity with the third party local switch, even if the third party local switch is not directly connected to ILEC's STPs.

12.2.4 STPs shall provide all functions of the MTP as specified in ANSI T1.111 (Reference 12.5.2). This includes:

12.2.4.1 Signaling Data Link functions, as specified in ANSI T1.111.2;

12.2.4.2 Signaling Link functions, as specified in ANSI T1.111.3; and

12.2.4.3 Signaling Network Management functions, as specified in ANSI T1.111.4.

12.2.5 STPs shall provide all functions of the SCCP necessary for Class 0 (basic connectionless) service, as specified in ANSI T1.112 (Reference 12.5.4). In particular, this includes Global Title Translation (GTT) and SCCP Management procedures, as specified in T1.112.4.

12.2.6 In cases where the destination signaling point is a ILEC local or tandem switching system or data base, or is an MCIm or third party local or tandem switching system directly connected to ILEC's SS7 network, ILEC STPs shall perform final GTT of messages to the destination and SCCP Subsystem Management of the destination. In all other cases, STPs shall perform intermediate GTT of messages to a gateway pair of STPs in an SS7 network connected with the ILEC SS7 network, and shall not perform SCCP Subsystem Management of the destination.

12.2.6 STPs shall also provide the capability to route SCCP messages based on ISNI, as specified in ANSI T1.118 (Reference 12.5.7), when this capability becomes available on ILEC STPs.

12.2.7 STPs shall provide all functions of the OMAP commonly provided by STPs, as specified in the reference in Section 12.5.6. This includes:

12.2.7.1 MTP Routing Verification Test (MRVT); and,

12.2.7.2 SCCP Routing Verification Test (SRVT).

12.2.8 In cases where the destination signaling point is a ILEC local or tandem switching system or DB, or is an MCIm or third party local or tandem switching system directly connected to the ILEC SS7 network, STPs shall perform MRVT and SRVT to the destination signaling point. In all other cases, STPs shall perform MRVT and SRVT to a gateway pair of STPs in an SS7 network connected with the ILEC SS7 network. This requirement shall be superseded by the specifications for Internetwork MRVT and SRVT if and when these become approved ANSI standards and available capabilities of ILEC STPs.

12.2.9 STPs shall be equal to or better than the following performance requirements:

12.2.9.1 MTP Performance, as specified in ANSI T1.111.6; and

12.2.9.2 SCCP Performance, as specified in ANSI T1.112.5.

12.2.10 **SS7 Advanced Intelligent Network (AIN) Access**

12.2.10.1 SS7 AIN Access shall provide the MCIm SCP access to the ILEC local switch via interconnection of the ILEC SS7 and MCIm SS7 networks. This interconnection arrangement shall result in the ILEC local switch recognizing the MCIm SCP as at least at parity with ILEC's SCPs in terms of interfaces, performance and capabilities.

12.2.10.2 SS7 AIN Access is the provisioning of AIN triggers in a ILEC local switch and interconnection of the ILEC SS7 network with the MCIm SS7 network to exchange

TCAP queries and responses with an MCIm SCP. See Figure 5 below.

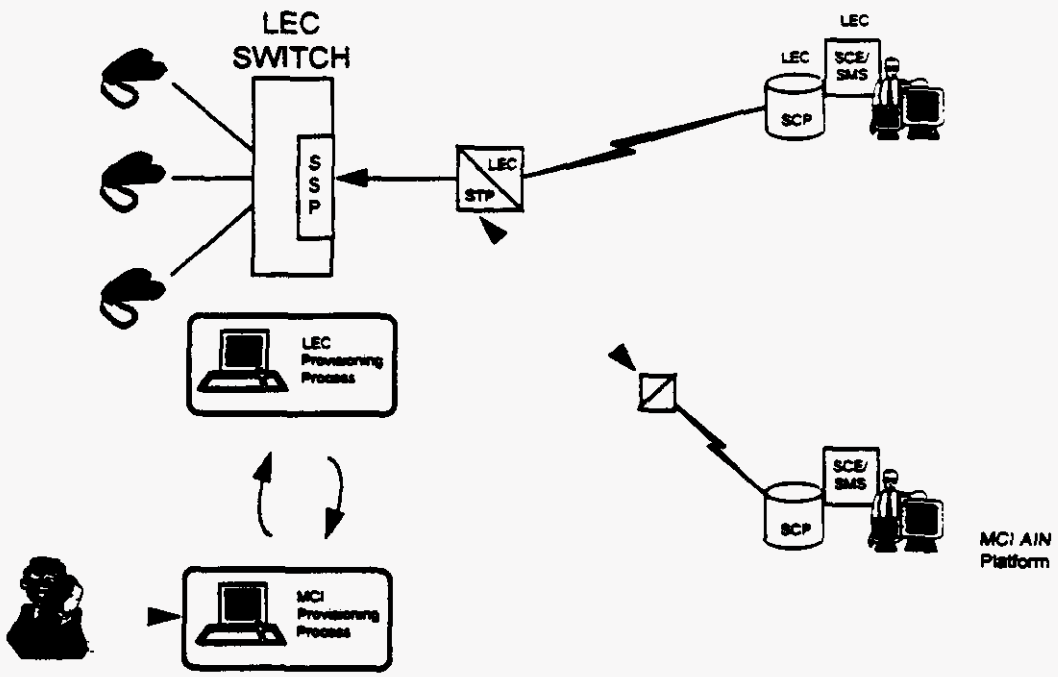

Figure 5

12.2.10.3 Physical interconnection between the ILEC SS7 and the MCIm SS7 networks shall be through facilities and protocols as specified in the SS7 Network Interconnection section of this Agreement.

12.2.10.4 Reliability of interconnection shall be consistent with requirements for diversity and survivability as specified in the SS7 Network Interconnection section of this Agreement.

12.2.10.5 Delay associated with ILEC local switch queries to the MCIm SCP shall be equal to or shorter than the delay associated with queries to the ILEC SCP.

12.2.10.6 ILEC STPs shall maintain global title translations necessary to direct AIN queries for select global title address and translation type values to the MCIm SS7 network.

12.2.10.7 ILEC STPs shall route AIN responses from the MCIm SCP via SS7 network interconnect to the local switch

designated in the Signaling Connection Control Part (SCCP) called party address.

12.2.10.8 Network management controls resulting from an overload in elements not supporting MCIm customers shall not affect queries to MCIm SCPs.

12.2.10.9 Requirements for billing and recording information to track AIN query-response usage shall be consistent with Connectivity Billing and Recording requirements as specified in Attachment VIII (e.g., recorded message format and content, timeliness of feed, data format and transmission medium).

12.2.10.10 ILEC shall provide to MCIm all necessary testing resources and staff to perform service certification testing prior to service deployment in accordance with the Cooperative section of this Agreement.

12.2.10.11 When MCIm selects SS7 AIN Access, ILEC will provide an interface to the ILEC STP provisioning process for provisioning of ILEC's STP global title translation data.

12.2.10.12 When MCIm selects SS7 AIN Access, ILEC will provide interconnection of its SS7 network with the ILEC SS7 network for exchange of AIN TCAP messages as described in Section 12.2.10.13.2.

12.2.10.13 STPs shall offer SS7 AIN Access in accordance with the requirements of the following technical references:

12.2.10.13.1 GR-2863-CORE, CCS Network Interface Specification Supporting Advanced Intelligent Network (AIN); and

12.2.10.13.2 GR-2902-CORE, CCS Network Interface Specification (CCSNIS) Supporting Toll-Free Service Using Advanced Intelligent Network (AIN).

12.3 Interface Requirements

12.3.1 ILEC shall provide the following STPs options to connect MCIm or MCIm-designated local switching systems or STPs to the ILEC SS7 network:

12.3.1.1 An A-link interface from MCIm local switching systems; and,

12.3.2 Each type of interface shall be provided by one or more sets (layers) of signaling links, as follows:

12.3.2.1 An A-link layer shall consist of two links, as depicted in Figure 6.

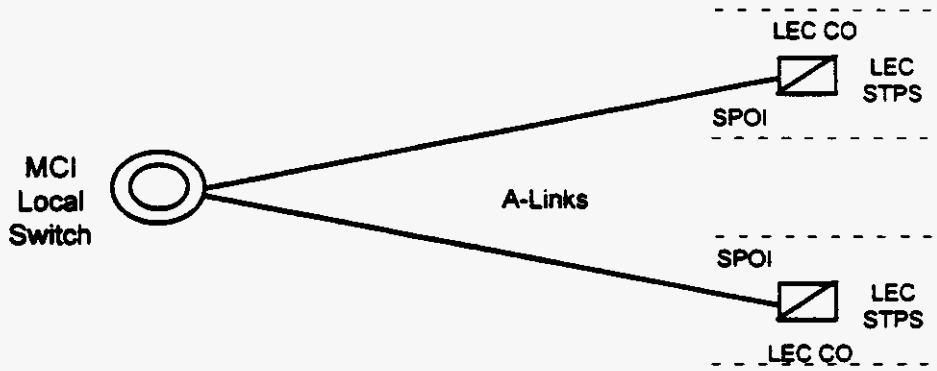

Figure 6. A-Link Interface

12.3.3 The Signaling point of Interconnection (SPOI) for each link shall be located at a cross-connect element, such as a DSX-1, in the Central Office (CO) where the ILEC STPs is located. There shall be a DSI or higher rate transport interface at each of the SPOIs. Each signaling link shall appear as a DS0 channel within the DS1 or higher rate interface.
ILEC shall offer higher rate DS1 signaling for interconnecting MCIm local switching systems or STPs with ILEC STPs as soon as these become approved ANSI standards and available capabilities of ILEC STPs.

12.3.4 ILEC shall provide MTP and SCCP protocol interfaces that shall conform to all sections relevant to the MTP or SCCP in the following specifications:

12.3.4.1 Bellcore GR-905-CORE, Common Channel Signaling Network Interface Specification (CCSNIS) Supporting Network Interconnection, Message Transfer Part (MTP), and Integrated Services Digital Network User Part (ISDNUP); and

12.3.4.2 Bellcore GR-1432-CORE, CCS Network Interface Specification (CCSNIS) Supporting Signaling Connection Control Part (SCCP) and Transaction Capabilities Application Part (TCAP).

12.4 Message Screening

12.4.1 ILEC shall set message screening parameters so as to accept messages from MCIm local or tandem switching systems destined to any signaling point in the ILEC SS7 network with which the MCIm switching system has a legitimate signaling relation.

12.4.2 ILEC shall set message screening parameters so as to accept messages from MCIm local or tandem switching systems destined to any signaling point or network interconnected to the ILEC SS7 network with which the MCIm switching system has a legitimate signaling relation.

12.4.3 ILEC shall set message screening parameters so as to accept messages destined to an MCIm local or tandem switching system from any signaling point or network interconnected to the ILEC SS7 network with which the MCIm switching system has a legitimate signaling relation.

12.4.4 ILEC shall set message screening parameters so as to accept and send messages destined to an MCIm SCP from any signaling point or network interconnected to the ILEC SS7 network with which the MCIm SCP has a legitimate signaling relation.

12.5 STP Requirements

12.5.1 STPs shall be equal to or better than all of the requirements for STPs set forth in the following technical references:

12.5.2 ANSI T1.111-1992 American National Standard for Telecommunications - Signaling System Number 7 (SS7) - Message Transfer Part (MTP);

12.5.3 ANSI T1.111A-1994 American National Standard for Telecommunications - Signaling System Number 7 (SS7) - Message Transfer Part (MTP) Supplement;

12.5.4 ANSI T1.112-1992 American National, Standard for Telecommunications - Signaling System Number 7 (SS7) - Signaling Connection Control Part (SCCP);

12.5.5 ANSI T1.115-1990 American National Standard for Telecommunications - Signaling System Number 7 (SS7) - Monitoring and Measurements for Networks;

12.5.6 ANSI T1.116-1990 American National Standard for Telecommunications - Signaling System Number 7 (SS7) - Operations, Maintenance and Administration Part (OMAP);

12.5.7 ANSI T1.118-1992 American National Standard for Telecommunications - Signaling System Number 7 (SS7) - Intermediate Signaling Network Identification (ISNI);

12.5.8 Bellcore GR-905-CORE, Common Channel Signaling Network Interface Specification (CCSNIS) Supporting Network Interconnection, Message Transfer Part (MTP), and Integrated Services Digital Network User Part (ISDNUP); and

12.5.9 Bellcore GR-1432-CORE, CCS Network Interface Specification (CCSNIS) Supporting Signaling Connection Control Part (SCCP) and Transaction Capabilities Application Part (TCAP).

Section 13. Service Control Points/Databases

13.1 **Definition**:

13.1.1 Databases are the Network Elements that provide the functionality for storage of, access to, and manipulation of information required to offer a particular service and/or capability. Databases include, but are not limited to: Number Portability, LIDB, Toll Free Number Database, Automatic Location Identification/Data Management System, access to Service Creation Environment and Service Management System (SCE/SMS).

13.1.2 A Service Control Point (SCP) is a specific type of Database Network Element functionality deployed in a Signaling System 7 (SS7) network that executes service application logic in response to SS7 queries sent to it by a switching system also connected to the SS7 network. SCPs also provide operational interfaces to allow for provisioning, administration and maintenance of subscriber data and service application data. (e.g., an 800 database stores customer record data that provides information necessary to route 800 calls).

13.2 Technical Requirements for SCPs/Databases

Requirements for SCPs/Databases within this section address storage of information, access to information (e.g. signaling protocols, response times), and administration of information (e.g., provisioning, administration, and maintenance). All SCPs/Databases shall be provided to MCIm in accordance with the following requirements, except where such a requirement is superseded by specific requirements set forth in Subsections 13.3 through 13.7:

13.2.1 ILEC shall provide physical interconnection to SCPs through the SS7 network and protocols, as specified in Section 12 of this Attachment, with TCAP as the application layer protocol.

13.2.2 ILEC shall provide physical interconnection to databases via industry standard interfaces and protocols (e.g., ISDN and X.25).

13.2.3 The reliability of interconnection options shall be consistent with requirements for diversity and survivability as specified in Section 12 of this Attachment (which applies to both SS7 and non-SS7 interfaces).

13.2.4 Database functionality shall be unavailable a maximum of 30 minutes per year.

13.2.5 ILEC shall provide Database provisioning consistent with the provisioning requirements of this Agreement (e.g., data required, edits, acknowledgments, data format and transmission medium and notification of order completion).

13.2.6 The operational interface provided by ILEC shall complete Database transactions (i.e., add, modify, delete) for MCIm customer records stored in ILEC databases within 24 hours, or sooner where ILEC provisions its own customer records within a shorter interval.

13.2.7 ILEC shall provide Database maintenance consistent with the maintenance requirements as specified in this Agreement (e.g., notification of ILEC Network Affecting Events, testing, dispatch schedule and measurement and exception reports).

13.2.8 ILEC shall provide billing and recording information to track database usage consistent with connectivity billing and recording

requirements as specified in this Agreement (e.g., recorded message format and content, timeliness of feed, data format and transmission medium).

13.2.9 ILEC shall provide SCPs/Databases in accordance with the physical security requirements specified in this Agreement.

13.2.10 ILEC shall provide SCPs/Databases in accordance with the logical security requirements specified in this Agreement.

13.3 **Number Portability Database**

13.3.1 **Definition:**

The Number Portability (NP) database supplies routing numbers for calls involving numbers that have been ported from one local service provider to another. NP database functionality shall also include Global Title Translations (GTT) for calls involving ported numbers even if
ILEC provides GTT functionality in another Network Element. This Subsection 13.3 supplements the requirements of Subsection 13.2 and 13.7. ILEC shall provide the Number Portability Database in accordance with the following:

13.3.2 **Requirements**

13.3.2.1 ILEC shall make ILEC NP database available for MCIm switches to query to obtain the appropriate routing number on calls to ported numbers or the industry specified indication that the number is not ported for non-ported numbers in NPA-NXXs that are opened to portability. The specified indication will also be provided when the NPA-NXX is not open to portability;

13.3.2.2 Query responses shall provide such additional information, for example, Service Provider identification, as may be specified in the NP implementation in the relevant regulatory jurisdiction;

13.3.2.3 ILEC shall provide GTT for CLASS or LIDB queries routed to the ILEC network by MCIm switches. ILEC database or other Network Element shall perform the GTT function and route the query to the appropriate switch or LIDB accordingly;

13.3.2.4 The NP database shall provide such other functionality as has been specified in the regulatory jurisdiction in which portability has been implemented;

13.3.2.5 Unavailability of the NP database query and GTT applications shall not exceed 4 minutes per year; and

13.3.2.6 The ILEC NP database shall respond to a query within 125 msec. of receipt of the query.

13.3.3 Interface Requirements

13.3.3.1 ILEC shall interconnect the signaling interface between the MCIm or other local switch and the NP database using the TCAP protocol as specified in the technical reference in Section 13.7.1, together with the signaling network interface as specified in the technical reference in Section 13.7.2, and such further requirements (e.g., AIN or IN protocols) as may be specified by bodies responsible for implementation of number portability in the jurisdiction at hand; (e.g., Generic Requirements for SCP Application and GTT Function for Number Portability, Issue 0.3, Final Draft, March 22, 1996 [Editor - Ameritech Inc.]).

13.4 Line Information Database (LIDB)

This Subsection 13.4 defines and sets forth additional requirements for the Line Information Database. This Subsection 13.4 supplements the requirements of Subsection 13.2 and 13.7.

13.4.1 **Definition:**

The Line Information Database (LIDB) is a transaction-oriented database accessible through Common Channel Signaling (CCS) networks. It contains records associated with customer Line Numbers and Special Billing Numbers (in accordance with the requirements in the technical reference in Section 13.7.5). LIDB accepts queries from other Network Elements and provides appropriate responses. The query originator need not be the owner of LIDB data. LIDB queries include functions such as screening billed numbers that provides the ability to accept Collect or Third Number Billing calls and validation of Telephone Line Number based non-proprietary calling cards. The interface for the LIDB functionality is the interface between the ILEC CCS network and other CCS networks. LIDB also interfaces to administrative

systems. The administrative system interface provides Work Centers with an interface to LIDB for functions such as provisioning, auditing of data, access to LIDB measurements and reports.

13.4.2 **Technical Requirements**

13.4.2.1 Prior to the availability of a long-term solution for Number Portability, ILEC shall enable MCIm to store in ILEC's LIDB any customer Line Number or Special Billing Number record, (in accordance with the technical reference in Section 13.7.5) whether ported or not, for which the NPA-NXX or NXX-0/1XX Group is supported by that LIDB.

13.4.2.2 Prior to the availability of a long-term solution for Number Portability, ILEC shall enable MCIm to store in ILEC's LIDB any customer Line Number or Special Billing Number (in accordance with the technical reference in Section 13.7.5) record, whether ported or not, and NPA-NXX and NXX-0/1XX Group Records, belonging to an NPA-NXX or NXX-0/1 XX owned by MCIm.

13.4.2.3 Subsequent to the availability of a long-term solution for Number Portability, ILEC shall enable MCIm to store in ILEC's LIDB any customer Line Number or Special Billing Number (in accordance with the technical reference in Section 13.7.5) record, whether ported or not, regardless of the number's NPA-NXX or NXX-0/1XX.

13.4.2.4 ILEC shall perform the following LIDB functions (i.e., processing of the following query types as defined in the technical reference in Section 13.7.5) for MCIm's customer records in LIDB:

13.4.2.4.1 Billed Number Screening (provides information such as whether the Billed Number may accept Collect or Third Number Billing calls); and

13.4.2.4.2 Calling Card Validation.

13.4.2.5 ILEC shall process MCIm's customer records in LIDB at least at parity with ILEC customer records, with respect to other LIDB functions (as defined in the technical reference in Section 13.5). ILEC shall indicate to MCIm

what additional functions (if any) are performed by LIDB in their network.

13.4.2.6 Within two (2) weeks after a request by MCIm, ILEC shall provide MCIm with a list of the customer data items which MCIm would have to provide in order to support each required LIDB function. The list shall indicate which data items are essential to LIDB function, and which are required only to support certain services. For each data item, the list shall show the data formats, the acceptable values of the data item and the meaning of those values.

13.4.2.7 ILEC shall provide LIDB systems for which operating deficiencies that would result in calls being blocked, shall not exceed 30 minutes per year.

13.4.2.8 ILEC shall provide LIDB systems for which operating deficiencies that would not result in calls being blocked shall not exceed 12 hours per year.

13.4.2.9 ILEC shall provide LIDB systems for which the LIDB function shall be in overload (degraded performance in accordance with the technical reference in Section 13.7.5) no more than 12 hours per year. Such deficiency period is in addition to the periods specified in Sections 13.4.2.7 and 13.4.2.8 above.

13.4.2.10 ILEC shall provide MCIm with the capability to provision (e.g., to add, update, and delete) NPA-NXX and NXX-0/1XX Group Records, and Line Number and Special Billing Number Records, associated with MCIm customers, directly into ILEC's LIDB provisioning process.

13.4.2.11 In the event that end user customers change their local service provider, ILEC shall maintain customer data (for line numbers, card numbers, and for any other types of data maintained in LIDB) so that such customers shall not experience any interruption of service due to the lack of such maintenance of customer data.

13.4.2.12 All additions, updates and deletions of MCIm data to the LIDB shall be solely at the direction of MCIm.

13.4.2.13 ILEC shall provide priority updates to LIDB for MCIm data upon MCIm's request (e.g., to support fraud protection).

13.4.2.14 ILEC shall provide MCIm the capability to directly obtain, through an electronic interface, reports of all MCIm data in LIDB.

13.4.2.15 ILEC shall provide LIDB systems such that no more than 0.01% of MCIm customer records will be missing from LIDB, as measured by MCIm audits.

13.4.2.16 ILEC shall perform backup and recovery of all of MCIm's data in LIDB as frequently as MCIm may reasonably specify, including sending to LIDB all changes made since the date of the most recent backup copy.

13.4.2.17 ILEC shall provide to MCIm access to LIDB measurements and reports at least at parity with the capability ILEC has for its own customer records and that ILEC provides to any other party. Such access shall be electronic.

13.4.2.18 ILEC shall provide MCIm with LIDB reports of data which are missing or contain errors, as well as any misroute errors, within the time period reasonably designated by MCIm.

13.4.2.19 ILEC shall prevent any access to or use of MCIm data in LIDB by ILEC personnel or by any other party that is not authorized by MCIm in writing.

13.4.2.20 ILEC shall provide MCIm performance of the LIDB Data Screening function, which allows a LIDB to completely or partially deny specific query originators access to LIDB data owned by specific data owners, (in accordance with the technical reference in Section 13.7.5) for Customer Data that is part of an NPA-NXX or NXX-0/1XX wholly or partially owned by MCIm at least at parity with ILEC Customer Data. ILEC shall obtain from MCIm the screening information associated with LIDB Data Screening of MCIm data in accordance with this requirement.

13.4.2.21 ILEC shall accept queries to LIDB associated with MCIm customer records, and shall return responses in accordance with the requirements of this Section 13.

13.4.2.22 ILEC shall provide mean processing time at the LIDB within 0.50 seconds under normal conditions as defined in the technical reference in Section 13.7.5.

13.4.2.23 ILEC shall provide processing time at the LIDB within 1 second for 99% of all messages under normal conditions as defined in the technical reference in Section 13.7.5.

13.4.2.24 ILEC shall provide 99.9 % of all LIDB queries in a round trip response within 2 seconds.

13.4.2.25 ILEC shall provide LIDB performance that complies with the following standards:

13.4.2.25.1 There shall be at least a 99.9% reply rate to all query attempts.

13.4.2.25.2 Queries shall time out at LIDB no more than 0.1% of the time.

13.4.2.25.3 Data in LIDB replies shall have at no more than 2% unexpected data values, for all queries to LIDB.

13.4.2.25.4 No more than 0.01% of all LIDB queries shall return a missing customer record.

13.4.2.25.5 There shall be no defects in LIDB Data Screening of responses.

13.4.2.25.6 Group troubles shall occur for no more than 1% of LIDB queries. Group troubles include:

13.4.2.25.6.1 Missing Group — When reply is returned "vacant" but there is no active record for the 6-digit NPA-NXX group.

13.4.2.25.6.2 Vacant Code — When a 6-digit code is active but is not assigned to any customer on that code.

13.4.2.25.6.3 Non-Participating Group and unavailable Network Resource — should be identified in the LARG (LIDB Access Routing Guide) so MCIm does not pay access for queries that will be denied in LIDB.

13.4.3 **Interface Requirements**

ILEC shall offer LIDB in accordance with the requirements of this subsection 13.4.3.

13.4.3.1 The interface to LIDB shall be in accordance with the technical reference in Section 13.7.3.

13.4.3.2 The CCS interface to LIDB shall be the standard interface described in Section 13.7.3.

13.4.3.3 The LIDB Data Base interpretation of the ANSI-TCAP messages shall comply with the technical reference in Section 13.7.4. Global Title Translation shall be maintained in the signaling network in order to support signaling network routing to the LIDB.

13.5 **Toll Free Number Database**

The Toll Free Number Database is a SCP that provides functionality necessary for toll free (e.g., 800 and 888) number services by providing routing information and additional so-called vertical features during call set-up in response to queries from SSPs. This Subsection 13.5 supplements the requirements of Subsection 13.2 and 13.7. ILEC shall provide the Toll Free Number Database in accordance with the following:

13.5.1 **Technical Requirements**

13.5.1.1 ILEC shall make the ILEC Toll Free Number Database available for MCIm to query with a toll-free number and originating information.

13.5.1.2 The Toll Free Number Database shall return carrier identification and, where applicable, the queried toll free

number, translated numbers and instructions as it would in response to a query from a ILEC switch.

13.5.1.3 The SCP shall also provide, at MCIm's option, such additional feature as described in SR-TSV-002275 (BOC Notes on the ILEC Networks, SR-TSV-002275, Issue 2, (Bellcore, April 1994)) as are available to ILEC. These may include but are not limited to:

13.5.1.3.1 Network Management;

13.5.1.3.2 Customer Sample Collection; and

13.5.1.3.3 Service Maintenance.

13.5.2 **Interface Requirements**

The signaling interface between the MCIm or other local switch and the Toll-Free Number database shall use the TCAP protocol as specified in the technical reference in Section 13.7.1, together with the signaling network interface as specified in the technical reference in Sections 13.7.2 and 13.7.6.

13.6 **Automatic Location Identification/Data Management System (ALI/DMS)**

The ALI/DMS Database contains customer information (including name, address, telephone information, and sometimes special information from the local service provider or customer) used to determine to which Public Safety Answering Point (PSAP) to route the call. The ALI/DMS database is used to provide more routing flexibility for E911 calls than Basic 911. This Subsection 13.6 supplements the requirements of Subsection 13.7.2 and 13.7.6. ILEC shall provide the Emergency Services Database in accordance with the following:

13.6.1 **Technical Requirements**

13.6.1.1 ILEC shall offer MCIm a data link to the ALI/DMS database or permit MCIm to provide its own data link to the ALI/DMS database.

ILEC shall provide error reports from the ALI/DMS data base to MCIm immediately after MCIm inputs information into the ALI/DMS data base. Alternately, MCIm may utilize ILEC, to

enter customer information into the data base on a demand basis, and validate customer information on a demand basis.

13.6.1.2 The ALI/DMS database shall contain the following customer information:

13.6.1.2.1 Name;

13.6.1.2.2 Address;

13.6.1.2.3 Telephone number; and

13.6.1.2.4 Other information as appropriate (e.g., whether a customer is blind or deaf or has another disability).

13.6.1.3 When ILEC is responsible for administering the ALI/DMS database in its entirety, ported number NXXs entries for the ported numbers should be maintained unless MCIm requests otherwise and shall be updated if MCIm requests.

13.6.1.4 When Remote Call Forwarding (RCF) is used to provide number portability to the local customer and a remark or other appropriate field information is available in the database, the shadow or "forwarded-to" number and an indication that the number is ported shall be added to the customer record.

13.6.1.5 If ILEC is responsible for configuring PSAP features (for cases when the PSAP or ILEC supports an ISDN interface) it shall ensure that CLASS Automatic Recall (Call Return) is not used to call back to the ported number.

13.6.2 **Interface Requirements**

13.6.2.1 The interface between the E911 Switch or Tandem and the ALI/DMS database for MCIm customers shall meet industry standards.

13.7 SCPs/Databases shall be equal to or better than all of the requirements for SCPs/Databases set forth in the following technical references:

13.7.1 GR-246-CORE, Bell Communications Research Specification of Signaling System Number 7, ISSUE 1 (Bellcore, December 199);

13.7.2 GR-1432-CORE, CCS Network Interface Specification (CCSNIS) Supporting Signaling Connection Control Part (SCCP) and Transaction Capabilities Application Part (TCAP). (Bellcore, March 1994);

13.7.3 GR-954-CORE, CCS Network Interface Specification (CCSNIS) Supporting Line Information Database (LIDB) Service 6, Issue 1, Rev. 1 (Bellcore, October 1995);

13.7.4 GR-1149-CORE, OSSGR Section 10: System Interfaces, Issue 1 (Bellcore, October 1995) (Replaces TR-NWT-001149);

13.7.5 GR-1158-CORE, OSSGR Section 22.3: Line Information Database 6, Issue (Bellcore, October 1995)

13.7.6 GR-1428-CORE, CCS Network Interface Specification (CCSNIS) Supporting Toll Free Service (Bellcore, May 1995); and

13.7.7 "Bellcore Special Report SR-TSV-002275, IBOC Notes on the LEC Networks - Signaling".)

13.8 Service Creation Environment and Service Management System (SCE/SMS) Advanced Intelligent Network (AIN) Access

13.8.1 SCE/SMS AIN Access shall provide MCIm the ability to create service applications in the ILEC SCE and deploy those applications via the ILEC SMS to the ILEC SCP. This interconnection arrangement shall provide MCIm access to the ILEC development environment and administrative system in a manner at least at parity with ILEC's ability to deliver its own AIN-based services. SCE/SMS AIN Access is the provisioning of AIN triggers in a ILEC local switch, development of service applications within the ILEC Service Creation Environment, and deployment of service applications via the ILEC Service Management System. See Figure 7 below.

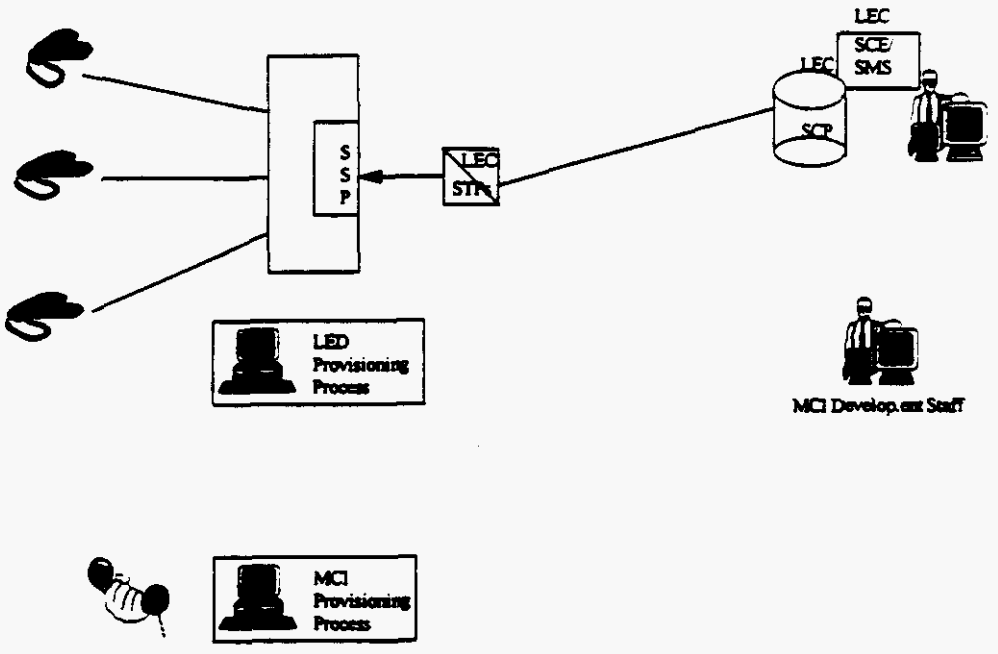

Figure 7

13.8.2 ILEC shall make SCE hardware, software, testing and technical support (e.g., help desk, system administrator) resources available to MCIm. Scheduling of SCE resources shall allow MCIm at least equal priority to ILEC.

13.8.3 The ILEC SCE/SMS shall allow for multi-user access with proper source code management and other logical security functions as specified in the Security section of this Agreement.

13.8.4 The ILEC SCP shall partition and protect MCIm service logic and data from unauthorized access, execution or other types of compromise.

13.8.5 ILEC shall provide training, documentation, and technical support of MCIm development staff in a manner at least at parity with that provided to ILEC's own development staff. Training sessions shall be "suitcased" to MCIm facilities or delivered at ILEC facilities, at MCIm's discretion.

13.8.6 When MCIm selects SCE/SMS AIN Access, ILEC shall provide for a secure, controlled access environment on-site as well as via remote data connections (e.g., dial up, LAN, WAN).

13.8.7 When MCIm selects SCE/SMS AIN Access, ILEC shall allow MCIm to download data forms and/or tables to the ILEC SCP via the ILEC SMS without intervention from ILEC (e.g., service customization and customer subscription).

13.8.8 SCPs/Databases shall offer SCE/SMS AIN Access in accordance with the requirements of: GR-1280-CORE, AIN Service Control Point (SCP) Generic Requirements.

Section 14. Tandem Switching

14.1 **Definition:**

Tandem Switching is the function that establishes a communications path between two switching offices through a third switching office (the tandem switch) including but not limited to CLEC, ILEC, Independent telephone companies, IXCs and wireless carriers.

14.2 **Technical Requirements**

14.2.1 Tandem Switching shall have the same capabilities or equivalent capabilities as those described in Bell Communications Research TR-TSY-000540 Issue 2R2, Tandem Supplement, 6/1/90. The requirements for Tandem Switching include, but are not limited to, the following:

14.2.1.1 Tandem Switching shall provide signaling to establish a tandem connection;

14.2.1.2 Tandem Switching shall provide screening and routing as designated by MCIm;

14.2.1.3 Tandem Switching shall provide recording of all billable events designated by MCIm;

14.2.1.4 Tandem Switching shall provide Advanced Intelligent Network triggers supporting AIN features;

14.2.1.5 Tandem Switching shall provide connectivity to Operator Systems as designated by MCIm;

14.2.1.6 Tandem Switching shall provide access to Toll Free number portability database as designated by MCIm;

14.2.1.7 Tandem Switching shall provide all trunk interconnections discussed under the "Network Interconnection" section (e.g., SS7, MF, DTMF, Dial Pulse, PRI-ISDN, DID, and CAMA-ANI (if appropriate for 911));

14.2.1.8 Tandem Switching shall provide connectivity to PSAPs where 911 solutions are deployed and the tandem is used for 911; and

14.2.1.9 Tandem Switching shall provide connectivity to transit traffic to and from other carriers.

14.2.2 Tandem Switching shall accept connections (including the necessary signaling and trunking interconnections) between end offices, other tandems, IECs, ICOs, CAPs and CLEC switches.

14.2.3 Tandem Switching shall provide local tandeming functionality between two end offices including two offices belonging to different CLEC's (e.g., between an MCIm end office and the end office of another CLEC).

14.2.4 Tandem Switching shall preserve CLASS/LASS features and Caller ID as traffic is processed. Additional signaling information and requirements are provided in Section 12.

14.2.5 Tandem Switching shall record billable events and send them to the area billing centers designated by MCIm. Billing requirements are specified in Attachment 8 of this Agreement.

14.2.6 ILEC shall perform routine testing and fault isolation on the underlying switch that is providing Tandem Switching and all its interconnections. When requested by MCIm, the results and reports of the testing shall be made immediately available to MCIm.

14.2.7 When requested by MCIm, ILEC shall provide performance data regarding traffic characteristics or other measurable elements to MCIm for review.

14.2.8 Tandem Switching shall control congestion using capabilities such as Automatic Congestion Control and Network Routing Overflow. Congestion control provided or imposed on MCIm traffic shall be at parity with controls being provided or

imposed on ILEC traffic (e.g., ILEC shall not block MCIm traffic and leave its traffic unaffected or less affected).

14.2.9 Tandem Switching shall route calls to ILEC or MCIm endpoints or platforms (e.g., operator services and PSAPs) on a per call basis as designated by MCIm. Detailed primary and overflow routing plans for all interfaces available within the ILEC switching network shall be mutually agreed to by MCIm and ILEC. Such plans shall meet MCIm requirements for routing calls through the local network.

14.2.10 Tandem Switching shall process originating toll-free traffic received from an MCIm local switch.

14.2.11 In support of AIN triggers and features, Tandem Switching shall provide SSP capabilities when these capabilities are not available from the Local Switching Network Element.

14.2.12 The Local Switching and Tandem Switching functions may be combined in an office. If this is done, both Local Switching and Tandem switching shall provide all of the functionality required of each of those Network Elements in this Agreement.

14.3 **Interface Requirements**

14.3.1 Tandem Switching shall provide interconnection to the E911 PSAP where the underlying Tandem is acting as the E911 Tandem.

14.3.2 Tandem Switching shall interconnect, with direct trunks, to all carriers with which ILEC interconnects.

14.3.3 ILEC shall provide all signaling necessary to provide Tandem Switching with no loss of feature functionality.

14.3.4 Tandem Switching shall interconnect with MCIm's switch, using two-way trunks, for traffic that is transiting via the ILEC network to interLATA or intraLATA carriers. At MCIm's request, Tandem Switching shall record and keep records of traffic for billing.

14.3.5 At MCIm's request, Tandem Switching shall provide overflow routing of traffic from a given trunk group or groups onto another trunk group or groups according to the methodology that MCIm designates.

14.4 Tandem Switching shall meet or exceed (i.e., be more favorable to MCIm) each of the requirements for Tandem Switching set forth in the following technical references:

14.4.1 Bell Communications Research TR-TSY-000540 Issue 2R2, Tandem Supplement, 6/1/90;

14.4.2 GR-905-CORE covering CCSNIS;

14.4.3 GR-1429-CORE for call management features; and GR-2863-CORE and GR-2902-CORE covering CCS AIN interconnection.

Section 15. Additional Requirements

This Section 15 of Attachment III sets forth the additional requirements for unbundled Network Elements which ILEC agrees to offer to MCIm under this Agreement.

15.1 **Cooperative Testing**

15.1.1 **Definition**:

Cooperative Testing means that ILEC shall cooperate with MCIm upon request or as needed to (1) ensure that the Network Elements and Ancillary Functions and additional requirements being provided to MCIm by ILEC are in compliance with the requirements of this Agreement, (2) test the overall functionality of various Network Elements and Ancillary Functions provided by ILEC to MCIm in combination with each other or in combination with other equipment and facilities provided by MCIm or third parties, and (3) ensure that all operational interfaces and processes are in place and functioning properly and efficiently for the provisioning and maintenance of Network Elements and Ancillary Functions and so that all appropriate billing data can be provided to MCIm.

15.1.2 **Requirements**

Within 45 days of the Effective Date of this Agreement, MCIm and ILEC will agree upon a process to resolve technical issues relating to interconnection of MCIm's network to ILEC's network and Network Elements and Ancillary Functions. The agreed upon process shall include procedures for escalating disputes and

unresolved issues up through higher levels of each company's management. If MCIm and ILEC do not reach agreement on such a process within 45 days, any issues that have not been resolved by the parties with respect to such process shall be submitted to the procedures set forth in Part A Section 23 of this Agreement unless both parties agree to extend the time to reach agreement on such issues.

15.1.2.1 ILEC shall provide MCIm access for testing at any interface between a ILEC Network Element or combinations and MCIm equipment or facilities. Such test access shall be sufficient to ensure that the applicable requirements can be tested by MCIm. This access shall be available seven (7) days per week, 24 hours per day.

15.1.2.2 MCIm may test any interfaces, Network Elements or Ancillary Functions and additional requirements provided by ILEC pursuant to this Agreement.

15.1.2.3 ILEC shall provide engineering data as requested by MCIm for the loop components as set forth in Sections 2, 3 and 4 of this Attachment which MCIm may desire to test. Such data shall include equipment engineering and cable specifications, signaling and transmission path data.

15.1.2.4 Upon MCIm's request, ILEC shall provide to MCIm any office records, central office layout and design records and drawings, system engineering and other applicable documentation pertaining to a Network Element or Ancillary Function or the underlying equipment that is then providing a Network Element or Ancillary Function to MCIm.

15.1.2.5 ILEC shall provide to MCIm upon request, all applicable test results, from ILEC testing activities on a Network Element or Ancillary Function or Additional Requirement or the underlying equipment providing a Network Element or Ancillary Function or Additional Requirements. MCIm may review such testing results and may notify ILEC of any deficiencies that are detected.

15.1.2.6 ILEC shall temporarily provision MCIm designated Local Switching features for testing. Within 60 days of the Effective Date of this Agreement, MCIm and ILEC shall mutually agree on the procedures to be established between ILEC and MCIm to expedite such provisioning processes for feature testing.

15.1.2.7 Upon MCIm's request, ILEC shall provide technical staff to meet with MCIm representatives to provide required support for Cooperative Testing.

15.1.2.8 Dedicated Transport and Loop Feeder may experience alarm conditions due to in-progress tests. ILEC shall not remove such facilities from service without obtaining MCIm's prior approval.

15.1.2.9 ILEC shall get acceptance from MCIm prior to conducting tests or maintenance procedures on Network Elements or Ancillary Functions or on the underlying equipment that is then providing a Network Element or Ancillary Function, that may cause a service interruption or degradation of service

15.1.2.10 ILEC shall provide a single point of contact to MCIm that is available 7 days per week, 24 hours per day for trouble status, sectionalization, resolution, escalation, and closure. Such staff shall be adequately skilled to allow expeditious problem resolution.

15.1.2.11 ILEC shall provide to MCIm electronic access to 105 responders, 100-type test lines, or 102-type test lines associated with any circuits under test.

15.1.2.12 ILEC shall participate in Cooperative Testing with MCIm upon MCIm's request to test any operational interface or process used to provide Network Elements, Ancillary Functions or Services to MCIm.

15.1.2.13 MCIm and ILEC shall endeavor to complete Cooperative Testing as stated in Attachment 8.

15.1.2.14 ILEC shall participate in Cooperative Testing requested by MCIm whenever it is deemed necessary by MCIm to insure service performance, reliability and customer serviceability.

15.1.2.15 MCIm may accept or reject the Network Element ordered by MCIm if, upon completion of cooperative acceptance testing, the tested Network Element does not meet the requirements stated herein.

15.2 **Performance**

15.2.1 **Scope**

This section addresses performance requirements for Network Elements and Ancillary Functions to provide local service. It includes requirements for the reliability and availability of Network Elements and Ancillary Functions, and quality parameters such as transmission quality (analog and digital), and speed (or delay). In addition, an overview of service performance requirements is given.

15.2.1.1 The General Performance Requirements in this section apply to all aspects of Network Elements and Ancillary Functions. Additional requirements are given in this performance section and in the individual Network Elements sections.

15.2.1.2 ILEC shall work cooperatively with MCIm to determine appropriate performance allocations across Network Elements.

15.2.2 ILEC shall provide real-time, remote data access to performance monitoring and alarm data on events affecting (or potentially affecting) MCIm's traffic.

15.2.3 ILEC shall provide performance equal to or better than all of the requirements set forth in the following technical references:

15.2.3.1 **Bell Communications Research, Inc. Documents**

15.2.3.1.1 FR-64, *LATA Switching Systems Generic Requirements (LSSGR).* This document contains 117 Technical References and Generic Requirements. Sections provide the requirements for local switching systems (also referred to as end offices) that serve customers' lines. Some modules of the LSSGR are also referenced separately in this document.

15.2.3.1.2 TR-NWT-000499, Issue 5, Rev 1, April 1992, *Transport Systems Generic Requirements (TSGR): Common Requirements.*

15.2.3.1.3 TR-NWT-000418, Issue 2, December 1992, *Generic Reliability Assurance Requirements For Fiber Optic Transport Systems.*

15.2.3.1.4 TR-NWT-000057, Issue 2, January 1993, *Functional Criteria for Digital Loop Carriers Systems.*

15.2.3.1.5 TR-NWT-000507, Issue 5, December 1993, *LSSGR - Transmission, Section 7.*

15.2.3.1.6 GR-303-CORE, Issue 1, September 1995, *Integrated Digital Loop Carrier System Generic Requirements, Objectives, and Interface.*

15.2.3.1.7 GR-334-CORE, Issue 1, June 1994, *Switched Access Service: Transmission Parameter Limits and Interface Combinations.*

15.2.3.1.8 TR-NWT-000335, Issue 3, May 1993, *Voice Grade Special Access Services - Transmission Parameter Limits and Interface Combinations.*

15.2.3.1.9 TR-TSY-000529, Issue 2, July 1987, *Public Safety - LSSGR.*

15.2.3.1.10 GR-1158-CORE, Issue 2, October 1995, *OSSGR Section 22.3: Line Information Database.*

15.2.3.1.11 TR-TSY-000511, Issue 2, July 1987, *Service Standards, a Module (Section 11) of LATA Switching Systems Generic Requirements (LSSGR, FR-NWT-000064).*

15.2.3.1.12 TR-NWT-000393, January 1991, *Generic Requirements for ISDN Basic Access Digital Subscriber Lines.*

15.2.3.1.13 TR-NWT-000909, December 1991, *Generic Requirements and Objectives for Fiber In The Loop Systems.*

15.2.3.1.14 TR-NWT-000505, Issue 3, May 1991, *LSSGR Section 5, Call Processing.*

15.2.3.1.15 FR-NWT-000271, 1993, *Operator Services Systems Generic Requirements (OSSGR).*

15.2.3.1.16 TR-NWT-001156, Issue 2, July 1993, *OSSGR Operator Services Systems Generic Requirements, Section 21, Operator Subsystem.*

15.2.3.1.17 SR-TSY-001 171, Issue 1, January 1989, *Methods and Procedures for System Reliability Analysis.*

15.2.3.1.18 Bellcore *Telecommunications Transmission Engineering,* 3rd Ed, 1990.

15.2.3.2 **ANSI Standards**

15.2.3.2.1 ANSI T1.512-1994, Network Performance - Point-to-Point Voice-Grade Special Access Network Voiceband Data Transmission Objectives.

15.2.3.2.2 ANSI T1.506-1990, Network Performance - Transmission Specifications for Switched Exchange Access Network.

15.2.3.2.3 ANSI T1.508-1992, Telecommunications - Network Performance - Loss Plan for Evolving Digital Networks. Also supplement T1.508a-1993.

15.2.3.2.4 ANSI T1.101-1994, Digital Synchronization Network Plan.

15.2.3.3 **TIA/EIA Standards**

15.2.3.3.1 Requirements not specifically addressed here shall be found in the documents listed in Electronic Industries Association/Telecommunications Industries Association Standards and Engineering Publications.

15.2.3.3.2 TIA/EIA TSB-37A, Telephone Network Transmission Model for Evaluating Modem Performance.

15.2.3.3.3 TIA/EIA TSB-38, Test Procedure for Evaluation of 2-wire 4 kHz Voiceband Duplex Modems.

15.2.3.4 **IEEE Standards**

15.2.3.4.1 IEEE Standard 743-1984, IEEE Standard Methods and Equipment for Measuring Transmission Characteristics of Analog Voice Frequency Circuits.

15.2.3.4.2 ANSI/IEEE Standard 820-1984, Telephone Loop Performance Characteristics.

15.2.4 **Services and Capabilities**

15.2.4.1 All Network Elements shall provide performance sufficient, in combination with other Network Elements, to provide the following applications in accordance with the requirements of this document:

15.2.4.1.1 All types of voice services.

15.2.4.1.2 All types of voice-band data modem connections up to and including 28.8 Kbps V-34.

15.2.4.1.3 All types of FAX transmissions up to and including 14.4 Kbps group 3.

15.2.4.1.4 All CLASS/LASS features.

15.2.4.1.5 All Operator Systems.

15.2.4.2 The following capabilities shall be provided as applicable:

15.2.4.2.1 ISDN BRI

15.2.4.2.2 ISDN PRI

15.2.4.2.3 Switched Digital Data

15.2.4.2.4 Non-Switched Digital Data

15.2.4.2.5 Any types of Video applications that a customer may order

15.2.4.2.6 Any Coin Services the customer may order

15.2.4.2.7 Frame Relay and ATM

15.2.4.2.8 Private Line Services

15.2.5 Specific Performance Requirements for Network Elements and Ancillary Functions

15.2.5.1 The following sections itemize performance parameters for Network Elements and Ancillary Functions. ILEC shall provide performance equal to or better than all of the requirements set forth in this Section. Unless noted otherwise, requirements and objectives are given in terms of specific limits. This means that all tests (acceptance and ongoing performance) shall meet the limit(s) to satisfy the requirement.

15.2.5.2 **Performance Allocation**

15.2.5.2.1 Transmission path impairments may be classified as either analog or digital, and will depend on the nature of the signal transmitted across the Network Element. Analog impairments are introduced on any analog portion of the loop, typically between the NID portion of Loop Distribution and the analog to digital (A/D) conversion, and are usually correlated with the length of the physical plant. Digital impairments are introduced by A/D conversion and by interfaces between digital Network Elements. In addition, noise can be introduced by either analog transmission or the A/D conversion.

15.2.5.3 **Loop Combination Architecture Constraints**

15.2.5.3.1 The following constraints will limit not only the variety of Loop Combination architectures that may be considered, but also the architectures ILEC may consider to deliver any Ancillary Function or Network Element. These constraints apply to the entire path between the NID portion of Loop Distribution and the ILEC switch. Any exceptions to these restrictions shall be specifically requested or approved by MCIm in writing.

15.2.5.3.1.1 No more than 1 A-D conversion.

15.2.5.3.1.2 No more than 1, 2-to-4-wire hybrid.

15.2.5.3.1.3 No voice compression.

15.2.5.3.1.4 No echo canceled or suppressers.

15.2.5.3.1.5 One digital loss pad per PBX.

15.2.5.3.1.6 No digital gain.

15.2.5.3.1.7 No additional equipment that might significantly increase intermodulation distortion.

15.2.5.4 Transmission Impairments

15.2.5.4.1 Analog Impairments

15.2.5.4.1.1 Analog impairments are those introduced on portions of the end-to-end circuit on which communications signals are transmitted in analog format. These portions of the transmission path would typically be between NID and an A/D conversion, most commonly on the metallic loop. The performance on the analog portion of a circuit is typically inversely proportional to the length of that circuit.

15.2.5.4.1.2 **Loss**

15.2.5.4.1.2.1 Electrical loss is measured using a 1004 Hz 0.0 DB one Milliwatt 900 ohm test tone.

15.2.5.4.1.2.2 Off-hook electrical loss between the NID and the switch shall be no more than 8.0 dB for any line, and the mean value for all lines shall be 3.5 dB ±0.5 dB. On-hook electrical loss between the NID and the switch shall be no more than 4.0 dB above the off-hook electrical loss for any line.

15.2.5.4.1.3 **Idle Channel Circuit Noise**

15.2.5.4.1.3.1 Idle channel circuit noise (C-message) is added by analog facilities, by the A/D conversion of signals, by digital processing equipment (e.g., echo cancelers, digital loss pads), robbed bit signaling, and errors on digital facilities.

15.2.5.4.1.3.2 Idle channel circuit noise shall be less than or equal to 18 dBrnC.

15.2.5.4.1.4 **Talker Echo**

15.2.5.4.1.4.1 The primary source of echo is improper impedance-matching at the 2-to-4 wire hybrid in the ILEC network. The impact on customer perception is a function of both echo return loss and delay.

15.2.5.4.1.4.2 Echo Return Loss (ERL) shall be greater than 26 dB to a standard termination (900 ohms, 2.16 μFd), and greater than 14 dB to a telephone set off-hook. Singing Return Loss (SRL) shall be greater than 2l dB to a standard termination, and greater than 11 dB to a telephone set off-hook.

15.2.5.4.1.5 **Listener Echo**

Listener echo is a double reflection of a transmitted signal at two different impedance mismatches in the end-to-end connection. While in extreme cases it can degrade voice transmission performance, listener echo is primarily an issue for voiceband data. The requirements on Talker Echo shall apply to Listener Echo.

15.2.5.4.1.6 **Propagation and Processing Delay**

15.2.5.4.1.6.1 Propagation delay is the delay involved in transmitting information from one

location to another. It is caused by processing delays of equipment in the network and delays associated with traveling across transmission facilities.

15.2.5.4.1.6.2 ILEC shall cooperate with MCIm to limit total service propagation and processing delay to levels at parity with that within the ILEC local network.

15.2.5.4.1.7 **Signal-to-Noise Ratio**

15.2.5.4.1.7.1 The Signal-to-Noise Ratio (S/N) is a critical parameter in determining voiceband data performance. It is typically measured with a 1004 Hz tone.

15.2.5.4.1.7.2 ILEC must provide on the Loop Combination a signal-to-noise ratio of at least 37 dB between the NID and the end office.

15.2.5.4.1.8 **C-Notched Noise**

The requirements for Signal-to-Noise Ratio shall apply to C-Notched Noise.

15.2.5.4.1.9 **Attenuation Distortion**

15.2.5.4.1.9.1 Attenuation distortion, also known as frequency distortion or gain slope, measures the variations in loss at different frequencies across the voice frequency spectrum (200 Hz - 3400 Hz). It is measured by subtracting the loss at 1004 Hz from the loss at the frequency of interest.

15.2.5.4.1.9.2 Attenuation distortion from the NID to the switch shall be within the range ±0.5 dB for frequencies between 304 and 3004 Hz; from the switch to NID attenuation distortion shall be within the range ±0.5 dB for frequencies between 204 Hz and 3004 Hz. In addition, attenuation distortion shall remain

within the range +1 dB/-3 dB for frequencies between 200 Hz and 3500 Hz.

15.2.5.4.1.10 **Envelope Delay Distortion**

15.2.5.4.1.10.1 Envelope Delay Distortion (EDD) measures the difference in transit time of signals at different frequencies. EDD is measured relative to the transit time of a 1704 Hz tone, and is given in microseconds. EDD is used as an approximation of the group delay of the channel.

15.2.5.4.1.10.2 EDD shall be: 1704 Hz to 604 Hz — ≤ 350 μsec.; 1704 Hz to 2804 Hz — ≤ 195 μsec.; 1704 Hz to 204 Hz — ≤ 580 μsec.; 1704 Hz to 3404 Hz — ≤ 400 μsec.

15.2.5.4.1.11 **Phase Jitter**

15.2.5.4.1.11.1 Phase jitter measures the unwanted angular modulation of a signal. It is caused by noise or the actual modulation of the signal by another unwanted signal. It displaces the zero crossings of a signal. It is measured in terms of peak-to-peak deviations of a 1004 Hz tone from its nominal zero crossings, and in a particular frequency band (200-300 HZ and either 4-300 Hz or 2-300 Hz). Phase jitter impacts voiceband data performance and can make modems more susceptible to other impairments, including noise.

15.2.5.4.1.11.2 From the NID to the interexchange carrier point of termination, phase jitter shall be < 1.5° point-to-point in the 0-300 Hz band, and
< 1.8° point-to-point in the 4-300 Hz band.

15.2.5.4.1.12 **Amplitude Jitter**

15.2.5.4.1.12.1 Amplitude jitter is any deviation of the peak value of a 1004 Hz signal

from its nominal value. Excessive amounts can impair voiceband data performance. It is primarily caused by noise but can also be caused by phase jitter, gain hits, or single frequency interference.

15.2.5.4.1.12.2 In NID-interexchange carrier point of termination, ≤ 2.5% of amplitude jitter is permitted in the 20-300 Hz band and ≤ 2.9% in the 4-300 Hz band.

15.2.5.4.1.13 **Intermodulation Distortion**

15.2.5.4.1.13.1 Intermodulation distortion (IMD) measures non-linear distortions of a signal. It compares the power of harmonic tones to the power of the transmitted tones. It is measured for both the 2nd and 3rd harmonics of the transmitted tones. IMD is caused by compression or clipping and can impair voiceband data performance.

15.2.5.4.1.13.2 Both 2nd and 3rd order IMD between the NID and end office must be ≥ 52 dB.

15.2.5.4.1.14 **Impulse Noise**

15.2.5.4.1.14.1 Impulse noise is a sudden and large increase in noise on a channel for a short duration of time. Impulse noise is measured as a count of the number of times a noise threshold is exceeded during a given time period (typically 5 or 15 minutes). It is caused by protection switching, maintenance activities, electromechanical switching systems, digital transmission errors, and line coding mismatches. Impulse noise sounds like clicking noises or static on voice connections. Impulse noise impairs voiceband data performance.

15.2.5.4.1.14.2 The NID to interexchange carrier point of termination portions of connections shall introduce no impulse noise events within 6 dB of the received signal power

on 93% of all 15 minute connections. In addition, there shall be no more than 1 impulse noise event within 6 dB of the received signal power during any 30-minute period.

15.2.5.4.1.15 **Phase Hits**

15.2.5.4.1.15.1 Phase hits are a sudden change in the phase of a signal lasting at least 4 msec. Phase hits are measured using a threshold which indicates how much the phase of the signal has changed with respect to its nominal phase. Phase hits are caused by protection switching and slips or other synchronization errors. Phase hits can impair voiceband data performance.

15.2.5.4.1.15.2 Between the NID and interexchange carrier point of termination, 99.75% of all 15-minute connections shall have no phase hits exceeding 10°. In addition, there shall be no more than 1 phase hit exceeding 10° in any 30-minute period.

15.2.5.4.1.16 **Gain Hits**

15.2.5.4.1.16.1 Gain hits are sudden changes in the level of a signal that last at least 4 msec. Gain hits are measured against a threshold of typically 2-5 dB relative to the signal's nominal level. Gain hits are usually caused by protection switches and can impair voiceband data performance.

15.2.5.4.1.16.2 Between the NID and the interexchange carrier point of termination, 99.5% of all 15-minute connections shall have no gain hits exceeding 3 dB. In addition, there shall be no more than 1 gain hit exceeding 3 dB in any 30-minute period.

15.2.5.4.1.17 **Dropouts**

15.2.5.4.1.17.1 Dropouts are drops in the level of a signal of 12 dB or more for at least 4

msec. They are caused by protection switching events, radio fading, and conditions causing digital carrier systems to lose frame. Dropouts are critical for voiceband data performance but, if severe enough, will also affect voice quality.

15.2.5.4.1.17.2 Between the NID and the interexchange carrier point of termination, 99.9% of all 15-minute connections shall have no dropouts and in addition, no connection shall suffer more than 1 dropout in any 60-minute period.

15.2.5.4.1.18 **Frequency Shift**

15.2.5.4.1.18.1 Frequency shift measures any frequency changes that occur when a signal is transmitted across a channel. It is typically measured using a 1004 Hz tone. Frequency shift has very little impact on voice or voiceband data performance; however, round-trip frequency shifts can affect the ability of echo cancelers to remain converged.

15.2.5.4.1.18.2 No more than 0.2 Hz frequency shift shall be on any connection. In addition, 99.5% of all calls shall have frequency shift < 0.1 Hz.

15.2.5.4.1.19 **Crosstalk**

15.2.5.4.1.19.1 Crosstalk is the presence of signals from other telephone connections on a circuit. Crosstalk can be either intelligible, when speech from other connections can be heard and understood, or unintelligible. Crosstalk is caused by inter-channel interference on the transmission system. Crosstalk is difficult to measure: it requires correlating signals on different circuits or using human listeners to identify its presence. Trouble reports may be used to estimate the probability of crosstalk.

15.2.5.4.1.19.2 99% of Loop Combinations shall have probability ≤ 0.1% of experiencing crosstalk exceeding -65 dBm0.

15.2.5.4.1.20 **Clipping**

15.2.5.4.1.20.1 Clipping occurs when part of a transmitted signal is dropped and does not reach the receiving portion on a connection. It can be caused by Digital Speech Interpolation (DSI) equipment used in Digital Circuit Multiplication Systems (DCMS) which increase the amount of traffic that transmission facilities carry, and by echo cancelers or echo suppressers.

15.2.5.4.1.20.2 No clipping incidents shall occur on any call.

15.2.5.4.2 **Digital Impairments**

Digital impairments occur in the signal wherever it is transmitted in digital format. These errors are usually introduced upon conversion of the signal from analog to digital, as well as at interfaces between digital components. While many digital impairments have little impact on subjective voice quality, they can impact voiceband data performance.

15.2.5.4.2.1 **Signal Correlated Distortion**

15.2.5.4.2.1.1 Signal correlated distortion (SCD) is unwanted noise or distortion introduced into a signal through the conversion of a signal from analog to digital format or through digital processing that changes the transmitted signal. SCD affects performance when a sign is being transmitted. The primary sources of SCD are signal encoders, echo cancelers, digital loss pads, and robbed bit signaling. SCD affects both voice and voiceband data performance.

15.2.5.4.2.1.2 The NID-to-end-office connection shall allow:

15.2.5.4.2.1.2.1 A maximum of 1 A/D conversion, using 64 Kbps μ-law (μ=255) PCM;

15.2.5.4.2.1.2.2 No voice compression;

15.2.5.4.2.1.2.3 No echo cancellation; and

15.2.5.4.2.1.2.4 Robbed bit signaling only if SS7 or ISDN are not used.

15.2.5.4.2.2 **Slips**

15.2.5.4.2.2.1 Slips occur when a frame of digital data is either deleted or repeated because of differences in the clocks used to synchronize digital facilities. Slips sound like clicks or pops on voice calls and have major impact on voiceband data performance.

15.2.5.4.2.2.2 The NID-to-interexchange carrier point of termination portion of connections shall have fewer than 0.45 slips every 24 hours on average.

15.2.5.4.2.3 **Digital Timing Jitter and Wander**

15.2.5.4.2.3.1 Digital timing jitter is the unwanted phase modulation of digital signals at rates above 10 Hz. Wander is the unwanted phase modulation of digital signals at rates below 10 Hz. Digital timing jitter is caused by imperfections in the timing recovery process of repeaters and the stuffing synchronization process used by multiplexer/demultiplexers. Wander is caused by slowly varying changes in digital signal phase due to clock frequency offset and drift, changes in propagation delay of terrestrial facilities due to temperature changes and changes in the distance of

satellites from the earth. These events have a major impact on voiceband data performance.

15.2.5.4.2.3.2 The maximum digital timing jitter allowed in the 10 Hz to 8 kHz frequency band at any network interface or any terminal equipment in the network is 5 Unit Intervals (UI). The maximum digital timing jitter allowed in the 8 kHz to 40 kHz frequency band is 0.1 UI. The objective for wander is less than 28 UI at any network interface or terminal equipment.

15.2.5.4.2.4 **DS-1 Errored Seconds**

15.2.5.4.2.4.1 An Errored Second (ES) on a DS-1 facility is any second during which at least 1 bit is in error. The impact of an ES on performance depends on the number of errors that occur during a second. Typically, voice performance is not significantly impacted by ES but they can cause errors in voiceband data transmissions.

15.2.5.4.2.4.2 Each ILEC network shall have less than 20 ESs per 24 hour period.

15.2.5.4.2.5 **DS-1 Severely Errored Seconds**

15.2.5.4.2.5.1 A severely Errored Second (SES) is any second during which a DS-1 has an error rate exceeding 0.001. An SES can be caused by a loss of framing, a slip, or a protection switch. SESs have impacts on both voice and voiceband data performance. For voice, a SES will sound like a burst of noise or static. SESs that occur during a voiceband data transmission cause a significant burst of errors and can cause modems to retrain.

15.2.5.4.2.5.2 The digital portion of each NID to POP connection shall have less than 2 SESs per 24 hour period.

15.2.5.4.2.6 **Short Failure Events**

15.2.5.4.2.6.1 A Short Failure Event (SFE) is a Loss of Frame (LOF) event of less than two minutes' duration. An LOF event is declared when, on detection of a Loss of Signal (LOS) or Out-of-Frame (OOF), a rise-slope-type integration process starts that declares a LOF after 2.5±0.5 sec. of continuous LOS or OOF. If the LOS or OOF is intermittent the integration process shall decay at a slope of 1/5 the rise slope during the period when the signal is normal. Thus, if the ratio of a LOS or OOF to a normal signal is greater than 1/2, a LOF will be declared. A LOS condition shall be declared when the Network Channel Terminating Equipment has determined that 175±75 successive pulse positions with no pulses of either positive or negative polarity have occurred. An OOF condition shall be declared when either Network equipment or Digital Terminal Equipment detects errors in the framing pattern.

15.2.5.4.2.6.2 There shall be fewer than 1 SFE per month.

15.2.5.5 **Service Availability and Reliability**

Availability refers to the time period during which the service is up and usable for its intended purpose. Reliability refers to the probability that a task will be completed successfully, given that it is successfully begun.

15.2.5.5.1 **Blocked Calls**

15.2.5.5.1.1 Blocking is the fraction of call origination attempts denied service during a stated measurement period. Blocking occurs because of competition for limited resources within the network.

15.2.5.5.1.2 For intraLATA toll service and local exchange service, the blocking level from originating (NID) to terminating NID shall not exceed 1% in any hour, except under

conditions of service disruption. For access to or egress from a long distance network, the blocking rate shall not exceed 0.5% in any hour.

15.2.5.5.2 **Downtime**

Downtime is the period of time that a system is in a failed state.

15.2.5.5.2.1 The average downtime for all subscriber Loop Combinations shall be less than 49 minutes per year. The maximum downtime for 99% of all subscriber Loop Combinations shall be less than 74 minutes per year.

15.2.5.5.2.2 The average downtime for an end office switch shall be less than 3 minutes per year. The average downtime for individual trunks shall be less than 28 minutes per year. The average downtime for digital trunk groups shall be less than 20 minutes per year. The average downtime for an individual line appearance at the switch shall be less than 28 minutes per year. The average downtime for a Remote Terminal (RT) shall be less than 17 minutes per year. The average downtime for an individual line on a Remote Terminal (RT) shall be less than 13 minutes per year.

15.2.5.5.2.3 The mean time to repair (MTTR) of any equipment at an attended site shall be less than 3 hours. The mean time to repair (MTTR) of any equipment at an unattended site shall be less than 4 hours. 95% of all repairs to the network interface (NID) shall be completed within 24 hours.

15.2.5.5.2.4 There shall be no downtime due to power failures at the switch.

15.2.5.5.2.5 The probability of a stable call being cut off shall be less than 20 cutoffs per one million 1 minute calls.

15.2.5.5.2.6 The rate of ineffective machine attempts at the end office shall be less than 0.0005 (5 failures per 10,000 call attempts).

15.2.5.5.2.7 ILEC shall meet all requirements for private line services in TR-NWT-000335, ANSI T1.512-1994.

15.2.5.5.3 **Dial Tone Delay**

15.2.5.5.3.1 Dial-Tone Delay is the time period between a customer off-hook and the receipt of dial tone from an originating end office. Dial-Tone Delay has a significant effect on customer opinion of service quality.

15.2.5.5.3.2 The average dial-tone delay shall not exceed 1.5% of calls delayed more than 3 seconds. At most 20% of calls during the high day busy hour (HDBH) shall experience dial-tone delay greater than 3 seconds.

15.2.5.5.4 **Dial Tone Removal**

15.2.5.5.4.1 Dial tone removal is the time between recognition of the first address digit to the removal of dial tone on the line.

15.2.5.5.4.2 The maximum dial tone removal interval shall be ≤500 milliseconds.

15.2.5.5.5 **Post Dial Delay**

15.2.5.5.5.1 Post Dial Delay (PDD) is the amount of time a caller must wait after entering or dialing the last digit of a Destination Telephone Number (DTN) before hearing a valid audible network response. The PDD for an end user is measured from the time the caller has pressed or dialed the last digit of a DTN until receipt of an audible network response.

15.2.5.5.5.2 The requirements given reflect an end-to-end CCS7 protocol for MCIm end users. Where a

mixture of CCS7 and inband (MF) signaling protocols are employed, an increase in the PDD can be expected.

15.2.5.5.5.2.1 **PDD 1 - A - Intra LSO**

15.2.5.5.5.2.1.1 Intra-LSO calls do not employ external signaling protocols. The PDD for intra-LSO calls flows are dependent upon the processor cycle time and traffic load conditions. This PDD is assumed to be between customers on the same LSO, between the Remote Switch Modules (RSMs) on the same Host, or between an RSM and Host customers.

15.2.5.5.5.2.1.2 The objective for intra-LSO PDD is less than 310 milliseconds for 50% of all calls and less than 460 milliseconds for 95% of all calls.

15.2.5.5.5.2.2 **PDD1 - B - LSO to Another Local LSO**

15.2.5.5.5.2.2.1 The signaling protocols from an LSO to another LSO are assumed to employ out-of-band Common Channel Signaling System 7 (CCS7) format. Local calls, that is, calls from an LSO to another LSOs are assumed to have no more than one pair of Signaling Transfer Point Switches (STPs) and no more than one data base dip.

15.2.5.5.5.2.2.2 This PDD is expected to be better than the MCIT Long Distance objective with an average PDD of ≤ 8.70 seconds with 95% ≤1.34 seconds.

15.2.5.5.5.2.3 **PDD1 - C - MCIm LSO to Other LSO**

15.2.5.5.5.2.3.1 Calls from an MCIm LSO to other LSOs are dependent upon the interface agreements between MCIm and the LSO service provider and may employ CCS7, inband (MF) or a combination of both protocols.

15.2.5.5.5.2.3.2 Calls from an MCIm LSO to another LSO via the Public Switched Telecommunications

Network (PSTN), using end-to-end CCS7 signaling protocols, can expect to meet the MCIm PDD objectives of an average of 2.0 seconds with 95% in ≤2.5 seconds. Calls from an MCIm LSO via the PSTN to LSOs outside the local service area are assumed to use CCS7 signaling protocols to the MCIm switch. The egress signaling protocols from the MCIT Switched Network to the many different local telephone company service providers however does not necessarily utilize CCS7 signaling. There are three basic egress signaling configuration. They are:

15.2.5.5.5.2.3.2.1 Network Inter-Connect, CCS7 between MCIm and the local telephone company.

15.2.5.5.5.2.3.2.2 Inband Multifrequency (MF) signaling protocols without a ILEC egress tandem in the connection.

15.2.5.5.5.2.3.2.3 Inband MF signaling protocols with a ILEC egress tandem in the connection.

15.2.4.6.5.2.3.2.3.1 Calls from an MCIm LSO to other LSOs outside the local service area are assumed to have multiple STPs for 1+ traffic in the access and PSTN portion of the connection. The egress from the PSTN for 1+ traffic is again dependent upon the interface agreements in that service area and may consist of CCS7 or inband MF protocols.

15.2.4.6.5.2.3.2.3.2 Calls from an MCIm's LSO to another MCIm LSO with a mixture of CCS7 or all inband signaling protocols are expected to receive PDDs on the average of 2.9 seconds with 95% in ≤6.5 seconds.

15.2.5.5.5.2.4 **Impact of Number Portability (NP)**

If a call forwarding option is used as an interim solution for NP, the delay due to additional switching in the local access shall not exceed 0.4 seconds (95th percentile) in addition to the PDDs described above.

15.2.5.5.5.2.5 **Custom Local Area Subscriber Services (CLASS)**

CLASS[SM] features such as Calling Name Delivery can contribute to the PDD of a call. This delay is caused by the additional time (ILEC option) before the ringing interval commences. This default delay is 3 seconds. Optional settings are available in 1 second intervals from 1 to 6 seconds. Calls to DTNs that have CLASS[SM] features, particularly with calling name delivery, can expect to experience from 1 to 6 seconds (3 seconds default) of additional PDD compared to the PDDs shown for PDD1-C. MCI will specify optimal settings.

15.2.5.5.5.2.6 **Partial Dial Timing**

15.2.5.5.5.2.6.1 The interval between each information digit from a customer's line, until the LSO or switching system has determined that the digit string is incomplete.

15.2.5.5.5.2.6.2 For customer lines, partial dial timing shall be ≥16 seconds and ≤24 seconds. For trunks, inband signaling time-out shall be ≥5 seconds and ≤20 seconds.

15.2.5.6 **Local Switching**

ILEC shall provide performance equal to or better than the requirements for Local Switching set forth in Bellcore LSSGR TR-TSY-000511. Post dial delay for connections to MCIm local operator services shall be no worse than Operator Services provided by ILEC. Additionally, post dial delay from the Operator Services to destination numbers shall be no worse than that provided by ILEC. Post dial delay for connections to MCIm local directory services shall be no worse than directory services provided by ILEC. Additionally, post dial delay from the directory system to destination numbers shall be no worse than that provided by ILEC.

15.2.5.7 **Operator Systems**

Operator System connections shall comply with the requirements for the Loop Combination, Local Switching, Operator Service, and Directory Assistance Service requirements.

15.2.5.8 **Common Transport**

Specific requirements for this Network Element or Ancillary Function are in the Common Transport section. In all cases the performance of this Network Element shall meet the general requirements stated in "General Performance Requirements." Allocation of impairments shall be negotiated between MCIm and ILEC consistent with sound engineering principles.

15.2.5.9 **Dedicated Transport**

Specific requirements for this Network Element are in the Dedicated Transport section. In all cases the performance of this Network Element shall meet the general requirements stated in "General Performance Requirements." (Allocation of impairments shall be negotiated between MCIm and ILEC.) consistent with sound engineering principles.

15.2.5.10 **Signaling Transfer Points**

Specific requirements for this Network Element are in the Signaling Transfer Points section. In all cases the performance of this Network Element shall meet the general requirements stated in "General Performance Requirements." (Allocation of impairments shall be negotiated between MCIm and ILEC.)

15.2.5.11 **Signaling Link Transport**
Specific requirements for this Network Element are in the Signaling Link Transport section. In all cases the performance of this Network Element shall meet the general requirements stated in "General Performance Requirements." Allocation of impairments shall be negotiated between MCIm and ILEC consistent with sound engineering principles.

15.2.5.12 **SCPs/Databases**

The performance requirements for databases (NP, LIDB, E911, etc.) vary depending or the database and the applications it supports. Database-specific performance requirements are included in the sections addressing individual Network Elements and in applicable Bellcore documents. In all cases, the query response time, availability, accuracy, updating capabilities, and other performance parameters shall at least be at parity with those services as provided to ILEC or other customer.

15.2.5.13 **Tandem Switching**

Specific requirements for this Network Element are in the Tandem Switching section. In all cases the performance of this Network Element shall meet the general requirements stated in "General Performance Requirements." Allocation of impairments shall be negotiated between MCIm and ILEC consistent with sound engineering principles.

15.2.6 **Test and Verification**

15.2.6.1 ILEC shall permit MCIm to confirm acceptable performance of any Network Element.

15.2.6.1.1 At MCIm's request, ILEC will provide access to the Network Element sufficient for MCIm to test the performance of that Network Element to MCIm's satisfaction.

15.2.6.1.2 At MCIm's request, ILEC will perform tests to confirm acceptable performance and provide MCIm with documentation of test procedures and results acceptable to MCIm.

15.3 Protection, Restoration, and Disaster Recovery

15.3.1 **Scope:**

This Section refers specifically to requirements on the use of redundant network equipment and facilities for protection, restoration, and disaster recovery.

15.3.2 **Requirements**

15.3.2.1 ILEC shall provide protection, restoration, and disaster recovery capabilities at parity with those capabilities

provided for their own services, facilities and equipment (e.g., equivalent circuit pack protection ratios, facility protection ratios).

15.3.2.2 ILEC shall provide Network Elements and Ancillary Functions equal priority in protection, restoration, and disaster recovery as provided to their own services, facilities and equipment.

15.3.2.3 ILEC shall provide Network Elements and Ancillary Functions equal priority in the use of spare equipment and facilities as provided to their own services, facilities and equipment.

15.3.2.4 ILEC shall restore Network Elements which are specific to MCIm end user customers on a priority basis as MCIm may designate.

15.4 Synchronization

15.4.1 **Definition**:

Synchronization is the function which keeps all digital equipment in a communications network operating at the same average frequency. With respect to digital transmission, information is coded into discrete pulses. When these pulses are transmitted through a digital communications network, all synchronous Network Elements are traceable to a stable and accurate timing source. Network synchronization is accomplished by timing all synchronous Network Elements in the network to a stratum 1 source so that transmission from these network points have the same average line rate.

15.4.2 **Technical Requirements**

The following requirements are applicable to the case where ILEC provides synchronization to equipment that MCIm owns and operates within a ILEC location. In addition, these requirements apply to synchronous equipment that is owned by ILEC and is used to provide a Network Element to MCIm.

15.4.2.1 The synchronization of clocks within digital networks is divided into two parts: intra-building and inter-building. Within a building, a single clock is designated as

the Building Integrated Timing Supply (BITS), which provides all of the DS1 and DS0 synchronization references required by other clocks in such building. This is referred to as intra-building synchronization. The BITS receives synchronization references from remotely located BITS. Synchronization of BITS between buildings is referred to as inter-building synchronization.

15.4.2.2 To implement a network synchronization plan, clocks within digital networks are divided into four stratum levels. All clocks in strata 2, 3, and 4 are synchronized to a stratum 1 clock, that is, they are traceable to a stratum 1 clock. A traceable reference is a reference that can be traced back through some number of clocks to a stratum 1 source. Clocks in different strata are distinguished by their free running accuracy or by their stability during trouble conditions such as the loss of all synchronization references.

15.4.2.2.1 **Intra-Building**

15.4.2.2.1.1 Within a building, there may be different kinds of equipment that require synchronization at the DS1 and DS0 rates. Synchronization at the DS1 rate is accomplished by the frequency synchronizing presence of buffer stores at various DSI transmission interfaces. Synchronization at the DS0 rate is accomplished by using a composite clock signal that phase synchronizes the clocks. Equipment requiring DS0 synchronization frequently does not have adequate buffer storage to accommodate the phase variations among different equipment. Control of phase variations to an acceptable level is accomplished by externally timing all interconnecting DS0 circuits to a single clock source and by limiting the interconnection of DS0 equipment to less than 1,500 cable feet. Therefore, a BITS shall provide DS1 and composite clock signals when the appropriate composite signal is a 64-kHz $5/8^{th}$ duty cycle, return to zero with a bipolar violation every eighth pulse (B8RZ).

15.4.2.2.2 **Inter-Building**

15.4.2.2.2.1 ILEC shall provide inter-building synchronization at the DSI rate, and the BITS shall accept the primary and secondary synchronization links from BITS in other buildings. From hierarchical considerations, the BITS shall be the highest stratum clock within the building and ILEC shall provide operations capabilities (this includes, but is not limited to: synchronization reference provisioning; synchronization reference status inquiries; timing mode status inquiries; and alarm conditions).

15.4.3 **Synchronization Distribution Requirements**

15.4.3.1 Central office BITS shall contain redundant clocks meeting or exceeding the requirements for a stratum 2 clock as specified in ANSI T1.101-1994 and Bellcore *TR-NWT-001244 Clocks for the Synchronized Network: Common Genetic Criteria.*

15.4.3.2 Central office BITS shall be powered by primary and backup power sources.

15.4.3.3 If both reference inputs to the BITS are interrupted or in a degraded mode (meaning off frequency greater than twice the minimum accuracy of the BITS, loss of frame, excessive bit errors, or in Alarm Indication Signal), then the stratum clock in the BITS shall provide the necessary bridge in timing to allow the network to operate without a frame repetition or deletion (slip free) with better performance than 1 frame repetition or deletion (slip) per week.

15.4.3.4 DS1s multiplexed into a SONET synchronous payload envelope within an STS-n (where n is defined in ANSI T1.105-1995) signal shall not be used as reference facilities for network synchronization.

15.4.3.5 The total number of Network Elements cascaded from the stratum 1 source shall be minimized.

15.4.3.6 A Network Element shall receive the synchronization reference signal only from another Network Element that contains a clock of equivalent or superior quality (stratum level).

15.4.3.7 ILEC shall select for synchronization those facilities shown to have the greatest degree of availability (absence of outages).

15.4.3.8 Where possible, all primary and secondary synchronization facilities shall be physically diverse (this means the maximum feasible physical separation of synchronization equipment and cabling).

15.4.3.9 No timing loops shall be formed in any combination of primary and secondary facilities.

15.4.3.10 An Operations Support System (OSS) shall continuously monitor the BITS for synchronization related failures or degradation.

15.4.3.11 An OSS shall continuously monitor all equipment transporting synchronization facilities for synchronization related failures or degradation.

15.4.3.12 For non-SONET equipment, ILEC shall provide synchronization facilities which, at a minimum, comply with the standards set forth in ANSI T1.101-1994.

15.4.3.13 For SONET equipment, ILEC shall provide synchronization facilities that have time deviation (TDEV) for integration times greater than 0.05 seconds and less than or equal to 10 seconds, that is less than or equal to 10 nanoseconds. TDEV, in nanoseconds, for integration times greater than 10 seconds and less than 1000 seconds, shall be less than 3.1623 times the square-root of the integration time. For example, for integration times of 25 seconds, TDEV shall be less than 15.8 nanoseconds.

15.5 SS7 Network Interconnection

15.5.1.1 **Definition**:

Figure 8 depicts Signaling System 7 (SS7) Network Interconnection. SS7 Network Interconnection is the interconnection of MCIm local Signaling Transfer Point (STPs) with ILEC STPs. This interconnection provides connectivity that enables the exchange of SS7 messages among ILEC switching systems and databases (DBs), MCIm

local or tandem switching systems, and other third-party switching systems directly connected to the ILEC SS7 network.

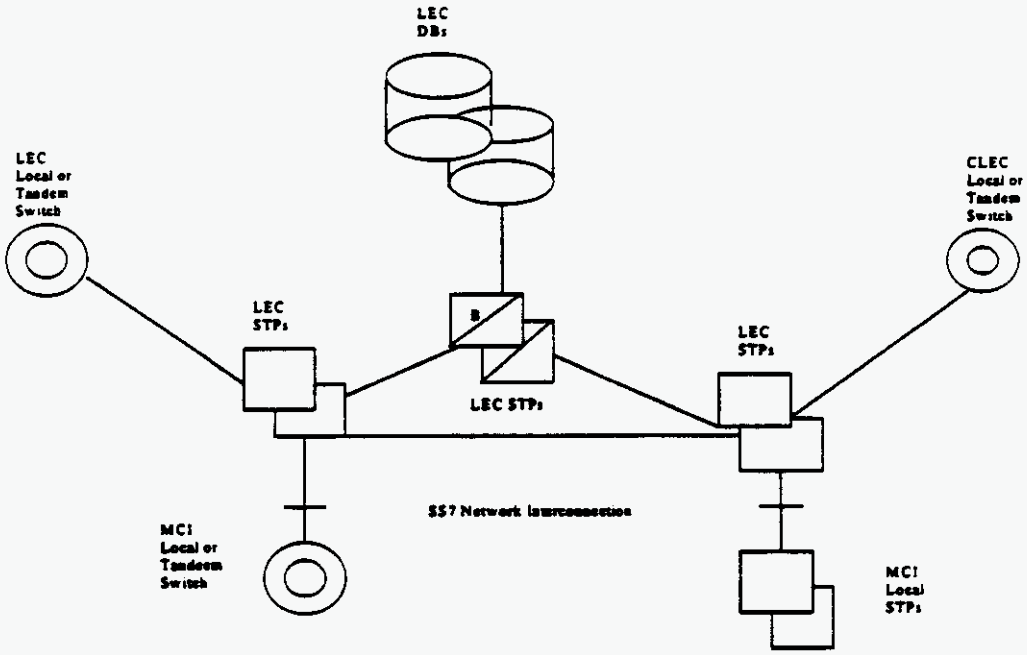

Figure 8. SS7 Network Interconnection

15.5.2 Technical Requirements

15.5.2.1 SS7 Network Interconnection shall provide connectivity to all components of the ILEC SS7 network. These include:

15.5.2.1.1 ILEC local or tandem switching systems;

15.5.2.1.2 ILEC DBs; and

15.5.2.1.3 Other third-party local or tandem switching systems.

15.5.2.2 The connectivity provided by SS7 Network Interconnection shall fully support the functions of ILEC switching systems and DBs and MCIm or other third-party switching systems with A-link access to the ILEC SS7 network.

15.5.2.3 In particular, Figure 9 depicts a circumstance where SS7 Network Interconnection shall provide transport for certain types of Transaction Capabilities Application Part (TCAP) messages. If traffic is routed based on dialed or translated digits between an MCIm local switching system and a ILEC or other third-party local switching system, either directly or via a ILEC tandem switching system, then it is a requirement that the ILEC SS7 network convey via SS7 Network Interconnection the TCAP messages that are necessary to provide Call Management services (Automatic Callback, Automatic Recall, and Screening List Editing) between the MCIm local STPs and the ILEC or other third-party local switch. switch.

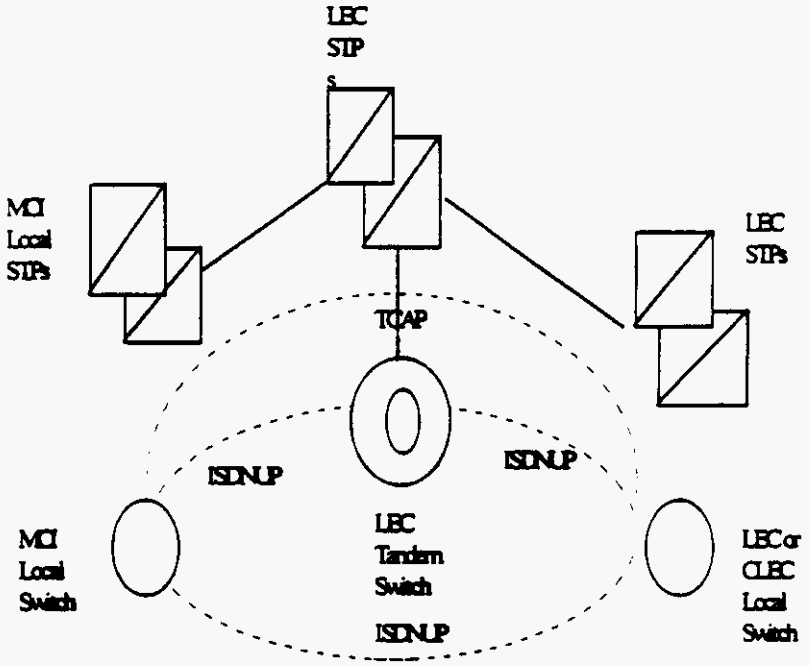

FIGURE 9. Interswitch TCAP Signaling for SS7 Network Interconnection

15.5.2.4 When the capability to route messages based on Intermediate Signaling Network Identifier (ISNI) is generally available on ILEC STPs, the ILEC SS7 Network shall also convey TCAP messages using SS7 Network Interconnection in similar circumstances where the ILEC switch routes traffic based on a Carrier Identification Code (CIC).

15.5.2.5 SS7 Network Interconnection shall provide all functions of the MTP as specified in ANSI T1. 111 (Reference 12.5.2). This includes:

15.5.2.5.1 Signaling Data Link functions, as specified in ANSI T1.111.2;

15.5.2.5.2 Signaling Link functions, as specified in ANSI T1.111.3; and

15.5.2.5.3 Signaling Network Management functions, as specified in ANSI T1.111.4.

15.5.2.6 SS7 Network Interconnection shall provide all functions of the SCCP necessary for Class 0 (basic connectionless) service, as specified in ANSI T1.112 (Reference 12.5.4). In particular, this includes Global Title Translation (GTT) and SCCP Management procedures, as specified in T1.112.4.

15.5.2.7 Where the destination signaling point is a ILEC switching system or DB, or is another third-party local or tandem switching system directly connected to the ILEC SS7 network, SS7 Network Interconnection shall include final GTT of messages to the destination and SCCP Subsystem Management of the destination.

15.5.2.8 Where the destination signaling point is an MCIm local or tandem switching system, SS7 Network Interconnection shall include intermediate GTT of messages to a gateway pair of MCIm local STPs, and shall not include SCCP Subsystem Management of the destination.

15.5.2.9 SS7 Network Interconnection shall provide all functions of the Integrated Services Digital Network User Part (ISDNUP), as specified in ANSI T1.113.

15.5.2.10 SS7 Network Interconnection shall provide all functions of the TCAP, as specified in ANSI T1.114.

15.5.2.11 If and when Internetwork MTP Routing Verification Test (MRVT) and SCCP Routing Verification Test (SRVT) become approved ANSI standards and available capabilities of ILEC STPs, SS7 Network Interconnection shall provide these functions of the OMAP.

15.5.2.12 SS7 Network Interconnection shall be equal to or better than the following performance requirements:

15.5.2.11.1 MTP Performance, as specified in ANSI T1.111.6;

15.5.2.11.2 SCCP Performance, as specified in ANSI T1.112.5; and

15.5.2.11.3 ISDNUP Performance, as specified in ANSI T1.113.5.

15.5.3 **Interface Requirements**

15.5.3.1 ILEC shall offer the following SS7 Network Interconnection options to connect MCIm or MCIm-designated STPs to the ILEC SS7 network:

15.5.3.1.1 D-link interface from MCIm STPs.

15.5.3.2 Each interface shall be provided by one or more sets (layers) of signaling links, as follows:

15.5.3.2.2 A D-link layer shall consist of four links, as depicted in Figure 10.

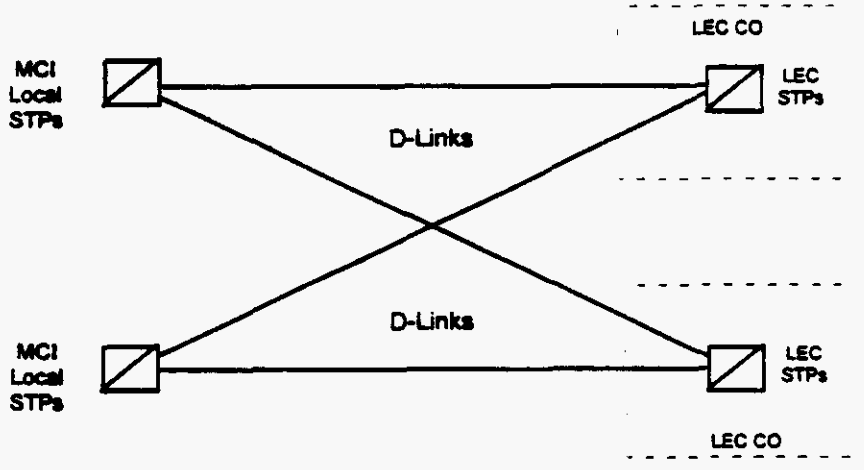

FIGURE 10. D-LINK Interface

15.5.3.3 The Signaling Point of Interconnection (SPOI) for each link shall be located at a cross-connect element, including but not limited to a DSX-1, in the Central Office (CO) where the ILEC STPs is located. There shall be a DS1 or higher rate transport interface at each of the SPOIs. Each signaling link shall appear as a DS0 channel within the DS1 or higher rate interface. ILEC shall offer higher rate DS1 signaling links for interconnecting MCIm local switching systems or STPs with ILEC STPs as soon as these become approved ANSI standards and available capabilities of ILEC STPs.

15.5.3.3.1 In each LATA, there will be two signaling points of interconnection (SPOIs). The requirement for two SPOIs is driven by the critical importance attached by all parties to signaling link diversity.

15.5.3.3.2 Each party will designate one of the two SPOIs in the LATA. A SPOI can be any existing cross connect point in the LATA. Since each party will designate a SPOI, we believe that both parties will be incented to select reasonable and efficient SPOI locations.

15.5.3.3.3 Each signaling link requires a port on each party's STP, which each party shall provide without explicit charge.

15.5.3.4 The ILEC CO shall provide intraoffice diversity between the SPOIs and the ILEC STPs, so that no single failure of intraoffice facilities or equipment shall cause the failure of both D-links in a layer connecting to a ILEC STPs.

15.5.3.5 The protocol interface requirements for SS7 Network Interconnection include the MTP, ISDNUP, SCCP and TCAP. These protocol interfaces shall conform to the following specifications:

15.5.3.5.1 Bellcore GR-905-CORE, Common Channel Signaling Network Interface Specification (CCSNIS) Supporting Network Interconnection, Message Transfer Part (MTP), and Integrated Services Digital network User Part (ISDNUP);

15.5.3.5.2 Bellcore GR-1428-CORE, CCS Network Interface Specification (CCSNIS) Supporting Toll Free Service;

15.5.3.5.3 Bellcore GR-1429-CORE, CCS Network Interface Specification (CCSNIS) Supporting Call Management Services; and

15.5.3.5.4 Bellcore GR-1432-CORE, CCS Network Interface Specification (CCSNIS) Supporting Signaling Connection Control Part (SCCP) and Transaction Capabilities Application Part (TCAP).

15.5.3.6 ILEC shall set message screening parameters to block accept messages from MCIm local or tandem switching systems destined to any signaling point in the ILEC SS7 network with which the MCIm switching system has a legitimate signaling relation.

15.5.4 SS7 Network Interconnection shall be equal to or better than all of the requirements for SS7 Network Interconnection set forth in the following technical references:

15.5.4.1 ANSI T1.110-1992 American National Standard Telecommunications Signaling System Number 7 (SS7) - General Information;

15.5.4.2 ANSI T1.111-1992 American National Standard for Telecommunications - Signaling System Number 7 (SS7) - Message Transfer Part (MTP);

15.5.4.3 ANSI T1.111A-1994 American National Standard for Telecommunications - Signaling System Number 7 (SS7) - Message Transfer Part (MTP) Supplement;

15.5.4.4 ANSI T1.112-1992 American National Standard for Telecommunications - Signaling System Number 7 (SS7) - Signaling Connection Control Part (SCCP);

15.5.4.5 ANSI T1.113-1995 American National Standard for Telecommunications - Signaling System Number 7 (SS7) - Integrated Services Digital Network (ISDN) User Part;

15.5.4.6 ANSI T1.114-1992 American National Standard for Telecommunications - Signaling System Number 7 (SS7) - Transaction Capabilities Application Part (TCAP);

15.5.4.7 ANSI T1.115-1990 American National Standard for Telecommunications - Signaling System Number 7 (SS7) - Monitoring and Measurements for Networks;

15.5.4.8 ANSI T1.116-1990 American National Standard for Telecommunications - Signaling System Number 7 (SS7) - Operations, Maintenance and Administration Part (OMAP);

15.5.4.9 ANSI T1.118-1992 American National Standard for Telecommunications - Signaling System Number 7 (SS7) - Intermediate Signaling Network Identification (ISNI);

15.5.4.10 Bellcore GR-905-CORE, Common Channel Signaling Network Interface Specification (CCSNIS) Supporting Network Interconnection, Message Transfer Part (MTP), and Integrated Services Digital Network User Part (ISDNUP);

15.5.4.11 Bellcore GR-954-CORE, CCS Network Interface Specification (CCSNIS) Supporting Line Information Database (LIDB) Service;

15.5.4.12 Bellcore GR-1428-CORE, CCS Network Interface Specification (CCSNIS) Supporting Toll Free Service;

15.5.4.13 Bellcore GR-1429-CORE, CCS Network Interface Specification (CCSNIS) Supporting Call Management Services; and,

15.5.4.14 Bellcore GR-1432-CORE, CCS Network Interface Specification (CCSNIS) Supporting Signaling Connection Control Part (SCCP) and Transaction Capabilities Application Part (TCAP).

15.6 Network Interconnection

15.6.1 Technical Requirements

15.6.1.1 When requested by MCIm, ILEC shall provide interconnections between the ILEC Network Elements

provided to MCIm and MCIm's network at transmission rates designated by MCIm.

15.6.1.2 Traffic shall be combined and routed as follows:

15.6.1.2.1 ILEC shall provide direct trunks for intraLATA traffic (except 911, directory assistance, operator services, and other services that may require special routing) and, at MCIm's request, ILEC shall allow MCIm to route such traffic either directly to a ILEC tandem or directly to a ILEC end-office. At MCIm's option, intraLATA toll and local traffic shall be combined onto one trunk group.

15.6.1.2.2 At MCIm's request, ILEC shall receive MCIm traffic destined to the ILEC Operator Systems Network Element, on trunks from an MCIm end-office or an MCIm tandem.

15.6.1.2.3 At MCIm's request, ILEC shall receive MCIm CAMA-ANI (Centralized Automatic Message Accounting - Automatic Number identification) traffic destined to the ILEC B911 PSAPs, or E911 tandems, on trunks from an MCIm end-office.

15.6.1.2.4 At MCIm's request, ILEC shall receive MCIm SS7 traffic destined to any ILEC S911 tandem on trunks from an MCIm end-office.

15.6.1.3 When requested by MCIm and a third party carrier, ILEC shall provide interconnections between MCIm's network, and the other carrier's network through the ILEC network at transmission rates designated by MCIm, including, but not limited to DS1, DS3, and STS-1. ILEC shall combine and route traffic to and from other local carriers and interLATA carriers through the ILEC network, and at MCIm's request, ILEC shall record and keep records of such traffic for MCIm billing purposes.

15.6.1.4 ILEC shall provide two-way trunk groups for interconnections. At MCIm's request, ILEC shall provide unidirectional traffic on such trunks, in either direction, effectively operating them as if they were one-way trunk groups.

15.6.1.5 ILEC shall provision trunks without any user restrictions (e.g., option for two-way trunking, and no unnecessary trunk group fragmentation by traffic types).

15.6.1.6 All trunking provided by ILEC shall adhere to the applicable performance requirements set forth in the "General Performance Requirements" section of this Agreement.

15.6.1.7 At MCIm's request, ILEC shall provide for overflow routing from a given trunk group or groups onto another trunk group or groups as MCIm designates.

15.6.1.8 ILEC and MCIm shall agree on the establishment of two-way trunk groups for the exchange of traffic for other IXCs. These trunk groups can be provided in a "meet point" arrangement.

15.6.1.9 Interconnection shall be made available upon MCIm's request at any technically feasible point of interface. All trunk interconnections shall be provided, including, SS7, MF, DTMF, DialPulse, PRI-ISDN (where available), DID (Direct Inward Dialing), CAMA-ANI, and trunking necessary so that interim NP can be provided.

15.6.1.10 **Trunk Interface Requirements**

15.6.1.10.1 **B911/E911 Trunks**

15.6.1.10.1.1 ILEC shall allow MCIm to provide direct trunking to each ILEC B911 serving end office, or ILEC E911 tandem, as is appropriate for the applicable serving area. These trunks are to be provided as one-way trunks from a given MCIm end office to the ILEC 911 end-office or tandem.

15.6.1.10.1.2 ILEC shall provide for overflow 911 traffic to be sent to the ILEC operator services platform or, at MCIm's direction, routed directly to MCIm's operator services platform.

15.6.1.10.2 **S911 Trunks**

In areas where S911 tandems are used, ILEC shall allow MCIm to provide direct trunking to each ILEC S911 tandem. Such SS7 trunks are to be provided as one-way trunks from a given MCIm end-office to the ILEC S911 tandem.

15.6.1.10.3 **Local Switch and Access Tandem Trunks**

15.6.1.10.3.1 ILEC shall provide trunks groups provisioned exclusively to carry intraLATA traffic, as designated by MCIm.

15.6.1.10.3.2 ILEC shall provide trunk groups provisioned exclusively to carry interLATA traffic, as designated by MCIm.

15.6.1.10.3.3 ILEC shall provide SS7 trunks which provide SS7 interconnection. At MCIm's request, MF trunks may be substituted for SS7 trunks where applicable.

15.6.1.10.3.4 ILEC shall simultaneous route calls based on dialed digits (in accordance with the standard GR-317-CORE), and Carrier Identification Code (in accordance with the standard GR-394-CORE) over a single SS7 trunk group.

15.6.1.10.4 **ILEC Operator Services Trunk**

15.6.1.10.4.1 For traffic from the ILEC network to MCIm for Operator Services, ILEC shall provide one trunk group per NPA served by the local ILEC switch.

15.6.1.10.4.2 ILEC shall provide such trunks as one-way trunks from the ILEC network to the MCIm network.

15.6.2 Network Interconnection between ILEC and MCIm shall meet or exceed all of the requirements for Network Interconnection set forth in the following technical references:

15.6.2.1 GR-317-CORE, Switching System generic requirements for Call Control Using the Integrated Services

Digital Network User Part (ISDNUP), Bellcore, February, 1994;

15.6.2.2 GR-394-CORE, Switching System generic requirements for Interexchange Carrier Interconnection Using the Integrated Services Digital Network User Part (ISDNUP), Bellcore, February, 1994;

15.6.2.3 FR-NWT-000271, OSSGR Operator Services Systems generic requirements, Bellcore, 1994 Edition; and

15.6.2.4 FR-NWT-000064, LATA Switching Systems Generic Requirements (LSSGR), Bellcore, 1994 Edition.

Section 16. Basic 911 and E911

See Attachment VIII, Section 6.1.1 911 General Requirements and Section 6.2.1 911 System Interface and Exchanges

Section 17. Directory Assistance Data

See Attachment VIII, Section 6.1.6, Directory Assistance Data General Requirements and Section 6.2.2, Directory Assistance Data Interfaces and Exchanges.

ATTACHMENT IV

INTERCONNECTION

Section 1. Local Interconnection Trunk Arrangement

1.1 The parties shall initially reciprocally terminate local exchange traffic and IntraLATA/InterLATA toll calls originating on each other's networks as follows:

1.1.1 The parties shall make available to each other two-way trunks for the reciprocal exchange of *combined* local traffic, non-equal access IntraLATA toll traffic, and local transit traffic to other ILECs.

1.1.2 Separate two-way trunks will be made available for the exchange of equal-access InterLATA or IntraLATA interchange traffic that transits ILEC's network.

1.1.3 Separate trunks connecting MCIm's switch to each 911/E911 tandem.

1.1.4 Separate trunk group connecting MCIm's switch to ILEC's operator service center for operator-assisted busy line interrupt/verify.

1.1.5 Separate trunk group connecting MCIm's switch to ILEC's directory assistance center in instances where MCIm is purchasing ILEC's unbundled directory assistance service.

1.1.6 It is recognized by the parties that there is no technical requirement to segregate local and interexchange traffic. Further, it shall be incumbent upon ILEC to prove that a request for a revised traffic combination is technically infeasible.

1.2 Interconnection Point

1.2.1 "Interconnection Point" or "IP" means the physical point that establishes the technical interface, the test point, and the operational responsibility hand-off between MCIm and ILEC for the local interconnection of their networks.

1.2.2 MCIm shall designate at least one IP in the LATA in which MCIm originates local traffic and interconnects with ILEC. MCIm will be responsible for engineering and maintaining its network on its side of the IP. ILEC will be responsible for engineering and maintaining its network on its side of the IP. If and when the parties choose to interconnect at a mid-span meet, MCIm and ILEC will jointly provision the fiber optic facilities that connect the two networks and shall share the financial and other responsibilities for that facility.

1.2.2.1 Upon MCIm's request for additional points of interconnection, ILEC will interconnect with MCIm at any technically feasible point of MCIm's choosing using the same technical configuration or using other arrangements including but not limited to mid-span fiber meets, entrance facilities, telco closets, and physical or virtual collocation.

1.2.2.2 Within 24 hours of MCIm's request for any IP, ILEC shall provide any information in its possession or available to it regarding the environmental conditions of the IP route or location including, but not limited to, the existence and condition of asbestos, lead paint, hazardous substance contamination, or radon. Information is considered "available" under this Agreement if it is in ILEC's possession, or the possession of a current or former agent, contractor, employee, lessor, or tenant of ILEC's.

1.2.2.3 ILEC shall allow MCIm to perform any environmental site investigations, including, but not limited to, asbestos surveys, MCIm deems to be necessary in support of its collocation needs.

1.2.2.4 If interconnection is complicated by the presence of environmental contamination or hazardous materials, and an alternative route is available, ILEC shall make such alternative route available for MCIm's consideration.

Section 2. Compensation Mechanisms

2.1 Interconnection Point

2.1.1 Each party is responsible for bringing their facilities to the IP.

2.2 Compensation for Call Traffic Transport and Termination

2.2.2 The IP determines the point at which the originating carrier shall pay the terminating carrier for the completion of that traffic. The following compensation elements shall apply:

2.2.2.1 "Transport", which includes the transmission and any necessary tandem switching of local telecommunications traffic from the interconnection point between the two carriers to the terminating carrier's end-office switch that directly serves the called end-user.

2.2.2.2 "Termination", which includes the switching of local telecommunications traffic at the terminating carrier's end office switch.

2.3 When an MCIm customer places a call to ILEC's customer, MCIm will hand off that call to ILEC at the IP. Conversely, when ILEC hands over local traffic to MCIm for MCIm to transport and terminate, ILEC must use the established IP.

2.4 MCIm may designate an IP at any technically feasible point including but not limited to any electronic or manual cross-connect points, collocations, telco closets, entrance facilities, and mid-span meets. The transport and termination charges for local traffic flowing through an IP shall be as follows:

2.4.1 When calls from MCIm are terminating on ILEC's network through the ILEC tandem, MCIm will pay to ILEC transport charges from the IP to the tandem for dedicated or common transport. MCIm shall also pay a charge for tandem switching, dedicated or common transport to the end office (with mileage calculated as the weighted average of all end offices subtending that tandem), and end-office termination.

2.4.2 When ILEC terminates calls to MCIm's subscribers using MCIm's switch, ILEC shall pay to MCIm transport charges from the IP to the MCI Switching Center for dedicated or common transport. ILEC shall also pay to MCIm a charge symmetrical to its own charges for tandem switching, tandem-to-end-office transport, and end office termination as identified in Section 2.4.1.

2.4.3 MCIm may choose to establish direct trunking to any given end office. If MCIm leases trunks from ILEC, it shall pay charges for dedicated or common transport. For calls terminating from MCIm to subscribers served by these directly-trunked end offices, MCIm shall also pay an end-office termination. For ILEC traffic terminating to MCIm over the direct end office trunking,

compensation payable by ILEC shall be the same as that detailed in Section 2.4.2 above.

Section 3. Signaling

3.1 Signaling protocol. The parties will interconnect their networks using SS7 signaling as defined in GR-317 and GR-394 including ISDN User Part ("ISUP") for trunk signaling and Transaction Capabilities Application Part ("TCAP") for CCS-based features in the interconnection of their networks. All Network Operations Forum (NOF) adopted standards shall be adhered to.

3.2 The parties will provide CCS to each other in conjunction with all two-way trunk groups. The parties will cooperate on the exchange of Transactional Capabilities Application Part (TCAP) messages to facilitate full inter-operability of CCS-based features between their respective networks, including all CLASS features and functions. All CCS signaling parameters will be provided including automatic number identification (ANI), originating line information (OLI), calling party category, charge number, etc. All privacy indicators will be honored. For terminating FGD, ILEC will pass CPN if it receives CPN from FGD carriers. All privacy indicators will be honored. Where available, network signaling information such as Transit Network Selection ("TNS") parameter (CCS platform) and CIC/OZZ information (non-CCS environment) will be provided by MCIm wherever such information is needed for call routing or billing. The parties will follow all OBF adopted standards pertaining to TNS and CIC/OZZ codes.

3.3 Refer to Attachment III, Section 15.5 for detailed terms of SS7 Network Interconnection.

3.4 Standard interconnection facilities shall be Extended Superframe (ESF) with B8ZS line code. Where ESF/B8ZS is not available, MCIm will agree to using other interconnection protocols on an interim basis until the standard ESF/B8ZS is available. ILEC will provide anticipated dates of availability for those areas not currently ESF/B8ZS compatible.

3.4.1 Where MCIm is unwilling to utilize an alternate interconnection protocol, MCIm will provide ILEC an initial forecast of 64 Kbps Clear Channel Capability ("64K CCC") trunk quantities within 30 days of executing this Agreement consistent with the forecasting agreements between the parties. Upon receipt of this forecast, the parties will begin joint planning for the engineering, procurement, and installation of the segregated 64K CCC Local Interconnection Trunk Groups, and the associated B8ZS Extended Super Frame ("ESF") facilities, for the sole purpose of transmitting

64K CCC data calls between MCIm and ILEC. Where additional equipment is required, such equipment would be obtained, engineered, and installed on the same basis and with the same intervals as any similar growth job for IXC, CLEC, or ILEC internal customer demand for 64K CCC trunks. Where technically feasible, these trunks will be established as two-way.

Section 4. Network Servicing

4.1 TRUNK FORECASTING:

4.1.1 The parties shall work towards the development of joint forecasting responsibilities for traffic utilization over trunk groups. Orders for trunks that exceed forecasted quantities for forecasted locations will be accommodated as facilities and or equipment are available. parties shall make all reasonable efforts and cooperate in good faith to develop alternative solutions to accommodate orders when facilities are not available. Intercompany forecast information must be provided by the parties to each other twice a year. The semi-annual forecasts shall include:

4.1.1.1 Yearly forecasted trunk quantities (which include measurements that reflect actual tandem and end office Local Interconnection and meet point trunks and tandem-subtending Local Interconnection end office equivalent trunk requirements for no more than two years (current plus one year));

4.1.1.2 The use of Common Language Location Identifier (CLLI-MSG), which are described in Bellcore documents BR 795-100-100 and BR 795-400-100;

4.1.1.3 Description of major network projects that affect the other party will be provided in the semi-annual forecasts. Major network projects include but are not limited to trunking or network rearrangements, shifts in anticipated traffic patterns, or other activities by either party that are reflected by a significant increase or decrease in trunking demand for the following forecasting period.

4.1.2 parties shall meet to review and reconcile their forecasts if forecasts vary significantly.

4.1.2.1 If the parties are unable to reach such a reconciliation, the Local interconnection Trunk Groups shall be provisioned to the higher forecast. At the end of three

months, the utilization of the Local Interconnection Trunk Groups will be reviewed and if the average CCS utilization for the third month is under seventy five percent (75%) of capacity, either party may issue an order to resize the trunk group, which shall be left with not less than twenty five percent (25%) excess capacity.

4.1.2.2 If the parties agree on the original forecast and then it is determined that a trunk group is under seventy five percent (75%) of CCS capacity on a monthly-average basis for each month of any six-month period, either party may issue an order to resize the trunk group, which shall be left with not less than twenty five percent (25%) excess capacity.

4.1.3 Each party shall provide a specified point of contact for planning forecasting and trunk servicing purposes.

4.1.4 Trunking can be established to tandems or end offices or a combination of both via either one-way or two-way trunks. Trunking will be at the DS-0 level, DS-1 level, DS-3/OC-3 level, or higher, as designated by MCIm. Initial trunking will be established between the MCIm switching centers and ILEC's access tandem(s). The parties will utilize direct end office trunking under the following conditions:

4.1.4.1 Tandem exhaust - If a tandem through which the parties are interconnected is unable to, or is forecasted to be unable to, support additional traffic loads for any period of time, the parties will mutually agree on an end office trunking plan that will alleviate the tandem capacity shortage and ensure completion of traffic between MCIm and ILEC subscribers.

4.1.4.2 Traffic volume - The parties shall install and retain direct end office trunking sufficient to handle actual or reasonably forecast traffic volumes, whichever is greater, between an MCIm switching center and a ILEC end office where the traffic exceeds or is forecast to exceed 220,000 minutes of local traffic per month. The parties will install additional capacity between such points when overflow traffic between the MCIm switching center and ILEC access tandem exceeds or is forecast to exceed 220,000 minutes of local traffic per month.

4.1.4.3 Mutual agreement - The parties may install direct end office trunking upon mutual agreement in the absence

of conditions (1) or (2) above and agreement will not unreasonably be withheld.

4.2 GRADE OF SERVICE:

4.2.1 A blocking standard of one percent (.01) during the average busy hour, as defined by each party's standards, for final trunk groups between a MCIm end office and a ILEC access tandem carrying meet point traffic shall be maintained. All other final trunk groups are to be engineered with a blocking standard of one percent (.01). Direct end office trunk groups are to be engineered with a blocking standard of one percent (.01).

4.3 TRUNK SERVICING

4.3.1 Orders between the parties to establish, add, change or disconnect trunks shall be processed by use of an Access Service Request (ASR), or another industry standard eventually adopted to replace the ASR for local service ordering.

4.3.2 As discussed in this Agreement, both parties will jointly manage the capacity of Local Interconnection Trunk Groups. ILEC's [Trunk Servicing Group] will send a Trunk Group Service Request (TGSR) to MCIm to trigger changes ILEC desires to the Local Interconnection Trunk Groups based on ILEC's capacity assessment. MCIm will issue an ASR to ILEC:

4.3.2.1 within 10 business days after receipt of the TGSR upon review of and in response to ILEC's TGSR, or

4.3.2.2 at any time as a result of MCIm's own capacity management assessment, to begin the provisioning process.

4.3.3 The standard interval used for the provisioning of Local Interconnection Trunk Groups shall be determined by Customer Desired Due Date, but in no event shall it be longer than ten (10) working days.

4.3.4 Orders that comprise a major project that directly impacts the other party may be submitted at the same time, and their implementation shall be jointly planned and coordinated. Major projects are those that require the coordination and execution of multiple orders or related activities between and among ILEC and MCIm work groups, including but not limited to the initial establishment of Local Interconnection or Meet Point trunk groups

and service in an area, NXX code moves, re-homes, facility grooming, or network rearrangements.

4.3.5 MCIm and ILEC agree to exchange escalation lists which reflect contact personnel including vice president-level officers. These lists shall include name, department, title, phone number, and fax number for each person. MCIm and ILEC agree to exchange an up-to-date list on a quarterly basis.

Section 5. Network Management

5.1 Protective Protocols

5.1.1 Either party may use protective network traffic management controls such as 7-digit and 10-digit code gaps on traffic toward each others network, when required to protect the public switched network from congestion due to facility failures, switch congestion or failure or focused overload. MCIm and ILEC will immediately notify each other of any protective control action planned or executed.

5.2 Expansive Protocols

5.2.1 Where the capability exists, originating or terminating traffic reroutes may be implemented by either party to temporarily relieve network congestion due to facility failures or abnormal calling patterns. Reroutes will not be used to circumvent normal trunk servicing. Expansive controls will only be used when mutually agreed to by the parties.

5.3 Mass Calling

5.3.1 MCIm and ILEC shall cooperate and share pre-planning information, where available, regarding cross-network call-ins expected to generate large or focused temporary increases in call volumes, to prevent or mitigate the impact of these events on the public switched network.

Section 6. Busy Line Verify And Interrupt

6.1 Description: Each party shall establish procedures whereby its operator bureau will coordinate with the operator bureau of the other party in order to provide Busy Line Verification ("BLV") and Busy Line Verification and Interrupt ("BLVI") services on calls between their respective end users on or before the effective date of this agreement.

6.2 Compensation: Each party shall charge the other party for BLV and BLVI at rates specified in Attachment I.

Section 7. Usage Measurement

7.1 Each party shall calculate terminating interconnection minutes of use based on standard Automatic Message Accounting (AMA) recordings made within each party's network, these recordings being necessary for each party to generate bills to the other party.

7.2 Measurement of minutes of use over Local Interconnection Trunk groups shall be in actual conversation seconds. The total conversation seconds over each individual Local Interconnection Trunk Group will be totaled for the entire monthly bill-round and then rounded to the next whole minute.

7.3 Each party shall provide to the other, within 20 calendar days after the end of each quarter (commencing with the first full quarter after the effective date of this Agreement), a usage report with the following information regarding traffic terminated over the Local Interconnection Trunk Groups:

7.3.1 Total traffic volume described in terms of minutes and messages and by call type (local, toll, and other) terminated to each other over the Local Interconnection Trunk Groups, and

7.3.2. Percent Local Use (PLU)

Section 8. Responsibilities Of The parties

8.1 ILEC and MCIm agree to treat each other fairly, nondiscriminatorily, and equally for all items included in this Agreement, or related to the support of items included in this Agreement.

8.2 MCIm and ILEC agree to exchange such reports and/or data as provided in this Attachment in Section 7 to facilitate the proper billing of traffic. Either party may request an audit of such usage reports on no fewer than 10 business days' written notice and any audit shall be accomplished during normal business hours at the office of the party being audited. Such audit must be performed by a mutually agreed-to independent auditor paid for by the party requesting the audit and may include review of the data described in Section 7 above. Such audits shall be requested within six months of having received the PLU factor and usage reports from the other party.

8.3 MCIm and ILEC will review engineering requirements on a semi-annual basis and establish forecasts for trunk and facilities utilization provided under this Agreement. ILEC and MCIm will work together to begin providing these forecasts within 30 days from the Effective Date of this Agreement. New trunk groups will be implemented as dictated by engineering requirements for either ILEC or MCIm.

8.4 MCIm and ILEC shall share responsibility for all Control Office functions for Local Interconnection Trunks and Trunk Groups, and both parties shall share the overall coordination, installation, and maintenance responsibilities for these trunks and trunk groups.

8.5 MCIm is responsible for all Control Office functions for the meet point trunking arrangement trunks and trunk groups, and shall be responsible for the overall coordination, installation, and maintenance responsibilities for these trunks and trunk groups.

8.6 MCIm and ILEC shall:

8.6.1 Provide trained personnel with adequate and compatible test equipment to work with each other's technicians.

8.6.2 Notify each other when there is any change affecting the service requested, including the due date.

8.6.3 Coordinate and schedule testing activities of their own personnel, and others as applicable, to ensure its interconnection trunks/trunk groups are installed per the interconnection order, meet agreed-upon acceptance test requirements, and are placed in service by the due date.

8.6.4 Perform sectionalization to determine if a trouble is located in its facility or its portion of the interconnection trunks prior to referring the trouble to each other.

8.6.5 Advise each other's Control Office if there is an equipment failure which may affect the interconnection trunks.

8.6.6 Provide each other with a trouble reporting/repair contact number that is readily accessible and available 24 hours/7 days a week. Any changes to this contact arrangement must be immediately provided to the other party.

8.6.7 Provide to each other test-line numbers and access to test lines.

8.6.8 Cooperatively plan and implement coordinated repair procedures for the meet point and Local Interconnection Trunks and facilities to ensure trouble reports are resolved in a timely and appropriate manner.

ATTACHMENT V

COLLOCATION

Section 1. Introduction

This Attachment sets forth the requirements for Collocation.

Section 2. Technical Requirements

2.1 ILEC shall provide space, as requested by MCIm, to meet MCIm's needs for placement of equipment, interconnection, or provision of service.

2.1.1. Within twenty-four (24) hours of MCIm's request for any space, ILEC shall provide any information in its possession or available to it regarding the environmental conditions of the space provided for placement of equipment and interconnection, including, but not limited to, the existence and condition of asbestos, lead paint, hazardous substance contamination, or radon. Information is considered "available" under this Agreement if it is in ILEC's possession, or the possession of a current or former agent, contractor, employee, lessor, or tenant of ILEC's.

2.1.2 ILEC shall allow MCIm to perform any environmental site investigations, including, but not limited to, asbestos surveys, which MCIm deems to be necessary in support of its collocation needs.

2.1.3 If the space provided for the placement of equipment, interconnection, or provision of service contains environmental contamination or hazardous material, particularly but not limited to asbestos, lead paint or radon, which makes the placement of such equipment or interconnection hazardous, ILEC shall offer an alternative space, if available, for MCIm's consideration.

2.1.4 MCIm shall provide ILEC with a list of hazardous materials that are contained in any equipment it places in space provided by ILEC prior to placement of the equipment in the space.

2.2 ILEC shall provide intraoffice facilities (e.g., DS0, DS1, DS3, OC3, OC12, OC48, and STS-1 terminations) as requested by MCIm to meet MCIm's need for placement of equipment, interconnection, or provision of service.

2.3 ILEC agrees to allow MCIm's employees and designated agents unrestricted access to MCIm dedicated space in manned ILEC offices twenty-four (24) hours per day each day of the week. ILEC may place reasonable security restrictions on access by MCIm's employees and designated agents to the MCIm collocated space in unmanned ILEC offices. Notwithstanding, ILEC agrees that such space shall be available to MCIm's employees and designated agents twenty-four (24) hours per day each day of the week. In no case should any reasonable security restrictions be more restrictive than those ILEC places on their own personnel.

2.4 MCIm may collocate the amount and type of equipment it deems necessary in its collocated space (e.g., MCIm utilizing its SONET termination equipment in the collocated space to provide a hub for OC3/OC48 rings). ILEC shall not restrict the types of equipment or vendors of equipment to be installed.

2.5 ILEC shall permit a collocating telecommunications carrier to interconnect its network with that of another collocating telecommunications carrier at the ILEC premises and to connect its collocated equipment to the collocated equipment of another telecommunications carrier within the same premises.

2.6 ILEC shall permit MCIm to subcontract the construction of physical collocation arrangements with contractors approved by the ILEC, provided, however, that the ILEC shall not unreasonably withhold approval of contractors. Approval by an ILEC shall be based on the same criteria it uses in approving contractors for its own purposes.

2.7 ILEC shall provide basic telephone service with a connection jack as requested by MCIm from ILEC for the collocated space. Upon MCIm's request, this service shall be available at the MCIm collocated space on the day that the space is turned over to MCIm by ILEC.

2.8 ILEC shall provide adequate lighting, ventilation, power, heat, air conditioning, and other environmental conditions for MCIm's space and equipment. These environmental conditions shall adhere to Bell Communication Research (Bellcore) Network Equipment-Building System (NEBS) standards TR-EOP-000063 or other standards which MCIm may designate.

2.9 ILEC shall provide access to bathrooms, and drinking water within the collocated facility on a twenty-four (24) hours per day, seven (7) days per week basis for MCIm personnel and its designated agents.

2.10 ILEC shall provide all ingress and egress of fiber and power cabling to MCIm collocated spaces in compliance with MCIm's cable diversity standards. The specific level of diversity required for each site or Network Element will be provided in the collocation request.

2.11 ILEC shall ensure protection of MCIm's proprietary customer information. Any collocation arrangement shall include provisions for ILEC protecting MCIm's proprietary information.

2.12 ILEC shall participate in and adhere to negotiated service guarantees, and Performance Standards

2.13 ILEC shall provide MCIm with written notice five (5) business days prior to those instances where ILEC or its subcontractors may be performing work in the general area of the collocated space occupied by MCIm, or in the general area of the AC and DC power plants which support MCIm equipment. ILEC will inform MCIm by telephone of any emergency related activity that ILEC or its subcontractors may be performing in the general area of the collocated space occupied by MCIm, or in the general area of the AC and DC power plants which support MCIm equipment. Notification of any emergency related activity shall be made immediately prior to the start of the activity so that MCIm can take any action required to monitor or protect its service.

2.14 ILEC shall construct the collocated space in compliance with MCIm's collocation request. Any deviation to MCIm's request must be approved.

2.15 MCIm and ILEC will complete an acceptance walk through of collocated space requested from ILEC. Exceptions that are noted during this acceptance walk through shall be corrected by ILEC within five (5) days after the walk through. The correction of these exceptions from the original collocation request shall be at ILEC's expense.

2.16 ILEC shall provide Telephone drawings depicting the exact location, type, and cable termination requirements (i.e., connector type, number and type of pairs, and naming convention) for ILEC Point of Termination Bay(s) to MCIm within five (5) days of acceptance of MCIm's request for collocated space.

2.17 ILEC shall provide detailed drawings depicting the exact path, with dimensions, for MCIm Outside Plant Fiber ingress and egress into MCIm collocated space within five (5) days of the acceptance of MCIm's request for collocated space. Such path and any areas around it in which MCIm must work to perform installation shall be free of friable asbestos, lead paint (unless encapsulated), radon and other health or safety hazards.

2.18 ILEC shall provide detailed power cabling connectivity information including the sizes and number of power feeders to MCIm within ten (10) days of the acceptance of MCIm's request for collocated space.

2.19 ILEC shall provide positive confirmation to MCIm when construction of MCIm collocated space is 50% completed. This confirmation shall also include confirmation of the scheduled completion and turnover dates.

2.20 MCIm shall be compensated by ILEC in accordance with Attachment X for any delays in the negotiated completion and turnover dates which create expenditures or delays to MCIm.

2.21 ILEC shall provide the following information to MCIm within five (5) business days of receipt of a written request from MCIm:

2.21.1 Work restriction guidelines.

2.21.2 ILEC or Industry technical publication guidelines that impact the design of ILEC collocated equipment.

2.21.3 ILEC contacts (names and telephone numbers) for the following areas:

Engineering
Physical & Logical Security
Provisioning
Billing
Operations
Site and Building Managers
Environmental and Safety

2.21.4 Escalation process for the ILEC employees (names, telephone numbers and the escalation order) for any disputes or problems that might arise pursuant to MCIm's collocation.

2.22 Power as referenced in this document refers to any electrical power source supplied by ILEC for MCIm equipment. It includes all superstructure, infrastructure, and overhead facilities, including, but not limited to, cable, cable racks and bus bars. ILEC will supply power to support MCIm equipment at equipment specific DC and AC voltages. At a minimum, ILEC shall supply power to MCIm at parity with that provided by ILEC to itself or to any third party. If ILEC performance, availability, or restoration falls below industry standards, ILEC shall bring itself into compliance with such industry standards as soon as technologically feasible.

2.22.1 Central office power supplied by ILEC into the MCIm equipment area, shall be supplied in the form of power feeders (cables) on cable racking into the designated MCIm equipment area. The power feeders (cables) shall efficiently and economically support the requested quantity and capacity of MCIm equipment. The termination location shall be as requested by MCIm.

2.22.2 ILEC shall provide power as requested by MCIm to meet MCIm's need for placement of equipment, interconnection, or provision of service.

2.22.3 ILEC power equipment supporting MCIm's equipment shall:

2.22.3.1 Comply with applicable industry standards (e.g., Bellcore, NEBS and IEEE) or manufacturer's equipment power requirement specifications for equipment installation, cabling practices, and physical equipment layout;

2.22.3.2 Have redundant power feeds with physical diversity and battery back-up as required by the equipment manufacturer's specifications for MCIm equipment, or, at minimum, at parity with that provided for similar ILEC equipment;

2.22.3.3 Provide, upon MCIm's request, the capability for real time access to performance monitoring and alarm data that impacts (or potentially may impact) MCIm traffic;

2.22.3.4 Provide central office ground, connected to a ground electrode located within the MCIm collocated space, at a level above the top of MCIm equipment plus or minus 2 feet to the left or right of MCIm's final request; and

2.22.3.5 Provide feeder capacity and quantity to support the ultimate equipment layout for MCIm equipment in accordance with MCIm's collocation request.

2.22.3.6 ILEC shall, within ten (10) days of MCIm's request:

2.22.3.6.1 Provide documentation submitted to and received from contractors for any contractor bids for any work being done on behalf of MCIm (this includes, but is not limited to, power supplies, and cage construction);

2.22.3.6.2 Provide an installation sequence and access that will allow installation efforts in parallel without jeopardizing personnel safety or existing MCIm services;

2.22.3.6.3 Provide power plant alarms that adhere to Bell Communication Research (Bellcore) Network Equipment-Building System (NEBS) standards TR-EOP-000063;

2.22.3.6.4 Provide cabling that adheres to Bell Communication Research (Bellcore) Network Equipment-Building System (NEBS) standards TR-EOP-000063;

2.22.3.6.5 Provide Lock Out-Tag Out and other electrical safety procedures and devices in conformance with the most stringent of OSHA or industry guidelines.

2.22.4 ILEC will provide MCIm with written notification within ten (10) business days of any scheduled AC or DC power work or related activity in the collocated facility that will or might cause an outage or any type of power disruption to MCIm equipment located in ILEC facility. ILEC shall provide MCIm immediate notification by telephone of any emergency power activity that would impact MCIm equipment.

2.23 ILEC shall be required to expand its facilities or obtain additional space to make the necessary collocation space available pursuant to requests made under this Attachment.

2.24 Intervals for physical collocation shall be a maximum of three months from the requested date. Virtual collocations will have a maximum interval of 2 months.

2.25 MCIm shall be allowed to install equipment of its choice provided that it meets Bellcore specifications and is an ILEC approved vendor. Approved vendors will, at minimum, be vendors the ILEC currently approves for their own use. ILEC will approve additional vendors provided they meet Bellcore standards.

2.26 MCIm may choose to lease unbundled transport from the ILEC, or from a third carrier, rather than construct to the ILED facility where equipment will be collocated.

2.27 ILEC will maintain MCIm's virtually collocated equipment in a manner equal to, or better than, how it maintains its own equipment. Maintenance includes the change out of electronic cards provided by MCIm and per MCIm's request.

Section 3. License

ILEC shall grant MCIm a license to occupy any premises or rack space which contain collocated equipment for the Term of the Agreement.

Section 4. Technical References

ILEC shall provide collocation in accordance with the following standards:

4.1 Institute of Electrical and Electronics Engineers (IEEE) Standard 383, IEEE Standard for Type Test of Class 1 E Electric Cables, Field Splices, and Connections for Nuclear Power Generating Stations.

4.2 National Electrical Code (NEC) use latest issue.

4.3 TA-NPL-000286, NEBS Generic Engineering Requirements for System Assembly and Cable Distribution, Issue 2, (Bellcore, January 1989).

4.4 TR-EOP-000063 Network Equipment-Building System (NEBS) Generic Equipment Requirements, Issue 3, March 1988.

4.5 TR-EOP-000151, Generic Requirements for 24-, 48-, 130-, and 140-Volt Central Office Power Plant Rectifiers, Issue 1, (Bellcore, May 1985).

4.6 TR-EOP-000232, Generic Requirements for Lead-Acid Storage Batteries, Issue 1 (Bellcore, June 1985).

4.7 TR-NWT-000154, Generic Requirements for 24-, 48-, 130, and 140-Volt Central Office Power Plant Control and Distribution Equipment, Issue 2, (Bellcore, January 1992).

4.8 TR-NWT-000295, Isolated Ground Planes: Definition and Application to Telephone Central Offices, Issue 2, (Bellcore, July 1992).

4.9 TR-NWT-000840, Supplier Support Generic Requirements (SSGR), (A Module of LSSGR, FR-NWT-000064), Issue 1, (Bellcore, December 1991).

4.10 TR-NWT-001275 Central Office Environment Installations/Removal Generic Requirements, Issue 1, January 1993.

4.11 Underwriters' Laboratories Standard, UL 94.

ATTACHMENT VI

Rights of Way (ROW), Conduits, Pole Attachments

Section 1. Introduction

This attachment sets forth the requirements for Rights of Way, Conduits and Pole Attachments.

Section 2. Definitions

2.1 "Poles, ducts, conduits and ROW" refer to all the physical facilities and legal rights which provide for access to pathways across public and private property. These include poles, pole attachments, ducts, innerducts, conduits, building entrance facilities, building entrance links, equipment rooms, remote terminals, cable vaults, telephone closets, building risers, rights of way, or any other requirements needed to create pathways. These pathways may run over, under, across or through streets, traverse private property, or enter multi-unit buildings. A Right of Way ("ROW") is the right to use the land or other property owned, leased, or controlled by any means by ILEC to place Poles, ducts, conduits and ROW or to provide passage to access such Poles, ducts, conduits and ROW. A ROW may run under, on, or above public or private property (including air space above public or private property) and shall include the right to use discrete space in buildings, building complexes, or other locations.

Section 3. Requirements

3.1 ILEC shall make Poles, duct, conduits and ROW available to MCIm upon receipt of a request for use within the time periods provided in this Attachment VI, providing all information necessary to implement such a use and containing rates, terms and conditions, including, but not limited to, maintenance and use in accordance with this Agreement and at least equal to those which it affords itself , its Affiliates and others. Other users of these facilities, including ILEC, shall not interfere with the availability or use of the facilities by MCIm.

3.2 Within 24 hours of MCIm's request for any Poles, ducts, conduits, or ROW, ILEC shall provide any information in its possession or available to it regarding the environmental conditions of the Poles, ducts, conduits or ROW route or location including, but not limited to, the existence and condition of asbestos, lead paint, hazardous substance contamination, or

radon. Information is considered "available" under this Agreement it is in ILEC's possession, or the possession of a current or former agent, contractor, employee, lessor, or tenant of ILEC's. If the Poles, ducts, conduits or ROW contain such environmental contamination, making the placement of equipment hazardous, ILEC shall offer alternative Poles, ducts, conduits or ROW for MCIm's consideration. ILEC shall complete an Environmental, Health and Safety Questionnaire for each work location MCIm requests or ILEC suggests as a site to be covered under this Agreement. ILEC shall return the completed questionnaire to MCIm within ten (10) days and shall allow MCIm to perform any environmental site investigations, including, but not limited to, Phase I and Phase II environmental site assessments, as MCIm may deem to be necessary.

3.3 ILEC shall not prevent or delay any third party assignment of ROW to MCIm.

3.4 ILEC shall offer the use of such Poles, ducts, conduits and ROW it has obtained from a third party to MCIm, to the extent such agreement does not prohibit ILEC from granting such rights to MCIm. They shall be offered to MCIm on the same terms as are offered to ILEC.

3.5 ILEC shall provide MCIm equal and non-discriminatory access to Poles, ducts, conduit and ROW and any other pathways on terms and conditions equal to that provided by ILEC to itself or to any other party. Further, ILEC shall not preclude or delay allocation of these facilities to MCIm because of the potential needs of itself or of other parties, except a maintenance spare may be retained as described below.

3.6 ILEC shall not attach, or permit other entities to attach facilities on, within or overlashed to existing MCIm facilities without MCIm's prior written consent.

3.7 ILEC agrees to produce current detailed engineering and other plant records and drawings of Poles, ducts, conduit and ROW, as well as cost data, within a reasonable time frame, which in no case shall exceed two (2) business days following MCIm's request for access to such engineering, cost data and other plant records and drawings of additional Poles, ducts, conduits and ROW in selected areas as specified by MCIm. Such information shall be of equal type and quality as that of ILEC's own engineering and operations staff. ILEC shall also allow personnel designated by MCIm to examine such engineering records and drawings at ILEC Central Offices and ILEC Engineering Offices upon two (2) days notice to ILEC.

3.8 ILEC shall provide to MCIm a Single Point of Contact for negotiating all structure lease and ROW agreements.

3.9 ILEC shall provide information regarding the availability and condition of Poles, ducts, conduit and ROW within twenty (20) business days of MCIm's request for use of Poles, ducts, conduits and ROW ("Request") regardless of whether the information then exists in ILEC's records or if ILEC must physically examine the ROW, conduit or pole attachments. MCIm shall have the option to be present at the field based survey and ILEC shall provide MCIm at least twenty-four (24) hours notice prior to the start of such field survey. During and after this period, ILEC shall allow MCIm personnel to enter manholes and equipment spaces and view pole structures to inspect such structures in order to confirm usability or assess the condition of the structure. ILEC shall send MCIm a written notice confirming availability pursuant to the Request within such 20 day period ("Confirmation").

3.10 For the period beginning at the time of the Request and ending ninety (90) days following Confirmation, ILEC shall reserve such Poles, ducts, conduit and ROW for MCIm and shall not allow any use thereof by any party, including ILEC. MCIm shall elect whether or not to accept such Poles, ducts, conduit and ROW within such 90 day period. MCIm may accept such facilities by sending written notice to ILEC ("Acceptance").

3.11 After Acceptance by MCIm, MCIm shall have six (6) months to begin attachment and/or installation of its facilities to the Poles, ducts, conduit and ROW or request ILEC to begin make ready or other construction activities. Any such construction, installation or make ready shall be completed by the end of one (1) year after Acceptance. MCIm shall not be in default of the 6 month or 1 year requirement above if such default is caused in any way by any action, inaction or delay on the part of ILEC or its affiliates or subsidiaries. After Acceptance, ILEC shall complete any work required to be performed by ILEC or any ILEC work requested by MCIm within 30 days of such time the work is required or within 30 days of the time such work is requested by MCIm, whichever time is earlier. MCIm shall begin payment for the use of the Poles, ducts, conduit and ROW upon the earlier of: 1) completion of construction and installation of the facilities and confirmation by appropriate testing methods to be in a condition ready to operate in MCIm's network or 2) 6 months after Acceptance.

3.12 ILEC shall relocate and/or make ready existing Poles, ducts, conduit and ROW where necessary and feasible to provide space for MCIm's requirements. Subject to the requirements above, the parties shall endeavor to mutually agree upon the time frame for the completion of such work within five (5) days following MCIm's requests of this work; however, any such work required to be performed by ILEC shall be completed with 30 days, unless otherwise agreed by MCIm in writing.

3.13 MCIm may, at its option, install its facilities on Poles, ducts, conduit and ROW and use MCIm or MCIm designated personnel to attach its equipment to such ILEC Poles, ducts, conduits and ROW.

3.14 ILEC shall provide MCIm space in manholes for racking and storage of cable and other materials as requested by MCIm.

3.15 ILEC shall remove any retired cable from conduit systems or poles to allow for the efficient use of conduit space and pole space. ILEC must expand its facilities, including placement of taller poles or additional conduits, if necessary, to accommodate MCIm's request.

3.16 Where ILEC has spare innerducts which are not, at that time, being used for providing its services, ILEC shall offer such ducts for MCIm's use. ILEC shall not reserve more than one inner duct in any conduit cross section for emergency purposes. Any other spare innerduct or conduit shall be available for use by MCIm. Where only two inner ducts remain available (including an emergency spare), ILEC shall offer MCIm the use of at least one innerduct.

3.17 Where a spare inner duct does not exist, ILEC shall allow MCIm to install an inner duct in ILEC conduit.

3.18 Where ILEC has any ownership or other rights to ROW to buildings or building complexes, or within buildings or building complexes, ILEC shall offer to MCIm:

3.18.1 The right to use any spare metallic and fiber optic cabling within the building or building complex;

3.18.2 The right to use any spare metallic and fiber optic cable from the property boundary into the building or building complex:

3.18.3 The right to use any available space owned or controlled by ILEC in the building or building complex to install MCIm equipment and facilities;

3.18.4 Ingress and egress to such space; and

3.18.5 The right to use electrical power at parity with ILEC's rights to such power.

3.19 Whenever ILEC intends to modify or alter any Poles, ducts, conduits or ROW which contains MCIm's facilities, ILEC shall provide written notification of such action to MCIm so that MCIm may have a

reasonable opportunity to add to or modify MCIm's facilities. If MCIm adds to or modifies MCIm's facilities according to this paragraph, MCIm shall bear a proportionate share of the costs incurred by ILEC in making such facilities accessible.

3.20 MCIm shall not be required to bear any of the costs of rearranging or replacing its facilities, if such rearrangement or replacement is required as a result of an additional attachment or the modification of an existing attachment sought by any entity other than MCIm, including ILEC.

3.21 ILEC shall maintain the Poles, ducts, conduits and ROW at its sole cost. MCIm shall maintain its own facilities installed within the Poles, ducts, conduits and ROW at its sole cost. In the event of an emergency, ILEC shall begin repair of its facilities containing MCIm's facilities within two (2) hours of notification by MCIm. If ILEC cannot begin repair within such 2 hour period, MCIm may begin such repairs without the presence of ILEC personnel. MCIm may climb poles and enter the manholes, handholes, conduits and equipment spaces containing ILEC's facilities in order to perform such emergency maintenance, but only until such time as qualified personnel of ILEC arrives ready to continue such repairs. For both emergency and non-emergency repairs, MCIm may use spare innerduct or conduits, including the innerduct or conduit designated by ILEC as emergency spare for maintenance purposes; however, MCIm may only use such spare conduit or innerduct for a maximum period of 90 days.

3.22 In the event of a relocation necessitated by a governmental entity exercising the power of eminent domain, when such relocation is not reimbursable, ILEC shall be solely responsible for all costs of relocation of the Poles, ducts, conduits and ROW and MCIm shall pay only the costs of any new MCIm facilities and the costs of installation of the facilities in the newly rebuilt ILEC Poles, ducts, conduits and ROW.

Section 4. Unused Transmission Media

4.1 Definitions:

4.1.1 Unused Transmission Media transmission facilities (e.g., optical fiber, copper twisted pairs, coaxial cable) which have no lightwave or electronic transmission equipment.

4.1.2 Dark Fiber, one type of unused transmission media, is unused strands of optical fiber. Dark Fiber also includes strands of optical fiber which may or may not have lightwave repeater (regenerator or optical amplifier) equipment interspliced, but which has no line terminating facilities terminated to such strands. Dark

Fiber also means unused wavelengths within a fiber strand for purposes of coarse or dense wavelength division multiplexed (WDM) applications. Typical single wavelength transmission involves propagation of optical signals at single wavelengths (1.3 or 1.55 micron wavelengths). In WDM applications, a WDM device is used to combine optical signals at different wavelengths on to a single fiber strand. The combined signal is then transported over the fiber strand. For coarse WDM applications, one signal each at 1.3 micron and 1.55 micron wavelength are combined. For dense WDM applications, many signals in the vicinity of 1.3 micron wavelength and/or 1.55 micron wavelength are combined. Spare wavelengths on a fiber strand (for coarse or dense WDM) are considered Dark Fiber.

4.2 Requirements

4.2.1 ILEC shall make available Unused Transmission Media to MCIm under an Indefeasible Right of Use or license agreement on terms at least equal to those which it affords itself and its affiliates, subsidiaries and others.

4.2.2 ILEC shall provide a Single Point of Contact (SPOC) for negotiating all Unused Transmission Media lease agreements.

4.2.3 MCIm may test the quality of the Unused Transmission Media to confirm its usability and performance specifications.

4.2.4 ILEC shall provide to MCIm information regarding the location, availability and performance of Unused Transmission Media within five (5) business days for a records based answer and ten (10) business days for a field based answer, after receiving a request from MCIm ("Request"). Within such time period, ILEC shall send written confirmation of availability of the Unused Transmission Media ("Confirmation"). From the time of the Request to 90 days after Confirmation, ILEC shall reserve such requested Unused Transmission Media for MCIm's use and may not allow any other party to use such media, including ILEC.

4.2.5 ILEC shall make Unused Transmission Media available for MCIm's use within twenty (20) business days after it receives written acceptance from MCIm that the Unused Transmission Media previously reserved by ILEC is wanted for use by MCIm. This includes identification of appropriate connection points (e.g., Light Guide Interconnection (LGX) or splice points) to enable MCIm to connect or splice MCIm provided transmission media (e.g., optical fiber) or equipment to the Unused Transmission Media.

4.2.6 ILEC shall be required to expand or overbuild its network and capacity to accommodate requests under this Attachment

4.3 Requirements Specific to Dark Fiber

4.3.1 MCIm may splice and test Dark Fiber leased from ILEC using MCIm or MCIm designated personnel. ILEC shall provide appropriate interfaces to allow splicing and testing of Dark Fiber. ILEC shall provide an excess cable length of 25 feet minimum (for fiber in underground conduit) to allow the uncoiled fiber to reach from the manhole to a splicing van.

4.3.2 For WDM applications, ILEC shall provide to MCIm an interface to an existing WDM device or allow MCIm to install its own WDM device (where sufficient system loss margins exist or where MCIm provides the necessary loss compensation) to multiplex the traffic at different wavelengths. This applies to both the transmit and receive ends of the Dark Fiber.

ATTACHMENT VII

NUMBER PORTABILITY

Section 1. ILEC Provision of Number Portability

ILEC shall provide number portability in accordance with requirements of the Act and FCC Rules and Regulations. Currently available number portability (INP) shall be provided by ILEC to MCIm in accordance with FCC Rules and Regulations. INP shall be provided with minimum impairment of functionality, quality, reliability and convenience to subscribers of MCIm services. ILEC shall provide number portability in conformance with FCC Rules and Regulations and the Act.

Section 2. Interim Number Portability (INP)

INP shall be provided by Remote Call Forwarding ("RCF") or Direct Inward Dialing (DID) on Route Indexing (RI). In providing RCF ILEC agrees to provide Route Indexing and LERG reassignment in every local service office. MCIm shall specify on a per telephone number basis which method of INP is to be employed and ILEC shall provide such method to the extent technically feasible.

2.1 Remote Call Forwarding: Remote Call Forwarding (RCF) is an INP method to provide subscribers with service-provider portability by redirecting calls within the telephone network. When RCF is used to provide interim number portability, calls to the ported number will first route to the ILEC switch to which the ported number was previously assigned. The ILEC switch will then forward the call to a number associated with the MCIm designated switch to which the number is ported. MCIm shall not be required to order any additional paths to handle multiple simultaneous calls to the same ported telephone number.

2.2 DID is an INP method that makes use of direct inward dialing trunks. Each DID trunk group used for INP is dedicated to carrying FLEX-DID INP traffic between the ILEC end office and the MCIm switch. Traffic on these trunks cannot overflow to other trunks, so the number of trunks shall be conservatively engineered by ILEC. Also, inter-switch signaling is usually limited to multi-frequency (MF). This precludes passing CLID to the MCIm switch.

2.3 Route Indexing: Route Indexing may take two forms: Route Index-Portability Hub (RI-PH) or Directory Number-Route Index (DN-RI).

2.3.1 RI-PH will route a dialed call to the ILEC switch associated with the NXX of the dialed number. The ILEC switch shall then insert a prefix onto the dialed number which identifies how the call is to be routed to MCIm. The prefixed dialed number is transmitted to the ILEC tandem switch to which MCIm is connected.

The prefix is removed by the operation of the tandem switch and the dialed number is routed to MCIm's switch so the routing of the call can be completed by MCIm.

2.3.2 ON-RI is a form of RI-PH that requires direct trunking between the ILEC switch to which the ported number was originally assigned and the MCIm switch to which the number has been ported. The ILEC switch shall send the originally dialed number to the MCIm switch without a prefix.

2.3.3 ILEC shall provide RI-PH or ON-RI on an individual telephone number basis, as designated by MCIm. Where technically feasible, MCIm may designate both methods so that calls to ported numbers are first directed to the MCIm switch over direct trunks but may overflow to tandem trunks if all trunks in the direct group are occupied.

2.3.4 For both RI-PH and ON-RI the trunks used may, at MCIm's option, be the same as those used for exchange of other local traffic and toll traffic with ILEC. At MCIm's option, the trunks shall employ SS7 or in band signaling and may be one way or two way.

2.4 LERG Reassignment: Portability for an entire NXX or thousands block (NXX-X) of numbers shall be provided by utilizing reassignment of the block to MCIm through the Local Exchange Routing Guide (LERG). Updates to translations in the ILEC switching office from which the telephone number is ported will be made by the ILEC prior to the date on which LERG changes become effective, in order to redirect calls to the MCIm switch via route indexing.

2.5 Other Currently Available Number Portability Provisions:

2.5.1 ILEC shall exchange with MCIm, SS7 TCAP messages as required for the implementation of Custom Local Area Signaling Services (CLASS) or other features available in the ILEC network.

2.5.2 ILEC shall disclose to MCIm any technical or capacity limitations that would prevent use of a requested INP in a particular switching office. ILEC and MCIm shall cooperate in the process of porting numbers to minimize customer out-of-service time,

including updating switch translations where necessary within five (5) minutes after notification that physical cut-over has been completed (or initiated), as MCIm may designate.

2.5.3 For INP, MCIm shall have the right to use the existing ILEC 911 infrastructure for all 911 capabilities. When RCF is used for MCIm subscribers, both the ported numbers and shadow numbers shall be stored in PSAP databases. MCIm shall have the right to verify the accuracy of the information in the PSAP databases.

2.5.4 When RCF is used to port a subscriber, the donor provider must maintain the Line Information Database (LIDB) record for that number to reflect appropriate conditions as reported to it by the porting service provider. The donor must outclear call records to MCIm for billing and collection from the subscriber. MCIm shall receive revenue for LIDB look-ups.

2.5.5 LEC should send a CARE transaction 2231 to notify IXC that access is now provided by a new CLEC for that number.

Section 3. Number Portability (NP)

3.1.1 The requirements for NP shall include the following:

3.1.2 Subscribers must be able to change local service providers and retain the same telephone number(s) consistent with FCC rules and regulations.

3.1.3 The NP network architecture shall not subject alternate local exchange carriers to any degradation of service compared to ILEC in any relevant measure, including transmission quality, switching and transport costs, increased call set-up time and post-dial delay, and MCIm shall not be required to rely on the ILEC network for calls completing to its ported customers.

3.1.4 When an office is equipped with NP, all NXXs in the office shall be defined as portable and translations will be changed in all service provider switches to open those NXXs for database queries. If a switch serves multiple rate centers, then at a minimum, all of the NXXs for a rate center in that switch shall be made portable when any one of them is turned up.

3.1.5 When an NXX is defined as portable, it shall also be defined as portable in all LRN-capable offices which have direct trunks to the given switch.

3.1.6 Upon introduction of LRN in a market area, the tandems (local and access) shall be among the first converted, with no unreasonable delay. All portable NXXs shall be recognized in these tandems as portable, with queries launched from these switches.

3.1.7 Upon introduction of LRN in a market area, the switches that provide dial tone to Public Service Answering Point (PSAP) call centers shall be among the first converted and opened for LRN to allow queries to be launched from these switches. There shall be no unreasonable delay in these conversions.

3.1.8 When a subscriber ports to another service provider, the donor provider shall use information provided by the porting provider to update the 911 tandem switch routing tables and 911/ALI database to correctly route, and provide accurate information to Public Service Answering Point (PSAP) call centers.

3.1.9 When a subscriber ports to another service provider and has previously secured a reservation of line numbers from the donor provider for possible activation at some future point, these reserved but inactive numbers shall "port" along with the active numbers being ported by the subscriber in order to ensure that the end user subscriber will be permitted to expand its service using the same number range it could use if it remained with the donor provider.

3.1.10 During the process of porting a subscriber, the donor service provider shall implement the 10-Digit trigger feature. When the donor provider receives the porting request, the 10-Digit trigger shall be applied to the Subscriber's line at least 24 hours prior to the order due date in order to overcome donor network time delays in the disconnection of the subscriber. Alternatively, when an activation notice is sent to an NPAC to trigger a broadcast to service provider databases, the donor switch shall have its translations changed to disconnect the subscriber's line within fifteen (15) minutes of the donor network Local SMS's having received the broadcast.

3.2 Joint Cooperation

Both MCIm and ILEC shall:

Support all emergency and operator services.

Use scarce numbering resources efficiently and administer such resources in a competitively neutral manner.

Jointly cooperate with each other to ensure that both carriers shall be able to rate and bill all types of calls.

Jointly cooperate with each other to apply NP consistently on a nationwide basis, and in accordance with all Federal Communication Commission directives.

3.3 Location Routing Number (LRN)

ILEC and MCIm shall work to implement the LRN-NP solution.

3.3.1 A ten-digit code, consistent with the North American Numbering Plan, called the location routing number (LRN) shall be used as a network address for each switch that terminates subscriber lines, i.e. an end office. LRN shall support existing six-digit routing and may be implemented without changes to existing switch routing algorithms. In existing end offices, the LRN shall be selected from one of its existing NPA-NXXs. New end offices shall be assigned LRNs through normal administrative processes.

3.3.2 LRN employs an "N-1" Query Strategy for interLATA or intraLATA toll calls, by which the originating carrier will pass the call to the appropriate toll carrier who will perform a query to an external routing database and efficiently route the call to the appropriate terminating local carrier either directly or through an access tandem office. For a local call to a ported number, the originating carrier is the "N-1" carrier. It will perform an external database query and pass the call to the appropriate terminating carrier. The "N-1" methodology will be used to extend portability on a phased, region-by-region basis and it does not place ILEC or other carriers needlessly in the call path.

3.3.3 ILEC shall furnish MCIm with the first six digits of the originating LRN when it supplies MCIm with the Jurisdiction Information Parameter for the Initial Address Message.

3.3.4 ILEC agrees to begin the introduction of LRN to end user subscribers who may begin changing local service providers and retaining their existing telephone number based on the time line set out by the FCC in its Telephone Number Portability Order (CC Docket No. 95-116), or as per a State order if such time for introduction of LRN set by the State is earlier than would result under the FCC Order.

3.3.5 The generic requirements for LRN are specified in the following publications: Generic Switching and Signaling

Requirements for Number Portability, Issue 1.00, February 12, 1996 [Editor - Lucent Technologies, Inc.]; Generic Requirements for SCP Application and GTT Function for Number Portability, Issue 0.31, Final Draft, March 24, 1996 [Editor - Ameritech Inc.]; and Generic Operator Services Switching Requirements for Number Portability, Issue 1.00, Final Draft, April 12, 1996 [Editor - Nortel].

3.4 Additional NP Requirements

3.4.1 For local calls to a portable NXX, ILEC shall query an external database as soon as the call reaches the first NP-capable switch in the call path. An LRN-capable originating switch shall query on a local call to a portable NXX as soon as it determines that it (the originating switch) does not serve the dialed number.

3.4.2 ILEC shall be the default carrier for database queries where a participating carrier is unable to perform its own query due to abnormal conditions.

3.4.3 ILEC will provide MCIm INP and NP for subscribers moving to a different location, or staying at the same location, within the same rate center area.

3.5 SMS Administration

ILEC will work cooperatively with other local service providers to establish the NP Service Management System (SMS). The SMS shall be administered by a neutral third party, to provide for the efficient porting of numbers between carriers. There must be one exclusive NPAC per portability State or region, and ILEC shall provide all information uploads and downloads regarding ported numbers to/from, respectively, the exclusive NPAC. ILEC and MCIm shall cooperate to facilitate the expeditious deployment of LRN-based NP through the process prescribed by the FCC, including, but not limited to, participation in the selection of a neutral third party and development of SMS, as well as SMS testing for effective procedures, electronic system interfaces, and overall readiness for use consistent with that specified for Provisioning in this Agreement.

Section 4. Requirements for INP and NP

4.1 White and Yellow Page Listings

LEC shall provide and maintain for MCIm one (1) white page and one (1) yellow page (if applicable) listing for each MCIm subscriber that has ported its number from ILEC, consistent with that specified for Provisioning in this Agreement. The listing and handling of listed and nonlisted telephone numbers will be at least at parity with that provided by ILEC to its own subscribers.

4.2 Cut-Over Process

ILEC shall cooperate in the process of porting numbers from one carrier to another so as to limit service outage for the ported subscriber. This shall include, but not be limited to, updating its network element translations within five (5) minutes following notification by the industry SMS, or ported-to local service provider, and deploying such temporary translations as may be required to minimize service outage, e.g., unconditional triggers. Also, MCIm shall have the right to determine who initiates the order for INP in specific cut-over situations.

4.3 Testing

ILEC and MCIm shall cooperate in conducting MCIm's testing to ensure interconnectivity between systems. ILEC shall inform MCIm of any system updates that may affect the MCIm network and ILEC shall, at MCIm's request, perform tests to validate the operation of the network. Additional testing requirements may apply as specified by this Agreement.

4.4 Engineering and Maintenance

ILEC and MCIm will cooperate to ensure that performance of trunking and signaling capacity is engineered and managed at levels which are at least at parity with that provided by ILEC to its subscribers and to ensure effective maintenance testing through activities such as routine testing practices, network trouble isolation processes and review of operational elements for translations, routing and network fault isolation.

Additional specific engineering and maintenance requirements shall apply as specified in this Agreement.

4.5 Recording and Billing

ILEC shall provide MCIm with accurate billing and Customer Account Record Exchange data for MCIm subscribers whose numbers have been ported.

4.5.1 Calls originated from RCF ported numbers in ILEC end-offices and sent to the MCIm interLATA toll network must signal the shadow number in the Calling Party Number (CgPN) parameter and ported number in the Charge Number (CN) parameter in the SS7 Initial Address Message.

4.5.2 ILEC shall provide MCIm call detail records identified each IXC which are sufficient to allow MCIm to render bills to IXCs for calls IXCs place to ported numbers in the ILEC network which the ILEC forwards to MCIm for termination.

4.6 Operator Services and Directory Assistance

With respect to operator services and directory assistance associated with NP for MCIm subscribers, ILEC shall provide the following:

4.6.1 While INP is deployed and prior to conversion to NP:

4.6.1.1 If requested by MCIm, ILEC shall provide Emergency Interrupt (EI) trunks to the MCIm End Office for Busy Line Verification/Busy Line Identification call requests for lines that terminate at the MCIm End Office.

4.6.1.2 When a BLV/BLI request for a ported number is directed to a ILEC operator and the query is not successful (i.e., the request yields an abnormal result), the operator shall confirm whether the number has been ported and shall direct the request to the appropriate operator.

4.6.1.3 ILEC shall allow MCIm to order provisioning of Telephone Line Number (TLN) calling cards and Billed Number Screening (BNS), in its LIDB, for ported numbers, as specified by MCIm. ILEC shall continue to allow MCIm access to its LIDB. Other LIDB provisions are specified in this Agreement.

4.6.1.4 Where ILEC has control of directory listings for NXX codes containing ported numbers, ILEC shall maintain entries for ported numbers as specified by MCIm.

4.6.2 When NP is in place:

4.6.2.1 The Provisions in 4.6.1.1~.4.6.1.5 preceding, shall apply when NP is in place.

4.6.2.2 If Integrated Services Digital Network User Part (ISUP) signaling is used ILEC shall provide the Jurisdiction Information Parameter in the SS7 Initial Address Message. (See Generic Switching and Signaling Requirements for Number Portability, Issue 1.0, February 12.1996 (Editor - Lucent Technologies, Inc.])

4.6.2.3 ILEC shall provide a 10-Digit Global Title Translation (GTT) Node for routing queries for TCAP-based operator services (e.g., LIDB).

4.6.2.4 ILEC OSS shall meet all requirements specified in "Generic Operator Services Switching Requirements for Number Portability," Issue 1.00, Final Draft, April 12, 1996.

Section 1. General Business Requirements

1.1 Procedures

1.1.1 ILEC Contact with Subscribers

1.1.1.1 MCIm at all times shall be the primary contact and account control for all interactions with its subscribers, except as specified by MCIm. MCIm subscribers include active MCIm customers as well as those for whom service orders are pending.

1.1.1.2 ILEC shall ensure that any ILEC personnel who may receive customer inquiries, or otherwise have opportunity for subscriber contact: (i) provide appropriate referrals and telephone numbers to subscribers who inquire about MCIm services or products; (ii) do not in any way disparage or discriminate against MCIm, or its products or services; and (iii) do not provide information about ILEC products or services during that same inquiry or subscriber contact.

1.1.1.3 ILEC shall not use MCIm's request for subscriber information, order submission, or any other aspect of MCIm's processes or services to aid ILEC's marketing or sales efforts.

1.1.2 Expedite, Escalation, and Disaster Procedures

1.1.2.1 No later than thirty (30) days after the Effective Date of this Agreement, ILEC and MCIm shall develop mutually acceptable escalation and expedite procedures which may be invoked at any point in the Service Ordering, Provisioning, Maintenance, and Customer Usage Data transfer processes to facilitate rapid and timely resolution of disputes. In addition, ILEC and MCIm will establish intercompany contacts lists for purposes of handling subscriber and other matters which require attention/resolution outside of normal business procedures within thirty (30) days after the Effective Date of this Agreement. ILEC shall notify MCIm of any changes to its escalation contact list at least one (1) week before such changes are effective.

1.1.2.2 No later than thirty (30) days after the Effective Date of this Agreement, ILEC and MCIm shall jointly establish contingency and disaster recovery plans for those cases in which normal Service Ordering, Provisioning, Maintenance, Billing, and other procedures for ILEC's unbundled Network Elements, features, functions, and resale services are inoperable.

1.1.3 Operational and Technological Changes

1.1.3.1 ILEC shall notify MCIm of any operational or technological (e.g., network, systems interfaces) changes that are related to any services or Network Elements purchased by MCIm no less than twelve (12) months before ILEC plans to implement such change. The parties may mutually agree to shorter notice periods.

1.1.4 Customer of Record

1.1.4.1 ILEC shall recognize MCIm as the Customer of Record for all Network Elements or services for resale ordered by MCIm and shall send all notices, invoices, and information which pertain to such ordered services directly to MCIm. MCIm will provide ILEC with addresses to which ILEC shall send all such notices, invoices, and information.

1.1.5 Work Center Interface Procedures

1.1.5.1 ILEC and MCIm shall, within 60 days of the Effective Date of this Agreement, develop and implement Work Center Interface Procedures for each function/business process.

1.2 Service Offerings

1.2.1 Changes in Retail Service Offerings

1.2.1.1 ILEC shall notify MCIm of any proposed changes in the terms and conditions under which ILEC offers Telecommunications Services to subscribers who are not Telecommunications Service providers or carriers, including, but not limited to, the introduction or discontinuance of any features, functions, services, promotions, or changes in retail rates at least forty-five (45) days prior to the effective date of

such change, or concurrent with ILEC's internal notification process for such change, or as required by state regulatory agency notification guidelines, whichever is earliest.

1.2.1.2 ILEC shall notify MCIm of any proposed changes in the terms and conditions under which it offers unbundled Network Elements including, but not limited to, the introduction or discontinuance of any features, functions, services, promotions, or changes in rates at least forty-five (45) days prior to the effective date of such change, or concurrent with ILEC's internal notification process for such change, or as required by state notification guidelines, whichever is earliest.

1.2.2 Essential Services

1.2.2.1 ILEC shall designate an access line as an Essential Service Line (ESL) upon MCIm's request.

1.2.3 Caller ID

1.2.3.1 ILEC shall cooperate with MCIm to provide equipment associated with Caller ID.

1.2.4 TTY/TDD

1.2.4.1 ILEC shall cooperate with MCIm to provide services and equipment necessary to serve TTY/TDD subscribers.

1.2.5 Blocking Services

1.2.5.1 Upon request from MCIm, ILEC shall provide blocking of 700, 900, and 976 services, or other services of similar type as may now exist or be developed in the future, and shall provide Billed Number Screening (BNS), including required LIDB updates, or equivalent service for blocking completion of bill -to- third party and collect calls, on a line, trunk, or individual service basis.

1.2.6 Training Support

1.2.6.1 MCIm and ILEC shall mutually develop and deliver training, based on MCIm's procedures and materials, for all ILEC employees who may communicate with MCIm

subscribers. Training will be provided for all ordering, provisioning, maintenance, billing, miscellaneous services, and any other area, as requested by MCIm.

1.2.6.2 ILEC shall train MCIm employees on ILEC's systems and processes to MCIm's specifications and shall provide at least the same information available to ILEC employees. ILEC shall provide training to MCIm at no charge. Information/materials provided to MCIm should include, at a minimum, operational and procedural information, and ILEC-specific system access/interface instruction.

Section 2. Ordering and Provisioning

2.1 General Business Requirements

2.1.1 Ordering and Provisioning Parity

2.1.1.1 During the term of this Agreement, ILEC shall provide necessary ordering and provisioning business process support as well as those technical and systems interfaces as may be required to enable MCIm to provide at least the same level and quality of service for all resale services, functions, features, capabilities and unbundled Network Elements as ILEC provides itself, its affiliates or its own customers. ILEC shall provide MCIm with the same level of ordering and provisioning support as ILEC provides itself in accordance with standards and performance measurements that are at least equal to the highest level of standards and/or performance measurements that ILEC uses and/or which are required by law, regulatory agency, or by ILEC's own internal procedures, whichever are the most rigorous. These standards shall apply to the quality of the technology, equipment, facilities, processes, and techniques (including, but not limited to, such new architecture, equipment, facilities, and interfaces as ILEC may deploy) that ILEC provides to MCIm under this Agreement.

2.1.2 Local Carrier Service Center (LCSC)/Single Point of Contact (SPOC)

2.1.2.1 ILEC shall provide a Local Carrier Service Center or equivalent which shall serve as MCIm's Single Point of Contact (SPOC) for all activities involved in the ordering and provisioning of ILEC's unbundled Network Elements, features, functions, and resale services. The SPOC shall process orders (through an electronic interface) twenty-four (24) hours a day, seven days a week.

2.1.2.2 The SPOC shall provide to MCIm a toll-free nationwide telephone number (available from 8:00 a.m. to 8:00 p.m., Monday through Saturday, within each respective continental U.S. time zone) answered by competent, knowledgeable personnel dedicated to MCIm servicing matters and trained to answer questions and resolve problems in connection with the ordering and provisioning of unbundled Network Elements, features, functions, capabilities, and resale services.

2.1.2.3 ILEC shall provide, as requested through MCIm, through the SPOC, provisioning and premises visit installation support in the form of coordinated scheduling, status, and dispatch capabilities from 8:00 a.m. to 8:00 p.m. Monday through Saturday and at all other times when required by MCIm to meet customer demand.

2.1.3 Street Address Guide (SAG)

2.1.3.1 Within thirty (30) days after the Effective Date of this Agreement, ILEC shall provide to MCIm the SAG data, or its equivalent, in both electronic and hard copy forms, in a format acceptable to MCIm. All changes to the SAG shall be provided to MCIm on the same day as the change to the data is made.

2.1.4 CLASS and Custom Features

2.1.4.1 MCIm may order the entire set of CLASS and Custom features and functions, or a subset of any one or any combination of such features. In addition, ILEC shall provide MCIm with a list of features and functions available on an end office by end office basis.

2.1.5 Customer Payment History

2.1.5.1 MCIm and ILEC agree to make available to a mutually agreed upon third-party credit reporting agency, on a timely basis, such of the following customer payment history information that is available for each person or entity that applies for local service or intraLATA toll Telecommunications Service(s) from either carrier:

2.1.5.1.1 Applicant's name;
2.1.5.1.2 Applicant's address;
2.1.5.1.3 Applicant's previous phone number, if any;
2.1.5.1.4 Amount, if any, of unpaid balance in applicant's name;
2.1.5.1.5 Whether applicant is delinquent on payments;
2.1.5.1.6 Length of service with prior local or intraLATA toll provider;
2.1.5.1.7 Whether applicant had local or intraLATA toll service terminated or suspended within the last six months with an explanation of the reason therefor; and,
2.1.5.1.8 Whether applicant was required by prior local or intraLATA toll provider to pay a deposit or make an advance payment, including the amount of each.

2.1.5.2 Such information shall be provided on the condition that the credit reporting agency only make such information available to the carrier to which the person or entity in question has applied for Telecommunication Service.

2.1.5.3 ILEC shall not refuse service to MCIm for any potential MCIm customer on the basis of that subscriber's past payment history with ILEC. MCIm shall establish the credit scoring criteria for applicants for MCIm services.

2.1.6 Carrier Selection

2.1.6.1 For services for resale or unbundled Network Elements, ILEC shall provide to MCIm, no later than January 1, 1997, the capability to order local service, intraLATA, interLATA, and international toll services by entering the MCIm subscriber's choice of carrier on a single order. ILEC shall provide MCIm with the capability to order separate interLATA and intraLATA carriers on a line or trunk basis.

2.1.6.2 Where intraLATA toll carrier selection is not implemented, or if the subscriber does not select an intraLATA toll carrier, ILEC agrees to provide intraLATA toll services for resale to MCIm and to recognize MCIm as the default carrier. MCIm designate the default carrier for all other toll calls if the subscriber does not select a carrier. In all cases, ILEC will route toll calls to the appropriate carrier as designated by MCIm.

2.1.7 Notification to Long Distance Carrier

2.1.7.1 ILEC agrees to notify MCIm, using OBF-approved CARE transactions, whenever an MCIm subscriber who is provided local service through services for resale, INP/NP, or unbundled Network Elements changes MCIm PIC status.

2.1.7.2 ILEC shall support and implement new Transaction Code Status Indicators (TCSIs) defined by OBF in support of local resale to enable MCIm to provide seamless customer service.

2.1.7.2.1 ILEC shall implement TCSIs used in conjunction with the new Local Service Provider (LSP) Identification Code for handling Account Maintenance, Customer Service, and Trouble Administration issues. These TCSIs include

4001/02/05, 4201-4205, 4301, 2033, 2233, 3147, 3148, 3149, and others as OBF may define.

2.1.7.2.2 In addition, ILEC shall implement TCSIs used in conjunction with the new Ported Telephone Number field to link "shadow" and ported telephone numbers in support of Interim Number Portability. These TCSIs include 2231, 3150, 3151, and others as OBF may define.

2.1.7.3 ILEC shall provide to MCIm the Local Service Provider ID (LSP) on purchased lists of MCIm PIC'd and non-PIC'd subscribers.

2.1.7.4 ILEC shall provide the Ported Telephone Number (PTN) on purchased CARE lists of MCIm PIC'd and non-MCIm PIC'd subscribers.

2.1.8 Number Administration/Number Reservations

2.1.8.1 Until Number Administration functions are assumed by a neutral third party in accordance with FCC Rules and Regulations, ILEC shall assign NXXs to MCIm on a non-discriminatory basis with no restrictions. In addition, ILEC shall provide testing and loading of MCIm's NXX on the same basis as ILEC provides itself or its affiliates. Further, ILEC shall provide MCIm with access to abbreviated dialing codes, access arrangements for 555 line numbers, and the ability to obtain telephone numbers, including vanity numbers, while a customer is on the phone with MCIm. ILEC shall provide the same range of number choices to MCIm, including choice of exchange number, as ILEC provides its own customers. Reservation and aging of numbers shall remain ILEC's responsibility.

2.1.8.2 Where MCIm has not obtained its own NXX, ILEC shall reserve up to 100 telephone numbers, per MCIm request, per NPA-NXX, for MCIm's exclusive use. ILEC shall provide additional numbers at MCIm's request as customer demand requires. Telephone numbers reserved in this manner may be released for other than MCIm use only upon agreement of MCIm.

2.1.8.3 Where MCIm has obtained its own NXX, but has purchased ILEC services for resale or Network Elements, ILEC agrees to install the MCIm NXX in ILEC's switch according to the

local calling area defined by MCIm and perform appropriate number administration functions.

2.1.8.4 ILEC shall accept MCIm orders for vanity numbers and blocks of numbers for use with complex services including, but not limited to, DID, CENTREX, and Hunting arrangements, as requested by MCIm.

2.1.8.5 For simple services number reservations, ILEC shall provide real-time confirmation of the number reservation. For number reservations associated with complex services, ILEC shall provide confirmation of the number reservation within twenty-four (24) hours of MCIm's request.

2.2 Service Order Process Requirements

2.2.1 OBF Compliance

2.2.1.1 In accordance with OBF standards, ILEC and MCIm shall follow the OBF-developed ordering and provisioning process standards. These processes include pre-order service inquiry, pre-order service inquiry response, firm order, acknowledgment/ rejection, firm order confirmation, delay notification, and completion notification. ILEC agrees to work cooperatively to implement future OBF-developed processes related to ordering and provisioning.

2.2.2 Service Migrations and New Customer Additions

2.2.2.1 For resale services, ILEC shall not require a disconnect order from a subscriber, another local service provider, or any other entity, to process an MCIm order to establish MCIm Local Service and/or migrate a subscriber to MCIm local service.

2.2.2.2 ILEC shall not disconnect any subscriber service or existing features at any time during the migration of that subscriber to MCIm service.

2.2.2.3 For services provided through unbundled Network Elements, ILEC shall recognize MCIm as an agent for the subscriber in coordinating the disconnection of services provided by another CLEC or ILEC. In addition, ILEC shall not disconnect any ILEC services provided to the subscriber until MCIm notifies

ILEC that MCIm's unbundled elements are installed and operational.

2.2.2.4 Unless otherwise directed by MCIm, when MCIm orders resale services or Network Elements all trunk or telephone numbers currently associated existing services shall be retained without loss of feature capability and without loss of associated ancillary services including, but not limited to, Directory Assistance and 911/E911 capability.

2.2.2.5 For customer conversions requiring coordinated cut-over activities, on a per order basis, ILEC and MCIm will agree on a scheduled conversion time, which will be a designated two-hour time period within a designated date.

2.2.2.5.1 ILEC will coordinate activities of all ILEC work groups involved with the conversion. This coordination will include, but not be limited to , work centers charged with manual cross-connects, electronic cross-connect mapping, and switch translations (including but not limited to, implementation of interim local number portability translations).

2.2.2.5.2 ILEC will notify MCIm when conversion is complete.

2.2.2.5.3 End user service interruptions shall not exceed five minutes.

2.2.3 Intercept Treatment and Transfer of Service Announcements

2.2.3.1 ILEC shall provide unbranded intercept treatment and transfer of service announcements to MCIm's subscribers. ILEC shall provide such treatment and transfer of service announcement for six (6) months for all service disconnects, suspensions, or transfers.

2.2.4 Desired Due Date (DDD)

2.2.4.1 MCIm shall specify on each order the Desired Due Date (DDD). ILEC shall not complete the order prior to DDD or later than DDD unless authorized by MCIm.

2.2.4.2 If the DDD fails after the standard order completion interval (as described in Performance Measurements and Reporting), ILEC shall complete the order on the Desire . Due Date.

2.2.4.3 ILEC shall supply MCIm with due date intervals to be used by MCIm personnel to determine service installation dates.

2.2.4.4 Subsequent to an initial order submission, MCIm may require a new/revised due date that is earlier than the minimum defined interval.

2.2.4.5 Any special or preferred scheduling options available, internally or externally to ILEC, for ordering and provisioning services shall also be available to MCIm.

2.2.5 Customer Premises Inspections and Installations

2.2.5.1 MCIm shall perform or contract for all needs assessments, including equipment and installation requirements, at the customer premises.

2.2.5.2 ILEC shall provide MCIm with the ability to schedule customer premises installations.

2.2.5.3 ILEC shall provide extended demarcation beyond the NID, at MCIm's request, using intrabuilding riser and lateral beyond the NID.

2.2.6 Firm Order Confirmation (FOC)

2.2.6.1 ILEC shall provide to MCIm, via an electronic interface, a Firm Order Confirmation (FOC) for each MCIm order. The FOC shall contain on a per line and/or trunk basis an enumeration of MCIm's ordered unbundled Network Elements (and the specific ILEC naming convention applied to that element or combination), features, functions, resale services, options, physical interconnection, quantity, and ILEC Committed Due Date for order completion.

2.2.6.2 For a revised FOC, ILEC shall provide order detail on a per line or per trunk level as well as the order detail from the prior FOC. ILEC shall submit to MCIm a complete revised list of features, functions and services ordered.

2.2.6.3 ILEC shall provide to MCIm the date that service is initiated.

2.2.7 Order Rejections

2.2.7.1 ILEC shall reject and return to MCIm any order that ILEC cannot provision, due to technical reasons, missing information, or jeopardy conditions in accordance with Performance Measurements in Section 2.5. When an order is rejected, ILEC shall, in its reject notification, specifically describe all of the reasons for which the order was rejected. ILEC shall not reject any orders on account of the Desired Due Date.

2.2.7.2 ILEC agrees to accept from MCIm verbal administrative order errors. ILEC shall immediately inform MCIm by telephone of any minor issues which can be handled over the phone.

2.2.7.3 If any portion of a service order, as submitted by MCIm, is not correct, ILEC shall make all reasonable attempts to complete any portion of the work that can be completed, while awaiting correction of error conditions by MCIm.

2.2.8 Service Order Changes

2.2.8.1 If an installation or other MCIm-ordered work requires a change from the original MCIm service order in any manner, ILEC shall call MCIm in advance of performing the installation or other work to obtain authorization. ILEC shall then provide MCIm an estimate of additional labor hours and/or materials. After all installation or other work is completed, ILEC shall immediately notify MCIm of actual labor hours and/or materials used.

2.2.8.1.1 If additional work is completed on a service order, as approved by MCIm, the cost of the additional work must be reported immediately to MCIm.

2.2.8.1.2 If a service order is partially completed, notification must identify the work that was done and work remaining to complete.

2.2.8.2 If an MCIm subscriber requests a service change at the time of installation or other work being performed by ILEC on behalf of MCIm, ILEC, while at the customer premises, shall direct the MCIm subscriber to contact MCIm so as to avoid unnecessary

delays in service activation should ILEC representative leave customer premises.

2.2.9 Jeopardy Situations

2.2.9.1 ILEC shall provide to MCIm notification of any jeopardy situations prior to Committed Due Date, missed appointments and any other delay or problem in completing work specified on MCIm's service order as detailed on the FOC, in accordance with the Performance Measurements in Section 2.5.

2.2.10 Cooperative Testing

2.2.10.1 Network Testing

2.2.10.1.1 ILEC shall perform all pre-service testing prior to the completion of the order, including testing on local service facilities and switch translations, including, but not limited to, verification of features, functions, and services ordered by MCIm.

2.2.10.1.2 Within 24-hrs of MCIm's request for scheduled cooperative testing, ILEC shall perform said testing with MCIm (including trouble shooting to isolate any problems) to test Network Elements purchased by MCIm in order to identify any problems.

2.2.10.2 Systems and Process Testing

2.2.10.2.1 ILEC shall cooperate with MCIm upon request to ensure that all operational interfaces and processes are in place and functioning properly and efficiently, as determined by MCIm. Testing shall simulate actual operational procedures and systems interfaces to the greatest extent possible. Further, the testing shall not be limited by either geography or timeframe, unless otherwise agreed upon by MCIm. MCIm may request cooperative testing as deemed appropriate by MCIm to ensure service performance, reliability, and customer serviceability.

2.2.11 Service Suspensions/Restorations

2.2.11.1 Upon MCIm's request through a Suspend/Restore Order, ILEC shall suspend or restore the functionality of any Network

Element, feature, function, or resale service. ILEC shall provide restoration priority on a per network element or combination basis in a manner that conforms with MCIm requested priorities and any applicable regulatory Rules and Regulations or government requirements.

2.2.12 Disconnects

2.2.12.1 ILEC shall provide to MCIm daily information notifying MCIm of any services disconnected from MCIm in a format and detail specified by MCIm.

2.2.13 Order Completion Notification

2.2.13.1 Upon completion of a service order by the ILEC in its system(s), ILEC shall submit to MCIm an order completion which details the work performed (including a list of features and functions installed), the date completed, charges associated with the order, and verification of accurate service completion. Notification shall be provided in accordance with MCIm's specified intervals.

2.2.14 Fulfillment Process

2.2.14.1 MCIm shall conduct all activities associated with the account fulfillment process for all MCIm subscribers.

2.2.15 Specific Unbundling Requirements

2.2.15.1 MCIm may order and ILEC shall provision unbundled Network Elements either individually or in any combination on a single order. Network Elements ordered as combined shall be provisioned as combined by ILEC unless MCIm specifies that the Network Elements ordered in combination be provisioned separately.

2.2.15.2 Prior to providing service in a specific geographic area or when MCIm requires a change of network configuration, MCIm may elect to place an order with ILEC requiring ILEC to prepare Network Elements and switch translations in advance of orders for additional network elements from MCIm.

2.2.15.3 When MCIm orders Network Elements that are currently connected ILEC shall ensure such Network Elements remain

connected and functional without any disconnection or disruption. This shall be known as Contiguous Network Connection of Network Elements. There shall be no charge for such connection.

2.2.15.4 Order combinations of Contiguous Network Elements shall be available to be ordered (i) on a case-by-case basis for those Network Elements that are subscriber-specific; or (ii) on a common-use basis for those Network Elements that are shared by multiple subscribers.

2.2.15.5 Network Elements shall be identified and ordered by MCIm so that they can be provisioned together. MCIm may specify the functionality of a combination without the need to specify the configuration of the individual Network Elements needed to provide that functionality.

2.2.15.6 When ordering a Combination, MCIm shall have the option of ordering all features, functions and capabilities of each Network Element.

2.2.15.7 When MCIm orders Network Elements, ILEC shall provision all features, functions, and capabilities of the Network Elements which include, but are not limited to,

2.2.15.7.1 The basic switching function of connecting lines to lines, lines to trunks, trunks to lines, and trunks to trunks, as well as the same basic capabilities made available to the ILEC's subscribers, such as telephone number, white page listing, and dial tone; and

2.2.15.7.2 All other features that the switch is capable of providing, including, but not limited to, custom calling, custom local area signaling service features, and Centrex, as well as any technically feasible customized routing functions provided by the switch.

2.2.15.8 When MCIm orders Network Elements, ILEC shall provide technical assistance to ensure compatibility between elements.

2.2.15.9 Each order for Network Elements will contain administration, bill, contact, and customer information, as defined by the OBF.

2.3 Systems Interfaces and Information Exchanges

2.3.1 General Requirements

2.3.1.1 ILEC shall provide, in conjunction with MCIm, "electronic bonding" between ILEC and MCIm for those interfaces where real-time, transparent access to data and systems transactions are required in order for ILEC to support MCIm, and for MCIm to provide features and services to subscribers, as defined by MCIm's operational requirements and which meet internal performance standards.

2.3.1.2 ILEC shall provide to MCIm a real-time, electronic interface(s) for transferring and receiving information and executing transactions for all business functions directly or indirectly related to Service Ordering and Provisioning of Network Elements, features, functions, and resale services, as specified in Exhibit A to this Attachment. The interface(s) shall be developed/designed for the transmission of data from MCIm to ILEC, and from ILEC to MCIm. Detailed systems requirements for specific electronic interface(s) shall be negotiated in good faith by the parties and be specified in writing between MCIm and ILEC within 60 days after the Effective Date of this Agreement. ILEC agrees that the electronic interface(s) are to be provided as soon as practical, but no later than January 1, 1997, unless otherwise agreed to or requested by MCIm.

2.3.1.3 ILEC interfaces shall provide MCIm with the same process and system capabilities for both Residence and Business ordering and provisioning. MCIm shall not be required to develop distinct processes or interfaces by class of service.

2.3.1.4 ILEC and MCIm shall agree on and implement interim solutions for each interface within thirty (30) days after the Effective Date of this Agreement, unless otherwise specified in Exhibit A of this Attachment. The interim interface(s) shall, at a minimum, provide MCIm the same functionality and level of service as is currently provided by the electronic interfaces used by ILEC for its own systems, users, or subscribers.

2.3.1.5 Interim interfaces or processes may be modified, if so agreed by MCIm and ILEC, during the interim period.

2.3.1.6 Until the real-time, electronic interface is available, ILEC agrees that the Local Carrier Service Center (LCSC) or similar

function will accept MCIm orders. Orders will be transmitted to the LCSC via an interface or method agreed upon by MCIm and ILEC.

2.3.1.7 ILEC shall provide a real-time, electronic interface to perform all of the steps in the OBF-developed ordering and provisioning process by January 1, 1997. These steps include pre-order service inquiry, pre-order service inquiry response, firm order acknowledgment/rejection, firm order confirmation, delay notification, and completion notification.

2.3.1.7.1 Until such standards are completed, ILEC and MCIm agree to use an interim, mutually agreed upon order format and interface which will be defined and negotiated between the Parties no later than forty-five (45) days after the Effective Date of this Agreement.

2.3.1.7.2 ILEC agrees to implement OBF-developed ordering and provisioning standards within ninety (90) days of completion of those standards.

2.3.1.8 ILEC shall provide to MCIm a list of all CLASS and Custom features and functions within ten (10) days of the Effective Date of this Agreement and shall provide updates to such list at the time new features and functions become available.

2.3.2 Ordering and Provisioning for Resale Services

2.3.2.1 ILEC shall provide to MCIm a list of all intraLATA and interLATA carriers available for subscriber selection on a central office level.

2.3.2.2 Upon request, ILEC shall provide to MCIm a listing at the street address level of the service coverage area of each switch CLLI.

2.3.2.3 ILEC shall provide MCIm with access to Customer Proprietary Network Information (CPNI) without requiring MCIm to produce a signed Letter of Agency (LOA), based on MCIm's blanket representation that customer has authorized MCIm to obtain such CPNI.

2.3.2.3.1 Information shall be in a format which is acceptable to MCIm at the line and/or trunk level. ILEC shall provide to MCIm a real-time, electronic interface to ILEC customer information systems which will allow MCIm to

obtain the customer profile, including subscriber name, billing and service addresses, billed telephone number(s), and identification of features and services on the subscriber accounts, and to obtain information on all features and services available in the end office where subscriber's services are currently provisioned.

2.3.2.3.1.1 Until access is available via a real-time, electronic interface for customer profile information, ILEC agrees that MCIm can obtain customer profile information in an interim manner acceptable to MCIm and in accordance with subsection 2.3.1.3 to facilitate the service order process.

2.3.2.4 ILEC shall provide to MCIm a list of all Telecommunications Services features and functions, including new services, trial offers, and promotions, within ten (10) days of the Effective Date of this Agreement and shall provide updates to such list as soon as new features and functions become available. Such detail shall also provide definitions and explanations of the features and functions available.

2.3.2.5 ILEC shall provide to MCIm, upon request, a list of all current or planned services and features technically available from each switch, by switch CLLI.

2.3.2.6 ILEC shall provide to MCIm a real-time, electronic interface to ILEC information systems to allow MCIm to assign telephone number(s) (if the subscriber does not already have a telephone number or requests a change of telephone number).

2.3.2.7 ILEC shall provide to MCIm a real-time, electronic interface to schedule dispatch and installation appointments.

2.3.2.8 ILEC shall provide to MCIm a real-time, electronic interface to ILEC customer information systems which will allow MCIm to determine if a service call is needed to install the line or service.

2.3.2.9 ILEC shall provide to MCIm a real-time, electronic interface to ILEC information systems which will allow MCIm to provide service availability dates.

2.3.2.10 ILEC shall provide to MCIm a real-time, electronic interface which transmits status information on service orders. Until real-time electronic interface is available, ILEC agrees that ILEC will provide proactive status on service orders at the following

critical intervals: acknowledgment, firm order confirmation, and completion according to interim procedures to be mutually developed.

2.3.3 Ordering and Provisioning for Unbundling

2.3.3.1 ILEC shall provide to MCIm upon request a listing of all technically available functionalities for Network Elements.

2.3.3.2 ILEC shall provide to MCIm upon request all engineering design and layout information for Network Elements.

2.3.3.3 ILEC shall provide to MCIm a real-time, electronic interface which will allow MCIm to determine service due date intervals, schedule appointments, and adjust pending order due dates in real-time.

2.3.3.4 ILEC shall provide to MCIm upon request advance information of the details and requirements for planning and implementation of NPA splits at least 6 months prior to implementation of the split.

2.3.3.5 ILEC shall provide to MCIm information on charges associated with special construction. Until real-time, electronic interface is available, ILEC agrees that ILEC will immediately notify MCIm of any charges associated with necessary construction.

2.3.3.6 ILEC shall provide MCIm with results from mechanized loop tests.

2.3.3.7 ILEC shall provide MCIm with confirmation of circuit assignments.

2.4 Standards

2.4.1 General Requirements

2.4.1.1 MCIm and ILEC shall agree upon the appropriate ordering and provisioning codes to be used for Network Elements. These codes shall apply to all aspects of the unbundling of that element or combination of elements and shall be known as data elements as defined by the Telecommunications Industry Forum Electronic Data Interchange Service Order Subcommittee (TCIF-EDI-SOSC).

2.5 Performance Measurements and Reporting

2.5.1 Cycle Time Measurements

2.5.1.1 Excepting expedited due date requests, the following order intervals shall constitute the basis for measuring ILEC Service Order performance under this Agreement. MCIm may, at its discretion, modify such measurements from time to time:

2.5.1.2 ILEC shall provide and acknowledge each and every MCIm service order within one (1) hour of receipt by ILEC.

2.5.1.3 ILEC shall process MCIm service orders and provide either Firm Order Confirmation (FOC) of a correct service order or notification of a rejected order and the detail of the errors contained within any data element(s) fields contained in such order, within four (4) hours of receipt of Local Service Request (LSR) from MCIm.

2.5.1.4 ILEC shall complete any Suspend/Block/Restore order no more that four (4) hours after receipt by ILEC

2.5.1.5 When MCIm specifies a Desired Due Date that is greater than the standard intervals defined in this Agreement, ILEC shall complete ordering and provisioning activities no later or earlier than that date.

2.5.1.6 For expedited due date requests, ILEC shall confirm to MCIm within two (2) business hours after ILEC receipt of such request from MCIm whether ILEC can complete an initially-submitted order within the expedited interval requested by MCIm. Confirmation may be provided by ILEC via telephone call with follow up confirmation to be provided by ILEC according to normal procedures and measurement intervals.

2.5.1.7 Subsequent to an order which has been initially submitted by MCIm, MCIm may require a new/revised due date that is earlier than the minimum defined interval.

2.5.1.7.1 For such requests, ILEC shall confirm to MCIm within two (2) business hours after ILEC receipt of the revised due date request from MCIm whether ILEC can complete the order within the expedited interval requested by MCIm. Confirmation may be provided by ILEC via

telephone call with follow up confirmation to be provided by ILEC according to normal procedures and measurement intervals.

2.5.1.8 Cycle time intervals for ordering and provisioning of all unbundled Network Elements shall be two (2) days from the time ILEC receives an MCIm order. In the event an order is rejected for any reason agreed upon by ILEC and MCIm, this interval timeframe will restart when MCIm resubmits order to ILEC.

2.5.1.9 Cycle time intervals for ordering and provisioning of all resale services are described below:

Product or Service	**Interval**
INSTALLATION	
Lines/trunks with no premises visit:	
Business	
1-20 lines	3 business days
21-40 lines	7 business days
41-60 lines	12 business days
Over 60 lines	To be negotiated
Residential	within 24 hours of Service Order receipt by ILEC
Lines/trunks with premises visit:	
Business	
1-20 lines	5 business days
21-40 lines	10 business days
41-60 lines	14 business days
Over 60 lines	Individual case basis
Residential	within 72 hours of Service Order receipt by ILEC
Business lines/trunks; plant or other facilities not available	Individual case basis
Centrex station lines	
1-20 lines	5 business days
21-50 lines	8 business days
Over 50 lines	Individual case basis

FEATURE CHANGES	
Orders received before 12:00 p.m.	completed on day of receipt
Orders received after 12:00 p.m.	completed before 12:00 p.m. next business day

Product or Service	Interval
SERVICE DISCONNECTS	
With no premises visits	
Business or Residential	within 4 hours after receipt of Service Order
With CO change or customer premises visit	
Business or Residential	within 24 hours after receipt of Service Order
Unbundled switching elements	
Business or Residential	Within 4 hours
Other unbundled elements	
Business or Residential	Within 24 hours

2.5.1.10 ILEC shall provide switch translations within five (5) minutes after notification that a physical cut over has been completed.

2.5.1.11 ILEC shall notify MCIm of the completion of an order within thirty (30) minutes of a completion.

2.5.1.12 ILEC shall provide MCIm's appointment times within a four (4) hour block of time.

2.5.2 Quality Measurements

2.5.2.1 ILEC provisioning functions performed for MCIm shall meet the following Performance Level Measurements:

Provisioning Function	Performance Quality Measurement
Rejections of Service Caused by ILEC for Resale Services	All Orders: <1%
Rejections of Service Caused by ILEC for Unbundled Network Elements	All Orders: <1%
Resale Installation Provisioned Correctly in less than four (4) days	Residence: >99% met Business: >99.5% met
Unbundling Installation Provisioned Correctly in less than four (4) days	Residence: >99% met Business: >99.5% met
Missed Appointments for Resale Services	Residence: <1% Business: 0%
Missed Appointments for Unbundled Network Elements	Residence: <1% Business: 0%
Completion of Orders by Desired Due Date for Resale Services	All Orders: >90%
Completion of Orders by Desired Due Date for Unbundled Network Elements	All Orders: >90%
Completion of Orders by Committed Due Date for Resale Services	Residence: >99% Business: >99.5%
Completion of Orders by Committed Due Date for Unbundled Network Elements	Residence: >99% Business: >99.5%
Completion of Orders Without Error for Resale Services	All Orders: >99%
Completion of Orders Without Error for Unbundled Network Elements	All Orders: >99%
ILEC Meeting of Response to Order Request Deadline for Resale Services (i.e., FOC/Rejection issuance)	All Orders: >99.5%
ILEC Meeting of Response to	All Orders:

Order Request Deadline for Unbundled Network Elements (i.e., FOC/Rejection issuance	>99.5%

2.5.2.2 ILEC shall maintain provisioning service that results in less than 1% of orders resulting in one or more outages within thirty (30) days of installation.

2.5.2.3 ILEC shall maintain provisioning service that results in less that 1% of orders resulting in one or more dispatches within thirty (30) days of installation.

2.5.2.4 ILEC shall maintain provisioning service that results in less that 1% of orders resulting in one or more customer calls within (30) days of installation.

2.5.3 Reporting

2.5.3.1 ILEC shall provide, at a minimum, the following comparative reports to MCIm, both for MCIm orders and for ILEC orders, presented by State, Area Code, NXX, Product Feature, and issue such reports on a monthly basis with daily informational detail:

2.5.3.1.1 Total number and percent of jeopardies
2.5.3.1.2 Total number and percent of missed appointments
2.5.3.1.3 Total number and percent of missed firm order confirmation dates
2.5.3.1.4 Total number and percent of rejected orders
2.5.3.1.5 Total number and percent of late rejection notifications

2.5.3.2 MCIm may, at its discretion, further require additional and/or modified reporting as business needs demand.

Section 3. Connectivity Billing and Recording

This Section 3 describes the requirements for ILEC to bill and record all charges MCIm incurs for purchasing services under this agreement.

3.1 Procedures

3.1.1 ILEC shall comply with various industry, OBF, and other standards referred to throughout this Agreement. To satisfy these requirements ILEC shall adhere to MCIm's interpretation of all standards referred to in this Agreement.

3.1.2 ILEC shall record and bill in accordance with this Agreement those charges MCIm incurs as a result of MCIm purchasing from ILEC services, as set forth in this Agreement (hereinafter "Connectivity Charges").

3.1.3 ILEC shall format each bill for Connectivity Charges (hereinafter "Connectivity Bill") in accordance with the CABS or SECAB standard.

3.1.4 Each service purchased by MCIm shall be assigned a separate and unique billing code in the form agreed to by the parties and such code shall be provided to MCIm on each Connectivity Bill in which charges for such services appear.

3.1.4.1 Each such billing code shall enable MCIm to identify the service as ordered by MCIm.

3.1.5 Each Connectivity Bill shall set forth the quantity and description of each such service provided and billed to MCIm. All Connectivity Charges billed to MCIm shall indicate the state from which such charges were incurred.

3.1.6 ILEC shall bill MCIm for each service supplied by ILEC to MCIm pursuant to this Agreement at the rates forth in this Agreement.

3.1.7 ILEC shall bill MCIm for the Connectivity Charges incurred; provided that, for those usage based Connectivity Charges where actual charge information is not determinable by ILEC because the jurisdiction (i.e., interstate, interstate/interLATA, intrastate, intrastate /intraLATA, local) of the traffic is unidentifiable, or for

other reason, the parties shall jointly develop a process to determine the appropriate charges.

3.1.8 Measurement of usage-based Connectivity Charges shall be in actual conversation seconds. The total conversation seconds per chargeable traffic types shall be totaled for the entire monthly bill cycle and then rounded to the next whole minute.

3.1.9 ILEC shall provide to MCIm at no additional charge a Single Point of Contact through a Local Carrier Service Centre (LCSC), or similar function, for handling any Connectivity Billing questions or problems that may arise during the implementation and performance of the terms and conditions of this Agreement.

3.1.10 ILEC shall provide single point of contact for handling of any data exchange questions or problems that may arise during the implementation and performance of the terms and conditions of this Agreement.

3.1.11 As soon as possible after completion of this Agreement, each party shall provide the other party written notice of which form of the monthly Connectivity Bill is to be deemed the official bill to assist the parties in resolving any conflicts that may arise between the official bill and another form of bill received via a different media which purportedly contain the same charges as are on the official bill.

3.1.12 If either party requests an additional copy(ies) of a bill, such party shall pay the other party a reasonable fee per additional bill copy, unless such copy was requested due to errors, omissions, or corrections or the failure of the transmission to comply with the specifications set forth in this Agreement.

3.1.13 When sending Connectivity Bills via electronic transmission, to avoid transmission failures or the receipt of Connectivity Billing information that cannot be processed, MCIm shall provide ILEC process specifications. ILEC shall comply with MCIm's processing specifications when ILEC transmits Connectivity Billing data to MCIm. MCIm shall provide to ILEC notice if a Connectivity Billing transmission is received that does not meet MCIm's specifications or that such party cannot process. Such transmission shall be corrected and resubmitted to MCIm , at ILEC's sole expense, in a form that can be processed. The payment due date for such resubmitted transmissions shall be thirty five (35) days from the

date that the transmission is received in a form that can be processed and that meets the specifications set forth in this Attachment.

3.1.14 ILEC shall deliver to a location specified by MCIm, billing information via Network Data Mover (NDM), magnetic tape or paper, as agreed to by MCIm and ILEC. In the event of an emergency, system failure or other such condition which prevents ILEC from transmitting via NDM, ILEC shall notify MCIm of such difficulties within two hours of detection. ILEC shall deliver to a location specified by MCIm billing information via magnetic tape or paper, as agreed to by MCIm and ILEC. The parties acknowledge that all tapes transmitted to the other party via U.S. Mail or Overnight Delivery and which contain Connectivity Billing data shall not be returned to the sending party.

3.1.15 Subject to the terms of this Agreement, including without limitation Sections 3.1.16 and 3.1.18 of this Attachment VIII, MCIm shall pay ILEC within (45) calendar days from the Bill Date, or (35) calendar days from the receipt of the bill, whichever is later. If the payment due date is a Saturday, Sunday or a has been designated a bank holiday payment shall be made the next business day.

3.1.16 Billed amounts which are being investigated, queried, or for which claims have or may be filed are not due for payment until such investigations, claims or queries have been fully resolved by both MCIm and ILEC.

3.1.17 ILEC shall not issue late payment charges to MCIm under any circumstances.

3.1.18 Bill Reconciliation

3.1.18.1 Each party agrees to notify the other party upon the discovery of a billing discrepancy "Notice of Discrepancy".

3.1.18.2 In the event of such Notice of Discrepancy, the parties shall endeavor to resolve the discrepancy within sixty (60) calendar days notification using normal business procedures. If the discrepancy is disputed, resolution of such dispute is expected to occur at the first level of management resulting in a recommendation for settlement of the dispute and closure of a specific billing period.

3.1.18.3 Closure of a specific billing period shall occur by joint agreement of the parties whereby the parties agree that such billing period is closed to any further analysis and financial transactions, except those resulting from an Audit. Closure shall take place within nine (9) months of the Bill Date. The month being closed represents those Connectivity Charges that were billed or should have been billed by the respective Bill Date.

3.1.18.4 If the dispute is not resolved within the allotted time frame, the following resolution procedure shall begin:

3.1.18.4.1 If the dispute is not resolved within sixty (60) days of the Notice of Discrepancy, the dispute shall be escalated to the second level of management for resolution.

3.1.18.4.2 If the dispute is not resolved within ninety (90) days of Notice of Discrepancy, the dispute shall be escalated to the third level of management for resolution.

3.1.18.4.3 If the dispute is not resolved within one hundred and twenty (120) days of the Notice of Discrepancy, the dispute shall be presumed settled in MCIm's favor, or upon the written request of ILEC within such 120 day period, may be resolved pursuant to Section 23 Dispute Resolution Procedures of Part A of this Agreement.

3.1.18.5 If MCIm disputes Connectivity Charges and the dispute is resolved in favor of MCIm, ILEC shall credit the Connectivity Bill of MCIm for the amount of the disputed charges.

3.1.19 ILEC shall reimburse MCIm for incorrect Connectivity Billing charges including without limitation: overcharges, services ordered or requested but not delivered, interrupted services, services of poor quality; and installation problems if caused by ILEC. Such reimbursements shall be set forth in the appropriate section of the Connectivity Bill pursuant to CABS, or SECAB standards.

3.1.20 The parties agree to record call information in accordance with this subsection 3.1. To the extent technically feasible, each party shall record all call detail information associated with every call originated or terminated to the other party's local exchange

subscriber. The parties agree that they shall record call detail information if technically feasible, even if such records or call detail information has not been recorded in the past. These records shall be provided at a party's request and shall be formatted pursuant to Bellcore's EMR standards and the terms and conditions of this Agreement. These records shall be transmitted to the other party daily in EMR format via NDM. ILEC and MCIm agree that they shall retain, at each party's sole expense, copies of all EMR records transmitted to the other party for at least forty five (45) calendar days after transmission to the other party.

3.1.21 When MCIm collocates with ILEC in ILEC's facility as described in this Agreement, capital expenditures (e.g., costs associated with building the "cage"), shall not be included in the Connectivity Bill provided to MCIm pursuant to this Attachment VIII. All such capital expenses shall be given a unique BAN and invoice number. All invoices for capital expenses shall be sent to the location specified by MCIm for payment. All other non-capital recurring collocation expenses shall be billed to MCIm in accordance with this Agreement. (The CABS Billing Output Specifications ("BOS") documents provide the guidelines on how to bill the Connectivity Charges associated with collocation.) The bill label for such collocation charges shall be entitled 'Expanded Interconnection Service." The bill label for non-capital recurring collocation expenses shall be entitled "Collocation."

3.1.22 ILEC shall be responsible for billing and collecting charges from IXCs for access related to interexchange calls generated by resale customers.

3.1.23 When MCIm owns the end office, ILEC shall not bill RIC to either MCIm or other IXCs.

3.1.24 ILECs and MCIm shall determine the appropriate and mutually agreeable form of administrative billing between billing carriers.

3.2 Information Exchange and Interfaces

3.2.1 ILEC shall provide MCIm a monthly Connectivity Bill that includes all Connectivity Charges incurred by and credits and/or adjustments due to MCIm for those services ordered, established, utilized, discontinued or performed pursuant to this Agreement.

ILEC shall issue one bill per month, on the first day of the month and the billing cycle shall be on a calendar basis. Each Connectivity Bill provided by ILEC to MCIm shall include:

3.2.1.1 all non-usage sensitive charges incurred for the period beginning with the day after the current bill date and extending to, and including, the next bill date;

3.2.1.2 any known unbilled non-usage sensitive charges for prior periods;

3.2.1.3 unbilled usage sensitive charges for the period beginning with the last bill date and extending up to, but not including, the current bill date;

3.2.1.4 any known unbilled usage sensitive charges for prior periods;

3.2.1.5 any known unbilled adjustments.

3.2.2 At the same time as the monthly bill is transmitted, ILEC shall send a separate file summarizing all MCIm's usage sensitive messages which are contained in ILEC's suspense files and unbilled files.

3.2.3 The Bill Date (defined as the date the bill was prepared) must be present on each bill transmitted by ILEC to MCIm, must be a valid calendar date, and not more than 90 days old. Connectivity Bills shall not be rendered for any Connectivity Charges which are incurred under this Agreement on or before 90 days preceding the Bill Date, except as otherwise permitted by law.

3.2.4 On each bill where 'Jurisdiction' is identified, local and local toll charges shall be identified as 'Local' and not as interstate, interstate/ interLATA, intrastate, or intrastate/intraLATA. ILEC shall provide from and through dates for charges rendered on all Connectivity Bills.

3.2.5 ILEC shall separately identify business charges from residence charges, as appropriate, and shall assign a specific adjustment or reference number provided by MCIm to each adjustment and credit included on the Connectivity Bill.

3.2.6 In accordance with the terms and conditions set forth in this Agreement ILEC shall record and provide to MCIm all detail

information associated with a call to an MCIm local exchange Subscriber .

3.2.7 ILEC and MCIm shall issue all Connectivity Bills in accordance with the terms and conditions set forth in this Section 3. On Connectivity Bills ILEC renders to MCIm, BANs shall be 13 character alpha/numeric and there shall only be one BAN per Revenue Accounting Office ("RAO"). The Bill Date shall be the same day month to month. Each party shall provide the other party at least thirty (30) calendar days written notice prior to changing, adding or deleting a BAN. The parties shall provide one Connectivity Billing invoice associated with each BAN. Each invoice must contain an invoice number (which will vary from month to month). On each bill associated with a BAN, the appropriate invoice number and the charges contained on such invoice must be reflected. All Connectivity Bills must be received by the other party no later than ten (10) calendar days from Bill Date and at least thirty-five (35) calendar days prior to the payment due date (as described in this Attachment), whichever is earlier. Any Connectivity Bill received on a Saturday, Sunday or a day designated as a bank holiday will be deemed received the next business day. If either party fails to receive Connectivity Billing data and information within the time period specified above the payment due date will be extended by the number of days receipt has been delayed.

3.2.8 ILEC shall issue all Connectivity Bills containing such billing data and information in accordance with the most current version of CABS /SECABS published by Bellcore, or its successor, or such later versions as are adopted by Bellcore, or its successor. To the extent that there are no CABS, or SECAB standards governing the formatting of certain data, such data shall be issued in the format mutually agreed to by ILEC and MCIm.

3.2.9 ILEC and MCIm agree that each party shall transmit Connectivity Billing information and data in the appropriate CABS or SECAB format electronically via NDM to the other party at the location specified by such party. MCIm data centers will be responsible for originating the calls for data transmission. ILEC shall transmit in accordance to the technical specifications set by MCIm. MCIm will supply to ILEC its RACF ID and password before the first transmission of data via NDM. Any changes to either party's NDM Node ID must be sent to the other party no later than thirty (30) calendar days before the changes take effect.

3.2.10 In emergency situations when tape transmittal has been used ILEC shall adhere to the tape packaging requirements set forth in this Agreement. Where magnetic tape shipping containers are transported in freight compartments, adequate magnetic field protection shall be provided by keeping a 6-inch distance from any magnetic field generating device (except a magnetron-tape device). ILEC shall only use those shipping containers that contain internal insulation to prevent damage. ILEC shall clearly mark on the outside of each shipping container its name, contact and return address. ILEC shall not ship any Connectivity Billing tapes in tape canisters.

3.2.11 All emergency billing data transmitted via tape must be provided on a cartridge (cassette) tape and must be of high quality, conform to the parties' record and label standards, 9-track, odd parity, 6250 BPI group coded recording mode and extended binary-coded decimal interchange code ("EBCDIC"). Each reel of tape must be 100% tested at 20% or better "clipping" level with full width certification and permanent error free at final inspection. MCIm reserves the right to destroy a tape that has been determined to have unrecoverable errors. MCIm also reserves the right to replace a tape with one of equal or better quality.

3.2.12 Billing data tapes used in emergency circumstances shall have the following record and label standards. The dataset serial number on the first header record of an IBM standard tape label also shall have the following format.

	CABS BOS	SECAB
Record Length	bytes (fixed length)	bytes (fixed length)
Blocking factor	records per block	Not Applicable
Block size	bytes per block	Not Applicable
Labels	Standard IBM Operating System	Standard IBM Operating System

3.2.14.A single 6-digit serial number must appear on the external (flat) surface of the tape for visual identification. This number shall also appear in the "dataset serial number field" of the first header record of the IBM standard tape label. This serial number shall consist of the character "V" followed by the reporting location's four digit Originating Company Code and a numeric character chosen by the sending company. The external and internal label shall be the same. The dataset name shall appear on the flat side of the reel and also in the "data set name field" on the first header record of the IBM standard tape label. ILEC's name, address, and contact shall appear on the flat side of the cartridge or reel

3.2.15.Tape labels shall conform to IBM OSNS Operating System Standards contained in the IBM Standard Labels Manual. IBM standard labels are 80-character records recorded in EBCDIC, odd parity.

3.2.16.ILEC shall conform to the Standard Volume Label Format which will be prescribed by MCIm.

3.2.17. ILEC shall use The IBM Standard Dataset Label Format which will be prescribed by MCIm

3.2.18.ILEC shall use test & production dataset format which will be prescribed by MCIm for each CABS and SECABS.

3.3 Standards

3.3.1 Within thirty (30) days of the execution of this Agreement, ILEC shall send to MCIm connectivity bill data in the appropriate mechanized format (i.e. CABS or SECAB) for testing to ensure that bills can be processed and that bills comply with the requirements of this Attachment. After receipt of the test data from ILEC MCIm will notify ILEC if the connectivity billing transmission meets MCIm's testing specifications. If the transmission fails to meet MCIm's testing specifications, ILEC shall make the necessary corrections. At least three (3) sets of testing data must meet MCIm's testing specifications prior to ILEC sending MCIm a mechanized production connectivity bill for the first time via electronic transmission or tape. Thereafter, ILEC may begin sending MCIm production connectivity bills via electronic transfer on the next Bill Date, or within ten (10) days, whichever is later.

3.3.2 At least 90 days prior to any change in existing formats or change to a different format, ILEC shall send to MCIm connectivity bill data in the appropriate mechanized format for testing to ensure that the bills can be processed and that the bills comply with the requirements of this Attachment. ILEC agrees that it shall not send to MCIm bill data in the new mechanized format until such bill data has met the testing specifications as set forth in this subsection.

3.3.3 During the testing period, ILEC shall transmit to MCIm Connectivity Billing data and information via paper or tape as specified by MCIm. Test tapes shall be sent to a MCIm specified location.

3.3.4 ILEC agrees that if it transmits data to MCIm in a mechanized format, ILEC shall also comply with the following specifications which are not contained in CABS or SECAB guidelines but which are necessary for MCIm to process Connectivity Billing information and data:

3.3.5 The Bill Date shall not contain spaces or non-numeric values.

3.3.5.1Each Connectivity Bill must contain at least one detail record.

3.3.5.2Any "From" Date should be less than the associated "Thru" Date and neither date can contain spaces.

3.3.5.3The Invoice Number must not have embedded spaces or low values.

3.3.6 For those Connectivity Charges billed in a mechanized format and in accordance with SECAB's format, ILEC agrees to comply with the additional requirement set forth below:

3.3.6.1All data denoted as IC preference is required.

3.3.6.2When the Company Code is not a State Level Company Code, the State Identification should be the state from which charges were incurred.

3.3.6.3The SECAB Inventory and Rating Record Information for a Connectivity Bill shall be provided monthly. In a multiple state or multiple Exchange Carrier (EC) environment, the STATE IDENTIFICATION on the Face Page (SCFAC1) Record should be populated with XX. This indicates the amounts on Summary Page 1-3 (SCSUM1, SCSUM2 and SCSUM3) Records represent the sum of multiple Summary Pages 4 and 5 (SCSUM4 and SCSUM5) Records.

3.3.7 ILEC agrees that in order to ensure the proper performance and integrity of the entire Connectivity Billing process, ILEC shall be responsible and accountable for transmitting to MCIm an accurate and current bill. ILEC agrees to implement control mechanisms and procedures to render a bill that accurately reflects the services ordered and used by MCIm.

3.4 Performance Measurements & Reporting

3.4.1 ILEC shall meet the following performance measurements for the provision of EMR records:

3.4.1.1**Timeliness:** 99.94% of all records recorded each day shall be received by MCIm within one (1) calendar day of their recording. 100% of all such records should be received within five (5) calendar days of their recording.

3.4.1.2**Accuracy**: No more than 60 errors per one (1) million records transmitted

3.4.1.3**Completeness:** There shall be no more than 20 omissions per one (1) million records.

Section 4. Provision Of Customer Usage Data

This Section 4 sets forth the terms and conditions for ILEC's provision of Recorded Usage Data (as defined in this Attachment VIII) to MCIm and for information exchange regarding long distance billing.

4.1 Procedures

4.1.1 General

4.1.1.1 ILEC shall comply with various industry, OBF, and other standards referred to throughout this Agreement. To satisfy these requirements ILEC shall adhere to MCIm's interpretation of all standards referred to in this Agreement.

4.1.1.2 ILEC shall comply with OBF standards and the additional standards outlined in this agreement when recording and transmitting Usage Data.

4.1.1.3 ILEC shall record all usage originating from MCIm subscribers using services ordered by MCIm. Recorded Usage Data includes, but is not limited to, the following categories of information:

- Call Attempts
- Completed Calls
- Use of CLASS/LASS/Custom Features
- Calls To Information Providers Reached Via ILEC Facilities And Contracted By ILEC
- Calls To Directory Assistance Where ILEC Provides Such Service To An MCIm Customer
- Calls Completed Via ILEC-Provided Operator Services Where ILEC Provides Such Service To MCIm's Local Service Customer. For ILEC-Provided Centrex Service, Station Level Detail Records Shall Include Complete Call Detail And Complete Timing Information
- Recording Of Completed Calls Which ILEC Does Not Record For Its Own Service Offerings (e.g., Flat Rate Free Calling Area Service)

4.1.1.4 Retention of Records: ILEC shall maintain a machine readable back-up copy of the message detail provided to MCIm for a minimum of forty-five (45) calendar

days. ILEC shall provide any data back-up to MCIm upon the request of MCIm.

4.1.1.5 ILEC shall provide to MCIm Recorded Usage Data for MCIm subscribers. ILEC shall not submit other carrier local usage data as part of the MCIm Recorded Usage Data.

4.1.1.6 ILEC shall not bill to MCIm subscribers any recurring or non-recurring charges except where explicitly permitted to do so within a written agreement between ILEC and MCIm.

4.1.1.7 ILEC shall record and rate all calls to Information Service Providers (900 service calls) and shall bill such calls directly to the subscriber. Customer billing name and address information may be purchased from MCIm.

4.1.1.8 ILEC shall provide Recorded Usage Data to MCIm billing locations as designated by MCIm.

4.1.1.9 ILEC shall establish a Local Carrier Service Center (LCSC) or similar function to serve as MCIm's single point of contact to respond to MCIm call usage, data error, and record transmission inquiries.

4.1.1.10 ILEC shall provide MCIm with a single point of contact, Remote Identifiers (IDs), and expected usage data volumes for each sending location.

4.1.1.11 MCIm shall provide a single point of contact responsible for receiving usage transmitted by ILEC and receiving usage tapes from a courier service in the event of a facility outage.

4.1.1.12 ILEC shall bill and MCIm shall pay the charges for Recorded Usage Data. Billing and payment shall be in accordance with the applicable terms and conditions set forth in Connectivity Billing and Recording Section of this Attachment VIII.

4.1.1.13 Without waiver of, and in addition to the Audit and Examination rights in the Section 22 (Audits and Examinations of Part A) of this Agreement, upon reasonable notice and at reasonable times MCIm or its authorized

representatives may examine ILEC's documents, systems, records and procedures which relate to the recording and transmission of the Usage data to MCIm under this Attachment.

4.1.2 Charges

4.1.2.1 ILEC shall not charge any fees for recording, rating or transmitting usage data.

4.1.2.2 No charges shall be assessed for incomplete call attempts.

4.1.3 Central Clearinghouse & Settlement

4.1.3.1 ILEC shall comply with Clearinghouse and Incollect/Outcollect procedures to be determined by MCIm.

4.1.3.2 ILEC shall support and participate in a neutral third-party in and out-collect process developed for intra-region alternately billed messages as prescribed by MCIm.

4.1.3.3 ILEC shall settle with MCIm for both intra-region and inter-region billing exchanges of calling card, bill-to-third party, and collect calls.

4.1.4 Lost Data

4.1.4.1 Loss of Recorded Usage Data - MCIm Recorded Usage Data determined to have been lost, damaged or destroyed as a result of an error or omission by ILEC in its performance of the recording function shall, upon MCIm's request, be recovered by ILEC at no charge to MCIm. In the event the data cannot be recovered by ILEC, ILEC shall estimate the messages and associated revenue, with assistance from MCIm, based upon the method described below. This method shall be applied on a consistent basis, subject to modifications agreed to by ILEC and MCIm. This estimate shall be used to adjust amounts MCIm owes ILEC for services ILEC provides in conjunction with the provision of Recorded Usage Data.

4.1.4.2 Partial Loss - ILEC shall review its daily controls to determine if data has been lost. When there has been a partial loss, actual message and minute volumes shall be reported, if possible. Where actual data are not available, a full day shall be estimated for the recording entity, as outlined in the following paragraphs. The amount of the partial loss is then determined by subtracting the data actually recorded for such day from the estimated total for such day.

4.1.4.3 Complete Loss - Estimated message and minute volumes for each loss consisting of an entire AMA tape or entire data volume due to its loss prior to or during processing, lost after receipt, degaussed before processing, receipt of a blank or unreadable tape, or lost for other causes, shall be reported.

4.1.4.4 Estimated Volumes - From message and minute volume reports for the entity experiencing the loss, ILEC shall secure message/minute counts for the four (4) corresponding days of the weeks preceding that in which the loss occurred and compute an average of these volumes. ILEC shall apply the appropriate average revenue per message ("arpm") provided by MCIm to the estimated message volume to arrive at the estimated lost revenue.

4.1.4.5 If the day of loss is not a holiday but one (1) (or more) of the preceding corresponding days is a holiday, use additional preceding weeks in order to procure volumes for two (2) non-holidays in the previous two (2) weeks that correspond to the day of the week that is the day of the loss

4.1.4.6 If the loss occurs on a weekday that is a holiday (except Christmas & Mothers day), ILEC shall use volumes from the two (2) preceding Sundays.

4.1.4.7 If the loss occurs on Mother's Day or Christmas day, ILEC shall use volumes from that day in the preceding year multiplied by a growth rate specified by MCIm.

4.1.4.8 MCIm may also request data be provided that has previously been successfully provided by ILEC to MCIm.

ILEC shall re-provide such data, if available, at no additional charge to MCIm.

4.1.5 Testing, Changes and Controls

4.1.5.1 The Recorded Usage Data, EMR format, content, and transmission process shall be tested as specified by MCIm.

4.1.5.2 Interface Testing: The purpose of this test is to ensure that the usage records can be sent by ILEC to MCIm and can be accepted and processed by MCIm. ILEC shall provide a test file to MCIm's designated Regional Processing Center (RPC) in the format that shall be used for live day-to-day processing. The file shall contain one (1) full day's production usage and all potential call types. MCIm shall review the file and verify that it conforms to its data center requirements. MCIm shall notify ILEC in writing whether the format is acceptable. MCIm shall also provide ILEC with the agreed-upon control reports as part of this test.

4.1.5.3 Operational Test: The purpose of this test is to ensure that volumes of usage in consecutive sequence can be extracted. distributed, and processed by ILEC and MCIm.

4.1.5.4 For testing purposes ILEC shall provide MCIm with ILEC recorded, unrated usage for a minimum of five (5) consecutive days. MCIm shall provide ILEC with the message validation reports associated with test usage.

4.1.5.5 Test File: Test data should be transported via NDM whenever possible. In the event that courier service must be used to transport test media, the physical tape characteristics to be used are described in this Agreement.

4.1.5.6 Periodic Review: Control procedures for all usage transferred between ILEC and MCIm shall require periodic review. This review may be included as part of an annual audit of ILEC by MCIm or as part of the normal production interface management function. Breakdowns which impact the flow of usage between ILEC and MCIm must be identified and jointly resolved as they occur. The resolution may include changes to control procedures, as similar

problems would be avoided in the future. Any changes to control procedures would need to be mutually agreed upon by MCIm and ILEC.

4.1.5.7 ILEC Software Changes:

4.1.5.7.1 When ILEC plans to introduce any software changes which impact the format or content structure of the usage data feed to MCIm, designated ILEC personnel shall notify MCIm no less than one hundred twenty (120) calendar days before such changes are implemented.

4.1.5.7.2 ILEC shall communicate the projected changes to the appropriate groups in MCIm so that potential impacts on MCIm processing can be determined.

4.1.5.7.3 MCIm personnel shall review the impact of the change on the entire control structure and the Post Conversion Test Plan, herein. MCIm shall negotiate any perceived problems with ILEC and shall arrange to have the data tested utilizing the modified software.

4.1.5.7.4 If it is necessary for ILEC to request changes in the schedule, content or format of usage data transmitted to MCIm, ILEC shall notify MCIm.

4.1.5.8 MCIm Requested Changes:

4.1.5.8.1 MCIm may request changes in the schedule, content, format of the usage data transmitted from ILEC, as deemed necessary by MCIm.

4.1.5.8.2 When the negotiated changes are to be implemented, MCIm and/or ILEC shall arrange for testing of the modified data in a Post Conversion Test Plan designed to encompass all types of changes to the usage data transferred by ILEC to MCIm and the methods of transmission for that data.

4.1.5.9 ILEC System Change Description:

4.1.5.9.1 For a [illegible]C syste[illegible] change, ILEC shall provide MCIm [illegible]an ov[illegible]l description [illegible]f the change, statir [illegible]objective and a brief explanation of the reasons for the change.

4.1.5.9.2 During the initial negotiations regarding the change, ILEC shall provide a list of the specific records and/or systems impacted by the change to designated MCIm personnel.

4.1.5.9.3 ILEC shall also provide MCIm a detailed description of the changes to be implemented. It shall include sufficient detail for designated MCIm personnel to analyze and estimate the effects of the changes and to design tests to verify the accuracy of the implementation.

4.1.5.10 Change Negotiations:

4.1.5.10.1 MCIm shall be notified in writing of all proposed negotiations initiated by ILEC. In turn, MCIm shall notify ILEC of proposed change negotiations initiated by MCIm.

4.1.5.10.2 After formal notification of planned changes, whether originated by ILEC or MCIm, designated MCIm personnel shall schedule negotiation meetings as required with designated ILEC personnel. The first meeting should produce the overall change description (if not previously furnished) and the list of records and/or systems affected.

4.1.5.10.3 In subsequent meetings, ILEC shall provide the detailed description of changes to be implemented. After reviewing the described changes, designated MCIm personnel shall negotiate a detailed test procedure with ILEC.

4.1.5.11 Changes to controls:

- MCIm may request changes to the control structure.
- ILEC shall comply with the requested changes.

4.1.5.12 Verification Of Changes

4.1.5.12.1 Based on the detailed description of changes furnished by ILEC, MCIm and ILEC personnel shall:

- Determine the type of change(s) to be implemented.
- Develop a comprehensive test plan.
- Negotiate scheduling and transfer of modified data with ILEC.
- Negotiate testing of modified data with the appropriate MCIm RPC.
- Negotiate processing of verified data through the MCIm billing system with the RPC.
- Arrange for review and verification of testing with appropriate MCIm groups.
- Arrange for review of modified controls, if applicable.

4.1.5.13 Introduction of Changes:

4.1.5.13.1 When all the testing requirements have been met and the results reviewed and accepted, designated MCIm and ILEC personnel shall:

- Negotiate an implementation schedule.
- Verify the existence of a contingency plan with the appropriate MCIm personnel.
- Arrange for the follow-up review of changes with appropriate MCIm personnel.
- Arrange for appropriate changes in control program, if applicable.
- Arrange for long-term functional review of impact of changes on the MCIm billing system, i.e., accuracy, timeliness, and completeness.

4.2 Information Exchange and Interfaces

4.2.1 Core Billing Information

4.2.1.1 Recorded Usage Data all intraLATA toll and local usage. ILEC shall provide MCIm with unrated EMR records associated with all intraLATA toll and local usage which they

record on MCIm's behalf. Any Category, Group and/or Record types approved in the future for ILEC shall be included if they fall within the definition of local service resale. MCIm shall be given notification thirty (30) days prior to implementation of a new type, category and / or record.

4.2.1.2 ILEC shall provide rated EMR records only when explicit consent for sending such records has been obtained from MCIm. The following records shall be rated by ILEC:

Category 01	Operator handled, person to person, collect calls, bill to third number, SSP record query
Category 03	Credit & adjustments
Category 41	Customer credit

4.2.1.3All messages recorded by ILEC are to be transmitted to MCIm. ILEC recorded usage includes all usage by MCIm Customers.

4.2.1.4Data Delivery Schedules: Data shall be delivered to MCIm by ILEC daily (Monday through Sunday) unless otherwise negotiated. MCIm and/or ILEC Data Center holidays are excluded. ILEC and MCIm shall exchange schedules of designated Data Center holidays.

4.2.2 Supporting Billing Information

4.2.2.1Returned Long Distance Messages and Invoices

4.2.2.1.1 ILEC shall return message records or invoices to MCIm for messages or invoices which cannot be billed to an ILEC end user because ILEC no longer serves the end user for the associated messages or invoices as a result of the end user telephone number being served by another LEC/CLEC.

4.2.2.1.2 Message records or invoices shall be returned as part of the established unbillable process. Returned messages or invoices shall be in industry-standard EMR format using the OBF-agreed return code 50, unless otherwise negotiated with MCIm.

4.2.2.1.3 Additional return codes to be used for return designations are as follows:

81 - Rated record is received and indicator 19 is set to a value of other than 1 or 3 for a CIC of zeroes.
82 - Message is determined to be interLATA, and interLATA is not determined to be applicable.
83 - field is designated as numeric field contains non-numeric values.
84 - message is terminating to number that has a NPA 900 or NXX 976

4.2.2.1.4 The above message and/or invoice returns shall contain the Operating Company Number (OCN), or another identifying number or code as may become a future industry standard, of the LEC serving the end user through resale or portability at the time the invoice or message is returned.

4.2.2.1.5 Following are the record types and positions where the OCN should be populated. The error or return code should continue to appear in the standard position.

01-XX-XX record:	positions 168-171
01-51-21 record:	positions 125-128
01-51-24 record:	positions 187-190
41-XX-XX record (detail):	positions 168-171
41-50-XX record (summary):	positions 154-157
42-50-XX record (summary):	positions 154-157

4.2.2.2 Telephone Number Activity

4.2.2.2.1 The ILEC shall provide to MCIm on a daily basis, information for all telephone numbers served through resale service, portability (INP/NP), or unbundled switching to enable accurate MCIm end user billing either by MCIm itself or through the appropriate servicing local carrier.

4.2.2.2.2 Such information shall be provided via NDM or another medium as may be mutually agreed, at daily, or at another frequency as may be mutually agreed, using a new EMR record created as an advisory of local service provider change activity for billing purposes.

4.2.2.2.3 A separate record group or record type within the designated record category as determined by OBF, or as mutually agreed, shall be used to distinguish the record. The current record type proposed is the 30-10-10 for detail ILEC. Records shall be transmitted in packs with appropriate header/trailer records as determined by OBF. ILEC shall provide the following data elements:

Record ID
Date Created
Line Range
(NPA, NXX, from line range, to line range; where from line range and to line range may be equal)
Line Range Type Indicator
L=ported, R=resale, N=non-PICable, P=paging, W=wireless/cellular,
X,Y,Z=local company use
Associated WTN (working telephone number)
Populated if the line range is a single number and Remote Call Forward is used. When Remote Call forward is used, this field is populated with the telephone number assigned by the CLEC.
BTN (billing telephone number)
Assumed to be associated with PTN from incumbent LEC or new LEC depending on which record it was received from.
Type of Change
A=add, C=change, D=delete
Effective Date
End date if received on record from incumbent LEC, start date if received on record from new LEC
Old OCN
Old OCN Name
New OCN
New OCN Name
New OCN Contact Name

New OCN Contact Number
Billing RAO
Send to RAO
Billing OCN
Billing Provider Name
Business/Residence Indicator
End User Billing Name
End User Billing Address
End User City, State, ZIP

4.2.2.2.4 When ILEC provides resale services, unbundled switching, or INP (through RCF or DID), ILEC shall send the above record whenever changes in local service provider occur subsequent to an initial change.

4.2.2.2.5 Prior to OBF resolution of this standard, ILEC agrees to work cooperatively with MCIm to implement an interim process to provide telephone number activity information in a timeframe and manner which is acceptable to MCIm. Subsequent to OBF resolution of this standard, ILEC agrees to implement the standard in accordance with the OBF resolution no later than ninety (90) days after the date of Final Closure at OBF.

4.2.2.2.6 Bill Name and Address (BNA)

4.2.2.2.6.1 At MCIm's request, ILEC shall provide to MCIm Bill Name and Address (BNA) for MCIm pic'd and non-pic'd subscribers via already-established CARE formats and processes, or another medium as MCIm may require. BNA shall be provided independent of other services and shall be at a cost no higher than ILEC's actual cost.

4.2.3 Product/Service Specific

4.2.3.2 ILEC shall provide a Specialized Service / Service Provider Charge record to support the Special Features Star Services if these features are part of ILEC's offering.

4.2.4 Emergency Information

4.2.4.2 ILEC shall provide the transport facility for transmitting usage and billing data between ILEC location and the MCIm location. ILEC shall transmit via NDM whenever possible. In the event usage transfer cannot be accommodated by NDM because of extended (one (1) business day or longer) facility outages, ILEC shall contract for a courier service to transport the data via tape

4.2.4.3 ILEC shall comply with the following standards when emergency data is transported to MCIm on tape or cartridge via a courier. The data shall be in fixed or variable block format as specified by MCIm and:

Tape: 9-track, 6250 (or 1600) BPI (Bytes per inch)
Cartridge: 38,000 BPI (Bytes per inch)
LRECL: 2,472 Bytes
Parity: Odd
Character Set: Extended Binary Coded Decimal Interchange Code (EBCDIC)
External labels: Exchange Carrier Name, Dataset Name (DSN) and volume serial number
Internal labels: IBM Industry OS labels shall be used. They consist of a single volume label and two sets of header and trailer labels.

4.2.5 Rejected Recorded Usage Data

4.2.5.1At the discretion of MCIm, any messages that cannot be rated and/or billed by MCIm may be returned to ILEC via NDM. Returned messages shall be sent directly to ILEC in EMR format. Standard EMR return codes shall be utilized.

4.2.5.2 The ILEC must return EMR/EMI records to IXCs with the OBF standard message reject code which indicates that ILEC no longer serves the end user and which includes the OCN/Local Service Provider ID of the new LEC/Reseller serving the end user.

4.2.5.3 Rejected messages or invoices shall be returned to MCIm in accordance with procedures and timeframes already established between ILEC and MCIm.

4.2.6 Interfaces

4.2.6.1 ILEC, at no cost to MCIm, shall transmit formatted Recorded Usage Data to MCIm via NDM as designated by MCIm.

4.2.6.2 MCIm shall notify ILEC of resend requirements if a pack or entire dataset must be replaced due to pack rejection, damage in transit, dataset name failure, etc.

4.2.6.3 Critical edit failure on the Pack Header or Pack Trailer records shall result in pack rejection (e.g., detail record count not equal to grand total included in the pack trailer). Notification of pack rejection shall be made by MCIm within one (1) business day of processing. Rejected packs shall be corrected by ILEC and retransmitted to MCIm within twenty-four (24) hours or within an alternate timeframe negotiated on a case by case basis.

4.2.6.4 A pack shall contain a minimum of one message record or a maximum of 9,999 message records plus a pack header record and a pack trailer record. A file transmission contains a maximum of 99 packs. A dataset shall contain a minimum of one pack. ILEC shall provide MCIm one dataset per sending location, with the agreed upon RAO/OCN populated in the Header and Trailer records.

4.2.7 Formats & Characteristics

4.2.7.1Rated in collect messages should be transmitted via the NDM and can be intermingled with the unrated messages. No special packing is needed

4.2.7.2EMR: ILEC shall provide Recorded Usage Data in the EMR format and by category, group and record type, and shall be transmitted, via a direct feed, to MCIm. The following is a list of EMR records that MCIm can expect to receive from ILEC:

Header Record	20-21-01
Trailer Record	20-21-02

Detail Records * 01-01-01, 06, 08, 09, 14, 17, 18, 31, 32, 35, 37, 80, 81, 82,
10-01-01, 06, 08, 09, 14, 17, 18, 31, 32, 35, 37
Credit Records 03-01-01, 06, 08, 09, 14, 17, 18, 31, 32, 35, 37, 80, 81, 82,
Rated Credits 41-01-01, 06, 08, 09, 14, 17, 18, 31, 32, 35, 37, 80, 81, 82,
Cancel Records 51-01-01, 06, 08, 09, 14, 17, 18, 31, 32, 35, 37, 80, 81, 82,
Correction Records 71-01-01, 06, 08, 09, 14, 17, 18, 31, 32, 35, 37, 80, 81, 82,

* Category 01 is utilized for Rated Messages; Category 10 is utilized for Unrated Messages. Category 10 records are to have indicator 13 populated with a value of 5

4.2.7.3 ILEC shall comply with the most current version of Bellcore standard practice guidelines for formatting EMR records.

4.2.7.4 The Interfacing Bell RAO, OCN, and Remote Identifiers shall be used by MCIm to control invoice sequencing and each shall have its own invoice controls. The OCN shall also be used to determine where the message returns file, containing any misdirected and unguidable usage, shall be sent.

4.2.7.5 The file's Record Format (RECFM) shall be Variable Block or fixed as negotiated, Size and the Logical Record Length (LRECL) shall be as specified by MCIm.

4.2.7.6 Initially, ILEC may elect not to comply with specific sorting requirements. However, MCIm may elect to require ILEC to sort PACKS in accordance with MCIm specifications at a later date.

4.2.7.7 ILEC shall transmit the usage to MCIm using dataset naming conventions prescribed by MCIm.

4.2.8 Controls

4.2.8.3 MCIm shall test and certify the NDM interface to ensure the accurate receipt of Recorded Usage Data.

4.2.8.4 Header and trailer records shall be populated in positions 13-27 with the following information:

Position	
13-14	Invoice numbers (1-99)
15-16	Bell Co. ID number
17-19	Interfacing Bell RAO Code
20-23	MCIm OCN - value 7229
24-27	Reseller OCN

The trailer grand total record count shall be populated with total records in pack (excluding header & trailer)

4.2.8.4 Control Reports: MCIm accepts input data provided by ILEC in EMR format in accordance with-the requirements and specifications detailed in this Section 8 of the Attachment III. In order to ensure the overall integrity of the usage being transmitted from ILEC to MCIm, data transfer control reports shall be required. These reports shall be provided by MCIm to ILEC on a daily or otherwise negotiated basis and reflect the results of the processing for each pack transmitted by ILEC.

4.2.8.5 Control Reports - Distribution: Since ILEC is not receiving control reports, dataset names shall be established during detailed negotiations.

4.2.8.6 Message Validation Reports: MCIm shall provide the following once(1) per day (or as otherwise negotiated) Message Validation reports to the designated ILEC System Control Coordinator. These reports shall be provided for all data received within ILEC Local Resale Feed and shall be transmitted Monday through Friday.

4.2.8.7 Incollect Pack Processing: This report provides vital statistics and control totals for packs rejected and accepted and dropped messages. The information is provided in the following report formats and control levels:

- ILEC Name
- Reseller Total Messages processed in a pack

- Packs processed shall reflect the number of messages initially erred and accepted within a pack
- Reseller Total Packs processed

4.2.8.8 MCIm requires information on a subscriber's selection of billing method, special language billing, and other billing options.

4.3 Standards

4.3.1 When requested by MCIm for security purposes, ILEC shall provide MCIm with Recorded Usage Data within two (2) hours of the call completion. If not available in EMR format, the Recorded Usage Data may be provided in AMA format.

4.3.2 ILEC shall include the Working Telephone Number (WTN) of the call originator on each EMR call record.

4.3.3 End user customer usage records and station level detail records shall be in packs in accordance with EMR standards.

4.3.4 ILEC shall provide Recorded Usage Data to MCIm on a schedule to be determined by the parties once a day three hundred sixty-five (365) days a year, as designated by MCIm. ILEC shall provide to MCIm the Recorded Usage Data not more than twenty-four (24) hours after termination of the call for which usage data is to be provided.

4.3.5 ILEC shall segregate and organize the Recorded Usage Data in accordance with MCIm's instructions.

4.4 Performance Measurements

4.4.1 When notified by MCIm that a subscriber has changed his/her PIC only from one interexchange carrier to another carrier, ILEC shall provision the PIC only change and convey the confirmation of the PIC change via the work order completion feed.

4.4.2 **Timelines:** ILEC shall mechanically transmit, via NDM, all usage records to MCIm's Message Processing Center once (1) per day.

Measurement:

Rating	Criteria
Exceeds Expectations	≥99.95% records delivered on the day call was recorded
Meets Expectations =	99.94% of all messages delivered on the day the call was recorded
Approaches Expectations =	99.94% of all messages delivered within 12 hours of the d ay the call was recorded
Does Not Meet Expectations	<99.94% of all messages delivered within12 hours of the d day the call was recorded

4.3.1 **Completeness:** ILEC shall provide all required Recorded Usage Data and ensure that it is processed and transmitted within thirty (15) days of the message create date.

Metric:

[(Total number of Recorded Usage Data records delivered during current month
minus
Number of Usage Call Records held in error file at the end of the current month)
divided by
Total number of Recorded Usage Data Records delivered during current month]
times 100

Measurement:

Rating	Criteria
Exceeds Expectations	100% of all recorded records delivered
Meets Expectations	≥99.99% of all recorded records delivered

Approaches Expectations	99.95% to 99.98% of recorded records delivered
Does Not Meet Expectations	≤99.94% of all recorded records delivered

Note: Failure of ILEC to transmit to MCIm 100% of all recorded messages shall result in a liability by ILEC to MCIm for the lost revenue.

4.3.2 Accuracy: ILEC shall provide Recorded Usage Data in the format and with the content as defined in the current Bellcore document.

Metric:

Total Number of Recorded Usage Data Transmitted Correctly
x 100
Total Number of Recorded Usage Data Transmitted

Measurement:

Rating	Criteria
Exceeds Expectations	100% of all recorded records delivered
Meets Expectations	≥99.99% of all recorded records delivered
Approaches Expectations	99.95% to 99.98% of all recorded records delivered
Does Not Meet Expectations	≤ 99-94% of all recorded records delivered

4.3.3 **Data Packs Accuracy**: ILEC shall transmit to MCIm all packs error free in the format agreed.

Rating	Criteria
Exceeds Expectations	6+ months of Transmitted Packs without a rejected pack
Meets Expectations	6 months of Transmitted Packs without a rejected pack
Does Not Meet Expectations	1 Rejected Pack in a window of less than 3 months

Notes: All measurements 4.4.5 shall be on a Rolling Period.

4.3.4 **Recorded Usage Data Accuracy**: ILEC shall ensure that the Recorded Usage Data is transmitted to MCIm error free. The level of detail includes, but is not limited to: detail required to Rating the call, Duration of the call, and Correct Originating/Terminating information pertaining to the call. The error is reported to ILEC as a Modification Request (MR). Performance is to be measured at 2 levels defined below. MCIm shall identify the priority of the MR at the time of hand off as Severity 1 or Severity 2. The following are MCIm expectations of ILEC for each:

Measurement:

Severity 1:

Rating	Criteria
Exceeds Expectations	100% of the MR fixed in ≤24 hours
Meets Expectations	≥90% of the MR fixed in ≤24 hours and 100% of the MR fixed in ≤5 days
Does Not Meet Expectations	<90% of the MR fixed in ≤24 hours or of the MR fixed in >5 days

Severity 2:

Rating	Criteria
Exceeds Expectations	100% of the MR fixed in <3 working days
Meets Expectations	≥90% of the MR fixed in 3 days and of the MR fixed in ≤10 Days
Does Not Meet Expectations or	<90% of the MR fixed In ≤3 Days of the MR fixed in >10 Days

4.3.5 Usage Inquiry Responsiveness: ILEC shall respond to all usage inquiries within twenty-four (24) hours of MCIm's request for information. It is MCIm's expectation to receive continuous status reports until the request for information is satisfied.

Measurements:

Rating	Criteria

Meets Expectations 100% of the Inquires responded to within 24 hours
Does Not Meet Expectations <99.99% of the Inquiries responded to within 24 hours

4.3.6 **File Transfer Accuracy:** ILEC shall initiate and transmit all files error free and without loss of signal.

Metric:

$$\frac{\text{Number of FILES Received}}{\text{Number of FILES Sent}} \times 100$$

Notes: All measurement shall be a on a rolling period.

Measurement:

Rating	Criteria
Exceeds Expectations	6+ months of file transfers without a failure.
Meets Expectations	6 months of file transfers without a failure.
Does Not Meet Expectations	<6 months of file transfers without failure.

4.3.7 ILEC shall meet the following performance measurements for the provision of EMR records:

4.3.7.1 **Timeliness**: 99.94% of all records recorded each day should be received by MCIm within one (1) calendar day of their recording. 100% of all such records should be received within five (5) calendar days of their recording.

4.3.7.2 **Accuracy**: There should be no more than 60 errors per one (1) million records transmitted

4.3.7.3 **Completeness:** There should be no more than 20 omissions per one (1) million records.

4.4 Reporting

4.4.1 ILEC shall agree to develop reports to be used for local usage data performance measurement within (sixty) 60 days of the Effective Date of this Agreement.

4.4.2 In addition to the reporting requirements stated above ILEC shall produce and publish annually with respect to it's network and service quality performance, a report which will provide evidence that ILEC shows no undue discrimination by ILEC amongst CLECs or between ILEC retail and other CLECs with respect to quality of service.

4.4.2.1 The specific services to be included in the Performance Measurement Report, it's format, measurement timeframe, and initial implementation date shall be as required by MCIm.

Section 5. Maintenance

5.1 General Requirements

5.1.1 ILEC shall provide repair, maintenance, testing, and surveillance for all Local Services and unbundled Network Elements and Combinations in accordance with the terms and conditions of this Agreement.

5.1.1.1 During the term of this Agreement, ILEC shall provide necessary maintenance business process support as well as those technical and systems interfaces required to enable MCIm to provide at least the same level and quality of service for all services for resale, functions, features, capabilities and unbundled elements or combinations of elements as ILEC provides itself, its subscribers any of its affiliated or subsidiaries or any other entity. ILEC shall provide MCIm with the same level of maintenance support as ILEC provides itself in accordance with standards and performance measurements that are at least equal to the highest level of standards and/or performance measurements that ILEC uses and/or which are required by law, regulatory agency, or by ILEC's own internal procedures, whichever are the most rigorous. These standards shall apply to the quality of the technology, equipment, facilities, processes, and techniques (including, but not limited to, such new architecture, equipment, facilities, and interfaces as ILEC may deploy) that ILEC provides to MCIm under this Agreement.

5.1.1.2 ILEC shall provide a SPOC (Single Point of Contact) for MCIm to report via telephone maintenance issues and trouble reports twenty four (24) hours a day and seven (7) days a week.

5.1.1.3 ILEC shall provide MCIm maintenance dispatch personnel on the same schedule that they provide their own subscribers.

5.1.2 MCIm shall handle all interaction with MCIm subscribers including all calls regarding service problems, scheduling of technician visits, and notifying the subscriber of trouble status and resolution.

5.1.3 ILEC shall cooperate with MCIm to meet maintenance standards for all Telecommunications Services, unbundled network elements and Combinations ordered under this Agreement. Such maintenance standards shall include, without limitation, standards for testing, network management, call gapping, and notification of upgrades as they become available.

5.1.4 All ILEC employee or contractors who perform repair service for MCIm subscribers shall follow procedures, supplied by MCIm, in all their communications with MCIm subscribers. At a minimum, these procedures and protocols shall ensure that: (1) ILEC employees or contractors shall perform repair service that is at least equal in quality to that provided to ILEC subscribers; (2) trouble calls from MCIm subscribers shall receive response time priority that is at least equal to that of ILEC subscribers and shall be handled on a "first come first served" basis regardless of whether the subscriber is an MCIm subscriber or an ILEC subscriber.

5.1.5 ILEC shall provide MCIm with scheduled maintenance, including, without limitation, required and recommended maintenance intervals and procedures, for all Telecommunications Services, network elements and Combinations provided to MCIm under this Agreement equal in quality to that currently provided by ILEC in the maintenance of its own network.

5.1.5.1 ILEC shall provide MCIm at least sixty (60) days advance notice of any scheduled maintenance activity which may impact MCIm's subscribers including a list of all services, elements, features, functions, and capabilities which may be impacted by ILEC maintenance activities.

5.1.5.2 Plans for scheduled maintenance shall include, at a minimum, the following information: location and type of facilities, specific work to be performed, date and time work is scheduled to commence, work schedule to be followed, date and time work is scheduled to be completed, estimated number of work-hours for completion.

5.1.6 ILEC shall notify MCIm of all non-scheduled maintenance, testing, monitoring, and surveillance activity to be performed by ILEC on any network element, including, without limitation, any

hardware, equipment, software, or system, providing service functionality which may potentially impact MCIm subscribers.

5.1.6.1 ILEC shall provide the maximum advance notice of such non-scheduled maintenance and testing activity possible, under the circumstances; but in no case shall notice be given to MCIm after the work has started to take place.

5.1.6.2 ILEC shall provide emergency maintenance as promptly as possible to maintain or restore service and shall advise MCIm promptly of any such actions it takes.

5.1.7 ILEC shall provide MCIm a detailed description of any and all emergency restoration plans and disaster recovery plans which are in place during the term of this Agreement. Such plans shall include, at a minimum, the following: (i) provisions for immediate notification to MCIm of the existence, location, and source of any emergency network outage potentially affecting an MCIm subscriber; (ii) establishment of a single point of contact responsible for initiating and coordinating the restoration of all Local Services and Network Elements or Combinations; (iii) methods and procedures to provide MCIm with real-time access to information relating to the status of restoration efforts and problem resolution during the restoration process; (iv) an inventory and description of mobile restoration equipment, by location; (v) methods and procedures for the dispatch of mobile equipment to the restoration site; (vi) methods and procedures for reprovisioning of all Telecommunications Services and network elements or Combinations after initial restoration, (vii) equal priority, as between MCIm subscribers and ILEC subscribers, for restoration efforts, consistent with FCC Service Restoration guidelines, including, without limitation, deployment of repair personnel, and access to spare parts and components, and (viii) a mutually agreeable process for escalation of maintenance problems, including a complete, up-to-date list of responsible contacts, each available twenty-four (24) hours per day, seven (7) days per week.

5.1.7.1 For purposes of this subsection 5.1, an emergency network outage is defined as 5,000 or more blocked call attempts in a ten (10) minute period for all subscribers in a single exchange.

5.1.8 ILEC and MCIm shall establish mutually acceptable methods and procedures for the immediate, on-line transfer from ILEC to MCIm of any and all misdirected calls from MCIm subscribers requesting repair.

5.1.9 ILEC shall inform MCIm of repair completion and trouble reason as soon as possible but not more than ten (10) minutes after restoration of network elements, or Combinations, and any other trouble reports by MCIm. Notification should be provided via phone (as an interim measure), and eventually electronic interface.

5.1.10 ILEC and MCIm shall mutually develop escalation procedures to be followed if, in MCIm's judgment, any performance standard defined in this Agreement is not met for any individual trouble report. The escalation procedures to be provided shall include names and telephone numbers of ILEC management personnel who are responsible for maintenance issues and who will be contacted when a trouble condition is escalated.

5.1.11 In the event ILEC shall fail to conform to any specified performance and service quality standards, MCIm may request, and ILEC shall perform and deliver to MCIm, a root cause analysis of the reasons for ILEC's failure to conform, and ILEC shall correct said cause as soon as possible, at its own expense.

5.1.12 Dispatching of ILEC technicians to MCIm subscriber premises shall be accomplished by ILEC pursuant to a request received from MCIm. MCIm shall be able to schedule maintenance appointments in half-day intervals. The electronic interface established pursuant to subsection 5.2 shall provide the capability of allowing MCIm to receive trouble reports, analyze and sectionalize the trouble, determine whether it is necessary to dispatch a service technician to the customer's premises, and verify any actual work completed on the customer's premises.

5.1.13 ILEC shall supply MCIm with a unique number to identify each MCI initial trouble report opened.

5.1.14 ILEC shall provide for resale any maintenance/protection plans to MCIm that it offers ILEC's own subscribers.

5.1.15 All MCIm subscribers shall be able to continue to use the established local dialing protocol to access the repair center. Upon dialing "611", the subscriber shall be presented with a non-branded menu that requests the input of the subscriber's telephone number. Once the telephone number is provided, the subscriber shall be transferred to the MCIm repair center. Whenever the ILEC receives a repair call directly from an MCIm subscriber, without voice response menu prompts, the call shall be unbranded and transferred to the appropriate MCIm repair center.

5.1.16 At MCIm's request, ILEC shall allow MCIm to reopen a trouble report if the initial trouble report was closed without repairs being performed to the subscriber's satisfaction. Such reopening shall reactivate the original report. For reopened trouble reports MCIm shall have the ability to escalate repair service requests.

5.1.17 ILEC shall notify MCIm via phone or electronic interface upon completion of trouble report. The report shall not be considered closed until such notification is made. MCIm will contact its subscriber to determine if repairs were completed and confirm the trouble no longer exists.

5.1.18 Additional Unbundling Requirements

5.1.19 When trouble is reported by a subscriber served through unbundled network elements, MCIm will test its network to identify any problems. If no problems are identified with the MCIm network, MCIm will open a trouble report with ILEC. ILEC shall then test its portion of the network and perform repairs as required in the timeframes set forth below in this Agreement.

5.1.19.1 MCIm will coordinate combined testing or repair activities until trouble is resolved. ILEC shall provide repair updates to MCIm.

5.1.20 Maintenance service options shall be unbundled to permit MCIm at its option use qualified third party contractors for maintenance/repair of Network Elements.

5.2 Systems Interfaces and Information Exchanges

5.2.1 ILEC shall cooperate with MCIm to establish real-time, electronic interface by MCIm to ILEC's maintenance systems and

databases. This interface shall be seamless and transparent to MCIm personnel working through MCIm's systems.

5.2.1.1 An electronic bond will be a system to system connection with immediate update capability. In no way shall this interface cause MCIm personnel to use ILEC systems via remote hook up or any other means of access.

5.2.1.2 This interface shall allow MCIm personnel to perform the following functions for MCIm subscribers: (i) enter trouble reports in the ILEC maintenance systems for an MCIm Subscriber, (ii) retrieve and track current status on all MCIm subscriber trouble report; (iii) receive "estimated time to repair" ("ETTR") on a real-time basis; (iv) receive immediate notification in the event a repair person is unable to be present for, or anticipates missing, a scheduled repair appointment, and (v) retrieve all applicable time and material charges at the time of ticket closure (itemized by time spent, price of materials used, procedures employed, amounts incurred in each such category, and total by subscriber, per event (vi) receive automated notification of case closure.

5.2.1.3 Automated interfaces must be provided into a centralized operations support systems data base for real time network monitoring to proactively identify potential service degradation. Such systems must monitor and report on the integrity of the ILEC network, isolate trouble and initiate repair operations, test individual unbundled loops and generate maintenance and repair notices that impact any end user's ability to complete calls. Ongoing maintenance practices on unbundled loops must equal or exceed the practices employed by the ILEC for facilities used to provide services for resale.

5.2.1.4 ILEC agrees to develop and implement, as soon as possible but not later than January 1, 1997, the electronic interfaces described above.

5.2.2 ILEC agrees that MCIm may report troubles directly to a single ILEC Repair/Maintenance Center for both residential and business subscribers unless otherwise agreed to by MCIm.

5.2.3 ILEC shall perform all testing for Resale Services.

5.2.3.1 ILEC shall provide test results to MCIm, if appropriate, for trouble clearance. In all instances, ILEC will provide MCIm with the disposition of the trouble.

5.2.3.2 If ILEC initiates trouble handling procedures it will bear all costs associated with that activity. If MCIm requests the trouble dispatch then MCIm's subscriber will bear the cost.

5.2.4 ILEC shall provide to MCIm the ability to obtain the status on open maintenance trouble reports via telephone or by another interface as MCIm may agree. ILEC agrees to provide the status of residence and small business trouble reports upon MCIm's request.

5.2.5 ILEC agrees to provide to MCIm the status for open maintenance trouble reports for large business subscribers anytime the status of the trouble report changes or at MCIm's request.

5.2.6 ILEC agrees that MCIm may call ILEC to verify central office features and functions as they relate to an open trouble report. ILEC agrees to work with MCIm on the initial trouble report to isolate the cause of the trouble and, where possible, resolve the feature/function related trouble at that time.

5.2.7 ILEC agrees to proactively advise MCIm of any central office failure that is known at the time of any inquiry or trouble report. ILEC agrees to continue to work with MCIm toward implementing a process to meet MCIm's requirements for notification of switch failures as soon as possible.

5.2.8 ILEC agrees to provide an Estimated Time To Repair (ETTR) on all residence and small business trouble reports.

5.2.9 ILEC agrees to develop, with MCIm's cooperation, mutually acceptable workcenter interface agreements to document methods and procedures for interim and final interfaces for each service within (30) thirty days the effective date of this Agreement of MCIm's notice to ILEC of it's initiation of that service.

5.3 Standards

5.3.1 Maintenance charges for premises visits by ILEC employees or contractors shall be billed by MCIm to its subscriber.

5.3.1.1 ILEC employees or contractors shall, present the subscriber with an MCIm provided, MCIm-branded form detailing the time spent, the materials used and an indication that the trouble has either been resolved, or that additional work will be necessary.

5.3.1.2 If additional work is required, ILEC employees or contractors shall call MCIm from subscriber premises so that MCIm can schedule a new appointment with ILEC and subscriber at the same time.

5.3.1.3 The ILEC employees or contractors shall obtain the subscriber's signature upon said form, and use the signed form to input maintenance charges into the ILEC repair and maintenance database (accessible by way of electronic interface). These charges shall include any charges for inside wiring work by ILEC employees or contractors.

5.3.2 ILEC agrees to work with MCIm to support expeditious development of an industry standard trouble report entry format and agrees to implement such standard within sixty (60) days after final resolution by the Network Operation Forum (NOF).

5.4 Performance Measurements and Reporting

5.4.1 Cycle Time Measurements

5.4.1.1 Until electronic interface exists, ILEC agrees that MCIm may report troubles to ILEC's repair bureau by telephone and or dial up modem at MCIm's discretion. ILEC repair bureau shall conform to the following performance and service quality standards when providing repair and maintenance to MCIm and MCIm subscribers under this Agreement:

5.4.1.2 When repair service is provided to MCIm subscribers before an electronic interface is established between MCIm and ILEC, the following standards shall

apply (calls placed on hold shall not be considered to meet these standards):

Maintenance Function	Performance Measurement
Incoming call answered within 20 seconds	95 % met
Incoming call answered within 30 seconds	98 % met
Incoming call answered within 40 seconds	100 % met
Automated call from modem answered on 1st ring	80 % met
Automated call from modem answered on 2nd ring	100 % met

5.4.1.3 The ILEC repair bureau shall answer its telephone and begin taking information from MCIm within twenty (20) seconds of the first ring, ninety-five percent (95%) of the time; within thirty (30) seconds of the first ring, ninety-eight percent (98%) of the time; and within forty (40) seconds of the first ring, one hundred percent (100%) of the time. Calls answered by automated response systems via a modem must be answered on the 1st ring eighty percent (80%) of the time and by the second ring one hundred percent (100%) of the time.

5.4.1.4 For all residence and small business trouble reports, ILEC agrees to adhere to repair intervals of (24) twenty-four hours for any out of service trouble tickets and (72) seventy-two hours for any non-out of service trouble tickets.

5.4.1.5 In the event the "estimated time to restore" has been missed, ILEC shall notify MCIm immediately.

5.4.1.6 Emergency network outages shall be restored within one (1) hour. The only exception to this shall be in the case of a Force Majeure event affecting an entire exchange.

5.4.1.6.1 Number of emergency network outages recorded within one (12) twelve month period shall not exceed 2.

5.4.1.7 Where an outage has not reached the threshold defining an emergency network outage, the following quality standards shall apply with respect to restoration of services.

5.4.1.7.1 Total outages requiring a premises visit by an ILEC technician that are received between 8 a.m. to 6 p.m. on any day shall be restored within four (4) hours of referral, ninety percent (90%) of the time within eight (8) hours of referral, ninety-five percent (95%) of the time, and within sixteen (16) hours of referral, ninety-nine percent (99%) of the time.

5.4.1.7.2 Total outages requiring a premises visit by a ILEC technician that are received between 6 p.m.

and 8 a.m. on any day shall be restored during the following 8 a.m. to 6 p.m. period in accordance with the following performance metrics: within four (4) hours of 8 a.m., ninety percent (90%) of the time. within eight (8) hours of 8 a.m., ninety-five percent (95%) of the time and within sixteen (16) hours of 8 a.m., ninety-nine percent (99%) of the time.

5.4.1.7.3 Total service outages which do not require a premises visit by a ILEC technician shall be restored within two (2) hours of referral, eighty-five percent (85%) of the time; within three (3) hours of referral, ninety-five percent (95%) of the time; and within four (4) hours of referral, ninety-nine percent (99%) of the time.

5.4.1.8 For maintenance and trouble management purposes, Telephone Service Prioritization (TSP) and Essential Services outages shall be designated for repair at the highest priority one hundred percent (100%) of the time.

5.4.1.9 Trouble reports for other than total service outage shall be resolved within twenty-four (24) hours of referral, ninety-five percent (95%) of the time, irrespective of whether or not resolution requires a premises visit. For purposes of this Section 5, service will be considered restored, or a trouble considered resolved, when the quality of the service is equal to that provided before the outage or the trouble occurred.

5.4.1.10 Repeat trouble reports from the same subscriber on the same service in a two-month period shall be less than one percent (1 %). Repeat trouble reports shall be measured by the number of calls received by the ILEC repair bureau relating to the same telephone service during the current and previous report months.

5.4.1.11 To support unbundling processes, ILEC agrees to support trouble sectionalization and resolution and to respond to MCIm requests for assistance within 1 hour for scheduling of testing personnel.

5.4.2 Quality

5.4.2.1 The ILEC repair bureau, including the electronic interface to be established pursuant to Section 2 preceding, shall be on-line and operational twenty-four (24) hours per day, seven (7) days per week.

5.4.2.2 The ILEC repair bureau shall provide to MCIm the "estimated time to restore," with at least ninety-seven percent (97%) percent accuracy.

5.4.3 Reporting

5.4.3.1 ILEC shall provide exception reporting which communicates both planned and unplanned outages and restorations to MCIm.

5.4.3.2 ILEC shall provide monthly performance reports detailing overall performance in repairing service, including comparative results for ILEC's own subscribers. Reports will contain at a minimum the following information presented by State, Area Code, NXX, Product Feature, and will be delivered monthly with daily information detail:

- 5.4.3.2.1 Jeopardies
  - 5.4.3.2.1.1 Total number
  - 5.4.3.2.1.2 As a percentage of trouble tickets
- 5.4.3.2.2 Appointments
  - 5.4.3.2.2.1 Total number
- 5.4.3.2.3 Missed appointments
  - 5.4.3.2.3.1 Total number
  - 5.4.3.2.3.2 As a percentage of total appointments
- 5.4.3.2.4 Repeat troubles
  - 5.4.3.2.4.1 Total number
  - 5.4.3.2.4.2 As a percentage of total troubles
- 5.4.3.2.5 Planned outages
  - 5.4.3.2.5.1 Total number
  - 5.4.3.2.5.2 As a percentage of total outages
- 5.4.3.2.6 Unplanned outages
  - 5.4.3.2.6.1 Total number
  - 5.4.3.2.6.2 As a percentage of total outages

5.4.3.2.7	Total number of trouble identified proactively.
5.4.3.2.8	Total number of proactive troubles repaired
5.4.3.2.9	Total number of subscriber affected by a network alarm
5.4.3.2.10	Total time to notify MCIm of a network alarm
5.4.3.2.11	Total number of service interruptions
5.4.3.2.12	Total number of mechanized loop tests performed
5.4.3.2.13	Total number of emergency network outages as defined by 5,000 or more blocked call attempts in a ten minute period

5.4.3.3MCIm may, at its discretion, further require additional and/or modified reporting as business needs demand.

Section 6. Miscellaneous Services & Functions

6.1 General Requirements

6.1.1 Basic 911 and E911 General Requirements

6.1.1.1 Basic 911 and E911 provides a caller access to the appropriate emergency service bureau by dialing a 3-digit universal telephone number (911). Basic 911 and E911 access from Local Switching shall be provided to MCIm in accordance with the following:

6.1.1.2 E911 shall provide additional routing flexibility for 911 calls. E911 shall use customer data, contained in the Automatic Location Identification/ Data Management System (ALI/DMS), to determine to which Public Safety Answering Point (PSAP) to route the call.

6.1.1.3 If available, ILEC shall offer a third type of 911 service, S911. All requirements for E911 also apply to S911 with the exception of the type of signaling used on the interconnection trunks from the local switch to the S911 tandem.

6.1.1.4 Basic 911 and E911 functions provided to MCIm shall be at least at parity with the support and services that ILEC provides to its customers for such similar functionality.

6.1.1.5 Basic 911 and E911 access from Local Switching shall be provided to MCIm in accordance with the following:

6.1.1.5.1 ILEC shall conform to all state regulations concerning emergency services.

6.1.1.5.2 For E911, ILEC shall use its service order process to update and maintain customer information in the ALI/DMS data base. Through this process, ILEC shall provide and validate customer information resident or entered into the ALI/DMS data base.

6.1.1.6 ILEC shall provide for overflow 911 traffic to be routed to ILEC Operator Services or, at MCIm's discretion, directly to MCIm operator services.

6.1.1.7 Basic 911 and E911 access from the MCIm local switch shall be provided to MCIm in accordance with the following:

6.1.1.7.1 If required by MCIm, ILEC shall interconnect direct trunks from the MCIm network to the E911 PSAP, or the E911 tandems as designated by MCIm. Such trunks may alternatively be provided by MCIm.

6.1.1.7.2 In government jurisdictions where ILEC has obligations under existing agreements as the primary provider of the 911 System to the county, MCIm shall participate in the provision of the 911 System as follows:

6.1.1.7.2.1 Each party shall be responsible for those portions of the 911 System for which it has control, including any necessary maintenance to each party's portion of the 911 System.

6.1.1.7.2.2 Host ILEC shall be responsible for maintaining the E-911 database. ILEC shall be responsible for maintaining the E-911 database.

6.1.1.7.3 If a third party, is the primary service provider to a government agency, MCIm shall negotiate separately with such third party with regard to the provision of 911 service to the agency. All relations between such third party and MCIm are totally separate from this Agreement and ILEC makes no representations on behalf of the third party.

6.1.1.7.4 If MCIm or Affiliate is the primary service provider to a government agency, MCIm and ILEC shall negotiate the specific provisions necessary for providing 911 service to the agency and shall include such provisions in an amendment to this Agreement.

6.1.1.7.5 Interconnection and database access shall be priced as specified in Attachment I or at any rate

charged to other interconnected carriers, whichever is lower.

6.1.1.7.6 ILEC shall comply with established, competitively neutral intervals for installation of facilities, including any collocation facilities, diversity requirements, etc.

6.1.1.7.7 In a resale situation, where it may be appropriate for ILEC to update the ALI database, ILEC shall update such database with MCIm data in an interval no less than is experienced by ILEC customers, or than for other carriers, whichever is faster, at no additional cost.

6.1.1.8 ILEC shall provide to MCIm, no later than five days after the Effective Date of this Agreement, the emergency public agency (e.g. police, fire, rescue, poison, and bomb) telephone numbers linked to all NPA NXXs for the states in which they provide service.

6.1.1.9 ILEC shall transmit to MCIm daily all changes, alterations, modifications, and updates to the emergency public agency telephone numbers linked to all NPA NXX's. This transmission shall be electronic and be a separate feed from the subscriber listing feed.

6.1.1.10 ILEC shall provide to MCIm the necessary Network Elements in order for MCIm to provide E911/911 services to government agencies no later than January 1, 1997. If such elements are not available from ILEC, ILEC shall offer E911/911 service for resale by MCIm to government agencies.

6.1.1.11 The following are Basic 911 and E911 Database Requirements:

6.1.1.11.1 The ALI database shall be managed by ILEC, but is the property of ILEC and any participating telephone company and ALEC for those records provided by the company.

6.1.1.11.2 Copies of the MSAG shall be provided within three business days from the time requested

and provided on diskette, magnetic tape, or in a format suitable for use with desktop computers.

6.1.1.11.3 MCIm shall be solely responsible for providing MCIm database records to ILEC for inclusion in ILEC's ALI database on a timely basis.

6.1.1.11.4 ILEC and MCIm shall arrange for the automated input and periodic updating of the E911 database information related to MCIm end users. ILEC shall work cooperatively with MCIm to ensure the accuracy of the data transfer by verifying it against the Master Street Address Guide (MSAG). ILEC shall accept electronically transmitted files or magnetic tape that conform to National Emergency Number Association (NENA) Version #2 format.

6.1.1.11.5 MCIm shall assign an E911 database coordinator charged with the responsibility of forwarding MCIm end user ALI record information to ILEC or via a third-party entity, charged with the responsibility of ALI record transfer. MCIm assumes all responsibility for the accuracy of the data that MCIm provides to ILEC.

6.1.1.11.6 MCIm shall provide information on new subscribers to ILEC within one (1) business day of the order completion. ILEC shall update the database within two (2) business days of receiving the data from MCIm. If ILEC detects an error in the MCIm provided data, the data shall be returned to MCIm within two (2) business days from when it was provided to ILEC. MCIm shall respond to requests from ILEC to make corrections to database record errors by uploading corrected records within two (2) business days. Manual entry shall be allowed only in the event that the system is not functioning properly.

6.1.1.11.7 ILEC agrees to treat all data on MCIm subscribers provided under this agreement as strictly confidential and to use data on MCIm subscribers only for the purpose of providing E911 services.

6.1.1.11.8 ILEC shall adopt use of a Carrier Code (NENA standard five-character field) on all ALI records received from MCIm. The Carrier Code will be used to identify the carrier of record in INP configurations. The NENA Carrier Code for MCIm is "MCIm".

6.1.1.11.9 ILEC shall identify which ALI databases cover which states, counties or parts thereof, and identify and communicate a Point of Contact for each.

6.1.1.12 The following are basic 911 and E911 Network Requirements:

6.1.1.12.1 ILEC, at MCIm's option, shall provide a minimum of two (2) E911 trunks per Numbering Plan Area (NPA) code, or that quantity which will maintain P.01 transmission grade of service, whichever is the higher grade of service. These trunks will be dedicated to routing 911 calls from MCIm's switch to a ILEC selective router.

6.1.1.12.2 ILEC shall provide the selective routing of E911 calls received from MCIm's switching office. This includes the ability to receive the ANI of MCIm's subscriber, selectively route the call to the appropriate PSAP, and forward the subscriber's ANI to the PSAP. ILEC shall provide MCIm with the appropriate CLLI codes and specifications regarding the tandem serving area associated addresses and meetpoints in the network.

6.1.1.12.3 Copies of Selective Routing Boundary Maps shall be available to MCIm. Each map shows the boundary around the outside of the set of exchange areas served by that selective router. The map provides MCIm the information necessary to set up its network to route E911 callers to the correct selective router.

6.1.1.12.4 MCIm shall ensure that its switch provides an eight-digit ANI consisting of an information digit and the seven-digit exchange code. MCIm shall also ensure that its switch provides the

line number of the calling station. Where applicable, MCIm shall send a ten-digit ANI to ILEC.

6.1.1.12.5 Each ALI discrepancy report shall be jointly researched by ILEC and MCIm. Corrective action shall be taken immediately by the responsible party.

6.1.1.12.6 The ILEC controlling the 911 network should provide MCIm with a detailed written description of, but not limited to, the following information:

6.1.1.12.6.1 Geographic boundaries of the government entities, PSAPs, and exchanges as necessary.

6.1.1.12.6.2 LECs rate centers/exchanges, where "Rate Center" is defined as a geographically specified area used for determining mileage dependent rates in the Public Switched Telephone Network.

6.1.1.12.6.3 Technical specifications for network interface, Technical specifications for database loading and maintenance.

6.1.1.12.7 ILEC shall identify special routing arrangements to complete overflow.

6.1.1.12.8 ILEC shall begin restoration of E911 and/or E911 trunking facilities immediately upon notification of failure or outage. ILEC must provide priority restoration of trunks or networks outages on the same terms/conditions it provides itself and without the imposition of Telecommunications Service Priority (TSP).

6.1.1.12.9 ILEC shall identify any special operator-assisted calling requirements to support 911.

6.1.1.12.10 Trunking shall be arranged to minimize the likelihood of central office isolation due to cable cuts or other equipment failures. There will be an

alternate means of transmitting a 911 call to a PSAP in the event of failures.

6.1.1.12.11 Circuits shall have interoffice, loop and carrier system diversity when such diversity can be achieved using existing facilities. Circuits will be divided as equally as possible across available carrier systems. Diversity will be maintained or upgraded to utilize the highest level of diversity available in the network.

6.1.1.12.12 Equipment and circuits used for 911 shall be monitored at all times. Monitoring of circuits shall be done to the individual circuit level. Monitoring shall be conducted by ILEC for trunks between the tandem and all associated PSAPs.

6.1.1.12.13 Repair service shall begin immediately upon receipt of a report of a malfunction. Repair service includes testing and diagnostic service from a remote location, dispatch of or in-person visit(s) of personnel. Technicians will be dispatched without delay.

6.1.1.12.14 All 911 trunks must be capable of transmitting and received Baudot code necessary to support the use of Telecommunications Devices for the Deaf (TTY/TDDs).

6.1.1.13 Basic 911 and E911 Additional Requirements

6.1.1.13.1 All MCIm lines that have been ported via INP shall reach the correct PSAP when 911 is dialed. ILEC shall send both the ported number and the MCIm number (if both are received from MCIm). The PSAP attendant shall see both numbers where the PSAP is using a standard ALI display screen and the PSAP extracts both numbers from the data that is sent.

6.1.1.13.2 ILEC shall work with the appropriate government agency to provide MCIm the ten-digit POTS number of each PSAP which sub-tends each

ILEC selective router/911 tandem to which MCIm is interconnected.

6.1.1.13.3 ILEC shall notify MCIm 48 hours in advance of any scheduled testing or maintenance affecting MCIm 911 service, and provide notification as soon as possible of any unscheduled outage affecting MCIm 911 service.

6.1.1.13.4 MCIm shall be responsible for reporting all errors, defects and malfunctions to ILEC. ILEC shall provide MCIm with the point of contact for reporting errors, defects, and malfunctions in the service and shall also provide escalation contacts.

6.1.1.13.5 MCIm may enter into subcontracts with third parties, including MCIm affiliates, for the performance of any of MCIm's duties and obligations stated herein.

6.1.1.13.6 ILEC shall provide sufficient planning information regarding anticipated moves to SS7 signaling for the next 12 months.

6.1.1.13.7 ILEC shall provide notification of any pending tandem moves, NPA splits, or scheduled maintenance outages, with enough time to react.

6.1.1.13.8 ILEC shall identify process for handling of "reverse ALI" inquiries by public safety entities.

6.1.1.13.9 ILEC shall establish process for the management of NPA splits by populating the ALI database with the appropriate new NPA codes.

6.1.1.13.10 ILEC must provide the ability for MCIm to update 911 database with end user information for lines that have been ported via INP or NP.

6.1.2 Directory Assistance Service

6.1.2.1 ILEC shall provide for the routing of directory assistance calls (including but not limited to 411, 555-1212,

NPA-555-1212) dialed by MCIm subscribers directly to either the MCIm DA service platform or ILEC DA service platform as specified by MCIm.

6.1.2.2 MCIm subscribers shall be provided the capability by ILEC to dial the same telephone numbers for access to MCIm Directory Assistance that ILEC subscribers to access ILEC Directory Assistance.

6.1.2.3 ILEC shall provide Directory Assistance functions and services to MCIm for its subscribers as described below until, at MCIm's discretion, ILEC routes calls to the MCIm Directory Assistance Services platform.

6.1.2.3.1 ILEC agrees to provide MCIm subscribers with the same Directory Assistance service available to ILEC subscribers.

6.1.2.3.2 ILEC shall notify MCIm in advance of any changes or enhancements to its DA service, and shall make available such service enhancements on a non-discriminatory basis to MCIm.

6.1.2.3.3 ILEC shall provide Directory Assistance to MCIm subscribers in accordance with ILEC's internal operating procedures and standards, which shall, at a minimum, comply with accepted professional and industry standards.

6.1.2.3.4 ILEC shall provide MCIm with the same level of support for the provisioning of Directory Assistance as ILEC provides itself. Quality of service standards shall be in accordance with standards and performance measurements that are at least equal to the highest level of standards and/or performance measurements that ILEC uses and/or which are required by law, regulatory agency, or by ILEC's own internal procedures, whichever are the most rigorous.

6.1.2.3.5 Service levels shall comply, at a minimum, with State Regulatory Commission requirements for number of rings to answer, average work time, and disaster recovery options.

6.1.2.3.6 ILEC agrees to maintain an adequate operator work force based on a review and analysis of actual call attempts and abandonment rate.

6.1.2.3.7 MCIm or its designated representatives may inspect any ILEC owned or sub-contracted office, which provides DA services, upon 2 days notice to ILEC.

6.1.2.3.8 Directory Assistance services provided by ILEC to MCIm subscribers shall be branded as required by MCIm. Branding includes front-end, back-end, and non-branding to be determined by MCIm. MCIm shall have the option of providing its own branding materials.

6.1.2.3.9 ILEC shall provide the following minimum Directory Assistance capabilities to MCIm's subscribers:

6.1.2.3.9.1 A minimum of two subscriber listings and/or addresses or ILEC parity per MCIm subscriber request.

6.1.2.3.9.2 Name and address to MCIm subscribers upon request, except for unlisted numbers, in the same states where such information is provided to ILEC subscribers.

6.1.2.3.9.3 Upon request, call completion to the requested number for local and intraLATA toll calls shall be sent to the network specified by MCIm. Rating and billing shall be done by MCIm.

6.1.2.3.9.4 Populate the Directory Assistance database in the same manner and in the same time frame as for ILEC subscribers.

6.1.2.3.9.5 Any information provided by a Directory Assistance Automatic Response Unit (ARU) shall be repeated the same number of times for MCIm subscribers as for ILEC's subscribers.

6.1.2.3.9.6 When requested by MCIm, ILEC shall provide instant credit on directory assistance calls as provided to ILEC subscribers or shall inform MCIm subscribers to call an 800 number for MCIm customer service to request a credit. ILEC shall provide one 800 number for business subscribers and another for residential subscribers.

6.1.2.4 ILEC shall provide data regarding billable events as requested by MCIm.

6.1.3 Operator Services

6.1.3.1 ILEC shall provide for the routing of local operator services calls (including but not limited to 0+, 0-) dialed by MCIm subscribers directly to either the MCIm operator service platform or ILEC operator service platform as specified by MCIm

6.1.3.2 MCIm subscribers shall be provided the capability by ILEC to dial the same telephone numbers to access MCIm operator service that ILEC subscribers dial to access ILEC operator service.

6.1.3.3 ILEC shall provide Operator Services to as described below until, at MCIm's discretion, ILEC routes calls to the MCIm Local Operator Services platform.

6.1.3.3.1 ILEC agrees to provide MCIm subscribers the same Operator Services available to ILEC subscribers. ILEC shall make available its service enhancements on a non-discriminatory basis at cost.

6.1.3.3.2 Operator Services provided to MCIm subscribers shall be branded as required by MCIm. Branding options include front-end, back-end, and non-branding as specified by MCIm. MCIm has the option of providing its own branding materials.

6.1.3.3.3 ILEC shall provide the following minimum Operator Service capabilities to MCIm subscribers:

6.1.3.3.3.1 ILEC shall complete 0+ and 0- dialed local calls.

6.1.3.3.3.2 ILEC shall complete 0+ intraLATA toll calls.

6.1.3.3.3.3 ILEC shall complete calls that are billed to a calling card and MCIm shall designate to ILEC the acceptable types of special billing.

6.1.3.3.3.4 ILEC shall complete person-to-person calls.

6.1.3.3.3.5 ILEC shall complete collect calls.

6.1.3.3.3.6 ILEC shall provide the capability for callers to bill to a third party and complete such calls.

6.1.3.3.3.7 ILEC shall complete station-to-station calls.

6.1.3.3.3.8 ILEC shall process emergency calls.

6.1.3.3.3.9 ILEC shall process Busy Line Verify and Emergency Line Interrupt requests.

6.1.3.3.3.10 ILEC shall process emergency call trace.

6.1.3.3.3.11 ILEC shall process operator-assisted directory assistance calls.

6.1.3.3.3.12 ILEC shall provide rate quotes.

6.1.3.3.3.13 ILEC shall process time-and-charges requests.

6.1.3.3.3.14 ILEC shall route 0- traffic directly to a "live" operator team.

6.1.3.3.3.15 When requested by MCIm, ILEC shall provide instant credit on operator services calls as provided to ILEC subscribers or shall inform MCIm subscribers to call an 800 number for MCIm customer service to request a credit. ILEC shall provide one 800 number for business subscribers and another for residential subscribers.

6.1.3.3.3.16 Caller assistance for the disabled in the same manner as provided to ILEC subscribers.

6.1.3.3.3.17 ILEC shall provide operator-assisted conference calling.

6.1.3.4 Operator Service shall provide MCIm's local service rates when providing rate quote and time-and-charges services.

6.1.3.5 Operator Service shall adhere to equal access requirements.

6.1.3.6 ILEC shall exercise at least the same level of fraud control in providing Operator Service to MCIm that ILEC provides for its own operator service.

6.1.3.7 ILEC shall perform Billed Number Screening when handling Collect, Third Party, and Calling Card Calls, both for station to station and person to person call types.

6.1.3.8 ILEC shall provide service measurements and accounting reports as designated by MCIm.

6.1.3.9 MCIm or its designated representatives may inspect any ILEC owned or sub-contracted office, which provides Operator Services, upon 2 days notice to ILEC.

6.1.3.10 ILEC shall direct subscriber account and other similar inquiries to the customer service center designated by MCIm.

6.1.3.11 ILEC shall provide an electronic feed of customer call records in "EMR" format to MCIm in accordance with the time schedule designated by MCIm.

6.1.3.12 ILEC shall accept and process overflow 911 traffic routed from MCIm to the underlying platform used to provide Operator Service.

6.1.3.13 Busy Line Verification and Emergency Line Interrupt:

6.1.3.13.1 ILEC shall permit MCIm to connect its Local Operator Service to ILEC's Busy Line Verification and Emergency Line Interrupt ("BLV/ELI") systems and databases to enable MCIm to perform BLV/ELI services.

6.1.3.13.2 ILEC shall engineer its BLV/ELI facilities to accommodate the anticipated volume of BLV/ELI requests during the Busy Hour. MCIm may, from time to time, provide its anticipated volume of BLV/ELI requests to ILEC. In those instances when the BLV/ELI systems and databases become unavailable, ILEC shall promptly inform MCIm.

6.1.3.14 ILEC shall update the Line Information Data Base (LIDB) for MCIm subscribers at cost. If ILEC does not provide such updates, then MCIm must have access to LIDB, at no charge, to update it directly. Additionally, LEC must provide access to LIDB for validation of collect, third party billed, and LEC card billed calls at cost.

6.1.3.15 Where INP is deployed and when a BLV/BLI request for a ported number is directed to an ILEC operator and the query is not successful (i.e., the request yields an abnormal result), the operator shall confirm whether the number has been ported and shall direct the request to the appropriate operator.

6.1.3.16 ILEC shall allow MCIm to order provisioning of Telephone Line Number (TLN) calling cards and Billed Number Screening (BNS), in its LIDB, for ported numbers, as specified by MCIm. ILEC shall continue to allow MCIm access to its LIDB.

6.1.4 Directory Assistance and Listings Service Requests

6.1.4.1 These requirements pertain to ILECs DA and Listings Service Request process that enables MCIm to (a) submit MCIm subscriber information for inclusion in ILEC Directory Assistance and Directory Listings databases; (b) submit MCIm subscriber information for inclusion in published directories; and (c) provide MCIm subscriber delivery address information to enable ILEC to fulfill directory distribution obligations.

6.1.4.1.1 ILEC shall accept orders on a real-time basis via electronic interface in accordance with OBF Directory Service Request standards within 3 months of final standard adoption. In the interim, ILEC shall create a standard format and order process by which MCIm can place an order via electronic exchange no later than January 1, 1997.

6.1.4.1.2 LEC will provide to MCIm the following Directory Listing Migration Options, valid under all access methods, including but not limited to, Resale, Unbundled Network Elements and Facilities-Base:

6.1.4.1.2.1 Migrate with no Changes: Retain all white and yellow page listings for the customer in both DA and DL. Transfer ownership and billing for listings to MCIm.

6.1.4.1.2.2 Migrate with Additions: Retain all white and yellow page listings for the customer in both DA and DL. Incorporate the specified additional listings order. Transfer ownership and billing for the listings to MCIm.

6.1.4.1.2.3 Migrate with Deletions: Retain all white and yellow page listings for the customer in both DA and DL. Delete the specified listings from the listing order. Transfer ownership and billing for the listings to MCIm.

6.1.4.1.3 ILEC shall enable MCIm to electronically transmit multi-line listing orders.

6.1.4.1.4 ILEC will provide MCIm with a summary of completed Directory Service Requests on a daily basis. The summary information will include but is not limited to the following information:

6.1.4.1.4.1 White page listings text and format (name, address, phone, title, designation, extra line information)
6.1.4.1.4.2 Yellow page listing text and format
6.1.4.1.4.3 Yellow page heading code
6.1.4.1.4.4 Listing Instruction codes
6.1.4.1.4.5 Listed book

6.1.4.1.5 ILEC shall enable MCIm to electronically transmit multi-line listings orders.

6.1.4.1.6 ILEC shall provide ability for MCIm to electronically query the ILEC listing system to view all listings real-time. Ownership of each listing is to be masked.

6.1.4.1.7 To ensure accurate order processing, ILEC shall provide to MCIm the following information, with updates within one business day of change and via electronic exchange:

6.1.4.1.7.1 A matrix of NXX to central office
6.1.4.1.7.2 Geographical maps if available of ILEC service area
6.1.4.1.7.3 A description of calling areas covered by each directory, including but not limited to maps of calling areas and matrices depicting calling privileges within and between calling areas
6.1.4.1.7.4 Yellow page heading codes
6.1.4.1.7.5 Directory names and codes
6.1.4.1.7.6 Directory product changes
6.1.4.1.7.7 Listing format rules
6.1.4.1.7.8 Listing alphabetizing rules
6.1.4.1.7.9 Standard abbreviations acceptable for use in listings and addresses

6.1.4.1.7.10 Titles and designations
6.1.4.1.7.11 A list of all available directories and their close dates

6.1.4.1.8 Based on changes submitted by MCIm, ILEC shall update and maintain directory assistance and directory listings data for MCIm subscribers who:

6.1.4.1.8.1 Disconnect Service
6.1.4.1.8.2 Change carrier
6.1.4.1.8.3 Install Service
6.1.4.1.8.4 Change any service which affects DA information
6.1.4.1.8.5 Specify Non-Solicitation
6.1.4.1.8.6 Are Non-Published, Non-Listed, or Listed

6.1.4.1.9 ILEC shall not charge for storage of MCIm subscriber information in the DA and DL systems.

6.1.4.1.10 MCIm shall not charge for storage of ILEC subscriber information in the DA and DL systems.

6.1.5 Directory Listings General Requirements

6.1.5.1 This Section 6 pertains to Listings requirements published in any media, including but not limited to traditional white/yellow pages, specialty directories, CD ROM, or other printed or electronic formats.

6.1.5.2 ILEC shall include in its master subscriber system database all list information for MCIm subscribers.

6.1.5.3 ILEC shall not sell or license, nor allow any third party, the use of MCIm subscriber listings without the prior written consent of MCIm. Upon consent, MCIm shall receive its pro-rata share of any amounts paid by third parties to ILEC for such information. ILEC shall not disclose nor allow any third party to disclose non-listed name or address information for any purpose other than what may be necessary to complete directory distribution.

6.1.5.4 MCIm subscriber listings shall be interfiled with listings of ILEC and other CLEC subscribers.

6.1.5.5 Each MCIm subscriber account number shall be provided, at no charge, the same white page basic listings that ILEC provides its subscribers. Where an MCIm subscriber has two numbers for a line due to the implementation of interim NP, at MCIm's option both numbers shall be considered part of the one White Pages basic listing

6.1.5.6 Each MCIm business subscriber account number shall be provided; at no charge, the same yellow page basic listings that ILEC provides its subscribers.

6.1.5.7 ILEC shall also publish, or ensure that any third party publishes, all types of listings for MCIm subscribers that are available to ILEC subscribers under the same rates, terms, and conditions, including but not limited to:

6.1.5.7.1 Foreign listings
6.1.5.7.2 Reference listings
6.1.5.7.3 Information listings
6.1.5.7.4 Alternate call listings
6.1.5.7.5 Multi-line listings
6.1.5.7.6 Multi-line/Multi-owner listings

6.1.5.8 State, Local, and Federal government listings shall be included in the appropriate section of the directory at no charge.

6.1.5.9 ILEC shall provide and maintain for MCIm at least one (1) white page and at least one (1) yellow page (if applicable) listing for each MCIm subscriber that has ported its number from ILEC. The listing and handling of listed and non-listed telephone numbers shall be at least at parity with that provided by ILEC to its own subscribers.

6.1.5.10 MCIm sales, service, billing, and repair information for business and residential subscribers, along with MCIm logo, shall be included in the customer information/guide pages at no charge to MCIm.

6.1.5.11 One month prior to the date on which updates to the directory are no longer allowed (the Directory Close date), ILEC shall provide MCIm a method of reviewing and correcting MCIm subscriber directory listings.

6.1.5.12 ILEC shall agree, or ensure a third party agrees, to accept and publish directory advertising, from MCIm subscribers on a non-discriminatory basis and bill subscribers directly for any white or yellow pages advertising. At MCIm's discretion, MCIm may sell directory advertising at wholesale rates and bills its subscribers directly.

6.1.5.13 Additional and foreign White Page listing charges should be billed to MCIm and itemized at the telephone number sub-account level in CABS format.

6.1.5.14 ILEC shall distribute, or ensure a third party shall distribute, appropriate alphabetical and classified directories (white and yellow pages) to MCIm subscribers at no charge 1) upon establishment of new service; 2) during annual mass distribution; and 3) upon subscriber request.

6.1.5.15 ILEC shall permit, or ensure a third party permits, MCIm subscribers to place orders for foreign directories on the same terms and conditions such directories are made available to ILEC subscribers.

6.1.5.16 Upon request, and at no charge, ILEC shall provide, or ensure a third party provides, reasonable quantities of directories to cover areas in which MCIm is an authorized CLEC for MCIm's internal use.

6.1.5.17 The directory cover shall prominently indicate that MCIm subscriber listings are included in the directory at no charge.

6.1.5.18 At MCIm's option, MCIm subscribers shall receive a directory with a customized cover branded MCIm.

6.1.5.19 ILEC shall make available current recycling services to MCIm subscribers.

6.1.6 Directory Assistance Data

6.1.6.1 This section refers to the residential, business, and government subscriber records used by ILEC to create and maintain databases for the provision of live or automated operator assisted Directory Assistance. Directory Assistance Data is information that enables telephone exchange carriers to swiftly and accurately respond to requests for directory information, including, but not limited to name, address and phone numbers. Under the provisions of the Act and the FCC's Interconnection order, ILEC shall provide unbundled and non-discriminatory access to the residential, business and government subscriber records used by the ILEC to create and maintain databases for the provision of live or automated operator assisted Directory Assistance. MCIm may combine this element with any other Network Element for the provision of any Telecommunications Service.

6.1.6.2 ILEC shall provide an initial load of subscriber records via electronic data transfer for ILECs, CLECs and independent Telcos included in their Directory Assistance Database within 14 days of the Effective Date of this Agreement. The NPAs included shall represent the entire ILEC operating region. The initial load shall reflect all data that is current as of one business day prior to the provision date.

6.1.6.3 ILEC shall provide MCIm a complete list of ILECs, CLECs, and independent Telcos that provided data contained in the database.

6.1.6.4 All directory assistance data shall be provided in the format as specified in "Directory Assistance Data Information Exchanges and Interfaces" below or in Bellcore standard F20 format.

6.1.6.5 On a daily basis, ILEC shall provide updates (end user and mass) to the Listing Information via electronic data transfer. Updates shall be current as of one business day prior to the date provided to MCIm.

6.1.6.6 ILEC shall provide MCIm access to DA support databases. For example, MCIm requires access to Use

Restriction information including but not limited to call completion.

6.1.6.7 DA data shall specify whether the customer is a residential, business, or government subscriber. Additionally, data must include all levels of indentation and all levels of information specified in "Directory Assistance Data Information Exchanges and Interfaces" below.

6.1.6.8 DA data shall be provided on the same terms, conditions, and rates that ILEC provides to itself or other third parties.

6.1.6.9 ILEC shall provide complete refresh of the DA data upon request by MCIm.

6.1.6.10 MCIm will designate a technically feasible point at which the data will be provided.

6.2 Systems Interfaces and Exchanges

6.2.1 Basic 911 and E911 Information Exchanges and Interfaces

6.2.1.1 ILEC shall provide MCIm a data link to the ALI/DMS database or permit MCIm to provide its own data link to the ALI/DMS database. ILEC shall provide error reports from the ALI/DMS database to MCIm immediately after MCIm inputs information into the ALI/DMS database. Alternately, MCIm may utilize ILEC or a third party entity to enter subscriber information into the database on a demand basis, and validate subscriber information on a demand basis.

6.2.1.2 ILEC and MCIm shall arrange for the automated input and periodic updating of the E911 database information related to MCIm end users. ILEC shall work cooperatively with MCIm to ensure the accuracy of the data transfer by verifying it against the Master Street Address Guide (MSAG). ILEC shall accept electronically transmitted files or magnetic tape that conform to National Emergency Number Association (NENA) Version #2 format.

6.2.1.3 The ALI database shall be managed by ILEC, but is the property of ILEC and all participating telephone companies. The interface between the E911 Switch or Tandem and the ALI/DMS database for MCIm subscriber shall meet industry standards.

6.2.2 Directory Assistance Data Information Exchanges and Interfaces

6.2.2.1 Subscriber List Information

6.2.2.1.1 ILEC shall provide to MCIm, within thirty (30) days after the Effective Date of this Agreement, or at MCIm's request, all published Subscriber List Information (including such information that resides in ILEC's master subscriber system/accounts master file) via an electronic data transfer medium and in a format which is acceptable to MCIm, on the same terms and conditions and at the same rates that the ILEC provides Subscriber List Information to itself or to other third parties. All changes to the Subscriber List Information shall be provided to MCIm on the same day as the change occurred through the electronic data transfer medium used to transmit the initial Subscriber List Information. Both the initial List and all subsequent Lists shall indicate for each customer whether the customer is classified as residence or business class of service.

6.2.2.2 This section addresses data format requirements and data inclusion requirements for directory assistance data information exchange between ILEC and MCIm. ILEC shall provide MCIm the following:

6.2.2.2.1 List of NPA-NXX's relating to the listing records being provided.

6.2.2.2.2 List of Directory Section names and their associated NPA-NXX's.

6.2.2.2.3 List of Community Names expected to be associated with each of the NPA-NXX's for which

listing records shall be provided.

6.2.2.2.4 List of Independent Company names and their associated NPA-NXX's for which their listing data shall be included in ILEC's listing data.

6.2.2.2.5 List of Independent Company names and their associated NPA-NXXs for which their listing data is a part of ILECs directory database, but ILEC is not to provide the listing data to MCIm under this request.

6.2.2.2.6 Listing volume totals by directory section, NPA, and state.

6.2.2.2.7 Average daily update volume by directory section, NPA, and state.

6.2.2.2.8 Identify any area wide or universal service numbers which may be listed. Identify the telephone number to be provided to callers outside the servicing area.

6.2.2.2.9 Identify any listing condition(s) unique to ILEC's serving area which may require special handling in data processing in the directory. Indented Listings (Captions) should be identified and delivered handled as specified.

6.2.2.3 Considerations Relating to an Indented Listing (Caption) Set Requirements

6.2.2.3.1 Use of line numbers, or other methods, to ensure the integrity of the caption set and identify the sequence or placement of a listing record within the caption set. A sufficient range of numbers between listing records is required to allow for the expansion of the caption set. A method is also required to permit the caption header record to be identified, but each level of indent is not required to be recapped; placement of the indent is based on line number. This method does require stringent edits to ensure the integrity of the caption set.

6.2.2.3.2 Use of guideline or recapped data to identify previously established header and sub-header records for placement of data within the caption set. This permits flexibility to easily expand the caption set. This method also requires that, in addition to the caption header record, each level of indent be recapped in order to properly build the caption set.

6.2.2.3.3 In order to maintain the integrity of caption replacement, with end-of-day cumulative effect, one OUT record must be sent to delete the entire caption set, followed by IN activity each listing record within the caption set.

6.2.2.3.4 MCIm requires listing instruction codes on the service order which indicate how the set is to appear in the published directory.

6.2.2.4 Data Processing Requirements: ILEC and MCIm shall mutually agree to standards on the following data processing requirements:

6.2.2.4.1 Identify type of tape to be used in sending the test and initial load data. For example, reel or cartridge tape. Due to the size of an initial load, it would be generally expected to be on tape and the daily update activity via another media, such as NDM.

6.2.2.4.2 Identify tape or dataset label requirements.

6.2.2.4.3 Identify tracking information requirements. For example, use of header and trailer records for tracking date and time, cycle numbers, sending and receiving site codes, volume count for the given tape/dataset. It may also be helpful to have some filler fields for future use.

6.2.2.4.4 Identify dates MCIm should not expect to receive daily update activity.

6.2.2.4.5 Data should be received in uppercase. An asterisk (*) should be used advise of the need to apply the reverse capitalization rule. However, if the

provider determines to provide the listing data from a database that has already messaged the data and applied the capitalization rules, the asterisk may be omitted.

6.2.2.4.6 Identify information that shall enable MCIm to identify listings within an indented list (caption) set. For example:

6.2.2.4.6.1 When a particular listing has been designated to be filed as the first listing for a given level (0-7) of indent - usually out of alpha sequence.

6.2.2.4.6.2 When an alternate call listing (e.g. If no answer) relates to multiple preceding listings of the same level.

6.2.2.4.7 Identify any other pertinent information needed to properly process the data.

6.2.2.4 Listing T s

LISTED	The listing informa available for all directory requirements.
NON-LISTED	The listing information is available to all directory requirements, but the information does not appear in the published street directory.
NON-PUBLISHED	A directory service may confirm, by name and address, the presence of a listing, but the telephone number is not available. MCIm may confirm the address, but is not permitted to receive the non-published telephone number. The listing information is not available in either the published directory or directory assistance.

6.2.2.5 Listing Styles

LISTING STYLE	DESCRIPTION
STRAIGHT LINE	All listing information is formatted in a straight line. Data generally consists of Name, Address, Community, and Telephone Number. Additional data may consist of dialing instructions or other general information relating to the listing.
INDENTED LISTING SET - STRAIGHT LINE UNDER (SLU)	Two or more listing records relating to the same listed customer. The first is formatted as a straight line listing with the additional listing(s) indented one degree under the straight line listing.
INDENTED LISTING SET - CAPTION SET	Formatted with one listing header record and multiple indented listing records. See detailed description below.

INDENTED LISTING (CAPTION) SET

HEADER RECORD	Contains listed name; address and telephone number data fields are blank.
SUB-HEADER RECORD/ LISTING	May contain name data only, or may include address and telephone number data. Associated subordinate records may, or may not be present.
INDENTED NAME LISTING	Contains name data , may or may not have address data, and telephone number data.
INDENTED ADDRESS LISTING	Contains address and telephone number data; the name data text field is blank.
LEVEL OF INDENT	Header record is zero (0), sub-header and indented records range from 1 - 7.

6.2.2.6 Data Field Elements

Requirements for Initial Processing and Daily Update Activity

DATA FIELD	DATA ELEMENT	FIELD LENGTH
ACTION CODE	A = Add I = In D = Delete or O = out	Required: 1 alpha character
RECORD NUMBER	Sequentially assigned number to each record for a given process (test, initial load, or update activity). Number assignment begins with 00000001 and is incremented by 1 for each record on the file.	Required: 8 digits
NPA	Area code relating to the directory section the record is to be listed.	Required: 3 digits
COMPANY IDENTIFIER	The 4-character company code as defined in Section 8 of the National Exchange Carrier Association, Inc. Tariff.	Required: 4 digits
DIRECTORY	Name of the directory section	Required: Maximum of 50

SECTION LISTING IDENTIFIER	where the record is to be listed. F = Foreign C = Cross-Reference E = Enterprise (WX number requiring operator assistance to connect the call) W = Wide area or universal service	alpha characters Optional: 1 alpha character
FILE PLACEMENT	B = Business (4) R = Residence (1) G = Government (2) BR = Business & Residence (5) BG = Business & Government (6) BRG = Business, Residence, & Government (7)	Required: Maximum of 3 alpha characters
LISTING TYPE	L = Listed N = Non-Listed NP = Non-Published	Required: Maximum of 2 alpha characters
LISTING STYLE	S = Straight line I = Indented listing set An Indented listing relates to either a caption or Straight Line Under (SLU) set listing.	Required: 1 alpha character
INDENT LEVEL	0 = Non-indented record 1 - 8 = Level of indented record	Required: 1 digit
ADDRESS HOUSE NUMBER	For example: 123, A-123, 123-1/2	Optional: Maximum of 20 alphanumeric characters, including hyphen, space, and slash
ADDRESS PRE-DIRECTIONAL	For example: N, S, E, W, NE, SW, NORTH	Optional: Maximum of 5 alpha characters
ADDRESS STREET NAME	For example: Main, Peachtree-Dunwoody, HWY 75 at Exit 30	Optional: Maximum of 100 alpha, alphanumeric characters, including

		spaces and hyphens.
ADDRESS SUFFIX OR THOROUGHFARE	For example: SUITE 160, ST, or WAY	Optional: Maximum of 20 numeric, alpha, or alphanumeric characters
ADDRESS POST DIRECTION	For example: N, S, NE, SW	Optional: Maximum of 5 alpha characters
ADDRESS ZIP CODE	5-digits or ZIP + 4	Optional: Maximum of 10 digits, including the hyphen when using ZIP + 4
COMMUNITY NAME	Identifies the name of the community associated with the listing record. See Glossary for more details.	Maximum of 50 alphanumeric characters, including spaces and hyphen
STATE NAME ABBREVIATION	Identifies the state associated with the community name; 2-character state abbreviation used by the US Postal Office.	Maximum of 2 alpha characters
INFORMATION TEXT	Miscellaneous information relating to the listing. Including, but not limited to, for example: TOLL FREE DIAL 1 & THEN, CALL COLLECT, or TDD ONLY. The various types of Information Text must be identified to MCIm.	Optional: Maximum of 250 alpha, numeric, or alphanumeric characters
NAME - FIRST WORD	Surname of a Residence or Business listing, or first word of a Business or Government listing Multi-word or hyphenated surnames should be treated as one word.	Required for a zero (0) level record. Optional if an indented (level 1-8) record, unless the name text present in the indented record relates to a Surname. Maximum of 50 alpha, numeric, alphanumeric, or special characters

NAME - SUBSEQUENT WORD(S)	Given name and/or initial(s) of a Surname listing or Additional word(s) for a Business or Government listing	Expected if the First Word is the Surname of a Residence or Business listing. Maximum of 250 alpha, numeric, special, or alphanumeric characters.
LINEAL DESCENT	e.g. SR, JR, III. If Lineal Descent data cannot be uniquely identified, it should be included with the Listed Name Subsequent Word(s) data and placed at the end of the name data.	Optional: Maximum 10 alpha characters
TITLE(s)	e.g. MRS, LT COL, RET SGR, DR. Multiple titles are acceptable. If title data cannot be uniquely identified, it should be included with the Listed Name Subsequent Word(s) data and placed at the end of the name data stream. If lineal descent is also in the Listed Name Subsequent Word(s) data field, title data should be placed following the lineal descent data.	Optional: Maximum of 20 alpha characters
DEGREE	e.g. MD, CPA, PHD. Multiple degrees are acceptable. If degree data cannot be uniquely identified, it should be included with the Listed Name Subsequent Word(s) data and placed at the end of the name data stream. If lineal descent and/or title data is also present, it should follow title data.	Optional: Maximum of 20 alpha characters
NICKNAME	Another name the listed customer may be known by.	Optional: Maximum of 20 alpha characters
BUSINESS DESIGNATION	Term used to identify the listed customer's profession, business, or location, e.g. ATTY, CARPETS, OFC	Optional: Maximum of 50 alpha characters

STANDARD TELEPHONE NUMBER *	NPA NXX-LINE	Optional: 12 characters, including space and hyphen
NON-STANDARD TELEPHONE NUMBER *	Telephone numbers less than or more than the standard telephone number.	Optional: Minimum of 1 digit, maximum of 22 characters, including spaces and hyphens

* Either a Standard or Non-standard telephone is required for a zero level record unless the record is a Cross-reference listing or an Indented Listing (caption) Set record. A telephone number may, or may not be present on an Indented Listing Set record for level(s) 0-7.

6.3 Standards

6.3.1 ILEC shall adopt use of a Carrier Code (NENA standard five-character field) on all ALI records received from MCIm. The Carrier Code will be used to identify the carrier of record in INP configurations. The NENA Carrier Code for MCIm is "MCIm".

6.4 Performance Measurements and Reporting

6.4.1 MCIm shall provide information on new customers to ILEC within one (1) business day of the order completion. ILEC shall update the database within one (1) business days of receiving the data from MCIm. If ILEC detects an error in the MCIm provided data, the data shall be returned to MCIm within two (2) business days from when it was provided to ILEC. MCIm shall respond to requests from ILEC to make corrections to database record errors by uploading corrected records within two (2) business days. Manual entry shall be allowed only in the event that the system is not functioning properly.

6.4.2 ILEC shall provide to MCIm, at a minimum, performance metrics and service results regarding speed of answer, average work time, abandoned from queue measurements, and disaster recovery plans/procedures.

6.4.3 ILEC shall notify MCIm 48 hours in advance of any scheduled testing or maintenance affecting MCIm 911 service, and provide notification as soon as possible of any unscheduled outage affecting MCIm 911 service.

6.4.4 In a resale situation where it may be appropriate for ILEC to update the ALI database, it must be updated with MCIm data in an interval no less than is experienced by ILEC customers, or than for other carriers, whichever is faster, at no additional cost.

6.4.5 MCIm may, at its discretion, further require additional and/or modified reporting as business needs demand.

Business Function	Solution* (Jan 1, 1997 or alternative timeframe)	Real-Time Access to Data	Real-Time Transaction Processing	Interval	Key Characteristics	Interim Solution
Subscriber Information						
1. ILEC provides all published Subscriber List Information	Electronic Interface - within 30 days of Agreement	N	N/A	One-time only	•	To be negotiated
2. ILEC provides MCIm with changes to Subscriber List Information	Electronic Interface	N	N/A	same day as changes occurs	•	To be negotiated
3. ILEC provides all Street Address Guide Information (SAG)	Electronic Interface	N	N/A	One-time only	•	To be negotiated
1. ILEC provides changes to Street Address Guide Information (SAG)	Electronic Interface	N	N/A	same day as changes occur	•	To be negotiated
Other Information						
1. ILEC provides MCIm PICs available at a central office level	Electronic Interface		N/A		•	To be negotiated

*** All system availability is operational twenty-four (24) hours a day, seven (7) days a week unless otherwise specified. ILEC will cooperate with MCIm to develop electronic bonding for those interfaces where real-time, transparent access to data and systems transactions are required.**

Business Function	Solution* (Jan 1, 1997 or alternative timeframe)	Real-Time Access to Data	Real-Time Transaction Processing	Interval	Key Characteristics	Interim Solution
1. MCIm views customer profile information at the line and trunk level	Electronic Interface	Y	N/A	N/A	• MCIm on-line function • Data access is transparent to user (integrated with MCIm systems)	To be negotiated
2. MCIm views all features and services, including new services, trial offers and promotions available through ILEC	Electronic Interface	Y	N/A	N/A	• MCIm on-line function • Data access is transparent to user (integrated with MCIm systems) • Data will be available by end-office	To be negotiated
3. MCIm views all services and features technically available from each switch that ILEC may use to provide a Local Switching element.	Electronic Interface	Y	Y	N/A	• MCIm on-line function • Data access is transparent to user (integrated with MCIm systems) • Data will be available by end-office	To be negotiated
Telephone Number Reservations						
1. MCIm views available list of telephone numbers	Electronic Interface	Y	N/A	N/A	• MCIm on-line function • Data access is transparent to user	To be negotiated

*** All system availability is operational twenty-four (24) hours a day, seven (7) days a week unless otherwise specified. ILEC will cooperate with MCIm to develop electronic bonding for those interfaces where real-time, transparent access to data and systems transactions are required.**

Business Function	Solution* (Jan 1, 1997 or alternative timeframe)	Real-Time Access to Data	Real-Time Transaction Processing	Interval	Key Characteristics	Interim Solution
2. MCIm reserves/assigns telephone numbers for both simple and complex services from available ILEC list/number services system	Electronic Interface	Y	Y	N/A	• MCIm on-line function • Data access and processing is transparent to user	To be negotiated
3. ILEC provides confirmation of simple number reservation	Electronic Interface	Y	Y	N/A	•	To be negotiated
4. ILEC provides confirmation of complex number reservation	Electronic Interface	N	N	within 24 hours	•	To be negotiated
Order Submission						
1. MCIm submits order for desired resold features and services, Local Services, unbundled elements and/or combinations of elements from ILEC	Electronic Interface	Y	Y	N/A	• MCIm on-line function • Order is processed real-time • Data access and processing is transparent to user (integrated with MCIm systems)	To be negotiated

*** All system availability is operational twenty-four (24) hours a day, seven (7) days a week unless otherwise specified. ILEC will cooperate with MCIm to develop electronic bonding for those interfaces where real-time, transparent access to data and systems transactions are required.**

Business Function	Solution* (Jan 1, 1997 or alternative timeframe)	Real-Time Access to Data	Real-Time Transaction Processing	Interval	Key Characteristics	Interim Solution
2. MCIm orders local, intraLATA, InterLATA, and international service on a single order	Electronic Interface	Y	Y	N/A	• MCIm on-line function • Order is processed real-time • Data access and processing is transparent to user (integrated with MCIm systems)	To be negotiated
3. MCIm requests suspension, termination or restoration of service	Electronic Interface	Y	Y	N/A	•	To be negotiated
4. MCIm adjusts pending order due dates	Electronic Interface	Y	Y	N/A	• MCIm on-line function • Adjustment is processed real-time • Data access and processing is transparent to user (integrated with MCIm systems)	To be negotiated
OrderTracking						
1. ILEC provides acknowledgment or rejection of Service Orders to MCIm	Electronic Interface	Y	Y	within 1 hour	• Although the interval period is 1 hour, the order is updated real-time to reflect the acknowledgment or rejection	To be negotiated

*** All system availability is operational twenty-four (24) hours a day, seven (7) days a week unless otherwise specified. ILEC will cooperate with MCIm to develop electronic bonding for those interfaces where real-time, transparent access to data and systems transactions are required.**

Business Function	Solution* (Jan 1, 1997 or alternative timeframe)	Real-Time Access to Data	Real-Time Transaction Processing	Interval	Key Characteristics	Interim Solution
2. ILEC provides errors in Service Orders to MCIm	Electronic Interface	Y	Y	N/A	•	To be negotiated
3. ILEC provides FOC to MCIm	Electronic Interface	N	Y	within 4 hours	• Includes all components of order	To be negotiated
Provisioning						
1. ILEC provides delay notification to MCIm	Electronic Interface	Y	Y	N/A	•	To be negotiated
2. ILEC provides completion notification to MCIm	Electronic Interface	Y	Y	within 1 hour	•	To be negotiated
3. MCIm schedules service installations	Electronic Interface	Y	Y	N/A	• MCIm on-line function • Request is processed real-time • Data access and processing is transparent to user (integrated with MCIm systems)	To be negotiated
4. ILEC provides charges on special construction to MCIm	Electronic Interface	Y	Y	N/A	•	ILEC's LCSC will immediately notify MCIm by phone

*** All system availability is operational twenty-four (24) hours a day, seven (7) days a week unless otherwise specified. ILEC will cooperate with MCIm to develop electronic bonding for those interfaces where real-time, transparent access to data and systems transactions are required.**

Business Function	Solution* (Jan 1, 1997 or alternative timeframe)	Real-Time Access to Data	Real-Time Transaction Processing	Interval	Key Characteristics	Interim Solution
5. ILEC supplies MCIm with Due Date Interval Guides/Job Aids	Electronic Interface	Y	N	N/A	•	To be negotiated

*** All system availability is operational twenty-four (24) hours a day, seven (7) days a week unless otherwise specified. ILEC will cooperate with MCIm to develop electronic bonding for those interfaces where real-time, transparent access to data and systems transactions are required.**

Business Function	Solution* (Jan 1, 1997 or alternative timeframe)	Real-Time Access to Data	Real-Time Transaction Processing	Interval	Ke

* All system availability is operational twenty-four (24) hours a day, seven (7) days a week unless otherwise specified. ILEC will cooperate with MCIm to develop electronic bonding for those interfaces where real-time, transparent access to data and systems transactions are required.

ATTACHMENT IX

SECURITY REQUIREMENTS

Section 1. Physical Security

ILEC shall exercise the highest degree of care to prevent harm or damage to MCIm or its employees, agents or customers, or their property. ILEC and its employees, agents or representatives shall take reasonable and prudent steps to ensure the adequate protection of MCIm property, equipment and services including, but not limited to:

1.1 Restricting access to MCIm equipment, support equipment, systems, tools, or spaces which contain or house MCIm equipment enclosures to MCIm employees and other authorized non-MCIm personnel to the extent necessary to perform their specific job function.

1.2 Furnishing to MCIm a current written list of ILEC's employees which ILEC authorizes to enter spaces which house or contain MCIm equipment or equipment enclosures, including caged areas, authorized with current facsimiles of the identifying credentials to be carried by such persons.

1.3 Complying at all times with MCIm security and safety procedures and requirements, including but not limited to sign-in, identification, and escort requirements while in spaces which house or contain MCIm equipment or equipment enclosures and compliance with MCIm's Physical Security Guidelines Manual.

1.4 Insuring that the area which houses MCIm's equipment is adequately secured and monitored to prevent unauthorized entry.

1.5 Allowing MCIm to inspect or observe spaces which house or contain MCIm equipment or equipment enclosures at any time and to furnish MCIm with all keys, entry codes, lock combinations, or other materials or information which may be needed to gain entry into any secured MCIm space.

1.6 Agreeing to partition any access device systems, whether biometric or card reader, or types which are encoded identically or mechanical coded locks on external and or internal doors to spaces which house MCIm equipment.

1.7 Limiting the keys used in its keying systems for spaces which contain or house MCIm equipment or equipment enclosures to ILEC employees and representatives to emergency access only. MCIm shall further have

the right to change locks where deemed necessary for the protection and security of such spaces.

1.8 Installing security studs in the hinge plates of doors having exposed hinges with removable pins if such leads to spaces which contain or house MCIm equipment or equipment enclosures.

1.9 Controlling unauthorized access from passenger and freight elevators by continuous surveillance or by installing security partitions, security grills, locked gates or doors between elevator lobbies and spaces which contain or house MCIm equipment or equipment enclosures.

1.10 Providing real time notification to designated MCIm personnel to indicate an actual or attempted security breach.

1.11 Ensuring that areas designated to house MCIm equipment are environmentally appropriate for the MCIm equipment installation, and adequate to maintain proper operating conditions for the MCIm equipment.

Section 2. Network Security

2.1 Providing an acceptable back-up and recovery plan to be used in the event of a system failure or emergency.

2.2 Installing controls:
to disconnect a user for a pre-determined period of inactivity on authorized ports;
to protect customer proprietary information; and
to databases to ensure both ongoing operational and update integrity.

2.3 Network Security:
Ensuring that all MCIm-approved systems and modem access be secured through MCIm-approved security devices.
Ensuring that access to or connection with a network element must be established through MCIm security-approved networks or gateways.
Agreeing to comply with MCIm Corporate Security Standards, including but not limited to "MCIm Information Asset Security Standards", February, 1996, Document Number 076-0004-01-01.OF-ER and "MCIm Minimum Security Baseline Standard for Information Systems", January 1996, Document Number 076-0003-01.OF-ER.

Section 3. Revenue Protection

3.1 ILEC shall make available to MCIm all present and future fraud prevention or revenue protection features, including prevention, detection, or control functionality embedded within any of the Network Elements. These features include, but are not limited to screening codes, information digits assigned such as information digits '29' and '70' which indicate prison and COCOT pay phone originating line types respectively, call blocking of domestic, international, 800, 888, 900, NPA-976, 700, 500 and specific line numbers, and the capability to require end-user entry of an authorization code for dial tone. ILEC shall additionally provide partitioned access to fraud prevention, detection and control functionality within pertinent Operations Support Systems ("OSS") which include but are not limited to Line Information Data Base Fraud monitoring systems, High Toll Notifiers, SS7 suspect traffic alerts, AMA suspect traffic alerts, etc.

Uncollectible or unbillable revenues resulting from, but not confined to provisioning, maintenance, or signal network routing errors shall be the responsibility of the party causing such error.

3.2 Uncollectible or unbillable revenues resulting from the accidental or malicious alteration of software underlying Network Elements or their subtending operational support systems by unauthorized third parties shall be the responsibility of the party having administrative control of access to said Network Element or operational support system software.

3.3 ILEC shall be responsible for any uncollectible or unbillable revenues resulting from the unauthorized use of the service provider network whether that compromise is initiated by software or physical attachment to loop facilities from the Main Distribution Frame up to and including the Network Interface Device, including clip-on fraud. ILEC shall provide soft dial tone to allow only the completion of calls to final termination points required by law.

3.4 ILEC shall restrict system access to MCIm confidential Information, to authorized ILEC employees and other non-MCIm personnel, to that which is necessary to perform their specific job function and otherwise pursuant to Part A, Section 21.

Section 4. Law Enforcement Interface

ILEC shall provide seven day a week / twenty-four hour a day installation and information retrieval pertaining to traps, assistance involving emergency traces and information retrieval on customer invoked CLASS services, including, without limitation, call traces requested by MCIm. ILEC shall provide all necessary assistance to facilitate the execution of wiretap or dialed number recorder orders from law enforcement authorities.

ATTACHMENT X

Credits for Performance Standards Failures

Section 1. General

1.1 ILEC shall satisfy all service standards, intervals, measurements, specifications, performance requirements, technical requirements and Performance Standards (collectively referred to herein as "Performance Standards") that are specified in this Agreement. In addition, ILEC's performance under this Agreement shall provide MCIm with the capability to meet Performance Standards that are at least equal to the highest level that ILEC provides or is required to provide by law or its own internal procedures, whichever is higher. In the event that the Performance Standards specified in the Agreement are different than the standards or measurements that ILEC provides or is required to provide by law or its own internal procedures, the highest Performance Standard shall apply.

1.2 ILEC and MCIm agree that delays in the provision of services, failures to meet the Performance Standards required by this Agreement and delays in providing Customer Usage Data in accordance with the requirements of this Agreement, will cause MCIm to suffer damages. The credits set forth in this Attachment X are intended to compensate MCIm, partially and immediately, for the loss in value caused by ILEC's failure to meet Performance Standards, and are not intended to be liquidated damages.

1.3 In the event that any service is not installed, provisioned, or maintained in accordance with the Due Dates specified in this Agreement, ILEC shall grant MCIm a credit ("Delay Credit") calculated as provided herein.

1.4 In the event that a service fails to meet the Performance Standard requirements imposed by this Agreement (or is interrupted causing loss of continuity or functionality), ILEC shall grant MCIm a credit ("Performance Failure Credit"), as set forth herein.

1.5 In the event that Customer Usage Data is not provided within the time period required by this Agreement, or in the event that Customer Usage Data is not provided in accordance with the specifications of this Agreement, ILEC shall pay to MCIm an amount ("Customer Usage Credit") calculated as provided herein.

1.6 MCIm also shall have the option to obtain an alternative service from ILEC to replace service for which a Performance Failure Credit or Delay Credit is due. ILEC will be responsible for any amounts (including installation charges) in excess of the otherwise applicable charges under this Agreement for the affected service. MCIm may obtain an alternative service from another vendor, if available. MCIm shall choose the least costly service provided by such vendor that reasonably meets its needs, shall subscribe to such service for the minimum commercially available period and shall move all affected traffic to the newly installed, repaired or restored service as soon as possible after the end of such period. ILEC shall be fully responsible for all obligations and shall pay in full all charges associated with the cost of such replacement service. Any minimum volume commitments shall be reduced by the amount of service which MCIm has substituted.

1.7 ILEC and MCIm agree that remedies at law alone are inadequate to compensate MCIm for failures to meet the Performance Standard requirements specified by this Agreement, failures to install or provision services in accordance with the Due Dates specified in this Agreement, or for failures to provide Customer Usage Data in accordance with this Agreement. MCIm shall have the right to seek injunctive relief and other equitable remedies (in addition to remedies provided in this Agreement, at law and through administrative process) to require ILEC (i) to cause the service ordered by MCIm to meet the Performance Standards specified by this Agreement, (ii) install or provision service ordered by MCIm within the Due Dates specific in this Agreement and (iii) to provide Customer Usage Data in accordance with this Agreement.

Section 2. Credits for Failure to Meet Performance Standards

ILEC shall pay to MCIm the amount of any credits due hereunder, or MCIm may, at MCIm's option, offset against charges due to ILEC the amounts specified in this Attachment for delays in the provision of services, failures to meet the Performance Standards required by this Agreement or delays in the provision of Customer Usage Data or failures to provide such data in accordance with the requirements of this Agreement. Unless otherwise specified by MCIm, performance against Performance Standards will be measured on a monthly basis.

Section 3. Delay Credits.

3.1 **Customer-Specific Services.**

3.1.1 If ILEC does not satisfy any Performance Standard related to: (i) a deadline for the provisioning to MCIm of Local Resale, (ii) a deadline for the provisioning of service or support functions related

to Local Resale, or (iii) the delivery date(s) for error-free provisioning of Network Elements or Local Interconnection, ILEC will be liable to MCIm for a credit for each and every order for service that has been delayed or not properly completed.

3.1.2 Credits shall consist of: (i) a waiver of any associated provisioning/installation charge; and (ii) a delay credit equal to the associated monthly charge for the service for each month or partial month of delay.

3.2 **Non-Customer Specific Services.**

3.2.1 If ILEC fails to satisfy any Performance Standard related to the delivery dates for error-free provisioning Network Elements (Attachments III and VIII), ILEC will be liable to MCIm for a Delay Credit for each and every order for non-customer specific Network Elements that has been delayed or not properly completed.

3.2.2 The Delay Credit shall consist of: (i) a waiver of any associated provisioning/installation charge; and (ii) a delay credit equal to $25,000 per day for each day of delay.

Section 4. Performance Failure Credits

4.1 If ILEC fails to satisfy any Performance Standard specified in this Agreement, ILEC will be liable for a Performance Failure Credit in the amounts set forth below for each and every outage/trouble call that is not restored/resolved in the specified interval.

Interval	Standard	Performance Failure Credit (per line or equivalent DSO circuit per 24 hour period or part thereof)
Outage Requiring Premises Visit*		
4 hours	90%	$ 50.00
8 hours	95%	$ 75.00
16 hours	99%	$100.00
Outage Not Requiring Premises Visit		

2 hours	85%	$ 50.00
3 hours	95%	$ 75.00
4 hours	99%	$100.00
Trouble Calls 24 hours	95%	$ 75.00

* A referral received between 6.00 P.M. and 8:00 A.M. shall be treated as though it were received at 8:00 A.M. for Performance Standard purposes.

Section 5.Credits for Delayed or Improperly Provided Customer Usage Data

5.1 If ILEC fails to satisfy the "Does Not Meet Expectations" Rating Criteria set forth in Section 4 of Attachment VIII of this Agreement for providing Customer Usage Data. ILEC will be liable for a Customer Usage Credit for each day that such data is delayed. The daily amount of the Customer Usage Credit shall be calculated using the following formula:

$$\frac{\text{(Number of Messages Delayed x Average Revenue Per Message)}}{30}$$

MCIm shall provide the Average Revenue Per Message factor.

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Attachment X
Credits for Performance Standards Failures

I. INTERCONNECTION

Definition: The connection of the telecommunications facilities and equipment of any telecommunications carrier with the ILEC's network for the transmission and routing of telephone exchange and exchange access services.

Interconnection can occur at any technically feasible point within the ILEC's network, and must be at least equal in quality to that provided by the ILEC to itself and at rates, terms and conditions that are just, reasonable and non-discriminatory.

REQUIREMENTS

1. Point of Interconnection
2. Trunking
3. Traffic Types
4. Signaling
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6. Business Processes
   - 6.1 Order Processing
   - 6.2 Provisioning & Installation
   - 6.3 Trouble Resolution, Maintenance, Customer Care
   - 6.4 Billing
7. Quality of Service
8. Information

Access #	MCI Position	Sprint Position	FCC Ruling
	I. POINT OF INTERCONNECTION (POI):		
1.1	Each interconnecting carrier must designate at least one POI on the other carrier's network for each local calling area. Each carrier has the responsibility for providing its own facilities to route calls (1) originating on its network and terminating on the other carrier's network to its POI, and (2) originating on the other local exchange carrier's network, but terminating on its network from that carrier's POI. There is no requirement that a carrier establish more than one POI for any local calling area, but nothing should prevent MCI from designating more than one POI upon mutual agreement of the carriers. There should be no charge for provision of the POI facilities.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 220,1035 51.305

FLORIDA PUBLIC SERVICE COMMISSION
DOCKET NO. 961230-TP EXHIBIT NO. 7
COMPANY/
WITNESS:
DATE: 10-18-96

Access #	MCI Position	Sprint Position	FCC Ruling
1.2	POIs may be at any technically feasible point on the networks, including, but not limited to: tandem switches, end office switches or other wire centers. Collocation is not a requirement for establishing a POI. POIs can be established via meetpoint, collocation and other mutually agreed to methods.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 198,201,210 51.305, 51.321(b), 51.323
1.3	Carriers agree to install efficient and sufficient facilities to route calls (1) originating on its network and terminating on the other carrier's network to its POI, and (2) originating on the other local exchange carrier's network, but terminating on its network from that carrier's POI, and will work cooperatively to ensure such.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 224 - 225 51.305
1.4	ILEC may not impose any restrictions on traffic types delivered to/from the POI(s).	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 214 - 220
1.5	A carrier may make any modifications or additions to its designated POIs in order to add capacity or establish new POIs. Such changes should not require a new contract, but should be covered by a master service agreement.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.305(a)(5)
1.6	Each carrier preserves the option to designate its POI at the most efficient point for its purposes.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.321(b)

Access #	MCI Position	Sprint Position	FCC Ruling
1.7	A carrier should not impose on the other the inefficiencies of its network design; any additional costs resulting from the inefficiencies of an ILEC's network design should be borne by the ILEC and not imposed on MCI.	No. Sprint cannot agree to limit it's ability to reconfigure its network. Inefficiencies need further clarification.	51.305(a)(2)
1.8	Once traffic is delivered to the POI, it is the terminating carrier's responsibility to terminate the traffic to its end users. Calls should be terminated using the same network, ensuring the same quality of service, as the carrier provides its own customers.	Same quality, not necessarily the same network. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.305(a)(3)
	2. TRUNKING		
2.1	Trunking should be available to any switching center designated by either carrier: including end offices, local tandems, access tandems, 911 routing switches, directory assistance/operator services switches, or any other feasible point in the network. Carriers should have the option for either one-way or two-way trunking. Directionality in this case refers to the traffic flowing between two networks, not to the logical or physical configuration of the trunk. All trunks should be configured two way for testing purposes.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.305
2.2	There should be no restrictions on the types of traffic that can be combined on a single trunk group. In the eventuality that there is good reason for traffic separation then the carrier receiving the traffic should determine the types of traffic that can be combined (e.g. local, intraLATA toll, interLATA access). To the extent necessary to apply the appropriate compensation arrangement, Percent Usage reporting should be established.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.305

Access #	MCI Position	Sprint Position	FCC Ruling
2.3	Carriers should offer B8ZS Extended Super Frame (ESF) facilities to each other, and will make these facilities available to allow for transmission of voice and data traffic.	Sprint has agreed in principle to provide where available. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.305
2.4	Trunking should be available at any feasible point that is used in the transmission of voice, data or other types of traffic (e.g., file servers, SCPs, DXCs, ATM switches, etc.)	Sprint has requested that MCI better define this request and consideration deletion.	51.305
	3. TRAFFIC TYPES		
3.1	Carriers should provide the necessary facilities and equipment to allow for the exchange of the following types of traffic between ILEC(s) and MCI:	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.305, 51.309, 51.319
3.2	**Local Exchange** - local traffic to be terminated on each party's local network so that customers of either party have the ability to reach customers of the other party without the use of access codes.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.305, 51.309, 51.319
3.3	**Exchange Access** - The offering of access to telephone exchange services or facilities origination and termination of intraLATA or interLATA toll services.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.305, 51.309, 51.319

Access #	MCI Position	Sprint Position	FCC Ruling
3.4	**IXC Transit** - the ILEC must provide intermediary network access service between MCI and any IXC for the purpose of completing interLATA or intraLATA toll traffic. Each carrier will provide their own network access services to the IXC on a meet-point basis.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.305, 51.309, 51.319
3.5	**Other Transit functions** - the ILEC must provide intermediary tandem switching and transport services for MCI's connection of its end user to a local end user of other CLECs, ITCs, and wireless telecommunications providers.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.305, 51.309, 51.319
3.6	**Intelligent network** - The ILEC must provide open logical and physical interconnection points to AIN/IN interface in their network. Refer to Section X, Part 6.	See Section X, Part 6.	51.305, 51.309, 51.319
3.7	**Other Services** - The ILEC must provide connection and call routing for 911, E-911, directory assistance, and operator assistance services.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.305, 51.309, 51.319
3.8	**Network surveillance** - The ILEC must provide access to monitoring, surveillance and other fraud control functions in its network.	Sprint has stated that it will consider this request based on technical feasibility. Sprint to complete assessment. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.305, 51.309, 51.319
	4. SIGNALING		

Access #	MCI Position	Sprint Position	FCC Ruling
4.1	ILEC must provide interconnection to and from intelligent network, signaling, monitoring, surveillance and fraud control points.	Sprint has indicated that it agrees in principle on ISUP but has asked MCI to provide further explanation as to what needs the rest.	51.305(a)(2)(v), 51.319(e)
4.2	ILEC shall provide and implement all SS7 Mandatory and Optional parameters as well as procedures that are defined in the ANSI standards even if today's services do not specifically requires these features. These functions shall include: a. All functions of the ISUP, TCAP, MTP as specified in the ANSI specifications. b. All functions of the OMAP including MTP Routing verification Test(MRVT) and SCCP Routing Verification Test(SRVT).	Sprint is willing to consider on a negotiated case by case basis only as not all compliant equipment may have functions available. In addition, Sprint states that all functions is to too broad. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.305(a)(2)(v), 51.319(e)
4.3	ILEC shall provide options to interconnect all the systems connected to the ILEC SS7 network. These options shall include: A & E-Link access from the MCI local switching system. D-Link access from MCI STPs. F-link access to the ILEC EO/AT and to ILEC Data Bases.	Sprint states it will provide upon a bona fide request however, there is a compensation issue to be resolved. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.319(e)(2)(iii), 51.319(e)(I)(IV)

Access #	MCI Position	Sprint Position	FCC Ruling
4.4	ILEC shall provide a signaling link which consists of a 56 kbs transmission path or other rates as defined by ANSI standards between MCI designated signaling Points of Interconnect (SPOIs), satisfying an appropriate requirement for physical diversity.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.319(e), 51.305(a)
4.5	ILEC shall meet or exceed SS7 performance objectives as described in Bellcore TR-905 section 7, MTP and SCCP performance as specified in ANSI.	This requires further review by Sprint SMEs. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.305(a), 51.319(e) ¶481
4.6	Carriers shall have the option for Multi-frequency (MF) signaling, but only when either party does not have the technical capability to provide SS7 facilities.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.305(a) 51.319(e)
4.7	Other Requirements:		
	a. CIP (CIC within the SS7 call set-up signaling protocol) at no charge.	Sprint has this tariffed and if requested when implemented, there is no charge. There is a NRC if requested thereafter. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	FCC did not address in Interconnection order

Access #	MCI Position	Sprint Position	FCC Ruling
	b. All SS7 signaling parameters must be provided including Calling Party Number (CPN). All privacy indicators must be honored	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.319(e), 51.305(a)
	c. Carriers must provide to one another signaling System 7 (SS7) trunking. - GR-394 SS7 interconnect to IXCS - GR 317 SS7 interconnection between ILEC/MCI switches	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.319(e), 51.305(a)
4.8	Carriers must support intercompany 64 kbps clear channel.	Sprint agrees in principle to provide where available. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.305(a) 51.311 51.319(e)
4.9	Carriers will cooperate in the exchange of TCAP messages to facilitate full inter-operability of SS7- based features between their respective networks, including all CLASS features and functions, to the extent each carrier offers such features and functions to its own end users.	Sprint agrees in principle to provide where available. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307(c)

Access #	MCI Position	Sprint Position	FCC Ruling
4.10	Inter-network connection and protocol must be based on industry standards developed through a competitively neutral process, consistent with section 256 of the Federal Telecommunications Act of 1996, open to all companies for participation. All carriers must adhere to the standard.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.305(a)(3) 51.305(a)(5) 51.313
4.11	The standards and ILEC developed requirements/ specifications for the network-user interface must be compatible with the network-network interface.	Sprint has to further research this issue.	¶ 481 51.305(a)(3) 51.305(a)(5) 51.319(e)
	5. COMPENSATION		
5.1	**Exchange Access:**		
5.1.1	Exchange access must be priced at TSLRIC. This includes both switched and special access.	No.	51.515
5.2	**Reciprocal Compensation:**		
5.2.1	See XIII. Reciprocal Compensation Arrangements for Local Exchange Traffic.	See Section XIII. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	
5.2.2	There should be no charge for the provision of POI facilities.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	

Access #	MCI Position	Sprint Position	FCC Ruling
5.2.3	The ILEC will absorb any Non Recurring Charges (NRCs) incurred by MCI as a result of network redesigns/ reconfigurations initiated by the ILEC to its own network.	No. Sprint agrees, that there are some instances where this is appropriate, but takes the position that there will be cases where we will want mutually agree that NRCs are appropriate.	51.507(e)
5.3	SS7 - SS7 links must be priced at TSLRIC	Unbundled element, for which TELRIC plus a reasonable allocation of forward looking common costs is appropriate.	51.503, 51.505, 51.507, 51.509, 51.511
5.4	Transit - Transit must be priced at TSLRIC	Unbundled element, for which TELRIC plus a reasonable allocation of forward looking common costs is appropriate.	51.503, 51.505, 51.507, 51.509, 51.511
	6. BUSINESS PROCESSES		
6.1	**Order Processing:**		
6.1.1	The ILECs must establish dedicated carrier ordering centers, available 7 days a week, 24 hours a day.	Business hours only, not 7 x 24 as requested.	51.313 51.319
6.1.2	Standardized electronic interfaces for the exchange of ordering information must be made available using industry standard order formats and methods. Electronic bonding should be established to provide direct access to the ILEC order processing database.	Sprint will use dedicated switched access trunk ASR process until OBF rules and systems implemented. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.313, 51.319(f) ¶ 516-528

Access #	MCI Position	Sprint Position	FCC Ruling
6.1.3	The ILEC is responsible for ordering facilities to terminate traffic to MCI. MCI will supply Firm Order Commitments (FOC) and Design Layout Reports (DLR) as described in 6.2.1.	DOC should be considered, rather that FOC and DLR combination. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.313, 51.319
6.1.4	When 2-way trunking is employed, the parties will select a mutually agreeable automated ordering process.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.305(a)(5)(f) 51.319
6.2	**Provisioning & Installation:**		
6.2.1	ILECs need to establish and adhere to competitive intervals for the delivery of FOCs, DLRs and facilities. Such intervals need to ensure that facilities are provisioned in timeframes and according to standards that meet or exceed those that the ILEC provides to itself for its own network and/or to end users. Intervals should not exceed 10 business days where facilities are available.	Sprint suggests that 10 days may be acceptable, but needs protection if longer. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.305(a)(5) 51.319
6.3	**Trouble Resolution, Maintenance, Customer Care**		
6.3.1	The ILECs must establish dedicated carrier service centers available 7 days a week, 24 hours a day.	Business hours only, not 7 x 24 as requested.	51.319
6.3.2	Voice response units or similar technologies should be used to refer/transfer calls from customers to the proper carrier for action.	Sprint will not transfer misdirected service calls.	51.319

Access #	MCI Position	Sprint Position	FCC Ruling
6.3.3	MCI must have real time read and write access via an electronic interface to the ILEC's maintenance and trouble report systems including the following systems and/or functionality: Trouble reporting/dispatch capability - access must be real time • Repair status/confirmations; maintenance/trouble report systems • Planned/Unplanned outage reports	Sprint states this will eventually happen, but not near term.	¶ 516 - 528 51.313(c) 51.319
6.3.4	Each carrier has the duty to alert the other(s) to any network events that can result or has resulted in service interruption, blocked calls, changes in network performance, on a real time basis.	MCI needs to define what qualifies as a reportable network event. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.313(c) 51.319
6.3.5	Maintenance service options must be unbundled to permit the use of qualified third party contractors for maintenance/repair of interconnect facilities.	No.	51.311, 51.313, 51.319
6.3.6	ILECs need to adopt multi-ILEC trouble management procedures developed by the Network Operations Forum (NOF) (See Appendix 3).	Sprint will follow as best as possible, but may want to do some things differently, assuming MCI mutually agrees. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.313(c) 51.319

Access #	MCI Position	Sprint Position	FCC Ruling
6.3.7	Escalation process - NOF (See Appendix 3).	Sprint will follow as best as possible, but may want to do some things differently, assuming MCI mutually agrees. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.313 51.319
6.3.8	Carriers must work cooperatively to plan and implement coordinated repair procedures for the local interconnection trunks and facilities to ensure trouble reports are resolved in a timely and appropriate manner.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.319
6.3.9	Carriers will provide each other with a trouble reporting number that is readily accessible and available 24 hours a day, 7 days a week. In addition, carriers will provide each other test-line numbers and access to test lines.	Sprint does not plan to provide other carriers with test line numbers.	51.319
6.3.10	Cooperative practices and processes for law enforcement and annoyance call handling must be specified.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.319
6.4	**Billing**		

Access #	MCI Position	Sprint Position	FCC Ruling
6.4.1	ILECs and MCI agree to conform to MECAB and MECOD guidelines. They will exchange Billing Account Reference and Bill Account Cross Reference information and will coordinate Initial Billing Company/Subsequent Billing Company billing cycle.	Sprint will provide to the extent it is for flat rates services today, since CABS will be used for this. OK for the future. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.319(f)
6.4.2	Meet point billing arrangements should be made available to MCI as a CLEC on the same terms and conditions as made available to other independent LECs engaged in meet point billing arrangements with the ILEC. MCI requires multiple bill/single tariff arrangements to be implemented.	MCI needs to clarify its requirements to advise if it really wants a single tariff. The independent requirement needs to be dropped.	51.321(b)(2)
6.4.3	There should be no discrete development charges imposed on MCI for the establishment of meet point billing arrangements.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	
6.4.4	The ILEC will prepare and transmit Inward Terminating call records for the appropriate IXC to MCI.	We believe we may have reached agreement in principle with Sprint, but details need to be worked out and we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.319(f)

Access #	MCI Position	Sprint Position	FCC Ruling
6.4.5	The ILEC will receive EMR summary records from MCI for Inward Terminating and Outward Originating calls for the appropriate IXC, and use these records to bill access charges to the IXC.	Sprint states that it will clearly not be used for transit, problem if it is. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.319(f)
6.4.6	The ILEC must agree to capture inward terminating call records and send them to MCI or their billing agent in a format to be advised by MCI.	Mutually agreed, not advised, in an industry standard format. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.319
	MCI agrees to capture EMR summary records for Inward Terminating and outward originating calls and send them to ILEC in daily files via a media to be advised by MCI.		51.319
6.4.7	ILEC will provide MCI with IXC billing information for IXCs that transit ILEC tandem. Any IXC billing information provided by ILEC to MCI with respect to Meet Point Billing will be used solely for that purpose.	Mutually agreed, not advised, in an industry standard format. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.319

Access #	MCI Position	Sprint Position	FCC Ruling
6.4.8	ILEC must agree to exchange test files to support implementation of meeting point billing prior to live bill production.	Sprint agrees conceptually but has indicated there are many details to be negotiated/agreed upon to cause this to happen.	51.319
6.4.9	When MCI owns the end-office, the ILEC will not bill the RIC to either MCI or the IXC.	No test file needed as long as both MCI and Sprint on same EMI standard.	51.515
6.4.10	The ILECs must indemnify MCI for any fraud due to network compromise (e.g., Clip-on, missing information digits, missing toll restriction, etc.).	Clip on cannot possibly be Sprint's responsibility. Sprint is willing to cooperate with the industry to detect, deter, identify, and bring justice those responsible for fraud. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.311, 51.319.
	7. QUALITY OF SERVICE		
7.1	Interconnection quality of service should be no less than that provided by the ILEC for its own services.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.305, 51.311, 51.313, 51.319 ¶ 224 - 225
7.2	Both parties must agree to specified design objectives on local interconnection facilities. MCI's standard is P.01 in the busy day busy hour.	Sprint is willing to use average busy hour, not busy day busy hour.	51.305, 51.311, 51.313, 51.319 ¶ 224 - 225

Access #	MCI Position	Sprint Position	FCC Ruling
7.3	Interconnect circuit provision and restoration should take priority over any other non-emergency ILEC network requirement.	Sprint will offer equal terms with Sprint's interoffice trunks. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.305, 51.311, 51.313, 51.319.
7.4	ILEC should adhere to competitive intervals for installation of POIs and in no case should be longer than 60 calendar days.	Sprint states although reasonable conceptually, there will be no circumstances where this may not be possible, so that contract language needs to take into account. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.305, 51.313, 51.319.
7.5	The parties must agree to a process for emergency, short-interval augmentations to account.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.305, 51.313, 51.319.

Access #	MCI Position	Sprint Position	FCC Ruling
7.6	The companies must agree upon a mechanism for deal with breach of agreed quality-of-service standards.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.305, 51.313, 51.319.
7.7	ILEC must provide maintenance services to MCI customers in a manner that is timely, consistent and at parity with the ILEC's customers. At a minimum, the quality of the leased elements should match that of the ILEC's own elements and in general conform to all applicable Bellcore and ANSI requirements specific to the type of service to be provided.	Deleted from Section.	51.305, 51.313, 51.319. ¶ 224 - 225
	8. INFORMATION		
8.1	Completion confirmation must be provided to ensure that all necessary translation work is completed on newly installed facilities or augments.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.305, 51.319
8.2	The ILEC must publish comparative data reporting ILEC vs. CLEC quality of service (average length of outages, percentage of call failures, etc.).	Sprint agrees conceptually, but will need to research how to implement. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 311 51.305, 51.319

Access #	MCI Position	Sprint Position	FCC Ruling
8.3	The parties shall periodically exchange technical descriptions and forecasts of their interconnection and traffic requirements in sufficient detail to assure traffic completion to and from all customers within the appropriate calling areas.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 311 51.305, 51.319
8.4	ILEC must provide and update an electronic copy of their switch Network ID Database with complete list of feature/functions by switch, NPA/NXXs, bus/res counts and identification, rate centers, etc.	Sprint is not opposed to providing information which is publicly available. However, the information requested is not available today in an electronic much less consolidated format. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.305, 51.319.

(See Appendix 5 for Interconnect Architecture and Trunking Topology Diagrams)

II. NON-DISCRIMINATORY ACCESS TO NETWORK ELEMENTS

DEFINITION: ILEC must offer to any requesting telecommunications carrier unbundled access to all physical and logical network elements at any technically feasible point without restriction as to how they are combined with each other or with components supplied by the requesting telecommunications carrier to provide a telecommunications service.

REQUIREMENTS

1. Unbundled Element List
2. General Requirements
3. Compensation
4. Quality of Service
5. Information
6. Business Processes
   - 6.1 Order Processing
   - 6.2 Provisioning and Installation
   - 6.3 Trouble Resolution, Maintenance and Customer Care
   - 6.4 Billing

Issue #	MCI Position	Sprint Position	FCC Ruling
1.	**Unbundled Element List**		
1.1	**LOCAL LOOP** (detailed in section IV), composed of the following elements which can be purchased separately:	See Section IV.	
	Network Interface Device/Unit		51.319(a)(b) ¶ 392 ¶ 233
	Loop Distribution		¶ 391 51.307 ¶ 384 ¶ 233
	Digital Loop Carrier/analog cross connect		¶ 391 51.307 ¶ 384 ¶ 233
	Loop Feeder		¶ 391 51.307 ¶ 384

Issue #	MCI Position	Sprint Position	FCC Ruling
1.2	**LOCAL SWITCHING** (detailed in section VI) composed of the following rate elements:		
	Line Port Trunk Port Switch Capacity including Signaling/Database required to create or bill call path	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 410 - 424 51.319(c) ¶ 233
1.3	**TANDEM/TRANSIT SWITCHING**		
	The establishment of a temporary path between two switching offices through a third (tandem) switch.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 425 - 426 51.319(c)
1.4	**ANCILLARY SERVICES** (detailed in sections VII and VIII) Operator Service DA 911	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.319(g) ¶ 536
1.5	**TRANSPORT** (detailed in section V) Dedicated Interoffice Trunks, with and without electronics Common Interoffice Trunks Multiplexing/Digital Cross Connect	No. Sprint will not offer dim or dark fiber.	¶ 439 - 444 51.319(d)
1.6	**DATA SWITCHING** An element that provides data services (e.g., frame relay or ATM) switching functionality.	Withdrawn subject to BFR process later.	51.319(e) ¶ 427
1.7	**INTELLIGENT NETWORK and ADVANCED INTELLIGENT NETWORK** (detailed in section I and X)	See Section X	¶ 488 - 492 51.319(e)

Issue #	MCI Position	Sprint Position	FCC Ruling
2.	**General Requirements**		
2.1	Any telecommunications carrier must have nondiscriminatory access to the unbundled ILEC network elements, and their functional components, used in any ILEC products or service including: Grandfathered products and services Tariffed and non-tariffed products and services Existing products and services e.g. expanded interconnection, or physical collocation, must be unbundled into placement cage and fiber route components Enhanced products and services e.g. ADSL, BDSL, ISDN, BISDN services, Future products and services e.g. ATM services using non-E.164	Need further discussion on enhanced/future. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 292 51.307, 51.309, 51.311, 51.315.
2.2	Carrier access must not be restricted. ILEC should not take any steps to construct the network in such a way that prevents access to network elements. The ILEC should work to facilitate access to network elements.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 292 51.307, 51.309, 51.311, 51.315.
	Artificial restrictions on use of components to be eliminated. e.g. No restrictions on the carrier's selection of equipment to deploy in the placement cage. No restrictions on the type of traffic that the carrier provides using the components	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 292

Issue #	MCI Position	Sprint Position	FCC Ruling
	Components be combined without restriction. e.g. The carrier installs selected equipment in a placement cage at an ILEC central office and terminates ILEC unbundled loops into that cage. The carrier purchases ILEC or CAP transport to extend the unbundled loops back to its switching network.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.315 ¶ 292 - 293
2.3	Carrier must be at parity with the ILEC (or its affiliates) in provision of unbundled elements. This must at a minimum include:		51.307, 51.309, 51.311, 51.315
	Switch features at parity Treatment during overflow/congestion conditions at parity Equipment/interface protection at parity Power redundancy at parity Sufficient spare facilities to ensure provisioning, repair, performance, and availability at parity Standard interfaces Real time control over switch traffic parameters. Real time access to integrated test functionality. Real time access to performance monitoring and alarm data affecting MCI network.	Real time access is not currently available. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	
2.4	ILECs must implement open Physical and Logical interconnection points to fully unbundle their AIN/IN network (See Section X Part 6.0).	Sprint has no AIN today. When available, access must be mediated.	¶ 488 - 492 51.307, 51.309, 51.311, 51.315, 51.319(e)(3)(D)
3.	**Compensation**		

Issue #	MCI Position	Sprint Position	FCC Ruling
3.1	All unbundled network elements and their unbundled functional components must be priced at TSLRIC *Example: transport services not priced at current special access transport rates*	TELRIC plus a reasonable allocation of forward looking common costs.	51.503, 51.505, 51.507.
3.2	ILEC pricing must reflect the full imputation of all costs of the factors of production utilized in providing any given service	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 848 - 850 51.503, 51.505, 51.507.
3.3	Ability to purchase any equipment from ILEC at prices that reflect their costs.	No.	51.503, 51.505, 51.507
4.	**Quality of Service**		
4.1	The companies must agree on a mechanism for dealing with breaches of agreed quality-of-service standards	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307, 51.309, 51.311, 51.319
4.2	Provisioning support 7 days a week, 24 hours a day	Sprint does not provision its own services 7 x 24 and will not offer to MCI.	51.307, 51.309, 51.311, 51.319
4.3	Any new electronic interface must have no negative impact on existing interfaces MCI or other carriers have with the ILEC today for traditional services	Sprint has requested that MCI clarify this issue.	¶ 516 - 528 51.307, 51.309, 51.311, 51.313(c), 51.319

Issue #	MCI Position	Sprint Position	FCC Ruling
4.4	Intervals and level of service no less than tariff or, if it is higher, no less than currently being performed by the ILEC for its own customers or for other carriers, whichever is higher	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307, 51.309, 51.311(b), 51.319
4.5	Negotiated performance metrics with the ILEC. Results to be reviewed quarterly or on an as needed basis.	Sprint agrees in principle subject to ability to measure and report. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 516 - 528 ¶ 311 51.307, 51.309, 51.311, 51.319
4.6	The ability to determine customer's existing service and feature configuration by access to the appropriate database with the appropriate authorization	Subject to CPNI guidelines Sprint will provide only after customer has chosen MCI for local service (LOA required pre-sale).	¶ 516 - 528 51.307, 51.309, 51.311, 51.319
4.7	ILEC must provide maintenance services on Unbundled Elements provisioned to MCI in a manner that is timely, consistent and at parity with the ILEC's customers. At a minimum, the quality of the leased elements should match that of the ILEC's own elements and in general conform to all applicable Bellcore and ANSI requirements specific to the type of service to be/being provided.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307, 51.309(c), 51.311, 51.319

Issue #	MCI Position	Sprint Position	FCC Ruling
4.8	The ILEC must develop a formal process to track, analyze and continuously improve service levels.	Sprint currently does for its services provided to carriers and end users. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307, 51.309, 51.311, 51.313, 51.319
5.	**Information**		
5.1	Identification and description of all elements related to providing service	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307, 51.311, 51.313, 51.319
5.2	A list/description of all services and features available down to street address detail, including: Type of Class 5 Switch by CLLI, line features availability by LSO, and service and capacity availability by LSO. MCI further requires a complete layout of the data elements that will be required to provision all such services and features	Sprint cannot provide services by street address. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307, 51.311, 51.313, 51.319

Issue #	MCI Position	Sprint Position	FCC Ruling
5.3	Detailed description of the criteria and process used for handling facility and power outages on an agreed upon severity and priority basis	MCI and Sprint network operations personnel need to further discuss.	51.307, 51.311, 51.313. 51.319
5.4	The ILEC must provide an initial electronic copy and a hard copy of the service address guide (SAG), or its equivalent, on a going forward basis. Updates are expected as changes are made to the SAG	Sprint will provide if compensated but also needs to determine its ability to provide. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307, 51.311, 51.313, 51.319
5.5	The ILEC to provide engineering information on all unbundled elements/combinations used for data, private line, foreign exchange, voice, etc. This would include the information that would normally be provided on records such as the detailed design layout records for loops and circuits.	Sprint to research what will be provided.	51.307, 51.311, 51.313, 51.319
5.6	Parity with the ILEC regarding knowledge of any engineering changes associated with the incumbent's network elements and deployment of new technologies	No.	51.307, 51.311, 51.313, 51.319
6.	**Business Processes**		
6.1	**Order Processing**		
6.1.1	A real-time Electronic Communication interface to the ILEC for ordering and provisioning. (i.e. Electronic Access to SAG or its equivalent.)	Not at this time. Sprint states it will build interfaces to standards once they are established. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 516 - 528 51.313(c), 51.319

Issue #	MCI Position	Sprint Position	FCC Ruling
6.1.2	The ability to order any defined element using agreed A real-time Electronic Communication interface to the ILEC for ordering and provisioning. (i.e. Electronic Access to SAG or its equivalent)upon ordering/provisioning codes and have those codes flow through for billing.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 516 - 528 51.313(e), 51.315(a), 51.319
6.1.3	Although MCI shall purchase the Unbundled Local Switching (ULS) element by committing to a minimum amount of line port, trunk ports and switch capacity on an end office by end office basis, business processes must be in place to allow that capacity to be utilized by individual customers, in combination with other network elements.	Sprint has asked that MCI clarify this request.	51.307, 51.319
6.1.4	Particular combinations of elements, hereafter referred to as combinations, identified and described by MCI can be ordered and provisioned as combinations, and not require the enumeration of each element within that combination on each provisioning order. When MCI removes or replaces one element of Not technically feasible, a combination they must not be required to reorder the remaining elements of the combination over again.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.315(d), 51.319 ¶ 294
6.1.5	Appropriate ordering/provisioning codes must be established for each identified combination	If combinations are offered, we believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 294 51.315(a), 51.319
6.1.6	When combinations are ordered where the elements are currently interconnected and functional, those elements must remain interconnected and functional	Sprint has asked that MCI clarify this request.	¶ 294 51.315, 51.319

Issue #	MCI Position	Sprint Position	FCC Ruling
6.1.7	When purchasing switching capabilities, until such time as numbering is administered by a third party, MCI requires the ability to obtain telephone numbers on-line from the ILEC, and to assign these numbers with MCI customer on-line. This includes vanity numbers. Reservation and aging of numbers remain the responsibility of the ILEC.	May not be immediately available. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.319(e)(2)
6.1.8	When purchasing switching capabilities, MCI requires the ability to order all available features on that switch. (e.g., call blocking of 800, 900, 976, 700 calls by line or trunk on an individual service basis).	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.319(c)(1)
6.1.9	The ability to have the ILEC end office AIN triggers initiated via a service order from MCI.	Not applicable at this time as Sprint does not have AIN.	51.313, 51.319
6.1.10	MCI and the ILEC must negotiate a standard service order/disconnect order format	Sprint will provide consistent with the OBF outcome on this. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.313(b)(c), 51.319

Issue #	MCI Position	Sprint Position	FCC Ruling
6.1.11	When necessary, MCI requires the "real time" ability to schedule installation appointments with the customer on-line and access to the ILEC's schedule availability.	Capability does not exist now. Will consider in future if capability exists. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 516 - 528 51.313(c), 51.319
6.1.12	"Real-time" response for: Firm order confirmation, due date availability/scheduling, dispatch required or not, identify line option availability by LSO (such as Digital Copper, Copper Analog, ISDN, etc.), completion with all service order and time and cost related fees, rejections/errors on service order data element(s), jeopardizes against the due date, missed appointments, additional order charges (construction charges), order status, validate street address detail, and electronic notification of the local line options that were provisioned, at the time of order completion, by the ILEC for all MCI local customers. This applies to all types of service orders and all elements.	Capability does not exist now. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 516 - 528 51.313(c), 51.319
6.1.13	The ILEC to notify MCI if a customer requests changes to their service at the time of installation. Specific scenarios and a process to handle changes will be required	Sprint will ask customer to contact MCI directly.	51.313, 51.319
6.1.14	Expedite and escalation processes for ordering and provisioning.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.313, 51.319

Issue #	MCI Position	Sprint Position	FCC Ruling
6.1.15	MCI requires a process to expedite an order on a customers behalf	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.313, 51.319
6.2	**Provisioning and Installation**		
6.2.1	The ILEC to provide all test and turn-up procedures and to provide all testing in support of the unbundled elements/combinations/services ordered by MCI. Testing and turn-up should be product specific and tailored to what is being ordered and how it will be used.	Sprint will test what it provides. MCI may need to participate. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307, 51.309, 51.311, 51.313, 51.315
6.2.2	The ILEC to notify MCI prior to disconnect of any MCI unbundled element/combination/service.	Subject to development of industry processes for switching local carriers.	51.307, 51.309, 51.311, 51.313, 51.315
6.2.3	All notices, invoices, and documentation provided to the customer at the customer's premises by the ILEC's field personnel be branded MCI	Agreement in principle as long as MCI provides materials at its cost. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307, 51.309, 51.311, 51.313, 51.315

Issue #	MCI Position	Sprint Position	FCC Ruling
6.2.4	The ability to test or have the ILEC test all elements/combinations.	Sprint will test what it provides. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307, 51.309, 51.311, 51.313, 51.315
6.3	**Trouble Resolution, Maintenance and Customer Care:**		
6.3.1	A real-time automated industry standard electronic interface (EBI) to perform the following functions: Trouble Entry Obtain Trouble Report Status Obtain Estimated Time To Repair (ETTR) and ILEC Ticket Number Trouble Escalation Network Surveillance- Performance Monitoring (i.e., proactive notification of "auto detects" on network outages from the local supplier)	Not now but Sprint will consider in the future pursuant to industry standards. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307, 51.309, 51.311, 51.313, 51.315
6.3.2	A process for the management of misdirected service calls must be developed	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307, 51.309, 51.311, 51.313, 51.315

Issue #	MCI Position	Sprint Position	FCC Ruling
6.3.3	A jointly developed process with the ILEC to conduct Busy Line Verification (BLV) and Emergency Interrupt.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307, 51.309, 51.311, 51.313, 51.315
6.3.4	ILEC establish and staff a Maintenance Center to act as MCI's single point of contact (SPOC) for all maintenance functions and should operate on a 24 hour day, 7 days a week basis.	Sprint will provide consistent with current practices. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307, 51.309, 51.311, 51.313, 51.315
6.3.5	All trouble shooting will be performed by the ILEC and the ILEC will be responsible for the reported trouble until turned back to MCI.	Only for elements provided and subject to a maintenance charge. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307, 51.309, 51.311, 51.313, 51.315
6.3.6	An escalation process for resolving maintenance troubles	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307, 51.309, 51.311, 51.313, 51.315

Issue #	MCI Position	Sprint Position	FCC Ruling
6.3.7	The ILEC must perform a Mechanized Loop Test (Quick Test) at the request of MCI while MCI is on line.	Only when Sprint is providing ULS. MCI may not be on-line but process for getting info to MCI must be developed. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307, 51.309, 51.311, 51.313, 51.315
6.3.8	The ILEC to provide progress status reports so that MCI will be able to provide end user customers with detailed information and an estimated time to repair (ETTR). The ILEC will close all trouble reports with MCI. MCI will close all trouble reports with the end user. MCI's outside technicians will clear troubles to the network interface and provide callback from the fault location to MCI.	Sprint will provide in accordance with its current practices. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307, 51.309, 51.311, 51.313, 51.315
6.3.9	Maintenance charges (time and materials, by customer, per event) must be provided verbally at ticket close out. The ILEC will use an MCI branded form that will be signed by the customer, capturing all maintenance and service charges incurred by the customer and forwarded or faxed to the MCI work center by the end of the day when the repair is completed.	Sprint does not plan to offer inside wire maintenance so this does not apply.	51.307, 51.309, 51.311, 51.313, 51.315
6.3.10	Pre-screening of any ILEC activities that will incur charges to MCI. This includes authorization by MCI if a dispatch is required to the customer premises as well as verification of actual work completed	No.	51.307, 51.309, 51.311, 51.313, 51.315

Issue #	MCI Position	Sprint Position	FCC Ruling
6.3.11	All ALIT/SLIT (Auto / Subscriber Line Tests) tests performed on MCI customers' lines that result in a failure must be reported to MCI	Sprint states it will offer as possible but that details must be worked out. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307, 51.309, 51.311, 51.313, 51.315
6.3.12	MCI branded, or at a minimum a non branded, customer-not-at-home card be left at the customers premises when an MCI customer is not at home for an appointment.	If branded, MCI to pay at its cost. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307, 51.309, 51.311, 51.313, 51.315
6.3.13	MCI will coordinate dispatches to the customer premises. This includes re-dispatches for customer not-at-home.	MCI coordinates with end user but orders worked in parity with Sprint orders. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307, 51.309, 51.311, 51.313, 51.315
6.3.14	The ILEC will ensure that all applicable alarm systems that support MCI customers are operational and the supporting databases are accurate so that equipment that Is in alarm will be properly identified. The ILEC will respond to MCI customer alarms consistent with how and when they respond to alarms for their own customers	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307, 51.309, 51.311, 51.313, 51.315

Issue #	MCI Position	Sprint Position	FCC Ruling
6.3.15	Individual Emergency Restoration and Disaster Recovery Plans be developed. The Plans should outline methods for the restoration of each central office in the local network provider territory as well as contain site specific restoration alternatives which could be implemented based on the magnitude of the disaster. Each plan should incorporate at a minimum the following elements:	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307, 51.309, 51.311, 51.313, 51.315
6.3.16	ILEC Single Point of Contact (SPOC) Responsible for notification of MCI work center. Responsible for the initiation of the ILEC's restoration plan Responsible for status and problem resolution during the entire restoration process.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307, 51.309, 51.311, 51.313, 51.315
6.3.17	Restoration Equipment Dispatch Plan Documented Procedure on how the equipment will be dispatched to restoration site. Estimated maximum time for the restoration equipment to arrive on site.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307, 51.309, 51.311, 51.313, 51.315
6.3.18	Prior notification, with the option to influence the decision (time frame - TBD), of any scheduled maintenance activity performed by the local supplier that may be service affecting to MCI local customers (i.e., cable throws, power tests, *etc.*)	Sprint makes ultimate decision but will allow MCI to provide input to the decision process. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307, 51.309, 51.311, 51.313, 51.315
6.4	**Billing:**		

Issue #	MCI Position	Sprint Position	FCC Ruling
6.4.1	Invoices must be presented in a Carrier Access Billing Systems (CABS) format in order to facilitate standard industry auditing practices.	Except for line level usage. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.313, 51.319
6.4.2	MCI and the ILEC agreement on the flow and format of CARE records for correct provisioning and billing to IXCS.	Sprint will agree to adhere to existing and future industry standards for this process. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.313, 51.319

(See Appendix 4 for diagrams of Unbundled Elements)

III. NON-DISCRIMINATORY ACCESS TO POLES, DUCTS, CONDUITS, RIGHT- OF-WAY

DEFINITION: Poles, ducts, conduits, and right of way refer to all the physical facilities and legal rights needed for access to pathways across public and private property to reach customers. These include poles, pole attachments, ducts, conduits, entrance facilities, equipment rooms, remote terminals, cable vault, telephone closets, rights of way, or any other inputs needed to create pathways to complete telephone local exchange and toll traffic. These pathways may run over, under, or across or through streets, traverse private property, or enter multi-unit buildings.

REQUIREMENTS
1. Access
2. Compensation
3. Information
4. Quality of Service
5. Business Processes

Access #	MCI Position	Sprint Position	FCC Ruling
1.	**Access**		
1.1	ILEC must provide any telecommunications carrier requesting access with equal and non-discriminatory competitively neutral access to, without limitation, any pole, pole attachment, duct, conduit, entrance facilities, equipment rooms, remote terminals, cable vaults, telephone closets, ROW, and any other pathways on terms and conditions equal to that obtained by the ILEC. Other users of these facilities cannot interfere with the availability or use of these facilities by MCI.	Without limitation too broad. Needs better definition.	¶ 1157 § 1.1403
1.2	ILEC must provide access to building entrance conduits (including all Building Entrance Links equipment spaces, conduits and risers) to reach customers	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	§ 1.1403 ¶ 1143-1170
1.3	ILEC must provide MCI access to the unbundled network interface device	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 392 § 1.1403 51.319

III. NON- DISCRIMINATORY ACCESS TO POLES, DUCTS, CONDUITS, RIGHT-OF-WAY

Access #	MCI Position	Sprint Position	FCC Ruling
1.4	Any ILEC having equipment on, over, under, across or through public or private property must permit the use of such equipment by any other telecommunications carrier on an equal and non-discriminatory basis.	Subject to underlying easement rights and equipment should be facilities.	¶ 1157 § 1.1403
1.5	Any authorization to attach to poles, overlashing requirements, or modifications to the conduit system or other pathways to allow access to and egress from the system shall not be hindered, restricted or unreasonably withheld or delayed. Such access and use shall be on terms and conditions identical to those the ILEC provides to itself and its affiliates for the provision of exchange, exchange access and interexchange services.	Agreement in principle subject to language spelling out industry standard practice. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	§ 1.1403 ¶ 1143-1170
1.6	ILEC should agree to take no action to interfere with or attempt to delay, the granting of permits to MCI for (1) use of public ROWs and (2) access to private premises from property owners.	Sprint agrees in principle for regular activities but may need to reserve the right to have this capability when Sprint's business needs could be adversely and anticompetitively impacted. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	§ 1.1403 ¶ 1143-1170
1.7	The ILEC must provide a requesting carrier access to pole, duct and conduit capacity currently available or that can be made available	Agreement in principle as long as this is not unreasonable to provide. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	§ 1.1403 ¶ 1143-1170

III. NON- DISCRIMINATORY ACCESS TO POLES, DUCTS, CONDUITS, RIGHT-OF-WAY

Access #	MCI Position	Sprint Position	FCC Ruling
2.	**Compensation**		
2.1	This paragraph deleted or moved.	Deleted	
2.2	Any costs for improvements to/expansions of poles, etc. should be prorated on a non-discriminatory and neutral basis among and all users of the facility.	Sprint agrees conceptually but a process for implementing a competitively neutral program has not yet been developed. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 1211-1216 § 1.1416 51.505, 51.507
2.3	No application fees should apply.	Sprint wants cost based fees. Sprint is looking at whether this charge would be applied to ROW payment once an order is placed.	¶ 1211-1216 § 1.1416
2.4	Fees must be fixed for term of contract	Sprint has said maybe to this request but this appears in conflict with 2.2.	§ 1.1416 ¶ 1211-1216
2.5	Charges shall be consistent with the provisions in the act.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	§ 1.1416 ¶ 1211-1216
3.	**Information**		

III. NON- DISCRIMINATORY ACCESS TO POLES, DUCTS, CONDUITS, RIGHT-OF-WAY

Access #	MCI Position	Sprint Position	FCC Ruling
3.1	ILEC must provide routine notification of changes to poles, conduits, ROW.	Sprint agrees to provide notice of changes but only if they affect MCI. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	§ 1.1403
3.2	ILEC must provide timely and open access to current pole-line prints, conduit prints, and make available maps of conduit and manhole locations, and allow manhole/conduit break-outs, and audits to confirm usability.	Case by case where MCI requests to use a facility. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	§ 1.1403
3.3	ILEC must provide regular report on the capacity status and planned increase in capacity of each of these access channels to facilitate construction planning.	Sprint has offered to hold joint planning meetings to discuss specific MCI requirements rather than provide all locations and availability, if even fully available.	§ 1.1403
3.4	The ILEC must provide information on the location of, and the availability to access conduit, poles, etc., to any telecommunications carrier requesting such information, within 10 working days after the request.	Sprint has offered to hold joint planning meetings to discuss specific MCI requirements rather than provide all locations and availability, if even fully available.	§ 1.1403

Access #	MCI Position	Sprint Position	FCC Ruling
3.5	The ILEC must not provide information to itself or its affiliates sooner than it provides to other telecommunication carriers.	Sprint has offered to hold joint planning meetings to discuss specific MCI requirements rather than provide all locations and availability, if even fully available.	§ 1.1403
4.	**Quality of Service.**		
4.1	The companies must agree on a mechanism for dealing with breaches of agreed quality-of-service standards.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.319
5.	**Business Processes**		
5.1	Processes should be non-discriminatory and competitively neutral. For example, Firm Order Commitments (FOCs) should be completed in the order in which they are received. FOCs should be required from the ILEC itself as they are from the CLEC.	Sprint questions why it should have to provide a FOC to itself. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.319
5.2	Following provision by the ILEC of the information referred to in 3.4 above, ILEC must provide capacity within 30 days of receipt of a committed order from MCI.	Sprint is not sure whether 30 days is an appropriate time period. Sprint instead suggests that the parties should mutually work on a case by case basis to complete work in a best efforts manner.	51.319

IV. UNBUNDLED LOCAL LOOPS

***DEFINITION:** The transmission path, or any segment of such transmission path, which provides the connection between an end user's premises and the main distributing or other designated frame within the central office serving the end user. It does not include the end user's inside wiring, nor does it include switching facilities. Unbundled loops must be available to support Voice Grade subscriber services, as well as services (such as ISDN) that require that facilities be free of intrusive devices such as loop coils or bridge taps. Loop facilities at DS0, DS1, E1 and DS3 levels must also be made available*

REQUIREMENTS 1. Unbundled Local Loop Elements
2. General Requirements
3. Compensation
4. Business Processes
   - 4.1 Order Processing
   - 4.2 Provisioning and Installation
   - 4.3 Trouble Resolution, Maintenance and Customer Care
   - 4.4 Billing
5. Quality of Service
6. Information

Access #	MCI Position	Sprint Position	FCC Ruling
1.	**Unbundled Local Loop Elements**		
	The following elements, can be purchased separately.		51.319(a)
1.1	**Network Interface Device/Unit:**		
	The point of demarcation between the end user's inside wiring and the Unbundled Loop	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.319(b) ¶ 392-394
1.2	**Loop Distribution**		

Access #	MCI Position	Sprint Position	FCC Ruling
	The portion of the outside plant cable from the network interface (NI) or building entrance terminal (BET) at the customer's premise to the terminal block appearance on the distribution side of a feeder distribution interface (FDI). In case there is a distribution closure near the customer's premise, loop distribution consists of the drop between the distribution closure and the customer's NI and the twisted pair from the closure to the terminal block in the FDI. For a hybrid fiber-coax (HFC) application with a multi-line network interface unit (NIU) near the customer's premise, loop distribution consists of the outside plant cable connection for telephony that runs from the NIU to the NI/BET at the customer's premise (single line NIUs are typically mounted on the outside wall, similar to the NI). Wireless technology may also be used to support all, or segments of, the local loop. Transceiver equipment may be located at the customer premises, distribution enclosure or FDI to provide wireless links. Typically, loop distribution is copper twisted pair, but can also be coax or fiber, or a combination of these.	Sprint suggests that if MCI wants unbundling at this level, that it should submit to Sprint a BFR rather than having Sprint agree to unbundle in advance. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307, 51.317, 51.319 ¶ 391 ¶ 233
1.3	**Digital Loop Carrier/Analog Cross Connect**		
	The equipment used to assign and connect multiple incoming Loop Distribution elements to an equal or smaller number of Loop Feeder channels. When the number of Loop Feeder channels is smaller than the number of loop distribution channels, the process is referred to as concentration.	Sprint suggests that if MCI wants unbundling at this level that it should submit to Sprint a BFR rather than having Sprint agree to unbundle in advance. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307 51.317, 51.319 ¶ 391 ¶ 386 ¶ 233
1.4	**Loop Feeder**:		

Access #	MCI Position	Sprint Position	FCC Ruling
	The Loop Feeder is the physical facility (copper, coax, fiber, wireless or any combination) between the digital loop carrier or FDI, in the case of twisted pair, and the main distributing or other designated frame within the central office or similar environment (e.g., closets in the case of remote sites, or head end in the case of HFC).	Sprint suggest that if MCI wants unbundling at this level that it should submit to Sprint a BFR rather than having Sprint agree to unbundle in advance. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307, 51.317, 51.319 ¶ 233 ¶ 391
2.	**General Requirements**		
2.1	Unbundled loops available throughout the ILEC territory.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307, 51.309, 51.311 ¶ 377

Access #	MCI Position	Sprint Position	FCC Ruling
2.2	Unbundling of feeder from distribution with distribution loops made available at any MCI specified network interface point located within a 500 foot radius of the ILEC loop/feeder aggregation point.	Sprint suggest it is willing to provide if MCI submits a BFR rather than agreeing to this in advance. Sprint raises a question of technical feasibility and the need to develop cost studies and costs. Sprint suggests that MCI and Sprint create a joint engineering group to start determining the technical feasibility of this request. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue..	51.307, 51.309, 51.311 ¶ 391 ¶ 233
2.3	Interoffice transport to connect unbundled loops to the CLECs switch must be available throughout the ILEC's territory.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 439 51.307, 51.309, 51.311
2.4	ILEC may not measure traffic that traverses the unbundled loop.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307, 51.309, 51.311

Access #	MCI Position	Sprint Position	FCC Ruling
2.5	There must be efficient means of connecting unbundled loops to MCI network. Specifically, this means: **Equipment placement**. The ability for MCI to place DLC or other equipment of its choice without restriction in the ILEC wire center, without need for Collocation. The ILEC must supply (at TSLRIC) any cabling or related facilities required to connect the placement equipment to the loop distribution element **Loop transport**. MCI should have the option of purchasing ILEC unbundled transport (at any transmission level) between placed equipment and MCI network	Sprint cannot agree to this request without restrictions -- especially switching equipment. Pricing should be based on TELRIC plus common costs.	51.307, 51.309, 51.311 51.321(b)(2) ¶ 439
2.6	ILEC network design and implementation must be consistent with accepted industry standards and practices.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307, 51.309, 51.311 51.313
3.	**Compensation**		
3.1	Unbundled loops and components must be priced at TSLRIC.	TELRIC plus a reasonable allocation of forward looking common costs. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.509, 51.511, 51.513 ¶ 672-703

Access #	MCI Position	Sprint Position	FCC Ruling
3.2	Cost based term and volume discounts must be offered, including discounts that are aggregated across unbundled local loops and resold retail services. In the event a carrier does not meet their volume commitment, their discount should be calculated retroactively using the tier in which their performance falls. Take or Pay penalties are unacceptable.	Sprint has not yet decided if it will offer term and volume discounts.	51.503, 51.505, 51.507, 51.509, 51.511, 51.513 ¶ 672-703 ¶ 743
3.3	Volume/Revenue commitments, if any, for resale services shall either directly, or indirectly, be relieved through the purchase of Unbundled Loops. Furthermore, such commitments shall always include the entire service area of the ILEC.	Sprint has not yet decided if it will offer term and volume discounts.	¶ 743 51.503, 51.505, 51.507, 51.509, 51.511, 51.513
4.	**Business Process**		
4.1	**Order Processing**		
4.1.1	Fully mechanized, in a form substantially similar to that currently used for the ordering of special access services. Automated interfaces shall be provided into a centralized operations support systems data base for determining service availability on loops (e.g. ISDN), confirmation of order acceptance and ongoing order status. Letters of agency shall not be required to initiate an order. Also, Unbundled Loops converted from another CLEC shall not require a disconnect order from the other CLEC prior to provisioning the conversion.	Sprint will provide manual support and once OBF standards are set, Sprint will require a reasonable time to implement. Sprint has no systems available to identify service availability for Sprint itself. Coordinated disconnect/reconnect procedures need to be established. There is a diversity issue to be resolved as well.	¶ 516-528 51.313, 51.319
4.2	**Provisioning and Installation**		

Access #	MCI Position	Sprint Position	FCC Ruling
4.2.1	Automated interfaces must be provided by the ILEC into a centralized operations support systems data base for installation scheduling and confirmation of circuit assignments. ILEC must make end to end capacity available per MCI forecasts within established intervals. ILEC must not provide service inferior to that which it provides its customers, as demonstrated through reporting on ILEC facility performance (average transmission loss, use of bridge taps, outage frequency and MTTR detail, copper/fiber mix, etc.)	Sprint is not prepared to provide today but states it will get there "eventually." No timeframes specified. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 516-528 51.313, 51.319
4.2.2	Automated interfaces must be provided by the ILEC into a centralized operations support systems data base for completion confirmation. Installation intervals must be established to ensure that service can be established via unbundled loops in the same timeframe as the ILEC provides services to its own customers, as measured from date of customer order to date of customer delivery.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 516-528 51.313, 51.319
4.3	**Trouble Resolution, Maintenance and Customer Care:**		
4.3.1	Automated interfaces must be provided into a centralized operations support systems data base for real time network monitoring to proactively identify potential service degradation. Such systems must monitor and report on the integrity of the ILEC network, isolate troubles and initiate repair operations, test individual unbundled loops and generate maintenance and repair notices that impact any end user's ability to complete calls. Ongoing maintenance practices on unbundled loops must equal or exceed the practices employed by the ILEC for facilities used to provide retail services.	Sprint states it will not provide asserting it cannot monitor without having the loop on their switch. Sprint states it will consider some form of maintenance notice.	¶ 516-528 51.313, 51.319
4.3.2	The ILEC must develop a process to identify the carrier for each unbundled loop and establish automated intercompany referral and/or call transfer processes. In addition, the ILEC must not in any way hinder MCI from deploying modern DLC equipment (TR303) throughout the unbundled loop/transport network.	Sprint believes that providing the existing telephone number for a new order goes a long way towards solving this. Sprint is assessing the DLC issue as to whether the TR-303 is a switch.	¶ 516-528 51.313, 51.319

Access #	MCI Position	Sprint Position	FCC Ruling
4.3.3	Automated interfaces must be provided into a centralized operations support systems data base for field dispatch scheduling (in order to schedule appointments with end users), status of repairs and confirmation of repair completion. The mean time to repair Unbundled Loops must be less or equal to on average than the mean time to repair reported by the ILEC for its retail customers.	Sprint's current processes are not automated, although there is movement in that direction. Sprint is willing to be at parity but this will depend on the accuracy of information provided by MCI and effectiveness of coordination with MCI.	¶ 516-528 51.313, 51.319
4.3.4	Dedicated service centers must be established to handle service issues, escalations, resolution of billing issues and other administrative problems. Automated interfaces must be provided into a centralized customer support systems data bases for access to services and features purchased from ILEC and credit history of converting end users.	Sprints centers are regionally dispersed not centralized and Sprint at this time is not prepared to provide a dedicated center. Customer data will not be provided initially in an automated fashion or there is agreement conceptually on automation but no timeliness. Sprint will not always be able to provide credit history but will consider industry proposals to credit rate new customers. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 516-528 51.313, 51.319
4.3.5	Maintenance service options must be unbundled to permit the use of qualified third party contractors for maintenance/repair of unbundled local loops	No.	¶ 1182
4.4	**Billing:**		

Access #	MCI Position	Sprint Position	FCC Ruling
	Invoices must be presented in a Carrier Access Billing Systems (CABS) format in order to facilitate standard industry auditing practices	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.311, 51.313, 51.319
5.	**Quality of Service**		
5.1	See Section II - part 4 - Quality of Service		51.311
6.	**Information**		
6.1	See Section II - part 5 - Information		

V. UNBUNDLED LOCAL TRANSPORT

DEFINITION: Unbundled transport includes any and all physical facilities used to connect any two points on telecommunications networks. Common Transport is shared between MCI and the ILEC or other CLECs; Dedicated Transport is dedicated to MCI. Components to support all levels of transmission must be available, including Voice Grade, DS0, DS1, DS3, E1, VT and STS based, OC-3, OC-12, OC-48, OC-192 and other levels. Dark fiber must also be available. Multiplexing and Digital Cross Connect Systems required to multiplex or otherwise groom transport elements must also be available.

REQUIREMENTS
1. Unbundled Local Transport Elements
2. General Requirements
3. Compensation
4. Quality of Service
5. Business Processes
6. SONET Systems
7. Information

Access #	MCI Position	Sprint Position	FCC Ruling
1.	**Unbundled Local Transport Elements**		
1.1	Dedicated Interoffice Trunks with and without electronics	Will not provide dark or dim fiber.	¶ 233 ¶ 450
1.2	Common Interoffice Trunks	No dim or dark fiber. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 440 51.319(d)
1.3	Multiplexing/Digital Cross Connect	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 444 51.319(d)
1.4	Dark Fiber	No dim or dark fiber.	¶ 233 ¶ 450
2.	**General Requirements**		

V. UNBUNDLED LOCAL TRANSPORT

Access #	MCI Position	Sprint Position	FCC Ruling
2.1	Ability for MCI to utilize ILEC Unbundled Local Transport facilities to route traffic from the ILEC switch to another carrier	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 440-443 51.319(d) 51.307, 51.309, 51.311 ¶ 292
2.2	Compliance with Bellcore/industry standards (format, interfaces, performance monitoring, alarms, etc.).	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 224-225 51.307, 51.309, 51.311
3.	**Compensation**		
3.1	All components must be priced at TSLRIC.	TELRIC plus a reasonable allocation of forward looking common costs.	¶ 672-703 51.503, 51.505
4.	**Quality of Service**		
4.1	The companies must agree on a mechanism for dealing with breaches of agreed Quality-of-Service standards.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.311, 51.313, 51.319 ¶ 312-315
4.2	Equipment/interface/facility protection must be provided at parity with the ILEC	Sprint states it will provide to the extent possible. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.311, 51.313, 51.319 ¶ 312-315

Access #	MCI Position	Sprint Position	FCC Ruling
4.3	Redundant power supply and/or battery back-up must be provided at parity with ILEC	Sprint states it will provide to the extent possible. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.311, 51.313, 51.319 ¶312-315
4.4	Spare facilities and equipment necessary to support provisioning/repair in time frames consistent with ILEC practice.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.311, 51.313, 51.319 ¶312-315
4.5	Intervals and level of service no less than tariff or, if it is higher, no less than currently being performed by the ILEC for its own customers or for other carriers, whichever is higher.	Sprint states it will provide parity for service similarly provided. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.311, 51.313, 51.319 ¶312-315
5.	**Business Processes**		

V. UNBUNDLED LOCAL TRANSPORT

Access #	MCI Position	Sprint Position	FCC Ruling
5.1	Fully mechanized ordering, provisioning, installation, trouble handling, maintenance and customer care processes, with necessary systems interfaces.	Sprint states it plans initially to use access processes moving to electronic bonding once standards are established. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 516-528 51.313, 51.319
5.2	Maintenance service options must be unbundled to permit the use of qualified third party contractors for maintenance/repair of unbundled local transport	No.	¶ 233
6.	**SONET Systems**		
6.1	For SONET systems, the following additional requirements apply:	Sprint is still researching and owes MCI a response.	
6.2	Compliance with SONET and Bellcore standards	Sprint is still researching and owes MCI a response.	¶ 224-225 51.307, 51.309, 51.311, 51.313, 51.319
6.3	Real-time access to all SONET performance monitoring and alarm information.	Sprint is still researching and owes MCI a response.	51.307, 51.309, 51.311, 51.313, 51.319
6.4	Equipment/interface/facility protection.	Sprint is still researching and owes MCI a response.	51.307, 51.309, 51.311, 51.313, 51.319
6.5	Redundant power supply/battery back-up.	Sprint is still researching and owes MCI a response.	51.307, 51.309, 51.311, 51.313, 51.319
6.6	Synchronization from both a primary and secondary Stratum 1 level timing source.	Sprint is still researching and owes MCI a response.	51.307, 51.309, 51.311, 51.313, 51.319
6.7	Interworking with SONET standard equipment from other vendors.	Sprint is still researching and owes MCI a response.	51.307, 51.309, 51.311, 51.313, 51.319
6.8	Data Communications Channel (DCC) connectivity.	Sprint is still researching and owes MCI a response.	¶ 440 51.307, 51.309, 51.311, 51.313, 51.319

Access #	MCI Position	Sprint Position	FCC Ruling
6.9	For ring systems: • Diverse fiber routing and building entrance • Dual ring interworking support • No single point of failure • Protection lock-out and support of extra traffic (LSR only)	Sprint is still researching and owes MCI a response.	51.307, 51.309, 51.311, 51.313, 51.319
6.10	Support the Physical Interfaces specified in the IIILC issue 026.	Sprint is still researching and owes MCI a response.	51.307, 51.309, 51.311, 51.313, 51.319
7.	**Information**		
	See Section II, Part 5.		

VI. UNBUNDLED LOCAL SWITCHING

DEFINITION: *The unbundled local switching (ULS) element consists of all the functionality residing in a central office switch and/or remote switching systems needed to provide the full array of local exchange services, including switched access service. The ULS element creates the desired communications path between a customer's local loop and another point needed to complete a call, based on signals originated by the end user and/or a telecommunications carrier. The tandem switch may also be used to provide certain features and functionality when these capabilities are not yet available in the central office.*

REQUIREMENTS
1. Unbundled Local Switching Elements
2. General Requirements
3. Compensation
4. Quality of Service
5. Business Processes
6. Tandem Switching
7. Information

Access #	MCI Position	Sprint Position	FCC Ruling
1.	**Unbundled Local Switching Elements**		
1.1	**Line Port:**		
	The physical connection between the customer's local loop and the end office switch or remote switching system and the functionality residing therein	Sprint says it will provide if technically feasible but has not agreed as to feasibility. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 410-424 51.311, 51.319(c)
1.2	**Trunk Port**:		

Access #	MCI Position	Sprint Position	FCC Ruling
	The physical connection between the end office switch or remote switching system and dedicated or common transport and the functionality residing therein.	Sprint says it will provide if technically feasible but has not agreed as to feasibility. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.311, 51.319(e)(i)(B) ¶ 410-424
1.3	**Status: Switching Capacity:**		
	The capacity of the switching functions (switch matrix and processor) used to connect line ports to line ports, line ports to trunk ports, trunk ports to line ports, and trunk ports to trunk ports.	Sprint says it will provide if technically feasible but has not agreed as to feasibility. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.311, 51.319(c)(i)(C) ¶ 410-424
1.4	**Signaling and Databases:**		
	Necessary to create and bill the desired communications path between a customer's local loop and another point needed to complete a call. (This component is described in greater detail Section X).	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.311, 51.319(e), 51.509(I) ¶ 410-424
2.	**General Requirements**		
2.1	MCI can purchase a ULS element at each ILEC end office switch. The purchase is made in minimum blocks of line ports, minimum levels of trunk port capacity, and a minimum level of busy hour capacity measured for a time period of one year or longer.	Sprint is considering structure of offer and owes a response.	51.311, 51.315, 51.319(c), 51.509(b) ¶ 410-424

VI. UNBUNDLED LOCAL SWITCHING

Access #	MCI Position	Sprint Position	FCC Ruling
2.2	Switching functionalities in the ULS element include dialtone, screening, recognition of service request, recognition of call-specific information, digit analysis, routing, testing, recordings, signal generation, call completion or handoff, SSP functionality and tables, PIC tables, trunk tables, class of service tables, billing record generation, and AIN tables.	Sprint agrees in principle except Sprint has no AIN. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.311, 51.315, 51.319(c)
2.3	The various functional components of the ULS element must be made available on an unbundled basis wherever technically feasible.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.311, 51.315, 51.319(c)(i)(C)(2) ¶ 410-424
2.4	The ULS element must be available to MCI in combination with other unbundled network elements.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.315 ¶ 292-293
2.5	MCI's purchase of the ULS element for a specific switch avails to it all the features and functionality of that switch.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.311, 51.315, 51.319(c) ¶ 410-424

Access #	MCI Position	Sprint Position	FCC Ruling
2.6	MCI can interconnect loops from any source to the line port(s) that it purchases, either as part of the ULS element or as an unbundled switch component, on the same terms/conditions/ intervals as loops provided by the ILEC.	Loops and ports can be interconnected. Sprint may perform this function. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 292 51.311, 51.315, 51.319(c)
2.7	MCI can use the ULS element to provide any local exchange service, including switched access services.	Sprint agrees in principle as long as MCI is the local service provider for the end user. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 292 51.311, 51.315, 51.319(c)
2.8	MCI must have access to the ILEC AIN functionality (as described in Section X)	Sprint does not have AIN deployed today in its network.	¶ 488-492 51.311, 51.315, 51.319(e)(2)(3)
3.	**Compensation**		
3.1	The ULS element and all of its unbundled functional components must be priced at TSLRIC. Cost-based term and volume discounts can be negotiated.	TELRIC plus a reasonable allocation of forward looking common costs.	51.503, 51.505, 51.507, 51.509, 51.511
3.2	Line- related costs should now (and in the future) be recovered through a per-line charge assessed on contracted capacity (i.e., lines) with an additional per-line charge assessed if the purchaser exceeds its contracted level.	Sprint is developing the structure of an offering.	51.503, 51.505, 51.507, 51.509, 51.511
3.3	Trunk-related costs should now (and in the future) be recovered through a minute of use charge.	Sprint is developing the structure of an offering.	FCC did not address in Interconnection Order ¶ 233

Access #	MCI Position	Sprint Position	FCC Ruling
3.4	Busy hour-related costs should (initially) be recovered through a combination of line charges and usage charges reflecting the relative use of the switch for line-to-line connections (line charges) and line-to-trunk connections (usage charges).	Sprint is developing the structure of an offering.	51.503, 51.505, 51.507, 51.509, 51.511 ¶741-752 ¶810-818
3.5	In the future, systems may be in place that make it feasible to introduce a third rate element that directly measures busy hour processor/switch matrix usage.	Sprint is developing the structure of an offering.	51.503, 51.505, 51.507, 51.509, 51.511 ¶810-818
3.6	Optional functionality to support CLASS/Customer Calling features would be included with the contracted capacity. No additional charges would apply.	TELRIC based charges apply.	51.503, 51.505, 51.507, 51.509, 51.511 ¶810-818
3.7	Functionality to craft Centrex offerings (call transfer, special dialing, etc.) must be available at cost-based prices.	TELRIC based charges apply.	51.503, 51.505, 51.507, 51.509, 51.511 ¶810-818
3.8	If the ILEC can demonstrate incremental cost associated with Centrex features, then a charge can be applied at TSLRIC. If not, then Centrex functionality would be included as non-chargeable options.	TELRIC based charges apply.	¶810-818 51.503, 51.505, 51.507, 51.509, 51.511
4.	**Quality of Service**		
4.1	The ILEC must guarantee the same grade of service as it provides itself or its affiliates.	Sprint agrees in principle to the extent possible. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.311, 51.313
4.2	The companies must agree on a mechanism for dealing with breaches of agreed Quality-of-Service standards.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.311, 51.313
4.3	Mechanisms must be in place that allow MCI to monitor ILEC compliance with grade of service and capacity obligations.	Sprint is currently developing structure of offering.	51.311, 51.313
4.4	Refer to Section II, Part 4 - Quality of Service		51.311, 51.313

Access #	MCI Position	Sprint Position	FCC Ruling
5.	**Business Processes**		
5.1	MCI must have access to a real-time electronic communication interface to the ILEC for ordering and provisioning, installation, repair, maintenance and customer care.	Sprint agrees in principle and will provide once standards are established and systems built. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 516-528 51.313, 51.319
5.2	Refer to Section II, Part 6 - Business Processes		
6.	**Tandem Switching**		
6.1	The requirements include, but are not limited to: • signaling • screening and routing • recording • access to AIN functionality • access to Operator Services and Directory Assistance as appropriate • access to Toll Free number portability database as appropriate • must support all trunk interconnections discussed under "network Interconnection/Trunking" (e.g., SS7, MF, DTMF, Dial Pulse, ISDN, DID, DN-RI, CAMA-ANI (if appropriate for 9ll), etc.) • access to PSAPs where 911 solutions are deployed and the tandem is used for 911 • transit traffic to/from other carriers	Sprint proposes using a BFR process if it is concluded this is technically feasible. No agreement in advance. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 425 51.319
7.	**Information**		
	See Section II, Part 5 - Information		

VII. NON-DISCRIMINATORY ACCESS TO 911, DA, OPERATOR SERVICES

DEFINITION In order to complete 911 /E911, directory assistance and operator calls, MCI must have non discriminatory access to the switches, databases, and other network elements used by the ILEC in the completion of such calls.

REQUIREMENTS: 911

1. General Requirements
2. Compensation
3. Quality of Service
4. Information
5. Business Processes

Directory Assistance

1. General Requirements
2. Compensation
3. Quality of Service
4. Information
5. Business Processes

Operator Services

Access #	MCI Position	Sprint Position	FCC Ruling
911	***Definition: Non-Discriminatory access to 911 switches, databases and other network elements to ensure the proper routing and completion of 911/E911 calls from end users on the MCI network.***		
1.	**General Requirements**		
1.1	Interconnection to 911 selective routing switch to route calls from MCI network to correct Public Safety Answering Point (PSAP).	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 412 51.317, 51.319

VII. NON-DISCRIMINATORY ACCESS TO 911, DA, OPERATOR SERVICES

Access #	MCI Position	Sprint Position	FCC Ruling
1.2	Identification of default arrangements	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 412 51.317, 51.319
1.3	Automated interface to Automatic Location Identification (ALI) database	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 412 51.317, 51.319
1.4	ILEC must identify any special routing arrangements to complete overflow.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 412 51.317, 51.319
1.5	ILEC must identify any requirements for emergency backup number in case of massive trunk failures.	Sprint states this requirement is not applicable to Sprint.	¶ 412 51.317, 51.319
1.6	ILEC must provide sufficient planning information regarding anticipated move to the use of SS7 signaling within the next 12 months.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 412 51.317, 51.319
1.7	ILEC must identify any special default ESN requirements.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 412 51.317, 51.319

Access #	MCI Position	Sprint Position	FCC Ruling
1.8	ILECs must adopt NENA standards for street addressing and abbreviations.	Sprints SIG system does not currently comply with NENA but if MCI provides NENA based records to SIG, SIG will convert them to work properly. SIG is in the process of being converted to NENA compliance. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 412 51.317, 51.319
1.9	ILECs must adopt use of a Carrier code (NENA standard 5- character field) on all ALI records received from CLCs; Carrier code will be useful when remote call forwarding is used as an interim "solution" to local number portability, and will be even more important when a true local number portability solution has been implemented.	There is agreement in principle but carrier codes are not available until later in 1996. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	
2.	**Compensation**		
2.1	The mechanism to compensate carriers for the costs of network facilities must be equitable and non discriminatory across all local exchange carriers.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.505
2.2	Interconnection and database access must be priced at TSLRIC or at any rate charged to other interconnected carriers, whichever is lower.	TELRIC plus a reasonable allocation of forward looking common costs.	51.505, 51.511 ¶ 672-703

Access #	MCI Position	Sprint Position	FCC Ruling
3.	**Quality of Service**		
3.1	Established, competitively neutral intervals for installation of facilities, including any collocation facilities, diversity requirements, etc.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307, 51.309, 51.311, 51.313
3.2	ILEC must provide the service reliability expectations for Bell-provided 911 facilities.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307, 51.309, 51.311, 51.313
3.3	In a resale situation where it may be appropriate for the ILEC to update the ALI database, it must be updated with MCI data in interval that is no less than is experienced by the ILEC's customers, or than for other carriers, whichever is faster, at no additional cost.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307, 51.309, 51.311, 51.313
3.4	Availability of 800 number, direct tandem numbers available 24 hours, 7 days a week, together with Service Managers' names and escalation lists with work, after hours and pager numbers.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307, 51.309, 51.311, 51.313
4.	**Information**		
4.1	Availability of mechanized Master Street Address Guide (MSAG) and routine updates.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307, 51.311, 51.313, 51.319

Access #	MCI Position	Sprint Position	FCC Ruling
4.2	Mapping of NXXs to Selective Routers and PSAPs. Where NXXs are split across geographic boundaries for 911 routing purposes, mapping should be provided identifying the splits.	MSAG already provides this but Sprint will work with MCI if necessary. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307, 51.311, 51.313, 51.319
4.3	ILEC must provide reporting to identify the locations of E911 tandems with CLLI codes.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307, 51.311, 51.313, 51.319
4.4	ILEC must provide reporting to identify rate center to wire center to Central Office relationships; which 911 tandems serve which NXXs, primarily or exclusively.	MSAG already provides this but Sprint will work with MCI if necessary. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307, 51.311, 51.313, 51.319
4.5	ILEC must provide NXX overlay maps and detailed NXX boundaries, as well as network maps to identify diversity routing.	MSAG already provides this but Sprint will work with MCI if necessary. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307, 51.311, 51.313, 51.319

Access #	MCI Position	Sprint Position	FCC Ruling
4.6	ILEC must provide report to identify which ALI databases cover which states or areas of the state.	Sprint has agreed in principle to provide to the extent it is the provider. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307, 51.311, 51.313, 51.319
4.7	Points-of-contact for each ALI database administrator.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307, 51.311, 51.313, 51.319
4.8	ILEC must identify any special operator-assisted calling requirements to support 911.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307, 51.311, 51.313, 51.319
5.	**Business Processes**		
5.1	ILEC must establish an automated Access Service Request (ASR) process for trunk provisioning.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 516-528 51.313, 51.319

VII. NON-DISCRIMINATORY ACCESS TO 911, DA, OPERATOR SERVICES

Access #	MCI Position	Sprint Position	FCC Ruling
5.2	ILEC must provide priority restoral of trunk or network outages on the same terms/conditions it provides itself (and without the imposition of TSP).	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 516-528 51.313, 51.319
5.3	ILEC must provide notification of any pending tandem moves, NPA splits, or scheduled maintenance outages in advance with enough time to react.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.313, 51.319
5.4	Need for mutual aid agreement to assist with disaster recovery planning	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.313, 51.319
5.5	ILEC must provide automated interface and access to the ALI database to enable MCI to maintain and update their records in a timely basis.	As long as direct access to the ALI database is not intended. Access to be provided through DMS. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 516-528 51.313, 51.319

VII. NON-DISCRIMINATORY ACCESS TO 911, DA, OPERATOR SERVICES

Access #	MCI Position	Sprint Position	FCC Ruling
5.6	ILEC must implement a process to identify and correct errors to the ALI database to ensure that the accuracy of data stored by new entrants is no less that their own data.	Sprint is not going to be solely responsible for this. Should be a joint process between the two companies. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.313, 51.319
5.7	ILEC must identify process for handling of "reverse ALI"	Sprint will not offer. No jurisdiction has requested that Sprint offer this capability.	51.313, 51.319
5.8	ILEC must establish process for the management of NPA splits as well as NXX splits.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.313, 51.319
5.9	ILEC must indemnify MCI for ILEC-caused errors in the maintenance, updating and processing of customer information to the ALI database.	Sprint has requested that MCI lawyers provide indemnification language for Sprint's review. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.313, 51.319

Access #	MCI Position	Sprint Position	FCC Ruling
	Definition: In order to provide customers of ILEC/MCI access to ubiquitous directory assistance services, whereby they can gain information on all assigned numbers regardless of the exchange service provider, methods and procedures need to be developed to 1) incorporate ILEC and MCI customer data into each other's directory assistance databases; 2) provide access to each other database(s) for their customers; 3) to buy and sell components of each others directory assistance and use.		
	Directory Assistance		
1.	**General Requirements**		
1.1	Ability to make MCI's data available to anyone calling the ILEC's DA, and the ILEC's data available to anyone calling MCI's DA.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 534-540 51.319
1.2	ILEC should store proprietary customer information provided by MCI in their Directory Assistance database; such information should be able to be identified by source provider in order to provide the necessary protection of proprietary information.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 534-540 51.319
1.3	License options should be made available to limit the ILEC's use of MCI's data to directory assistance or to grant greater flexibility in their use of the data with proper compensation to the owner of the data.	Sprint agrees in principle as long as the limitation is reciprocal. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 534-540 51.319

Access #	MCI Position	Sprint Position	FCC Ruling
1.4	MCI to be able to complete 411 calls utilizing components of ILEC's DA network.	Sprint agrees in principle where technically feasible but has not identified locations. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 534-540 51.319
1.5	Resale of bundled service, using ILEC DA operators and platform.	Sprint agrees to provide but only as a part of resale. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 534-540 51.319, 51.603
1.6	Ability to acquire ILEC data and processed directory assistance feeds in accordance with the specification in Appendix 2.	Sprint needs to further review specifications provided by MCI but agrees conceptually.	¶ 516-528 51.319
1.7	MCI should be able to buy the components or any combination of components, that comprise the ILEC directory assistance service and package them as required. Unbundled Directory Platform. Unbundled Directory Database and Sub Databases Unbundled Directory Data.	Sprint needs to talk further about this internally. Some technical feasibility questions raised.	¶ 516-528 ¶ 534-540 51.319

Access #	MCI Position	Sprint Position	FCC Ruling
1.8	Availability of service enhancements on a non-discriminatory basis at cost.	Sprint has requested that MCI drop the at cost request. In addition Sprint states that this is only applicable where MCI purchases DA from Sprint's platform. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.319
1.9	Carrier-specific branding should be available. Inquiries from MCI customers should be answered with an MCI specific branded salutation.	Sprint states it will provide on an outsourced basis but given the limited scope of Sprint's provision of these services to itself that this may not be a very attractive option. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.319, 51.613 FCC Dialing Parity Order ¶ 14 ¶ 534
2.	**Compensation**		
2.1	There should be no charge for ILEC storage of MCI customer information in the Directory Assistance Database.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 748

Access #	MCI Position	Sprint Position	FCC Ruling
2.2	Unbundled directory assistance elements should be made available on a reciprocal basis between MCI/ILEC for the exchange of data.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 536
2.3	As an alternative, compensation for DA can be resolved along with arrangements for White/Yellow page directories. The arrangements must be mutually reciprocal and must accommodate the other non-directory assistance services.	Not applicable for Sprint as they are not tied.	¶ 743-752
3.	**Quality of Service**		
3.1	The companies must agree on a mechanism for dealing with breaches of agreed Quality-of-Service standards.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307, 51.309, 51.311, 51.313, 51.319
3.2	End-to-End interval for updating database must be the same as provided to the ILEC's end users.	Sprint processes vary by region. Timeliness will depend in part of MCI. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307, 51.309, 51.311, 51.313, 51.319

Access #	MCI Position	Sprint Position	FCC Ruling
3.3	Automated interface into ILEC database for updating and inquiries.	Sprint agrees in principle where technically available. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 516-528 ¶ 539 51.307, 51.309, 51.311, 51.313, 51.319
3.4	Quality Standards equivalent to that provided their own customers.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307, 51.309, 51.311, 51.313, 51.319
3.5	Agreement on speed-to-answer standards.	Sprint will provide service at the same level it provides to its own customers. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307, 51.309, 51.311, 51.313, 51.319
3.6	Dialing parity including no unreasonable dialing delays.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307, 51.309, 51.311, 51.313, 51.319
4.	**Information**		

Access #	MCI Position	Sprint Position	FCC Ruling
4.1	Complete definition of rules for directory assistance listing (ordering data elements).	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307, 51.311, 51.313, 51.319
4.2	Agreement to data exchange standards for acquisition of directory assistance data (See Appendix 2).	Sprint needs to further review the MCI specifications but has stated this appears okay conceptually.	¶ 539
5.	**Business Processes**		
5.1	DA database needs to be updated and maintained with MCI data for customers who: Disconnect Change carrier Install "Change" orders Are Non-Published and/or Non Listed Are Listed Specify Non-Solicitation	Sprint states that change carrier is not available today and that non-solicitation is not envisioned. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.311, 51.313, 51.319
5.2	Each carrier bills its own end-users	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.311, 51.313, 51.319
5.3	Requirements for intercompany billing will be dependent upon the resolution of compensation issues.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.311, 51.313, 51.319

Access #	MCI Position	Sprint Position	FCC Ruling
5.4	MCI shall be billed in CABS format.	Sprint states that bills will be in a CRIS format for the foreseeable future although it would plan eventually to get to CABS. No timeline provided. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.311, 51.313, 51.319 ¶ 312 ¶ 516-528
5.5	Intercompany procedures need to be developed to correct errors when they are identified in the database.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.311, 51.313, 51.319
	Definition: Those systems which provide for processing and recording of special call types which include toll calls, public telephone call types as well as other call types requiring operator intervention/assistance. Operator assistance call types would include BLV/EI (busy line verification/emergency interrupt), or provide an intercept functionality to those call types where the caller dials a number that has been changed or disconnected.		
	Operator Services		
1.	**General**		

Access #	MCI Position	Sprint Position	FCC Ruling
1.1	A jointly developed process with the ILEC to conduct BLV/EI.	Sprint agrees in principle to provide where Sprint does OS. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.311, 51.313, 51.319 ¶ 534-540
1.2	Resale Operator Services from the ILEC, branded MCI utilizing MCI's rates for both Card and Operator Services functions and provided at least at parity for services delivered.	Sprint states it will provide if technically feasible and pursuant to a BFR. Sprint will not agree to provide without the BFR. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.311, 51.313, 51.319 ¶ 534-540
1.3	Resale of ILEC's Operator Services MCI Branded and utilizing MCI's rates for both Card and Operator Services.	Sprint states it will provide if technically feasible and pursuant to a BFR. Sprint will not agree to provide without the BFR. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.311, 51.313, 51.319 ¶ 534-540

Access #	MCI Position	Sprint Position	FCC Ruling
1.4	Service deliverables to include the following: 1. Local call completion - 0+ and 0-, billed to Calling Cards, Collect and Third Party 2. Billable - Time and Charges Etc.	Sprint states it will provide if technically feasible and pursuant to a BFR. Sprint will not agree to provide without the BFR. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.311, 51.313, 51.319

VIII. WHITE/YELLOW PAGE DIRECTORY LISTINGS

DEFINITION: The ability of MCI's customers to be able to obtain printed directories that includes all customers on the public switched network (within a defined geographic area) regardless of their local service provider.

REQUIREMENTS

1. General Requirements
2. Types of Directory Listings
3. Business Processes
   - 3.1 Order Processing
   - 3.2 Provisioning/Distribution
   - 3.3 Trouble Resolution, Maintenance, Customer Care
   - 3.4 Billing
4. Compensation
5. Quality of Service
6. Information

Access #	MCI Position	Sprint Position	FCC Ruling
1.	**General Requirements**		
1.1	The ILEC to include MCI specific information in the information pages of their directories.	Sprint needs clarification of this request. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.317, 51.319
1.2	Publication of MCI subscriber listings in ILEC directories (main listing in White and Yellow pages).	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.317, 51.319

VIII. WHITE/YELLOW PAGES DIRECTORY LISTINGS

Access #	MCI Position	Sprint Position	FCC Ruling
1.3	Distribution of directory to MCI subscribers on a non-discriminatory basis.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.317, 51.319
1.4	Customized cover for directories	Sprint will not brand the Sprint cover with MCI but Sprint Publishing is willing to negotiate publishing a private label book. Sprint has concerns about losing its publishing brand on the book.	51.317, 51.319
1.5	Use of ILEC recycling services.		51.317, 51.319
2.	**Types of Directory Listings**		
2.0	It is required that MCI subscribers can be included in the following types of directory listings:		51.317, 51.319
2.1	Primary White Page Listings	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.317, 51.319
2.2	Primary Yellow Page Listings	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.317, 51.319

VIII. WHITE/YELLOW PAGES DIRECTORY LISTINGS

Access #	MCI Position	Sprint Position	FCC Ruling
2.3	Additional White Page Listings	Sprint will provide if a price can be agreed upon. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.317, 51.319
2.4	Additional Yellow Page Listings	Sprint will provide if a price can be agreed upon. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.317, 51.319
2.5	Non-Pub/Non-List	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.317, 51.319
2.6	Foreign Listings	Sprint will provide if a price can be agreed upon. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.317, 51.319

VIII. WHITE/YELLOW PAGES DIRECTORY LISTINGS

Access #	MCI Position	Sprint Position	FCC Ruling
2.7	Alternate Call Listings	Sprint will provide if a price can be agreed upon. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.317, 51.319
2.8	Information Listings	Sprint will provide if a price can be agreed upon. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.317, 51.319
2.9	Advertising	Sprint will provide if a price can be agreed upon. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.317, 51.319
2.10	List Rentals	Sprint will not sell MCI data in the listings unless mutually agreed in advance. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.317, 51.319

VIII. WHITE/YELLOW PAGES DIRECTORY LISTINGS

Access #	MCI Position	Sprint Position	FCC Ruling
3.	**Business Processes**		
3.1	**Order Processing:**		
3.1.1	Order processing procedures need to be established to update directory database on a defined, regular basis with MCI customer information.	Details must be discussed especially where Sprint publishes a book but does not do its own DA. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.317, 51.319
3.1.2	Electronic format needs to be defined for exchange of customer data, to include the following types of data elements: Transaction (new listing, change name, change address, disconnect, etc.) Service Provider Order Number Telephone Number Completion Date Bus/Res Indicator Exchange List Name "Old" List Name (for changes) List Rental Omission List Address Zip Code Location/Service Address (for delivery) Billing Name, Address, Zip Code Billing Telephone Number List Type SIC Codes Yellow Page Headings	Sprint SME's need to more fully assess the MCI requirements. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.319

VIII. WHITE/YELLOW PAGES DIRECTORY LISTINGS

	Record Type (Main/Additional Listings) Type of Accounting (Gov't affiliation) Previous Telephone Number (changes) Referral Telephone Number (changes) Delivery Quantity New Connect Delivery Format Instructions (indent, etc.)		

Access #	MCI Position	Sprint Position	FCC Ruling
3.1.3	The ILEC must provide the ability for MCI to electronically query the LEC listing system to view customer listings.	No. Sprint publishing does not maintain an ongoing database. It receives data, consolidates and publishes only. Sprint must determine the ability for MCI to preview books prior to mass distribution.	51.319
3.1.4	The ILEC must provide the ability for MCI to electronically transmit multi-line listing orders.	No. This is a telco function not a publishing issue. This is done once a year in a batch process.	51.317, 51.319
3.1.5	A process for managing multi-owner captions is required.	Two names per number is an additional listing at the additional listing charge. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.317, 51.319

VIII. WHITE/YELLOW PAGES DIRECTORY LISTINGS

Access #	MCI Position	Sprint Position	FCC Ruling
3.1.6	The ILEC must provide a complete report showing all listing appearances at least one month prior to book close.	Sprint need to research further. A month may not be practical. Sprint agrees there is a need to establish procedures to try to meet the intent of the request but believes 30 days may be too long.	51.317, 51.319
3.2	**Provisioning/Distribution:**		
3.2.1	Initial and secondary distribution arrangements must be available.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.319
3.3	**Trouble Resolution, Maintenance & Customer Care:**		
3.3.1	Intercompany procedures need to be established to prevent errors, and to correct them when they do occur.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.313, 51.317, 51.319
3.4	**Billing:**		
3.4.1	This paragraph deleted or moved		
3.4.2	Invoice MCI subscribers directly for Yellow Pages advertising bills.	Sprint has requested that MCI clarify its request.	51.317, 51.319
3.4.3	Invoice MCI subscriber directly for advertising/white page bolding. Charges for additional and foreign White Pages listings should be billed to MCI and itemized at the ANI sub account level.	Sprint has requested that MCI clarify its request.	51.317, 51.319

Access #	MCI Position	Sprint Position	FCC Ruling
3.4.4	Intercompany billing dependent on resolution of compensation.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.317, 51.319
3.4.5	Need to determine proper form of administrative billing between billing carriers.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.317, 51.319
4.	**Compensation**		
4.1	There should be no additional charge for distribution.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 748
4.2	There should be no charge for inclusion of MCI subscriber listings in ILEC directories.(White and Yellow Pages).	Sprint is considering this request. However, information pages are chargeable per page – carriers may get first x number of pages for free – and for any work provided to create the page - e.g. design. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 748

Access #	MCI Position	Sprint Position	FCC Ruling
4.3	Any additional charges that are made to customers should be on a non-discriminatory basis.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 743-752
5.	**Quality of Service**		
5.1	The companies must agree on a mechanism for dealing with breaches of agreed Quality-of-Service standards.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307, 51.309, 51.311, 51.313, 51.319 ¶ 311
5.2	Listing update intervals must be the same as, those used by the ILEC for its own customers.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307, 51.309, 51.311, 51.313, 51.319 ¶ 311
6.	**Information**		
6.1	Publishing cycles and deadlines need to be provided to MCI to ensure timely delivery of MCI information.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307, 51.309, 51.311, 51.313, 51.319 ¶ 312-314
6.2	Service location information needs to be exchanged if directory publisher is to deliver books.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307, 51.309, 51.311, 51.313, 51.319

VIII. WHITE/YELLOW PAGES DIRECTORY LISTINGS

Access #	MCI Position	Sprint Position	FCC Ruling
6.3	Description of calling areas covered by each directory.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 312-314 51.307, 51.309, 51.311, 51.313, 51.319
6.4	The ILEC must provide regular updates of the following information: – Yellow page heading codes – Directory names and codes – Directory product changes – Listing format rules – Listing alphabetizing rules – Standard abbreviations – Titles and Designations	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 312-314 51.307, 51.309, 51.311, 51.313, 51.319

IX. NON-DISCRIMINATORY ACCESS TO TELEPHONE NUMBERS

DEFINITION: The ability to obtain code assignments and other numbering resources on the same terms and conditions available to ILECs.

REQUIREMENTS

1. General Requirements
2. Compensation
3. Quality of Service
4. Information
5. Business Processes

Access #	MCI Position	Sprint Position	FCC Ruling
1.	**General Requirements**		
1.1	Administration and assignment of numbers should be moved to a neutral third party. In the interim while ILECs are still administering numbering, the following should apply.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 541
1.2	The ILEC must assign NXXs to new entrants on a non-discriminatory basis and on the same basis as to itself.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 541
1.3	No restriction on ability to assign NXXs.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 541

IX. NON-DISCRIMINATORY ACCESS TO TELEPHONE NUMBERS

Access #	MCI Position	Sprint Position	FCC Ruling
1.4	Testing and loading of MCI's NXXs should be the same as ILEC's NXXs.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 541
1.5	This paragraph deleted or moved. **Not applicable**		
1.6	This paragraph deleted or moved. **Not applicable**		
1.7	Access arrangements for 555 line numbers.	Sprint asserts it is not the number administrator and cannot control.	¶ 541
1.8	Access to abbreviated dialing codes i.e. #XXX., XXX#.	No. Sprint has no present plans to open this up.	¶ 541
1.9	When purchasing switching capabilities, until such time as numbering is administered by a third party, MCI requires the ability to obtain telephone numbers on-line from the ILEC, and to assign these numbers with MCI customer on-line. This includes vanity numbers. Reservation and aging of numbers remain the responsibility of the ILEC.	Sprint will consider. Existing systems cannot support this and may not be available prior to 3rd party administrator. Sprint will pursue further internally.	¶ 541
2.	**Compensation**		
2.1	The ILEC must assign NXXs to new entrants without the imposition of charges that are not imposed upon itself.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 541
3.	**Quality of Service**		

Access #	MCI Position	Sprint Position	FCC Ruling
3.1	The companies must agree on a mechanism for dealing with breaches of agreed Quality-of-Service standards.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 311 51.307, 51.309, 51.311, 51.319
3.2	ILECs must load NXXs according to industry guidelines, including the terminating LATA in which the NXXs/rate center is located.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 541 51.307, 51.309, 51.311, 51.319
4.	**Information**		
4.1	Until such time that number administration is moved to an independent third party, the ILECs must provide routine reporting on NXX availability, fill rates, and new assignments.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 541 51.307, 51.309, 51.311, 51.319
4.2	The ILEC's must provide detailed planning and implementation requirements for NPA-NXX splits.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 541 51.307, 51.309, 51.311, 51.319
5.	**Business Processes**		
5.1	Any forecasts required to be submitted prior to re-establishment of an independent national third party should be provided through an independent agent working on behalf of the local number administrator.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.319 ¶ 541

X. NON-DISCRIMINATORY ACCESS TO DATABASES AND ASSOCIATED SIGNALING NECESSARY FOR CALL ROUTING AND CALL COMPLETION

DEFINITION: ***There are two types of databases to which MCI requires access: 1) those that support non-call processing applications, and 2) those that support call processing applications. Examples of information stored in non-call processing databases include customer payment records and billing name and address. Examples of call processing databases include the LIDB and advanced intelligent network(AIN) databases. Signaling refers to the capability to access call processing databases using transport links and messaging protocols which are separate from the transport and switching used to complete the actual call.***

REQUIREMENTS
1. General Requirements
2. Databases Required
3. Compensation
4. Quality of Service
5. Business Processes
6. AIN/IN Platform
7. Signaling

Access #	MCI Position	Sprint Position	FCC Ruling
1.	**General Requirements**		
1.1	For unbundling, MCI requires that all databases (non-call processing and call processing) and signaling capabilities be available for discrete purchases by MCI and priced at TSLRIC.	Sprint needs further clarification for some scenarios.	51.319 ¶ 516 - 528
1.2	MCI should be able to designate the signaling point of interconnection for access to databases and signaling at any technically feasible point.	Sprint states that access is at the STP only.	51.319 ¶ 516 - 528
2.	**Databases Required**		
2.1	Examples of databases that MCI requires non-discriminatory access via electronic bonding include but are not limited to the following: LNP Database (TSLRIC)	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 499 51.305
	Billing Name and Address Database (TSLRIC)		¶ 516 - 528 51.319

X. NON-DISCRIMINATORY ACCESS TO DATABASES AND ASSOCIATED SIGNALLING NECESSARY FOR CALL ROUTING AND CALL COMPLETION

Access #	MCI Position	Sprint Position	FCC Ruling
	LIDB (TSLRIC)		¶ 484 - 500 51.319
	Directory Assistance (TSLRIC)		¶ 534 - 540 51.319
	Access to toll free databases (TSLRIC)		¶ 484 - 500 51.319
	Centrex business Group Database		¶ 412 51.319
	Listing Services Database (TSLRIC)		¶ 534 - 540 51.319
	Intercept Database		¶ 534 - 540 51.319
	Operator Reference Database (TSLRIC)		¶ 534 - 540 51.319
	CRIS		¶ 516 - 528 51.319
	Service Location Database		¶ 516 - 528 51.319
	ALI Database for 911		¶ 516 - 528 51.319
	MSAG		51.319
	OSS Databases		¶ 534 - 540 51.319
	TMN type database		¶ 516 - 528 51.319

X. NON-DISCRIMINATORY ACCESS TO DATABASES AND ASSOCIATED SIGNALLING NECESSARY FOR CALL ROUTING AND CALL COMPLETION

Access #	MCI Position	Sprint Position	FCC Ruling
	Repair/Dispatch Database		¶ 516 - 528 51.319
	Installation/Order Processing Databases		¶ 516 - 528 51.319
	Switch Network ID Database, with complete list of feature/functions by switch, NPA/NXXs, bus/res line counts, rate centers, etc.		¶ 501 - 503 51.319
	Local Calling area database		¶ 501 - 503 51.319
	CMDS system (TSLRIC)		51.319
	Inventory Database		51.319
	Number Assignment Database		¶ 534 - 540 51.319
	Usage Data		51.319
	Customer payment records		51.307, 51.309, 51.311, 51.319
	Calling party name within the SS7 call set-up signaling protocol.		¶ 478 - 483 51.319
	CLASS features		¶ 412 51.319
	Emergency services database		¶ 412 51.319
	Customer payment history.		51.307, 51.309, 51.311, 51.319
	Databases containing service handling/routing information		¶ 484 - 492 ¶ 501 - 503 51.319
	Universe list (TSLRIC)		51.319
3.	**Compensation**		

X. NON-DISCRIMINATORY ACCESS TO DATABASES AND ASSOCIATED SIGNALLING NECESSARY FOR CALL ROUTING AND CALL COMPLETION

Access #	MCI Position	Sprint Position	FCC Ruling
3.1	Database dips resulting in a call terminating with the ILEC should not be charged to MCI.	TELRIC plus a reasonable allocation of forward looking costs.	¶ 743 51.503, 51.505, 51.507
3.2	Signaling Capabilities must be priced at TSLRIC.	TELRIC plus a reasonable allocation of forward looking costs.	¶ 743 - 752 51.503, 51.505, 51.507
3.3	Access to all databases marked above as TSLRIC must be priced at TSLRIC. **See X.2.1.**	TELRIC plus a reasonable allocation of forward looking costs.	¶ 743 - 752 51.503, 51.505, 51.507
3.4	Access to all other databases must be provided at no charge. **See X.2.1.**	TELRIC plus a reasonable allocation of forward looking costs.	¶ 748 51.503, 51.505, 51.507
4.	**Quality of Service**		
4.1	MCI database queries must receive equal priority as those of the ILEC/other companies.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 516 - 528 51.307, 51.309, 51.311, 51.319
4.2	Detailed tracking of usage and call termination point for MCI queries against SCP database.	Sprint will consider but needs MCI to clarify its requirements.	¶ 484 - 492 51.307, 51.309, 51.311, 51.319
4.3	MCI database queries must receive equal reliability, availability and performance as that provided to the ILEC/other companies and must be at least at industry standard levels.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307, 51.309, 51.311, 51.319
4.4	The companies must agree on a mechanism for dealing with breaches of agreed Quality-of-Service standards.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307, 51.309, 51.311, 51.319

X. NON-DISCRIMINATORY ACCESS TO DATABASES AND ASSOCIATED SIGNALLING NECESSARY FOR CALL ROUTING AND CALL COMPLETION

Access #	MCI Position	Sprint Position	FCC Ruling
5.	**Business Process**		
5.1	The ILEC must continue to administer and maintain the database (including provisioning of MCI customer data as appropriate).	Sprint will consider but needs MCI to clarify its requirements.	¶ 484 - 503 51.319
5.2	Procedures are required for validating that information supplied by MCI is accurately provisioned in the ILEC databases.	Sprint agrees in principle to apply where applicable. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.319
5.3	A signaling link shall consist of a 56 kps transmission path between MCI designated POIs.	Sprint agrees in principle to this request or to such other speeds as may be mutually agreed. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.319
6.	**AIN/IN Platform**		
6.1	ILECs must implement AIN/IN interconnection points to fully unbundle the ILEC AIN/IN network.	Sprint does not have AIN at this time deployed in its network.. Interconnection as STP for IN.	¶ 484 - 503 51.319
6.2	ILEC must provide, without mediation, the following requirements using the existing SS7 signaling and AIN switch capabilities:	Sprint does not have AIN deployed in its network at this time.	¶ 484 - 503 51.319
6.2.1	Exchange of AIN TCAP messages between ILEC Service Switching Point (SSP) and MCI Service Control Point (SCP).	Sprint does not have AIN deployed in its network at this time.	¶ 484 - 503 51.319

X. NON-DISCRIMINATORY ACCESS TO DATABASES AND ASSOCIATED SIGNALLING NECESSARY FOR CALL ROUTING AND CALL COMPLETION

Access #	MCI Position	Sprint Position	FCC Ruling
6.2.2	Provisioning of ILEC triggers in the ILEC network and access of all triggers currently available to the ILEC for offering AIN-based services that are at least equivalent to the ILEC's own capabilities using SS7 TCAP messages.	Sprint does not have AIN deployed in its network at this time.	51.319
6.2.3	Service Creation and Service Management - The ILEC must provide MCI with access to ILEC service creation and services management platforms for MCI to create and provision services for its customers.	Sprint does not have AIN deployed in its network at this time.	51.319
6.3	IILC (Information Industry Liaison Committee) Issue #026 defines additional interconnection points needed to fully unbundle the ILEC's AIN/IN network. Some of the interconnection points specified in Issue #026 are not available at this time and warrant further study. The ILEC will work cooperatively to ensure agreement to and implementation of these interconnection points by May 1998.	Sprint will consider this request. Sprint still reviewing IILC issue #026.	51.319
6.4	ILEC is required to work technical feasibility of these remaining interconnection points in an established industry technical forum that operates under due process and is focused on implementation.	Sprint will consider this request. Sprint still reviewing IILC issue #026.	51.319
6.5	Except in situations where it can be unequivocally substantiated, mediation will not be required.	Level of Sprint participation determined by Sprint. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.319
6.6	Where the need for mediation is unequivocally substantiated it must be competitively neutral and should be included in the study effort referred to above.	No.	51.319
7.	**Signaling**		
	See Signaling in section I - Interconnection	Covered Elsewhere.	

XI. LNP, ILNP, VIA RCF, DID OR OTHER ARRANGEMENTS

DEFINITION: *The three categories of number portability are: service portability; geographic portability; and, most important to MCI at this time, provider portability. For purposes of meeting the checklist requirements in the statute MCI requires provider portability be implemented.*

Provider Portability is the ability of users of telecommunications services to retain , at the same location, existing telecommunication numbers without impairment of quality, reliability or convenience when switching from one telecommunications carrier to another .

REQUIREMENTS
1. General Requirements
2. Compensation
3. Quality of Service
4. Information
5. Business Processes

Access #	MCI Position	Sprint Position	FCC Ruling
1.	**General Requirements**		
1.1	Immediate implementation of interim solutions to permit customers to change to MCI without changing their telephone numbers. Such interim solutions would include Remote Call Forwarding (RCF), Flexible DID, or Route Indexing. These solutions must be offered in a manner that results in no impairment of functioning, quality, reliability or convenience. DID must be provided with SS7.	There is agreement in principle although there are known impairments to the interim number portability solutions. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	52.7
1.2	Commit to deployment of Local Routing Number (LRN) database solution for LNP by 9/1/97. After 9/1/97, ILEC should assume ALL costs of providing RCF, Flex DID and Route Indexing. ILEC should provide detailed progress reports on its implementation plans for LRN. They should provide detailed conversion schedules by end office for implementation of LNP/LRN.	No. Sprint will comply with FCC Order.	52.3, 52.5

Access #	MCI Position	Sprint Position	FCC Ruling
2.	**Compensation**		
2.1	Establishment of competitively neutral cost recovery for RCF/DID/RI to ensure that the costs of LNP and ILNP are shared by all carriers, not just the new market entrants. Such competitive neutral solutions would NOT include the imposition of retail rates on RCF/DID/RI solutions, the imposition of NRCs on the installation, or the levying of incremental path charges.	No.	52.7
2.2	MCI is entitled to the terminating access charges associated with calls terminating to ported numbers assigned to its subscribers (whether via ILNP or LNP).	Sprint states that some access elements with interim local number portability OK but not all.	FCC did not address in Interconnection Order
2.3	Recovery of database solution costs on a competitively neutral basis. Each carrier will be responsible for recovery of its own internal network implementation costs. NPAC/SMS costs will be recovered through a combination of: 1) charges for download broadcasts, priced at incremental costs, to all entities connecting to the NPAC/SMS; and 2) all other costs recovered by participating carriers in the portability area, apportioned in a competitively neutral manner, e.g., based on each carriers share of total access lines in the portability area.	Sprint agrees in principle to the fact that cost recovery should be competitively neutral but believes this issue should be resolved as an industry.	LNP Order, ¶ 126 - 140
3.	**Quality of Service**		
3.1	The companies must agree on a mechanism for dealing with breaches of agreed Quality-of-Service standards.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307, 51.309, 51.311, 51.319
3.2	For both LNP and ILNP the quality of service, features and functionality of the calls to the ported numbers should be identical to the quality of service of the calls to the non-ported numbers. Capabilities must include, but should not be limited to, the ability to receive collect calls and bill to third party numbers, provision of intercept announcements upon disconnect.	Sprint states it will provide tot he extent possible but has not defined what this entails. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	52.7 LNP Order ¶ 110 - 116

Access #	MCI Position	Sprint Position	FCC Ruling
4.	**Information**		
4.1	The format of the data required for interim Local Number Portability must be provided to MCI.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.307, 51.309, 51.311, 51.313, 51.319
5.	**Business Processes**		
5.1	Update OSS, Network, Customer Care, Repair, Billing, CMDS, ALI, LIDB, 411 databases and CARE and other administrative systems to accommodate LNP and ILNP and properly identify the carrier serving the customer with a ported number.	Sprint agrees in principle to provide where Sprint is responsible. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.313, 51.319
5.2	The LSR must be used to communicate all ILNP requests.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.313, 51.319
5.3	Individual RCF implementation should be completed within 2 days.	Sprint agrees in principle to provide "under normal circumstances." Sprint has not defined what may cause this not to occur. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.311, 51.313, 51.319

XII. NON-DISCRIMINATORY ACCESS TO SUCH SERVICES OR INFORMATION NECESSARY TO ALLOW REQUESTING CARRIER TO IMPLEMENT DIALING PARITY

DEFINITION: ***The duty to provide dialing parity to competing provider of telephone exchange services and telephone toll service and the duty to permit all such providers to have non-discriminatory access to telephone numbers, operator services, directory assistance, and directory listing with no unreasonable dialing delays.***

REQUIREMENTS 1. Intralata External Issues
2. General Issues Requirements
3. Compensation

Access #	MCI Position	Sprint Position	FCC Ruling
1.	**Intralata External Issues**		
1.1	ILECs should provide dialing parity for intraLATA toll, operator assisted and directory assistance calls.	Sprint agrees in principle to provide if technically feasible and the customer is on a LEC switch (resale). We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	FCC Dialing Parity Order ¶ 4,7 51.207, 51.209

XII. NON-DISCRIMINATORY ACCESS TO SUCH SERVICES OR INFORMATION NECESSARY TO ALLOW REQUESTING CARRIER TO IMPLEMENT DIALING PARITY

Access #	MCI Position	Sprint Position	FCC Ruling
1.2	Full 2-PIC technology must be deployed on an end-office basis to allow for intraLATA dialing parity and presubscription (toll equal access)	Sprint is not interested in going through a full fledged balloting process but will make available the capability. There must be compliance with any state mandated processes. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	FCC Dialing Parity Order ¶ 5,7 51.207, 51.209, 51.211, 51.213
2.	**General Requirements**		
2.1	Any end user should be able to access MCI's network for services using the same dialing protocol that the end user would use to access the same service on the ILEC network	Sprint agrees conceptually but states that this can be technically difficult in certain scenarios. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.207, 51.209
2.2	ILEC must provide routine reporting on local dialing plans by switch type and end office and identify any scheduled changes	Agreement in principle language so long as this is information that is already being provided in filings. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.207, 51.211

XII. NON-DISCRIMINATORY ACCESS TO SUCH SERVICES OR INFORMATION NECESSARY TO ALLOW REQUESTING CARRIER TO IMPLEMENT DIALING PARITY

Access #	MCI Position	Sprint Position	FCC Ruling
2.3	See Section IX for Directory Assistance requirements.	See Section IX.	
2.4	See Section X for Directory Listings requirements.	See Section X.	
2.5	Equivalent number allocation	Sprint agrees in principle but states since it is not a number administrator that it cannot make this happen. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.217
2.6	Equivalent call set up/call processing times	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.205, 51.207, 51.209
2.7	Dialing delays no longer than that experienced by ILEC's own customer for processing calls on the ILEC network.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.205, 51.207, 51.209
2.8	The ILEC must agree to continue their Casual Billing Service once existing agreements expire.	Discussion required.	FCC did not address in Interconnection Order
3.	**Compensation**		
3.1	Implementation costs of 2-PIC technology must be shared by all intraLATA toll providers including the ILECs.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.215

XII. NON-DISCRIMINATORY ACCESS TO SUCH SERVICES OR INFORMATION NECESSARY TO ALLOW REQUESTING CARRIER TO IMPLEMENT DIALING PARITY

Access #	MCI Position	Sprint Position	FCC Ruling
3.2	Cost recovery should mirror the FCC cost recovery guidelines for interLATA equal access as described in the Code of Federal Regulations.	Sprint proposes MOU charge to toll providers and suggest that this will need to be decided by individual states.	51.215
3.3	The costs should be recovered over a 8 year period.	Sprint suggests 3 to 5 years and suggests that this issue must be decided by each state.	51.215
3.4	The costs should be tracked and evaluated prior to the end of the cost recovery period.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.215

XIII. RECIPROCAL COMPENSATION ARRANGEMENTS

DEFINITION: Compensation arrangements established between interconnecting co-carriers for the exchange of telecommunication services on a mutual, reciprocal and procompetitive basis.

REQUIREMENTS 1. Local Service/Mutual Traffic Exchange
2. Cost Basis

Access #	MCI Position	Sprint Position	FCC Ruling
1.	**Local Service/Mutual Traffic Exchange**		
1.1	All ILEC's have the duty to provide reciprocal compensation arrangements for the transport and termination of telecommunications between interconnecting co-carriers. In order to implement this requirement in the most efficient manner, the specifically recognized option of "Mutual Traffic Exchange" (AKA "bill and keep") should be implemented immediately. This option will ensure that compensation will be mutual, reciprocal and symmetrical.	Sprint states it will comply with the FCC order. Sprint believes that though they can charge for transport from the tandem to the end office that MCI cannot charge reciprocal transport - only tandem and termination charges.	¶ 111 51.703, 51.705, 51.713 ¶ 233
1.2	Each carrier will be responsible for originating/terminating traffic to/from the meet point (POI) with the other carrier. No monetary charges made by either carrier for the termination of traffic for other carriers. Rather, each carrier will be compensated "in kind" by having its traffic terminated on the other carriers' networks.	Sprint states it will comply with the FCC Order.	¶ 233
2.	**Cost Basis**		
2.1	If a situation develops where traffic flows are persistently out of balance there may be a requirement to replace mutual traffic exchanges with an explicit compensation rate. In this situation the rate must.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	

Access #	MCI Position	Sprint Position	FCC Ruling
2.2	Be priced at TSLRIC incurred by the ILEC.	TELRIC plus a reasonable allocation of forward looking common costs.	51.503
2.3	In no case be greater that the cost the ILEC imputes to its services for the transport and termination of its own telecommunications services.	Sprint will comply with the FCC Order. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.709(b)
2.4	Be unitary, mutual, reciprocal and uniform between carriers.	Sprint will comply with the FCC Order. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.711
2.5	Be independent of the switch type involved in terminating the call.	Sprint will comply with the FCC Order. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	

Access #	MCI Position	Sprint Position	FCC Ruling
2.6	Have no transport mileage element.	Sprint will comply with the FCC Order. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.707(b)

XIV. RESALE

DEFINITION: The provision to another carrier at wholesale rates of any telecommunications service that the ILEC provides at retail to subscribers who are not telecommunications carriers and that the carrier may resell to subscribers.

REQUIREMENTS

1. General Requirements
2. Compensation
3. Quality of Service
4. Information
5. Business Processes
   - 5.1 Order Processing
   - 5.2 Provisioning & Installation
   - 5.3 Trouble Resolution, Maintenance & Customer Care
   - 5.4 Billing
6. Carrier Selection
   - 6.1 Inter and IntraLATA PIC
   - 6.2 Local Carrier Selection

Access #	MCI Position	Sprint Position	FCC Ruling
1.	**General Requirements:**		
1.1	All services offered to end-users of the ILEC must be available for resale by MCI.	Sprint will not include alleged non-telecommunications services e.g. phonemail.	51.603, 51.605, 51.607, 51.613 ¶ 871 - 877 ¶ 939 ¶ 948 - 953 ¶ 956 - 957 ¶ 962 - 964 ¶ 968
1.2	Every retail service rate, including promotions, discounts and option plans, must have a corresponding wholesale rate.	Sprint will not include alleged non-telecommunications services and only promotions over 90 days.	51.603, 51.605, 51.607(b) 51.613(a)(2)

Access #	MCI Position	Sprint Position	FCC Ruling
1.3	No conditions may be placed on the resale of any retail service except for the single provision within the Act which allows a state commission to restrict resale between certain categories of subscribers. Sec. 251(c)(4)(B).	We believe we may have *reached agreement in principle* with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.603, 51.605, 51.613(a)(i)
1.4	MCI requires that the existing databases and signaling supporting the retail service continue to be provided as part of the wholesale service.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.319 ¶ 970 51.603(b)
1.5	All retail services offered to end users, including but not limited to, contract and tariffed services must be offered for resale and should include but not be limited to: Voice, data, video and imaging Local exchange services as defined already in rules, including 1-MB, 1MR, 1FB and 1FR custom calling features, including all CLASS services. Promotions, optional calling plans, special pricing plans, etc. Calling card Directory (including white and yellow page) services Operator services ISDN BRI and PRI Trunk services (flat-rated and measured) including all types of PBX trunks IntraLATA toll	Sprint will not include alleged non-telecommunications services and only promotions over 90 days.	51.603, 51.605, 51.607, 51.613 ¶ 871 - 877 ¶ 939 ¶ 948 - 953 ¶ 962 - 964 ¶ 968 ¶ 956 - 957

	Public access line service and semi-public coin telephone service. Foreign exchange services Call blocking services (part of Basic Local Exchange) Centrex and all feature Packages. Voice messaging, video dialtone. Any combination of packages.		

Access #	MCI Position	Sprint Position	FCC Ruling
1.6	If the ILEC still sells a service to any end users under grandfathered arrangements, they must make it available for resale at wholesale rates to those end users.. If a service withdrawn from certain customers remains available to some customers, it must be made available for resale.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.603, 51.607, 51.613, 51.615 ¶ 968
1.7	The ILEC must agree to a minimum notice period for changes/introduction/ discontinuation of services so that resellers have an opportunity to make the necessary modifications to their ordering, billing and customer service systems, and so that they can provide sufficient customer notification regarding any changes.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.603, 51.607, 51.613, 51.615
1.8	"Trial" products must be available to resellers, and resellers (and their customers)should be able to participate in trials.	Sprint will not resell true technical or short term market trials. There is a need agree on how trials will be defined. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.603, 51.607, 51.613, 51.615 ¶ 950 ¶ 939

XIV. RESALE

Access #	MCI Position	Sprint Position	FCC Ruling
1.9	There should be no prohibition on how MCI can combine resold wholesale services with other network elements to create new services.	Sprint agrees conceptually as long as there is no good reason to restrict such as technical unfeasibility, adverse impact on the network/switch impact on Sprint of CLEC. The reason provided should not be artificial. No contract language agreed to at this time. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.309 ¶ 341 51.603, 51.607, 51.613, 51.615 ¶ 939
1.10	MCI preserves the right to determine whether it purchases unbundled network element vs. resold service.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.603, 51.607, 51.613, 51.615 ¶ 331 ¶ 341
1.11	Carrier specific branding should be available on all points of customer-contact (e.g., directory assistance, intercept tapes, customer service centers, repair, etc.).	Sprint agrees in principle as long as branding is technically feasible. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.603, 51.607, 51.613, 51.615 ¶ 971
1.12	ILEC must allow MCI, when purchasing wholesale service, to utilize unbundled signaling links for connection to the interconnecting carrier's IN and AIN platforms.	AIN IN issues should be resolved at the FCC first.	51.603, 51.607, 51.613, 51.615 ¶ 331
1.13	ILEC must agree not to make modifications to individual MCI resold lines/accounts unless authorized by MCI (excluding change of carrier).	Sprint to research.	51.603, 51.607, 51.613, 51.615

Access #	MCI Position	Sprint Position	FCC Ruling
1.14	MCI's local customers be able to retain their existing ILEC provided telephone number without loss of feature capability and ancillary services such as, but not exclusively: DA, 911/E911 capability. Both MCI and the ILEC will work cooperatively on exceptions.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.603, 51.607, 51.613, 51.615
1.15	ANI over T1 functionality must be made available.	No.	51.603, 51.607, 51.613, 51.615
2.	**Compensation:**		
2.1	The Wholesale price for each retail service must be determined based on the costs the ILEC will avoid when the service is resold.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.609, 51.613 ¶ 878 - 934
2.2	Local carrier change charge no greater than TSLRIC and in no event should it be at such a level as to create a barrier to customer choice.	Sprint needs to research further.	51.609, 51.613 ¶ 878- 934
2.3	The differential between wholesale and retail rates must apply to retailers promotions.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.609, 51.613 ¶ 949
2.4	The avoided cost differential between the retail and wholesale rates must be the same, in percentage terms, across all rate elements, features and functions.	Discounts will be different for lines, features, etc.	51.609, 51.613 ¶ 871 - 916
2.5	In cases where a wholesale service is not equal in all respects to the retail service, an additional discount shall apply to compensate for the lack of equality.	No.	51.609, 51.613 ¶ 914
2.6	The differential between wholesale and retail rates must be reviewed/adjusted on an annual basis.	Sprint will not agree to a specific review period.	51.609, 51.613

XIV. RESALE

Access #	MCI Position	Sprint Position	FCC Ruling
2.7	ILECs must produce cost studies within specified timeframe as part of good faith negotiations.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.609, 51.611, 51.613 ¶ 155
2.8	Non discriminatory cost based term discounts should be available.	Sprint does not currently contemplate term and volume discounts.	51.609, 51.613 ¶ 951 ¶ 948
2.9	Non discriminatory cost based volume discounts should be available.	Sprint does not currently contemplate term and volume discounts.	51.609, 51.613 ¶ 953 ¶ 948
2.10	Commitment for term and volume discounts should be based on revenue rather than line count.	Sprint does not currently contemplate term and volume discounts.	51.609, 51.613
2.11	Commitment for term and volume discounts should be region-wide (rather than state-wide).	Sprint does not currently contemplate term and volume discounts.	51.609, 51.613
2.12	Commitment should be able to be met either through revenues driven by resold facilities OR unbundled facilities.	Sprint does not currently contemplate term and volume discounts.	51.609, 51.613
2.13	Discount should apply to SLC (without impacting the CCL).	Sprint contends that the SLC is federally mandated.	51.609, 51.613, 51.617
2.14	Take-or-Pay penalties are unacceptable. In the event a carrier doesn't meet their volume commitment, their discount should be re-calculated retroactively using the tier in which their performance falls.	Sprint does not currently contemplate term and volume discounts.	51.609, 51.613
2.15	Wholesale rates must be tariffed.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.609, 51.613

Access #	MCI Position	Sprint Position	FCC Ruling
2.16	Installation charges should be based on avoided costs.	Sprint believes its installation charges are cost based if not below cost. It does not appear that any costs will be avoided from resale. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.609, 51.613
2.17	There must be no charge for incomplete call attempts.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.609, 51.613
3.	**Quality of Service:**		
3.1	The companies must agree on a mechanism for dealing with breaches of agreed Quality-of-Service standards.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	
3.2	Installation intervals must be established that ensure that service can be installed to customers of the reseller in the same timeframe as the ILEC provides services to its own customers, as measured from date of customer order to date of customer delivery.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 970 - 971

Access #	MCI Position	Sprint Position	FCC Ruling
3.3	ILEC may not provide service inferior to that which it provides its customers, as demonstrated through new comparative reports (ILEC direct sale vs. MCI resale vs. "all other CLEC" resale) on ILEC service performance (install interval, outage frequency and duration, etc.).	Sprint agrees in principle but reports need to be developed. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.603(b)
3.4	Ongoing maintenance practices on resold services shall equal the practices employed by the ILEC in support of their retail services.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.603(b)
3.5	There should be no impact to the access network as a result of the establishment of resale arrangements.	Sprint states this depends on whether OBF requires affirmative PIC notification at ordering.	FCC did not address in Interconnection Order
4.	**Information**		
4.1	The ILEC must be required to provide the agreements they have made with other CLECs and with its own affiliates.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 1309-1323 51.809

Access #	MCI Position	Sprint Position	FCC Ruling
4.2	The ILEC must identify service, feature and product availability for all products at end office level or at a finer level of granularity if availability varies at such a level. Specific examples include, but are not limited to Centrex availability. A definition/ explanation of ordering and provisioning requirements is also required.	Sprint is working towards getting a comprehensive listing of availability but this is not completed. Sub switch information may take a long time to produce. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.603, 51.605, 51.613
4.3	Information in 4.2 must be real time and provided on-line.		51.603(b)
5.	**Business Processes**		
5.1	**Ordering**		
5.1.1	Dedicated CLEC service center, available 7 days X 24 hours which must be required to meet rigorous service/quality/performance standards.	Normal or extended business hours only.	51.313, 51.319 ¶516-528
5.1.2	Ability for MCI to order local carrier selection and interLATA and intraLATA PICS on a unified order.	Sprint will consider. Order processing being defined at OBF.	51.313, 51.319 ¶516-528
5.1.3	No requirement for a signed LOA in order to process an order.	Sprint will agree to this if the OBF resolves this issue this way. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.313, 51.319 ¶516-528
5.1.4	Confirmation of the installation/change processed to MCI. In addition, customers must have a mechanism for confirming their carrier similar to the 700 number utilized by interexchange carriers.	The technical solution for this requirement must be established in an industry forum.	51.313, 51.319

XIV. RESALE

Access #	MCI Position	Sprint Position	FCC Ruling
5.1.5	That the ILEC provide at the time of order completion notification of the local geatures/products/services/ elements/ combinations that were provisioned for all MCI local customers. This applies to all types of service orders and all elements. MCI requires the ILEC provide any customer status which qualifies the customer for a special service (e.g. DA exempt, lifeline, etc.).	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51,313, 51.319
5.1.6	On-line access to CRIS and routine reconciliation between CRIS records and MCI customer records should be established.	No.	51.313, 51.319
5.1.7	Access should be provided to telephone line number and loop assignment system(s).	Sprint agrees in principle to provide when systems are available. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.313, 51.319
5.1.8	MCI must have the ability to reserve ANIs real time, via access to the telephone line number (TLN) and card assignment system(s) and line information data base (LIDB).	Sprint will not provide access to LIDB.	51. 313, 51.319
5.1.9	Access to system(s) that provide the list of interexchange carrier (IXC) primary interexchange carrier (PIC) choices.	Sprint will provide in conformance with industry standards. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.313, 51.319

Access #	MCI Position	Sprint Position	FCC Ruling
5.1.10	Access to system(s) that provide the existing customer service and equipment record when a change has been authorized.	Manual at first, automated eventually. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.313, 51.319
5.1.11	Automated interfaces for service order confirmation, including: ANI confirmation All services should be transferred to the resellers - transparent to the customer, especially card Directory update Features update Essential Service Line (ESL) MCI ability to block, suspend, and restore end-user access Confirm receipt Verify install date/features/directory listing Exception reporting to highlight missed service installs InterLATA and intraLATA toll PIC changes or selections Account Maintenance (moves/changes)	Sprint will consider based on OBF resolutions of issues.	51.313, 51.319
5.2	**Provisioning & Installation**		
5.2.1	Automated interfaces shall be provided into a centralized operations support systems data base for completion confirmation.	Sprint agrees in principle when the systems are available. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.313, 51.319

Access #	MCI Position	Sprint Position	FCC Ruling
5.2.2	Establishment of service resale shall not result in any disruption to the customer's service.	Sprint says that it will provide to the extent possible. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.313, 51.319
5.2.3	The ILEC is responsible for rerouting long distance and intraLATA toll traffic to the PIC carriers concurrent with fulfillment of the resale service order.	Sprint states that it will provide to the extent possible and consistent with industry standards. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.313, 51.319
5.3	**Trouble Resolution, Maintenance & Customer Care**		
5.3.1	Automated read and write access to ILEC maintenance and trouble report systems. Access must be via an electronic interface real-time and on a first come first serve basis. Such systems must monitor and report on the integrity of the ILEC network, isolate troubles and initiate repair operations, and generate maintenance and repair notices that impact any end user's ability to complete calls.	Sprint states it will provide once standards are established. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.313, 51.319

Access #	MCI Position	Sprint Position	FCC Ruling
5.3.2	The ILEC must develop a process to identify the carrier for each resold service and establish appropriate intercompany referral processes.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.313, 51.319
5.3.3	The ILEC must initiate exception reporting which communicates both planned and unplanned outages and restorals to MCI.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.313, 51.319
5.3.4	Dedicated service centers must be established to handle service issues, escalations, resolution of billing issues and other administrative problems. Automated interfaces shall be provided into a centralized customer support systems data bases for access to services and features purchased from ILEC and credit history of converting end users.	Sprint states that this will be automated in the future and that credit information is subject to legal constraints. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.313, 51.319
5.3.5	Automated interfaces shall be provided into a centralized operations support systems data base for field dispatch scheduling (in order to schedule appointments with end users), status of repairs and confirmation of repair completion. The mean time to repair resold services shall be no greater than the mean time to repair reported by the ILEC for its retail customers.	Sprint states that this is some time off in the future. Parity is agreeable. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.313, 51.319

Access #	MCI Position	Sprint Position	FCC Ruling
5.3.6	All customers must be able to continue the established local dialing protocol to access the repair center of their local service provider. Upon dialing "611" (where available) the customer should be presented with a non-branded menu that requests the customer input their telephone number. Once the telephone number is provided, the customer would be transferred to the repair center of their local service provider. In the near term while the ILEC receives a repair call from an MCI customer, it should be received unbranded and transferred to the appropriate MCI repair center.	Sprint has moved away from 611 to 800. Referral will be done by live operators in near term. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.313, 51.319 ¶ 971 51.613(c)
5.3.7	The ILEC must make available an inside wiring maintenance option.	Discussion required.	51.313, 51.319
5.4	**Billing**		
5.4.1	**Wholesale ILEC Billing**		
5.4.1.1	The underlying network provider is the appropriate recipient of all access charges, and should be responsible for directly billing the IXCs for the access related to interexchange calls generated by resold customers.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.313, 51.319
5.4.1.2	Monthly invoices must be presented in a Carrier Access Billing Systems like(CABS) format in order to facilitate standard industry auditing practices. Other requirements include:	All billing will be in CABs format except for line level use. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.313, 51.319
5.4.1.3	The ILEC will not bill MCI's end users for any recurring or non-recurring charges. MCI will be billed for all charges associated with MCI wholesale accounts.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.313, 51.319

Access #	MCI Position	Sprint Position	FCC Ruling
5.4.2	**MCI End User Local Billing**		
5.4.2.1	Daily receipt of local usage at the call detail level in standard EMR/EMI industry format.	Sprint states it agrees in principle but that a medium of transmission must be agreed upon. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.313, 51.319
5.4.2.2	Access to Bellcore CMDS in and out-collect process for inter-region alternately billed messages via a CMDS sponsor.	Sprint is not a CMDS host.	51.313, 51.319
5.4.2.3	Access to in and out-collect process for intra-region alternately billed messages via the appropriate Bellcore Client Company.	The RBOCs not Sprint controls this process.	51.313, 51.319
5.4.2.4	Long term neutral third party in and out-collect process for inter and intra-region alternately billed messages.	This issue needs to be resolved on an industry wide basis.	51.313, 51.319
5.4.2.5	Information on customer's selection of billing method, special language billing, etc. is required.	Sprint says it will provide when a change has been authorized by an end user. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.313, 51.319

Access #	MCI Position	Sprint Position	FCC Ruling
5.4.2.6	Billing data must be provided to MCI by the ILEC on a daily basis. The usage must be no older than that used in the ILECs own billing system.	Sprint states that it agrees in principle but that a medium of transmission must be agreed upon. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.313, 51.319
5.4.3	**MCI End User Long Distance Billing**		
5.4.3.1	The ILEC must return EMI records to IXCs with the OBF standard message reject code which indicates that the ILEC no longer serves the end user and which includes the OCN/Local Service Provider ID of the new LEC/reseller serving the end user.	Sprint will return EMI records to the ICC with Return Code 50 and the OCN of the new LEC. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.313, 51.319 ¶ 516 - 528
5.4.3.2	The ILEC must exchange telephone number line level detail with IXCs for all resold numbers regardless of IXC PIC.	CLECs should be responsible for providing this information and not Sprint.	51.313, 51.319
5.4.3.3	ILEC's must provide BNA via industry standard record exchanges (e.g., EMI, CARE).	BNA is a tariffed service offering and is offered by each ILEC pursuant to its processes. CLEC will have to provide its BNA to IXCs.	51.313, 51.319

Access #	MCI Position	Sprint Position	FCC Ruling
5.4.3.4	Billing data must be provided to MCI by the ILEC on a daily basis. The usage information must be no older that that used in the ILEC's own billing system.	If Sprint is a toll carrier, or records for a toll carrier then usage will be supplied. Agree to daily exchange but must discuss medium for transmission. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.313, 51.319
6.	**Carrier Selection**		
6.1	**Inter and IntraLATA PIC**		
6.1.1	The LEC should implement electronic bonding with the IXCs for IXC PIC processing, providing real-time processing of presubscription orders directly by the IXC, via a gateway, into the LECs switch within 15-30 minutes.	Sprint agrees to provide based on industry standard processes. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	FCC did not address in Interconnection Order
6.1.2	When a CLEC resells local services (becomes the end-user's local service provider), the LEC shall continue to provide PIC processing as described in 6.1.1 above.	Sprint will provide electronic bonding when available. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	FCC did not address in Interconnection Order

Access #	MCI Position	Sprint Position	FCC Ruling
6.1.3	End-user of a LEC changes IXC (all key process steps have been included for clarification): **IXC requests change**: the LEC must provide confirmation of activation of the PIC change to the new IXC, together with BNA. **LEC initiates change**: the LEC must provide confirmation of activation of the PIC change to the new IXC, together with BNA.	Sprint will continue to process PIC changes pursuant to standard processes. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	FCC did not address in Interconnection Order
6.1.4	End user of a CLEC changes IXC (all key process steps have been included for clarification): **IXC requests change**: the LEC must provide confirmation of activation of the PIC change to the new IXC together with OCN of the CLEC (The IXC will obtain the BNA from the CLEC). **CLEC requests change**: The CLEC requests that the LEC makes the IXC change, the LEC returns confirmation of activation to the CLEC, the CLEC must provide confirmation of the change to the new IXC together with BNA.	Sprint will agree presuming this is the industry standard process adopted. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	FCC did not address in Interconnection Order
6.1.5	A third party should be designated to provide auditing of actual PIC processing performance by the LEC.	No.	FCC did not address in Interconnection Order
6.1.6	Only the IXC or the customer's local service provider can change the customer's IXC PIC.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	FCC did not address in Interconnection Order
6.1.7	All LECs/CLECs must provide account maintenance (CARE) processing to IXCs.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	FCC did not address in Interconnection Order

Access #	MCI Position	Sprint Position	FCC Ruling
6.1.8	The IXC data must be considered proprietary and protected.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	FCC did not address in Interconnection Order
6.1.9	The current FCC customer verification process for IXC PIC must be continued.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	FCC did not address in Interconnection Order
6.1.10	The new local service provider must appropriately notify the old and new IXC of the IXC PIC. This should be accomplished through new CARE records.	Sprint states that industry standards are required. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	FCC did not address in Interconnection Order
6.1.11	The LEC must agree to benchmark performance standards for PIC processing and provide routine reporting to measure install intervals, rejects, and other criteria.	Sprint states that industry standards are required. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	FCC did not address in Interconnection Order
6.2	**Local Carrier Selection**		
6.2.1	The ILEC should implement voice response unit mechanisms to advise customers of the availability of services from other entrants, and their business office reps should be provided scripts on how to handle inquiries regarding local competitors in a manner that is non-disparaging and non-discriminatory.	No.	51.603(b) ¶ 970

Access #	MCI Position	Sprint Position	FCC Ruling
6.2.2	In the event the VRU is by-passed, the ILEC should not take orders in their business office for MCI, but instead should transfer all calls to MCI's business office.	Sprint may or may not transfer. May refer customer, may not transfer. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.305
6.2.3	Any "warm-line" arrangements that the ILEC have installed for new customers should terminate at a neutral recording that advises the customer of the available choices for local service.	Sprint does not have a warm-line process.	51.305
6.2.4	Only the new provider can issue a connect order to ILEC.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.305
6.2.5	Although the former local service provider may need to be involved in the provisioning process, a disconnect order from the former provider should not be required prior to working the new provider's service order for new service.	OBF resolution of this process is required.	51.305
6.2.6	The network provider must notify the former carrier of the loss of the service.	OBF resolution of this process is required.	51.305
6.2.7	A customer verification process mirroring the FCC Long Distance process should be established and used by both ILECs and CLECs.	Sprint will agree to do this if it is an industry standard process. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.305

XV. COLLOCATION

DEFINITION: Collocation is the physical placement of MCI equipment necessary for interconnection or access to unbundled network elements at the premise of the ILEC. Virtual collocation may be provided if the ILEC demonstrates that physical collocation is not practical for technical reasons or due to space limitations.

REQUIREMENTS 1. General Requirement
2. Compensation
3. Quality of Service
4. Information
5. Business Processes

Access #	MCI Position	Sprint Position	FCC Ruling
1.	**General Requirement**		
1.1	Collocation should be suitable for use in MCI - ILEC local interconnection and MCI access to unbundled ILEC network components.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.321(e) 51.323 ¶ 558 ¶ 565 - 569 ¶ 573 - 575 ¶ 549
1.2	Option to convert existing virtual collocations to physical collocations.	Sprint states this is not applicable as MCI currently has no collos in place with Sprint.	¶ 28 ¶ 543 ¶ 611-612

XV. COLLOCATION

Access #	MCI Position	Sprint Position	FCC Ruling
1.3	Collocators must be allowed to lease intraoffice and/or interoffice facilities (e.g., DSO, DSI, etc.) from the ILEC to meet the collocators need for placement of equipment, interconnection or provision of service.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.319(d)(2)(iii) ¶ 590
1.4	There must be no restrictions on collocation equipment. (See Section II 2.2 for details).	Sprint will not allow switching equipment in collo space.	¶ 577 - 581 51.323(b)(c)
1.5	Collocated CLECs should be allowed to interconnect with each other at the collocation, using leased facilities if desired.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 594 - 595 51.323(h)
1.6	There shall be no requirement that the collocator build-out and provide facilities, such as, fiber or radio, to the collocation. A collocation may also be served exclusively via leased transport or though a combination of ILEC leased and interconnect carrier provided transport.	Sprint says this is OK as long as transport is defined in the ULT section and not as dark fiber. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	¶ 585 - 587 51.323(d)(g) ¶ 590
2.	**Compensation**		
2.1	Collocation and all associated services must be priced at TSLRIC.	TELRIC plus a reasonable allocation of forward looking common costs.	51.503 ¶ 629

Access #	MCI Position	Sprint Position	FCC Ruling
2.2	Cost of conversion from existing virtual collocations to physical collocations must be borne by ILEC	Sprint states this is not applicable but Sprint will think about this as a policy position.	51.509(g) 51.513 Footnote: 1340
3.	**Quality of Service**		
3.1	The companies must agree on a mechanism for dealing with breaches of agreed Quality-of-Service standards.	We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.319
3.2	The ILEC must meet a maximum 90 day interval for establishing a new collocation.	Sprint agrees in principle so long as there is recognition and contract covers fact that there may be legitimate circumstances that extend the timeframe beyond 90 days. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.305(3)

Access #	MCI Position	Sprint Position	FCC Ruling
3.3	Conversion of existing virtual collocations to physical collocations should have no impact on new collocations.	Sprint states this is not applicable, that it appears conceptually okay unless both are happening in the same end office. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.305(3)
3.4	Conversion of existing virtual collocations to physical collocations must be completed in reasonable timeframes.	Sprint states that this is not applicable but agrees in concept. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.305(3)
3.5`	Transition from current access facilities to expanded interconnect facilities must be within an agreed upon time frame.	MCI currently has no collos with Sprint though if in the future there were an access only collo then this is okay conceptually. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	
4.	**Information**		

Access #	MCI Position	Sprint Position	FCC Ruling
4.1	The ILEC must provide routine reports on the availability of space in locations throughout its network.	Sprint states that this will be handled on a case to case basis just like ROW.	51.321(f)
5.	**Business Processes**		
5.1	Transition from current access facilities to expanded interconnect facilities must be completed without a new installation order.	MCI currently has no collos with Sprint though if in the future there were an access only collo then this is okay conceptually. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	51.313(b), 51.319
5.2	Transition from current access facilities to expanded interconnect facilities should require only the portion of the circuit within the Central Office to be rearranged.	Sprint agrees to try to minimize the work effort required and suggests that MCI and Sprint should mutually agree on the information that needs to be exchanged to ensure a smooth transition. We believe we may have reached agreement in principle with Sprint, however, we have not yet agreed on contractual language for this issue. Thus, we seek arbitration on this issue.	FCC did not address in Interconnection Order

ACADEMIC AND PROFESSIONAL QUALIFICATIONS OF DON PRICE

Academic Background:

My academic background is in the social sciences. I received my Bachelor of Arts degree in Sociology from the University of Texas at Arlington in May of 1977, and was awarded a Master of Arts degree in Sociology by the University of Texas at Arlington in December, 1978.

Professional Qualifications:

From January, 1979 until October, 1983, I was employed by the Southwest telephone operating company of GTE where I held several positions of increasing responsibility in Economic Planning. In those positions I became acquainted with such local exchange telephone company functions as the workings and design of the local exchange network, the network planning process, the operation of a business office, and the design and operation of large billing systems.

From November 1983 until November 1986, I was employed by the Public Utility Commission of Texas. I provided analysis and expert testimony on a variety of rate design issues including setting of rates for switched and special access services, MTS, WATS, EAS, and local exchange services. In 1986 I was promoted to Manager of Rates and Tariffs, and was directly responsible for staff analyses of

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rate design and tariff issues in all telecommunications proceedings before the Texas Commission.

I have been with MCI for nearly ten years, all of which has been in the regulatory arena. In my present position, I have broad responsibilities in state regulatory and legislative proceedings throughout the Southwestern Bell and BellSouth service areas, focusing on the policy issues surrounding local competition in telecommunications markets.

I have presented testimony before a number of state commissions, including the Public Service Commission of Arkansas, the Florida Public Service Commission, the Georgia Public Service Commission, the Kansas Corporation Commission, the Public Service Commission of Kentucky, the Louisiana Public Service Commission, the Missouri Public Service Commission, the North Carolina Utilities Commission, the Corporation Commission of the State of Oklahoma, the Public Service Commission of South Carolina, the Public Service Commission of Tennessee , and the Public Utility Commission of Texas. A list of those proceedings in which I have furnished testimony is provided on the following pages.

TESTIMONY PRESENTED BEFORE REGULATORY UTILITY COMMISSIONS

Arkansas

Docket No. 91-051-U: IN RE IMPLEMENTATION OF TITLE IV OF THE AMERICANS WITH DISABILITIES ACT OF 1990

Docket No. 92-079-R: IN THE MATTER OF A PROCEEDING FOR THE DEVELOPMENT OF RULES AND POLICIES CONCERNING OPERATOR SERVICE PROVIDERS

Florida

Docket No. 941272-TL: IN RE: SOUTHERN BELL TELEPHONE AND TELEGRAPH COMPANY'S PETITION FOR APPROVAL OF NUMBERING PLAN AREA RELIEF FOR 305 AREA CODE

Docket No. 950696-TP: IN RE: DETERMINATION OF FUNDING FOR UNIVERSAL SERVICE AND CARRIER OF LAST RESORT RESPONSIBILITIES.

Docket No. 950737-TP: IN RE: INVESTIGATION INTO TEMPORARY LOCAL TELEPONE NUMBER PORTABILITY SOLUTION TO IMPLEMENT COMPETITION IN LOCAL EXCHANGE TELEPHONE MARKETS.

Docket No. 950984-TP: IN RE: RESOLUTION OF PETITION(S) TO ESTABLISH NON-DISCRIMINATORY RATES, TERMS, AND CONDITIONS FOR RESALE INVOLVING LOCAL EXCHANGE COMPANIES AND ALTERNATIVE LOCAL EXCHANGE COMPANIES PURSUANT TO SECTION 364.162, FLORIDA STATUTES.

Docket No. 950985-TP: IN RE: RESOLUTION OF PETITION(S) TO ESTABLISH NON-DISCRIMINATORY RATES, TERMS, AND CONDITIONS FOR INTERCON-NECTION INVOLVING LOCAL EXCHANGE COMPANIES AND ALTERNATIVE LOCAL EXCHANGE COMPANIES PURSUANT TO SECTION 364.162, FLORIDA STATUTES.

Georgia

Docket No. 5548-U: IN RE: INVESTIGATION INTO THE FINDING OF UNIVERSAL SERVICE

Docket Nos. 6537-U: IN THE MATTER OF: MCIMETRO PETITION TO ESTABLISH NONDISCRIMINATORY RATES, TERMS AND CONDITIONS FOR UNBUNDLING AND RESALE OF LOCAL LOOPS

Kansas

Docket No. 190,492-U: IN THE MATTER OF A GENERAL INVESTIGATION INTO COMPETITION WITHIN THE TELECOMMUNICATIONS INDUSTRY IN THE STATE OF KANSAS

Kentucky

Administrative Case No. 355: AN INQUIRY INTO LOCAL COMPETITION, UNIVERSAL SERVICE, AND THE NON-TRAFFIC SENSITIVE ACCESS RATE

Louisiana

Docket No. U-17957: IN RE: INVESTIGATION OF OPERATING PRACTICES OF ALTERNATIVE OPERATOR SERVICES PROVIDERS TO INCLUDE RATES AND CHARGES

Docket No. U-19806: IN RE: PETITION OF AT&T COMMUNICATIONS OF THE SOUTH CENTRAL STATES, INC., FOR REDUCED REGULATION OF INTRASTATE OPERATIONS

Docket No. U-20237: IN RE: OBJECTIONS TO THE FILING OF REDUCED WATS SAVER SERVICE RATES, INTRALATA, STATE OF LOUISIANA

Docket No. U-20710: IN RE: GENERIC HEARING TO CLARIFY THE PRICING/ IMPUTATION STANDARD SET FORTH IN COMMISSION ORDER NO. U-17949-N ON A PROSPECTIVE BASIS ONLY, AS THE STANDARD RELATES TO LEC COMPETITIVE TOLL OFFERINGS

Docket No. U-20883: IN RE: THE DEVELOPMENT OF RULES AND REGULATIONS APPLICABLE TO THE ENTRY AND OPERATIONS OF, AND THE PROVIDING OF SERVICES BY, COMPETITIVE AND ALTERNATE ACCESS PROVIDERS IN THE LOCAL, INTRASTATE AND/OR INTEREXCHANGE TELECOM-MUNICATIONS MARKET IN LOUISIANA. SUBDOCKET A: UNIVERSAL SERVICE

Missouri

Case No. TO-87-42: IN THE MATTER OF SOUTHWESTERN BELL TELEPHONE COMPANY FILING ACCESS SERVICES TARIFF REVISIONS AND WIDE AREA TELECOMMUNICATIONS SERVICE (WATS) TARIFF, INDEX, 6th REVISED SHEET, ORIGINAL SHEET 16.01

Case No. TO-95-289, et al: IN THE MATTER OF AN INVESTIGATION INTO THE EXHAUSTION OF TELEPHONE NUMBERS IN THE 314 NUMBERING PLAN AREA

North Carolina

Docket No. P-100, SUB 119: IN THE MATTER OF: ASSIGNMENT OF N11 DIALING CODES

Oklahoma

Consolidated Dockets PUD NO. 000237: IN THE MATTER OF THE APPLICATION OF SOUTHWESTERN BELL TELEPHONE COMPANY FOR AN ORDER APPROVING PROPOSED CHANGES AND ADDITIONS IN APPLICANTS' WIDE AREA TELECOMMUNICATIONS SERVICE PLAN TARIFF; and
PUD NO. 000254: IN THE MATTER OF THE APPLICATION OF SOUTHWESTERN BELL TELEPHONE COMPANY FOR AN ORDER APPROVING PROPOSED ADDITIONS AND CHANGES IN APPLICANTS' ACCESS SERVICE TARIFF AND WIDE AREA TELECOMMUNICATIONS SERVICE PLAN TARIFF

Consolidated Dockets PUD NO. 920001335: IN THE MATTER OF THE APPLICATION OF THE OKLAHOMA RURAL TELEPHONE COALITION, GTE SOUTHWEST, INC., ALLTEL OKLAHOMA, INC., AND OKLAHOMA ALLTEL, INC. FOR AN ORDER ADOPTING THE OKLAHOMA ALTERNATIVE SETTLEMENT PLAN; and
PUD NO. 920001213: IN THE MATTER OF THE APPLICATION OF SOUTHWESTERN BELL TELEPHONE COMPANY FOR AN ORDER IMPLEMENTING TERMINATING ACCESS CHARGES IN LIEU OF INTRALATA TOLL AND SURCHARGE POOLS; and
PUD NO. 940000051: IN RE: INQUIRY OF THE OKLAHOMA CORPORATION COMMISSION REGARDING WHETHER THE INTRALATA TOLL POOL AND SURCHARGE POOL SHOULD CONTINUE TO EXIST IN THE STATE OF OKLAHOMA

South Carolina

Docket No. 92-606-C: IN RE: GENERIC PROCEEDING TO REVIEW THE USE OF N11 SERVICE CODES

Tennessee

Docket No. 93-07799: IN RE: SHOW CAUSE PROCEEDING AGAINST CERTIFIED IXCS AND LECS TO PROVIDE TOLL FREE, COUNTY-WIDE CALLING

Docket No. 93-08793: IN RE: APPLICATION OF MCI METRO ACCESS TRANSMISSION SERVICES, INC. FOR AUTHORITY TO OFFER LOCAL EXCHANGE SERVICES WITHIN TENNESSEE

Docket No. 94-00184: INQUIRY FOR TELECOMMUNICATIONS RULE-MAKING REGARDING COMPETITION IN THE LOCAL EXCHANGE

Docket No. 95-02499: UNIVERSAL SERVICE PROCEEDING, PART 1 -- COST OF UNIVERSAL SERVICE AND CURRENT SOURCES OF UNIVERSAL SERVICE SUPPORT, AND PART 2 -- ALTERNATIVE UNIVERSAL SERVICE SUPPORT MECHANISMS

Texas

Docket 4992: APPLICATION OF GENERAL TELEPHONE COMPANY OF THE SOUTH-WEST FOR A RATE/TARIFF REVISION

Docket 5113: PETITION OF PUBLIC UTILITY COMMISSION FOR AN INQUIRY CONCERNING THE EFFECTS OF THE MODIFIED FINAL JUDGMENT AND THE ACCESS CHARGE ORDER UPON SW BELL AND THE INDEPENDENT TELEPHONE COMPANIES OF TEXAS (Phase II)

Docket 5610: APPLICATION OF GENERAL TELEPHONE COMPANY OF THE SOUTH-WEST FOR A RATE INCREASE

Docket 5800: APPLICATION OF AT&T COMMUNICATIONS FOR AUTHORITY TO IMPLEMENT "REACH OUT TEXAS"

Docket 5898: APPLICATION OF SAN ANGELO FOR REMOVAL OF THE EXTENDED AREA SERVICE CHARGE FROM GENERAL TELEPHONE COMPANY OF THE SOUTHWEST'S RATES IN SAN ANGELO, TEXAS

Docket 5926: APPLICATION OF SOUTHWESTERN BELL TELEPHONE COMPANY TO ESTABLISH FEATURE GROUP "E" (FGE) ACCESS SERVICE FOR RADIO AND CELLULAR COMMON CARRIERS

Docket 5954: INQUIRY OF THE PUBLIC UTILITY COMMISSION OF TEXAS INTO OFFERING EXTENDED AREA SERVICE IN THE CITY OF ROCKWALL

Docket 6095: APPLICATION OF AT&T COMMUNICATION FOR A RATE INCREASE

Docket 6200: PETITION OF SOUTHWESTERN BELL TELEPHONE COMPANY FOR AUTHORITY TO CHANGE RATES

Docket 6264: PETITION OF THE GENERAL COUNSEL FOR INITIATION OF AN EVIDENTIARY PROCEEDING TO ESTABLISH TELECOMMUNICATIONS SUBMARKETS

Docket 6501: APPLICATION OF VALLEY VIEW TELEPHONE COMPANY FOR AN AMENDMENT TO CERTIFICATE OF CONVENIENCE AND NECESSITY

Docket 6635: APPLICATION OF MUSTANG TELEPHONE COMPANY FOR AUTHORITY TO CHANGE RATES

Docket 6740: APPLICATION OF SOUTHWEST TEXAS TELEPHONE COMPANY FOR RATE INCREASE

Docket 6935: APPLICATION OF SOUTHWESTERN BELL TELEPHONE COMPANY TO INTRODUCE MICROLINK II - PACKET SWITCHING DIGITAL SERVICE

Docket 8730: INQUIRY OF THE GENERAL COUNSEL INTO THE MEET-POINT BILLING PRACTICES OF GTE SOUTHWEST, INC.

Docket 8218: INQUIRY OF THE GENERAL COUNSEL INTO THE WATS PRORATE CREDIT

Docket 8585: INQUIRY OF THE GENERAL COUNSEL INTO THE REASONABLENESS OF THE RATES AND SERVICES OF SOUTHWESTERN BELL TELEPHONE COMPANY

Docket 10127: APPLICATION OF SOUTHWESTERN BELL TELEPHONE COMPANY TO REVISE SECTION 2 OF ITS INTRASTATE ACCESS SERVICE TARIFF

Docket 11441: PETITIONS OF INFODIAL, INC., AND OTHERS FOR ASSIGNMENT OF ABBREVIATED N11 DIALING CODES

Docket 11840: JOINT PETITION OF SOUTHWESTERN BELL TELEPHONE COMPANY AND GTE SOUTHWEST, INC. TO PROVIDE EXTENDED AREA SERVICE TO CERTAIN COMMUNITIES IN THE LOWER RIO GRANDE VALLEY

Docket 14447: PETITION OF MCI TELECOMMUNICATIONS CORPORATION FOR AN INVESTIGATION OF THE PRACTICES OF SOUTHWESTERN BELL TELEPHONE COMPANY REGARDING THE EXHAUSTION OF TELEPHONE NUMBERS IN THE 214 NUMBERING PLAN AREA AND REQUEST FOR A CEASE AND DESIST ORDER AGAINST SOUTHWESTERN BELL TELEPHONE COMPANY

RESUME

Richard Cabe, Ph.D.

Associate Professor
Department of Economics and International Business
Box 3CQ
New Mexico State University
Las Cruces, NM 88003 - 0001

(505) 646-5909 (office)
(505) 646-1915 (fax)
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EDUCATION

B.A., Mathematics, University of Maine at Presque Isle, 1978

M.A., Economics, Pennsylvania State University, 1980

Ph.D., Economics, University of Wyoming, 1988

DISSERTATION

Rate of Return Regulation of Multiproduct Firms

AREAS OF INTEREST

Ph.D. Fields: Public regulation & Industrial organization

Natural resource & Environmental economics

M.A. Fields:
Mathematical economics
History of economic thought

Other:
Telecommunications industry
Microeconomics of technological change
Game Theory

RESEARCH PUBLICATIONS

"Issues, Indicators, and Baselines: The Benefits and Hazards of Using a Natural Resource Accounting System in the RCA Analytical Process", with Jason Shogren and Stanley R. Johnson, in *Evaluating Our Nation's Natural*

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Resources, edited by T. Robertson, B. English, R. Alexander, and P. Rosenberry, University of Tennessee Agricultural Experiment Station, 1996

"CEEPES: An Evolving System for Agroenvironmental Policy", with Aziz Bouzaher, Stanley Johnson, Andrew Manale and Jason Shogren, p 67-89 in *Integrating Economic and Ecological Indicators*, edited by J. Walter Milon and Jason Shogren, Praeger, Westport CT, 1995

"Metamodels and Nonpoint Pollution Policy in Agriculture", with Aziz Bouzaher, Alicia Carriquiry, Phil Gassman, P. G. Lakshminarayan, and Jason Shogren, *Water Resources Research* 29, p. 1579-1587, June 1993

"The Effects of Environmental Policy on Tradeoffs in Weed Control Management", with Aziz Bouzaher, David Archer, Alicia Carriquiry and Jason Shogren, *The Journal of Environmental Management*, 36, #1, 69 - 80, Sept. 1992

"The Regulation of Non-Point Source Pollution Under Imperfect Information", with Joseph Herriges, *The Journal of Environmental Economics and Management* 22, 134-146, 1992

"Equilibrium Diffusion of Technological Change Through Multiple Processes", *Technological Forecasting and Social Change 39*, Number 3, May 1991

"Natural Resource Accounting Systems and Environmental Policy Modeling", with Stanley R. Johnson, *The Journal of Soil and Water Conservation* 45 # 5, p 533-9, September/October 1990

"Network Differentiation and the Prospects for Competition in Local Telecommunications", in *Sixth Annual Current Issues Challenging the Regulatory Process*, The Center for Public Utilities, New Mexico State University, 1990

"Prospects for Competition in the Local Exchange Telecommunications Industry", in *Telecommunications Regulation in Washington State*, Washington Utilities and Transportation Commission, January 29, 1989

Annual Report to the Legislature on the Status of the Washington Telecommunications Industry, principal author for the Washington Utilities and Transportation Commission, January, 1987

"Normative Economics and the Acid Rain Problem" with L.S. Eubanks, in T.D. Crocker, ed., *Perspectives on the Economics of Acid Deposition*, 1983, Ann Arbor Michigan: Ann Arbor Science Press.

"Intertemporal and Intergenerational Pareto Efficiency: An Extended Theorem," *Journal of Environmental Economics & Management* 9, p 355-360, December 1982.

Recent Presentations: Various presentations at the Basics of Regulation and the Rate-Making Process, Albuquerque, NM, and Baltimore, MD, every Fall and Spring respectively, including:

"Orientation to the Telecommunications Industry;

"Telecommunications: The Role of Economic Efficiency in Pricing;

""Mr. Rogers Visits the Economics of Pricing in Regulated Industries" with Doug Gegax; "Policy Issues of Local Competition", with Joseph Gillan;

Meetings with government officials in regulation of public utilities, environmental concerns and antitrust matters in Lima, Peru; Santiago, Chile; and Buenos Aires, Argentina; December 5 through 15, 1994.

"Changes in Power Industry Regulation,

"Western Economic Association, Annual Meetings, Vancouver, British Columbia, Canada, June 1994

"Perspectives on Local Telecommunications Competition," International Communications Association, Annual meetings, Dallas, May, 1994

"Metamodels for Physical Processes in Environmental Economic Analysis", Centro de Calidad Ambiental, Instituto

Technologico y de Estudios Superiores de Monterrey, NL, Mexico, 17 May, 1993

"Metamodels for Physical Processes in Environmental Economic Analysis", Ciclo de Seminarios Externos, Centro Regional para Estudios de Zonas Aridas y Semiáridas, Colegio de Postgraduados, Salinas de Hidalgo, SLP, Mexico, 19 May, 1993

Evaluating Regional Ground and Surface Water Quality: An Application of Metamodeling Techniques", with Aziz Bouzaher, Alicia Carriquiry, Phil Gassman, P. Lakshminarayan, and Jason Shogren. Presented to the AAEA Summer meetings in Baltimore, August 1992 "Fully Distributed Cost pricing in a stochastic environment: Are apologies necessary?", with Douglas Gegax and Robert Hartway, presented at the annual meetings of American Economic Association, New Orleans, January 1992

"Cost Allocation, Rate Design and Pricing", with Douglas Gegax and Meri Hanson, presented to the Washington Utility and Transportation Commission Staff, Olympia Washington, November 14, 1991

"The Effects of Environmental Policy on Trade-offs in Weed Control Management", with Aziz Bouzaher, David Archer, Alicia Carriquiry and Jason Shogren, presented to the annual meetings of the American Agricultural Economics Association, August 4-7, 1991, Manhattan, Kansas.

"Mechanisms for Regulatory Control of Multiproduct Firms", presented at the annual meetings of the American Economic Association, Washington, D.C., December 1990

"Integrating Economic and Environmental Process Models: An Application of CEEPES to Atrazine", Presented to the annual meetings of the Natural Resource Modeling Association, Ithaca, New York, October, 1990

"The Regulation of Heterogeneous Non-Point Sources of Pollution under Imperfect Information", with Joseph A. Herriges, Presented to the annual meetings of the American Agricultural Economics Association, Vancouver, British Columbia, August 6, 1990

"Configuration of CEEPES for Atrazine Special Review Analysis", with Peter Kuch and Bob Carsel, Briefing for EPA Office of Pesticide Policy, Washington, D.C., April 16, 1990

"Network Differentiation and the Prospects for Competition in Local Telecommunications", Presented at Current Issues Challenging the Regulatory Process, Santa Fe, New Mexico, March 13, 1990

Unpublished Papers and Reports:

"Before the Public Utilities Commission of Oregon:UM 351, In the matter of the Investigation into the Cost of Providing Telecommun ications Services, Electric Lightwave, Inc.'s Response to Issues 1, 3, and 4, filed 30 August, 1993

"Implementation of the Colorado Telecommunications Act of 1987: An Evaluation

"Report to the Colorado Public Utilities Commission, with Vinson Snowberger, June 30, 1988 Cost of Service Information for Implementation of the Regulatory Flexibility Act, Report to the Washington Utilities and Transportation Commission, July 1985

"On Reducing Errors in Air Pollution Epidemiology," with S. Atkinson and T.D. Crocker, draft report, Institute for Policy Research, University of Wyoming to U.S. Environmental Protection Agency for Grant CR808893-01, April 1982.

"Investment Criteria for Projects with Intergenerational Effects," unpublished masters paper, Pennsylvania State University, Department of Economics, 1982.

Research Grants:Principle investigator, "A Framework for the Measurement of Offsite Damage Costs of Agricultural Soil Erosion", September 1993, USDA Cooperative Agreement number 43-3AEN-3-80151: $15,000,

Principle investigator, "Evaluating Impacts of Environmental and Agricultural Policies to the U. S.", Subcontract through Iowa State University under EPA Grant CR-816099-01-0: $42,196

Co-Principal investigator with Douglas Gegax, "Decision Support System for Environmental Policy Analysis", U.S. EPA through the Southwest Center for Environmental Research and Policy, $149,271

Expert Testimony: Before the Washington Utilities and Transportation Commission, *In the Matter of the Complaint of GTE Northwest Incorporated against Pacific Northwest Bell Telephone Company with respect to Interexchange Traffic Utilizing Extended Area Service Facilities*, Docket No. U-88-1719-F; on behalf of U.S. Metrolink Company; Cross Examination December 1989

"Affidavit of Richard Cabe", in Support of Motion of U.S. MetroLink Company for Suspension and Hearing in the matter of U. S. West Communications Tariff Filing 2056T before the Washington Utilities and Transportation Commission, September 1989

Before the Energy and Utilities Committee of the Washington State House of Representatives, to present the Annual Report of the Utilities and Transportation Commission on the Status of the Washington Telecommunications Industry, February 1987

Before the Washington Utilities and Transportation Commission, *In the Matter of Application of Pacific Northwest Bell for Banded Tariffs*, Cause no. U-86-40; Cross Examination September 1986

Before the Washington Utilities and Transportation Commission, *In the Matter of the Petition of AT&T of the Northwest for Classification as a Competitive Telecommunications Company*, Cause no. U-86-113; Cross Examination April 1986

Consulting Clients:MCI
Marcatel, Mexico
Electric Lightwave Inc.
Washington Utilities and Transportation Commission
U.S. MetroLink Company
Colorado Public Utilities Commission
Maryland People's Counsel

EMPLOYMENT

Teaching: Associate professor, Department of Economics and Intenational Business, New Mexico State University; 1994 to present, Assistant professor 1990 to 1994: *Antitrust Policy and Monopoly Power; Graduate Microeconomic Theory; Mathematical Economics; Industrial Organization; Seminar in Regulatory Economics; Economics of Risk, Uncertainty and Information; Game Theory; Advanced Seminar in Industrial Organization; Econometrics; Managerial Economics; Introduction to Economics; Microeconomic Principles*

Assistant professor, Department of Economics, West Virginia University, 1983-1984: *Graduate Environmental Economics; Principles of Economics.*

Lecturer, Department of Economics, University of Wyoming, 1982–1983: *Money & Banking*; *Intermediate Microeconomics.*

Teaching assistant, Department of Economics, University of Wyoming; Fall, 1980.

Teaching assistant, Department of Economics and Department of Mathematics, Pennsylvania State University, five quarters in academic years 1978-1979 and 1979-1980.

Public Policy: Economic Consultant, 1988. Performed economic analysis concerning regulation of the telecommunications industry under contract to the Colorado Public Utilities Commission and the Washington Utilities and Transportation Commission.

Associate, RCG/Hagler, Bailly, Inc. 1987-1988. Assignments included litigation support in Bell Operating Company requests for lessened regulation and a study of the effect on property values of proximity to a major defense facility containing hazardous waste sites.

Telecommunications Regulatory Flexibility Manager, Washington Utilities and Transportation Commission, 1985-1987. Duties included conduct of investigations and preparation of recommendations, primarily with regard to the telecommunications industry; preparing evidence, assisting in cross examination and presenting expert testimony; and serving as a member of the Federal - State Joint Board Staff, FCC Docket 86-297, concerned with revising jurisdictional separations of telecommunications company costs and revenues.

Research: Post-Doctoral Research Associate, Center for Agricultural and Rural Development, Department of Economics, Iowa State University, September 1988 to August 1990. Participate in policy-oriented economic research and serve as liason to the Economic Research Service, USDA.

Research Associate, Department of Economics, University of Wyoming, spring 1981 through summer 1982. Theoretical modelling, data construction, and analysis on health effects of air pollution and application of economic methods to ecosystem modelling. Under the direction of Thomas Crocker.

Research assistant, Department of Economics, University of Wyoming, summer 1980. Data construction and analysis on health effects of air pollution. Under the direction of Ralph d'Arge.

Research assistant, Department of Economics, Pennsylvania State University, summer and fall 1979. Theoretical and empirical work with Assymetric Quadratic Gorman Polar forms (flexible functional forms for production or utility functions with explicit analytical solutions for the dual cost or expenditure function). Under the direction of Jonathon Dickinson.

Other: One year, Administrative Research Assistant, Aroostook County Action Program, Presque Isle, Maine.

Four years, U.S. Coast Guard, Electronics Technician.

REFEREEING: Journal of Environmental Economics and Management

Journal of Soil and Water Conservation
Water Resources Research

AWARDS: Washington Utilities and Transportation Commission employee award for contributions to a positive work environment, Olympia, Washington, December 1986.

Award of merit, College of Commerce and Industry, University of Wyoming, 1981.

John S. Bugas fellow, University of Wyoming, academic year 1980-1981.

PERSONAL: Born July 16, 1950; Pulaski County, Arkansas
Married, one child
Second language: Spanish

MCI AVOIDED COST MODEL SUMMARY

LINE #	ARMIS 43-04 ROW NUMBER	CORRESPONDING USOA SUMMARY ACCOUNT(S)	ACCOUNT DESCRIPTION	(1) TOTAL UNITED FLORIDA STATE JURISDICTION	(2) % DIRECTLY AVOIDED	(3) DIRECT AVOIDED EXPENSES	(4) % INDIRECTLY AVOIDED	(5) INDIRECT AVOIDED EXPENSES	(6) TOTAL AVOIDED EXPENSES
1	5000	6110	NETWORK SUPPORT	438	0.00%	0	0.00%	0	0
2	5010	6120	GENERAL SUPPORT	32,332	0.00%	0	16.92%	5,469	5,469
3	5026	6210,6220,6230	CENTRAL OFFICE - SWITCHING	28,805	0.00%	0	0.00%	0	0
4			OPERATOR SYSTEMS		0.00%	0	0.00%	0	0
5			CENTRAL OFFICE - TRANSMISSION		0.00%	0	0.00%	0	0
6	5042	6310	INFORMATION O/T	6,885	0.00%	0	0.00%	0	0
7	5076	6410	CABLE & WIRE	42,892	0.00%	0	0.00%	0	0
8	6000	6510	OTHER PP&E	495	0.00%	0	0.00%	0	0
9	6010	6530	NETWORK OPERATIONS	43,644	0.00%	0	0.00%	0	0
10	6012	6540	ACCESS	3,968	0.00%	0	0.00%	0	0
11	6260	6560	DEPRECIATION & AMORTIZATION	133,010	0.00%	0	0.00%	0	0
12	7000	6610	MARKETING	15,675	90.00%	14,108	0.00%	0	14,108
13	7060	6621	TOTAL TEL OP	10,954	100.00%	10,954	0.00%	0	10,954
14	7076	6622	TOTAL PUB DIRECTORIES	4,616	100.00%	4,616	0.00%	0	4,616
15	7310	6623	TOTAL OTHER NUMBER SVC	47,879	90.00%	43,091	0.00%	0	43,091
16	7334	6710, 6720	CORP OPERATIONS	54,450	0.00%	0	16.92%	9,211	9,211
18	4040	5301	UNCOLLECTIBLES	4,119	0.00%	0	16.92%	697	697
20			TOTAL	430,162		72,769			88,146
21								TOTAL EXPENSE	430,162
22				INDIRECTLY AVOIDED COST				DI DISCOUNT PERCENT	20.49%
23				ALLOCATION PERCENTAGE:		16.92%		(ROW 20/ROW 21)	
24									
25									

NOTES:
COLUMN (1) PER UNITED FLORIDA 1995 ARMIS REPORT 43-04, STATE JURISDICTION
COLUMN (2) REFLECT PERCENT DIRECTLY AVOIDED UNDER FCC PROXY METHODOLOGY
COLUMN (3) EQUAL COLUMN 1 MULTIPLIED BY COLUMN 2
COLUMN (4) EQUAL COLUMN (3) ROW 20 DIVIDED BY COLUMN (1) ROW 20 FOR ACCOUNTS FCC PRESUMPTIVELY DEEMED INDIRECTLY AVOIDED
COLUMN (5) EQUAL COLUMN (4) MULTIPLIED BY COLUMN (1)
COLUMN (6) EQUALS COLUMN (5) PLUS COLUMN (3)
INDIRECTLY AVOIDED COST ALLOCATION PERCENTAGE EQUAL COLUMN 3 LINE 20 DIVIDED BY COLUMN 1 LINE 20.

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WITNESS:
DATE: 12-15-96

MCI AVOIDED COST MODEL SUMMARY

LINE #	ARMIS 43-04 ROW NUMBER	CORRESPONDING USOA SUMMARY ACCOUNT(S)	ACCOUNT DESCRIPTION	(1) TOTAL CENTEL FLORIDA STATE JURISDICTION	(2) % DIRECTLY AVOIDED	(3) DIRECT AVOIDED EXPENSES	(4) % INDIRECTLY AVOIDED	(5) INDIRECT AVOIDED EXPENSES	(6) TOTAL AVOIDED EXPENSES
1	5000	6110	NETWORK SUPPORT	168	0.00%	0	0.00%	0	0
2	5010	6120	GENERAL SUPPORT	8,831	0.00%	0	17.69%	1,563	1,563
3	5026	6210,6220,6230	CENTRAL OFFICE - SWITCHING	9,106	0.00%	0	0.00%	0	0
4			OPERATOR SYSTEMS		0.00%	0	0.00%	0	0
5			CENTRAL OFFICE - TRANSMISSION		0.00%	0	0.00%	0	0
6	5042	6310	INFORMATION O/T	1,773	0.00%	0	0.00%	0	0
7	5076	6410	CABLE & WIRE	17,629	0.00%	0	0.00%	0	0
8	6000	6510	OTHER PP&E	3	0.00%	0	0.00%	0	0
9	6010	6530	NETWORK OPERATIONS	17,098	0.00%	0	0.00%	0	0
10	6012	6540	ACCESS	2,077	0.00%	0	0.00%	0	0
11	6260	6560	DEPRECIATION & AMORTIZATION	31,181	0.00%	0	0.00%	0	0
12	7000	6610	MARKETING	5,668	90.00%	5,101	0.00%	0	5,101
13	7060	6621	TOTAL TEL OP	4,432	100.00%	4,432	0.00%	0	4,432
14	7076	6622	TOTAL PUB DIRECTORIES	399	100.00%	399	0.00%	0	399
15	7310	6623	TOTAL OTHER NUMBER SVC	14,877	90.00%	13,389	0.00%	0	13,389
16	7334	6710, 6720	CORP OPERATIONS	16,957	0.00%	0	17.69%	3,000	3,000
18	4040	5301	UNCOLLECTIBLES	1,604	0.00%	0	17.69%	284	284
20			TOTAL	131,803		23,322			28,168
21								TOTAL EXPENSE	131,803
22				INDIRECTLY AVOIDED COST				DISCOUNT PERCENT	21.37%
23				ALLOCATION PERCENTAGE:		17.69%		(ROW 20/ROW 21)	
24									
25									

NOTES:
COLUMN (1) PER CENTEL FLORIDA 1995 ARMIS REPORT 43-04, STATE JURISDICTION
COLUMN (2) REFLECT PERCENT DIRECTLY AVOIDED UNDER FCC PROXY METHODOLOGY
COLUMN (3) EQUAL COLUMN 1 MULTIPLIED BY COLUMN 2
COLUMN (4) EQUAL COLUMN (3) ROW 20 DIVIDED BY COLUMN (1) ROW 20 FOR ACCOUNTS FCC PRESUMPTIVELY DEEMED INDIRECTLY AVOIDED
COLUMN (5) EQUAL COLUMN (4) MULTIPLIED BY COLUMN (1)
COLUMN (6) EQUALS COLUMN (5) PLUS COLUMN (3)
INDIRECTLY AVOIDED COST ALLOCATION PERCENTAGE EQUAL COLUMN 3 LINE 20 DIVIDED BY COLUMN 1 LINE 20.

EXHIBIT NO. _____

DOCKET NO: 961230-TP

WITNESS: GREGORY J. DARNELL

PARTY: MCI

DESCRIPTION:

12/13/96 DEPOSITION TRANSCRIPT.

DEPOSITION EXHIBIT 1.

PROFFERING PARTY: STAFF

I.D. # GLD-3

FLORIDA PUBLIC SERVICE COMMISSION
DOCKET
NO. 961230-TP EXHIBIT NO. 11
COMPANY/
WITNESS: STAFF
DATE: 12/18/96

CONDENSED

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

IN RE: Petition by MCI Telecommunications Corporation for arbitration with United Telephone Company of Florida and Central Telephone Company of Florida concerning interconnection rates, terms, and conditions, pursuant to the Federal Telecommunications Act of 1996	DOCKET NO. 961230-TP

DEPOSITION OF:	GREGORY J. DARNELL
TAKEN AT THE INSTANCE OF:	SPRINT
DATE:	DECEMBER 13, 1996
TIME:	COMMENCED: 1:30 P.M. CONCLUDED: 2:30 P.M.
LOCATION:	GERALD L. GUNTER BUILDING ROOM 390A 2540 SHUMARD OAK BOULEVARD TALLAHASSEE, FLORIDA
REPORTED BY:	NANCY S. METZKE, RPR, CCR COURT REPORTER POST OFFICE BOX 3093 TALLAHASSEE, FLORIDA 32315

C & N REPORTERS
REGISTERED PROFESSIONAL REPORTERS
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APPEARANCES:

COCHRAN KEATING, ESQUIRE, Florida Public Service Commission, 2540 Shumard Oak Boulevard, Tallahassee, Florida 32399-0850.

JOHN P. FONS, ESQUIRE, Sprint-United and Sprint-Centel, Ausley & McMullen, Post Office Box 391, Tallahassee, Florida 32302.

RICHARD D. MELSON, ESQUIRE, MCI and MCI Metro, Hopping, Green, Sams & Smith, Post Office Box 6526, Tallahassee, Florida 32302.

ALSO PRESENT:

DAVE DOWDS, FPSC Staff.

ANN SHELFER, FPSC Staff.

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INDEX

EXHIBITS

PROCEEDINGS

MR. FONS: I guess take appearances. I'm John Fons with the Ausley, McMullen law firm. Post Office Box 391, Tallahassee, Florida, 32302. Appearing on behalf of Sprint United Telephone Company of Florida and Sprint Centel -- Central Telephone Company of Florida.

MR. KEATING: I'm Cochran Keating appearing on behalf of PSC staff, 2540 Shumard Oak Boulevard, Tallahassee, Florida, 32399-0850.

MS. McMILLIN: I'm Martha McMillin, M-c-M-i-l-l-i-n, appearing on behalf of MCI Telecommunications Corporation and MCImetro Access Transmission Services, Inc., 780 Johnson Ferry Road, Suite 700, Atlanta, Georgia, 30342.

MR. MELSON: And Richard Melson of the law firm Hopping, Green, Sams and Smith, P.A., P. O. Box 6526, Tallahassee, 32314.

Whereupon,

GREGORY JAMES DARNELL

was called as a witness by Sprint and, after being first duly sworn, was examined and testified as follows:

EXAMINATION

BY MR. FONS:

Q Mr. Darnell, my name is John Fons, and as you know, I'm representing Sprint in this proceeding. If any questions I ask you aren't clear or you don't understand me, would you please stop me and ask me to clarify the questions?

A I will.

Q If you don't, I will assume that you understand the question; is that okay?

A Yes, sir.

Q Would you state your full name and your business address, please?

A My full name is Gregory James Darnell. My business address is 780 Johnson Ferry Road, Atlanta, Georgia. The Zip Code is 30342.

Q And you're employed by MCI Telecommunications Corporation; is that correct?

A That is correct.

Q And you're employed as a regional manager, hyphen, competition policy?

A That is correct.

Q Do you know Mr. Don Price?

A Yes, I do.

Q Do you work for Mr. Price?

A No, I do not.

Q Isn't his title senior regional manager-competition policy?

A That is correct.

Q What is your working relationship with Mr. Price?

A He is a co-worker of mine. He has the Southwestern Bell region, and I have the BellSouth region.

Q How long has that relationship split?

A Ever since I was hired into the job back in June.

Q Of this year?

A Yes.

Q Okay. I was just curious because he testified in the BellSouth proceeding, but he is no longer responsible for BellSouth, you are?

A That is correct.

Q Okay. Prior to working for MCI, and I believe you were hired in June of this year, for whom did you work?

A No, I was hired by MCI in January of 1984.

Q Okay. So you have been with them since '84?

A Yes.

Q But you just got this job in June of '96?

A That is correct.

Q Okay. And tell me a little bit about your work experience with MCI.

A Okay, I guess I'll start -- it's easier for me to

start with 1984 and work forward. I was first hired by MCI and worked on the MCI versus AT&T antitrust case as basically a paralegal. At the settlement of that case, the settlement of the second case actually, MCI two case, I went and worked for MCI's financial services department in, as a financial analyst analyzing MCI's access charge fees and ways to minimize those fees. From that department I went to work for MCI's -- I'll give you the major steps.

Q That's fine. I don't --

A From that department I worked for MCI regulatory, headquarters' regulatory department as an economist and responsible for the annual access tariff review and of the interstate access tariffs. Then I worked for MCI's public policy department also as an economist in doing state proceedings primarily and developed MCI's ARMIS data base and worked with the different commissions throughout the United States in supporting their initiatives and to set up an ARMIS data base. Then I moved to Atlanta and worked in MCI carrier relations department, and then I took the job from MCI carrier relations department into this position.

Q Okay. Have you worked for any other telecommunications company other than MCI?

A No.

Q Do you have any formal training as an economist

A I have a bachelor's in economics from the

University of Maryland.

Q Do you have any formal training as an engineer?

A I do not have a degree, advanced degrees in either economics or engineering, but I have taken graduate courses in all those fields.

Q Do you have any training as an accountant?

A Not formal, not educational background but as business training, on-the-job training.

Q On-the-job training with MCI?

A Yes.

Q What are your current responsibilities?

A For MCI's competition, external competition policy relating to either long distance, local, all of our services in the BellSouth states.

Q What does it mean regional manager-competition policy? That's, I mean are you --

A I manage the region, or helping set what MCI's external policies should be.

Q So you're establishing policy on behalf of MCI in the region?

A I am part of a team of people that do that, yes. I have the BellSouth region. I work for the director of a three-region area, which includes Bell Atlantic, BellSouth and Southwestern Bell.

Q And the policy that you are developing, is that

policy for local competition, or is it policy for long distance, or is it a combination?

A It's a combination.

Q Have you testified in other proceedings involving MCI in which they were arbitrating local interconnection, unbundling and resale with a local exchange carrier?

A Yes, I have.

Q Which, could you tell us?

A I've testified in the BellSouth Georgia MCI arbitration, the BellSouth Kentucky MCI arbitration, the GTE Kentucky MCI arbitration, the GTE North Carolina MCI arbitration. I think that's all the arbitration proceedings.

Q Have you testified in any arbitration proceeding involving MCI and any of the Sprint local exchange companies other than this arbitration in Florida?

A I have filed testimony in North Carolina but have not testified physically yet.

Q Now Mr. Price filed testimony in two proceedings here in Florida involving MCI's arbitration with GTE and BellSouth. How does your testimony differ from Mr. Price's testimony?

A It should not differ substantially. I mean maybe grammatically it differs. Don Price and I both worked on the MCI white paper that these testimonies are based on.

Q Tell me a little bit about this white paper. What was its genesis, and can you provide me with a copy of it?

A Yes, I can. A team of MCI -- a mixed team, made up of accountants, economists, managers, business people, worked on creating what MCI's external policy should be for resale, and so that we could have a consistent position throughout all of our arbitration in all of our states, we work all of our testimony off of that white paper.

Q Could I ask for a Late-filed Deposition Exhibit Number 1 which would be the MCI white paper on the competition?

A I believe I have a copy. Let me see if it's clean. I think it is.

Q Let's hope it is because --

A Yes, it is.

MS. McMILLIN: Here you go.

Q This white paper is just on wholesale services?

A That's correct.

Q Okay.

MS. McMILLIN: You may have that.

MR. FONS: Okay. And I assume you all will want a copy of it.

MR. KEATING: Yes.

BY MR. FONS:

Q Is the avoided cost model that you describe on page 2, line 2 of your direct testimony, is that this white paper that you've just given to me?

A That white paper sets out how the model or what assumptions are used in creating the discounts. It doesn't have the actual spread sheet of course; it's just a paper. The model is on an Excel spread sheet.

Q And you have furnished attached to your testimony Exhibit GLD-2, which is titled, "MCI Avoided Cost Model Summary," and I assume that that is just what this is, this is a summary?

A That is correct.

Q Okay. And this summary is a result of this avoided cost model that you describe in your testimony?

A That is correct. I restated the avoided cost model in a column format so it's easier to read.

Q I understand, and I appreciate that.

The avoided cost model itself, the inputs to that avoided cost model come from this white paper that you have just furnished me?

A The inputs actually come from either the incumbent LECs' ARMIS reports, but the methodology we used to use that data is described in the white paper.

Q Tell me a little bit about these ARMIS reports that you use. Which ARMIS report do you use?

A We use -- in this case we used Sprint Florida and Centel Florida ARMIS 43-04 for 1995.
Q Tell me a little bit about 43-04.
A Okay. ARMIS 43-04 is the FCC's jurisdictional separations model. It's an annual report that displays the incumbent local exchange carriers of a certain size of revenue that are required to file the report. It displays that data as captured by Part 36 of the FCC's rules.
Q The ARMIS 43-04, which I believe you've furnished copies for both Sprint United and Sprint Centel in response to a discovery request, are titled "The Access Report." Are there other ARMIS reports?
A There are a number of other reports, yes.
Q And why did you use the access report?
A Because ARMIS 43-04 is the only report that provides state jurisdiction data that could be used to approximate the services that will be subject to the discount in the State of Florida.
Q I see. You didn't use others because they were unseparated between interstate and state?
A That's correct.
Q Can you tell us what particular data you used from this ARMIS 43-04 for input to the MCI avoided cost model?
A Yes, it's as an attachment to my direct

testimony. Actually, it's probably easier to look at the exhibit page of my rebuttal testimony. The first column, actually the second column, it shows ARMIS row numbers, ARMIS 43-04 row numbers. Those are the row numbers of the ARMIS report that were used for the state data. For instance, line number 1 is row 5000. It would be, it would have a corresponding data that would be captured under USOA account 6110. You have to look at state jurisdiction.
Q And that's what I'm trying to figure out. I have a row for 5000.
A State is the second or third column under the report, so it would be this way (indicates). There we go (indicates).
Q Okay. Excellent.
MR. MELSON: What page is that, John?
MR. FONS: That is page, it says 19.1 of 30.3, but that seems pretty hard to -- I guess there is a 19.2, 19.3, so it goes on, but this is 19.1 of 30.3.
MR. MELSON: Thank you.
A As I say, all this information that you have paper copies of is supplied in diskette format to the FCC that MCI loads into a data base and can extract information out of, so we don't have to go to every single page to find the numbers.
BY MR. FONS:

Q You just tell the diskette which numbers you want?
A Right.
Q And you did this, you did a separate run of the model for United and for Centel; is that correct?
A That is correct.
Q Now attached to your direct testimony is also an Exhibit GD-1?
A Yes.
Q And that says, "Avoided Cost, 1995." The GLD-2 is just the GD-1 reformatted?
A That is correct.
Q Okay. Because the row numbers don't correspond?
A They are not in the same order.
Q Right. Okay. But they are identical?
A They are identical.
Q Okay. In addition to the data from the ARMIS 43-04, is there anything else that you input into this model?
A No.
Q Who created the model?
A I did.
Q Okay. And does this model, did you do it alone? Is this --
A For this state, yes, I did.

Q I mean is there a separate model for each state?
A I'm not sure what question you're asking me. Of course there is a separate output for each state.
Q No, I'm not talking about the output; I'm talking about the model itself. I mean --
A The data base? We call it the data base, I'm much more clearer.
Q I'm just a lawyer, so I'll call it what you called it in your testimony.
A There is one data base.
Q One data base, okay. What input is there to this data base other than the 43-04 ARMIS report?
A There isn't any other besides the diskettes supplied by the local exchange carriers.
Q Who created the data base?
A I did.
Q For Florida?
A Years ago.
Q Years ago, okay. You alone?
A Yes.
Q You are the author of this?
A Yes.
Q And when you say years ago, how long ago?
A When ARMIS was first rolled out by the FCC. It must have been 1989 or '88. When I worked at MCI's

headquarters' building, I created the structure for the data base, and ever since then people have been inputting the next version, the next year's, the next quarter's data into that data base structure that I created.

Q Okay. I'm confused. You have something called an avoided cost model.

A Yes.

Q Okay. And that is a data base you told me and a data base that you created years ago. What I'm trying to do is get from what you're inputting to the output of this.

A We are being confused on semantics. We are talking a different language here obviously.

Q Obviously. Again, I'm a lawyer, so forgive me.

A I created the MCI's ARMIS data base given the FCC's, I call it a design layout report they have for each one of their ARMIS data bases, years ago when I was in a function up in Washington, D.C. In that data base I originally had said -- I was the only person doing it back then, but I would input all the local exchange carriers' data into the data base so all the data would populate the correct fields. From that data base information is extracted out and populated -- I used to populate this model that I have attached to my exhibit, GJD-2. So I call Exhibit GJD-2 the model, and I call where the data is housed the data base.

Q Okay. Is there some program that is used to extract the data in the format that it appears in GJD-2?

A Yes.

Q And did you create that program?

A I don't believe so. I believe they are not using my, any of my -- this program wouldn't have been written when I was doing that work. It would have been someone else who created the extract.

Q Do you know when the program was created to perform the extraction of data that appears in this format?

A For this state it was done -- for Centel and United of Florida it was done less than two months ago.

Q And the purpose of the program was to extract data from the ARMIS 43-04 data, or this data base that is updated for each state to extract data to make a determination of what costs would be avoided by the local exchange company?

A Yes.

Q And what are the assumptions that go into the avoided cost?

A Into the spread sheet or model that I produced, the assumptions are those that the FCC laid out in its proxy methodology.

Q Is there an assumption in this avoided cost model that Sprint will cease retail operations and will be a

wholesaler only?

A Since it is based on the FCC's proxy methodology, I believe in part there is some assumption that they will cease operations, yes. Well, the cost associated with retailing should not be included in the wholesale rate, not really cease operations. United will continue to provide retail services and wholesale services, but the assumption is that the retail cost should not be included in the wholesale rate.

Q You're saying then that this study or this cost model does not assume that Sprint will cease retail operations and will become a wholesaler only to MCI and other new entrants?

A No, it doesn't assume that.

Q In fact Sprint won't cease retail operations, will it?

A That's correct.

Q Could you turn to page 11 of your direct testimony, please?

(WITNESS COMPLIED)

A Okay.

Q On line 15 you're asked the question:

"What are the directly avoided costs?"

And then you state,

"The following specific accounts from the uniform system of accounts are directly avoided."

Who selected these accounts?

A The FCC.

Q So this is out of the FCC's order?

A That is correct.

Q The August order?

A That is correct.

Q And for these accounts, is it assumed that all of the costs or all of the expense that is in these accounts will be a hundred percent avoided?

A No.

Q Okay. How about product management?

A No, that is assumed that -- well, let me answer the question this way. It is assumed that the costs in those accounts are retailing costs and are not to be included in the wholesale discount percentage, but it is also assumed that the ILEC, or United in this case, will have some new, or has some existing wholesaling costs that are captured in that account that would equate to approximately ten percent of the existing costs in that account.

Q What kind of wholesaling costs would they have? You say they already have these wholesaling costs.

A Wholesaling costs for access. Access is considered a wholesale service.
Q Only access?
A That's the only one I'm aware of, but there may be others.
Q Does it assume that United and Centel will incur additional new costs in order to service MCI and other wholesaler -- or wholesale purchasers of retail local services?
A Yes, it does.
Q And that is included in that ten percent?
A Yes, it is.
Q And is that ten percent that -- is that an FCC ten percent, or is there an independent study that MCI made to determine whether the ten-percent figure adequately compensates Sprint for its wholesale operation?
A That's the FCC's ten percent.
Q You did not do an independent study as to whether or not ten percent would be adequate?
A We don't have any knowledge of what Sprint's internal expenses would be, so we did not -- we were not able to do that analysis.
Q So you're solely relying upon the FCC's proxy; is that correct?
A That is correct.

Q What about account 6612, sales, how is that treated?
A That is treated as all the costs in that account are retailing costs and, therefore, should not be included in the wholesale discount percentage.
Q Help me, if you will, this --
A I'm sorry, 6612 you said?
Q Yes, sir.
A That's treated the same way as 6611, I'm sorry.
Q And 6613 is treated the same way as 6611?
A Yes, it is.
Q And those would all be grouped under USOA account 6610?
A That is correct.
Q All right.
A The numbering systems for the USOAs, every account ending in zero is basically a parent account for all accounts ending in a number other than zero, so 6610 would be the parent account for 6611 12, 13. 6620 would be 21, 22, 23.
Q In your assumption where you used 90 percent for this, are you assuming that Sprint will have wholesaling costs associated with sales and product advertising and product management in connection with their wholesale operations?

A Yes.
Q And that, again, is the ten percent?
A Yes.
Q You did not make an independent analysis as to whether that ten percent would adequately compensate Sprint for its wholesale operations?
A That is correct.
Q The next item is 6621. That is call completion services, and did you -- what assumption did you make with regard to those costs?
A I assumed, we assumed that those costs are retailing costs and should not be included in the wholesale discount percentage, therefore, should be accounted for as hundred percent avoided.
Q Did you take into consideration whether or not there might be some wholesale costs associated with Sprint providing these services to MCI on a wholesale basis?
A No.
Q And this hundred percent, is that based upon an analysis that MCI made of these accounts as they are populated with information from Sprint United and Sprint Centel?
A No, it's based upon the FCC's methodology again.
Q So you made no independent analysis as to whether that FCC number is correct?

A That is correct.
Q And that would be true for account 6622, account 6623?
A That is correct.
Q This may be a small item, but in your testimony you describe account 6621 as call completion services, but in your Exhibit GLD-2, you describe that as total telop?
A Total telephone operations, operator services. I'm sorry, total telephone operator -- I should have spelled it out, I guess. It includes total telephone operator services expense.
Q You're using on your GLD-2 the nomenclature from the ARMIS 43-04 reports to describe these various accounts?
A That's correct.
Q And in fact, the uniform system of accounts may have different nomenclature, isn't that correct?
A Typically under part 36 you have a number of sub separations categories that capture one particular USOA or Part 32 accounting level detail. In other words, Part 36 is more detailed. The categories under Part 36 is more detailed than the Part 32, Class A accounting.
Q Okay. On page 12, beginning on line 14, you li a number of USOA accounts that you state include common costs or general overhead which support marketing and customer service operations, and the first one is 6120.

which is general support.
A That is correct.
Q The remaining accounts, are they all grouped under 6120?
A No. 6120 is general support facilities. 6711 and 6712 are under corporate operations. I believe that's called executive and planning under that USOA accounting. And 6720 series of accounts are customer operations accounts, and there are a couple of account numbers actually missing from this page 12, which is accounts 6722 and 6727. They are included in my analysis, but they are missing from page 12 of my testimony.
Q And is that just an oversight?
A Yes.
Q You are treating these accounts in addition -- well, these accounts, 6710, 6720, 5301 and 6120, as having costs that are indirectly avoided?
A That is correct.
Q And you indicate that the indirectly avoided amount is 16.92 percent?
A For United Florida, yes.
Q I'm sorry, for United Florida, and 17.69 for Centel?
A That is correct.
Q What is the source of that number?

A That is footnoted on both GJD-2 exhibits on the botton of the last note. It's simply line 3 -- column 3, line 20 divided by column 1, line 20, which is direct avoided expense divided by total expense.
Q So it's 72 -- for United, I guess that's United, it's 72 million 769 divided by 430 million 162?
A That is correct.
Q Okay. And both of those numbers are expenses?
A That is correct.
Q The numbers that you are using for the directly avoided, those come from the FCC, and the number of the 16.92 for United and 17.69 are calculated percentages by you; is that correct?
A They are calculated percentages using the FCC's methodology.
Q Okay. But you've not done an independent analysis of the indirectly avoided costs, have you?
A No, I have not.
Q And the methodology that you've used, the FCC methodology, that is included in Sections 605 to 617 of Part 51 of the FCC rules?
A Subject to check, I'll agree.
Q Do you know whether any of those sections were stayed by the eighth circuit court of appeals?
A I believe they have been stayed. I don't know

for sure which sections have been or have not been, but they may have been.
Q And so this Commission is not bound by the FCC's methodology that is set forth in these sections; is that correct?
A Again, assuming they have been stayed, which they probably have been -- I don't have the list of FCC rules that were stayed and which ones weren't, but I think those were stayed. And to the extent they were stayed, that, yes, this Commission is not bound by having to use those, this methodology.
Q Have you done an analysis of Sprint's avoided cost study?
A I have reviewed it. I will call it an analysis, I guess.
Q And is this -- well, let me back up. Let me go back to your study for a moment. Is the study that you are presenting here for Sprint United and for Sprint Centel conceptually any different from the study that was presented by Mr. Price in the BellSouth and GTE arbitration proceedings that involved MCI?
A It should be methodology -- The methodology should be the same.
Q Let's talk a little bit for a moment about inside wire and voice mail. Can you describe inside wire

maintenance for me?
A It is from the point of demarc on the side of a residential home or inside of a -- on the side of a building, all the wiring inside the home, and maintenance of that wiring would be someone coming out to find out if the problem existed internally to that home; they would have to go into the inside wiring of the house.
Q And is that a service that every customer of Sprint United and Sprint Centel has in the State of Florida?
A I don't believe every -- Well, I don't know.
Q What is the nature of this maintenance? Is it some kind of a warranty or insurance policy that if anything goes wrong that the local telephone company will repair the inside wire?
A I understand it from Georgia; I don't know how it works in Florida. You can either subscribe for a monthly fee to have your inside wire taken care of by BellSouth Georgia, or you can not pay that extra fee, and if something goes wrong with the inside wiring, you have to call somebody to fix it.
Q But you don't know how inside wire is sold inside in the State of Florida, inside wire maintenance is marketed and sold by Sprint in the State of Florida?
A No, I do not.

Q You don't know whether it is a combined service involving trouble location as well as inside wire maintenance?
A I do not know.
Q Does this service provide any transmission medium?
A It permits -- if your service breaks down, it permits the transmission medium to continue.
Q To be repaired, not continued?
A To get back up and running.
Q And so it repairs the wiring, isn't that correct?
A That's correct, yes.
Q Okay. It has nothing to do with me calling you, for example, from my home?
A It permits the wiring to be fixed. I don't know what else to say.
Q But the wiring is already there, isn't it? This is not a question of installing the wiring, is it?
A It's a question of fixing the wiring if something shorts out.
Q Are you familiar with the Communications Act of 1996?
A Somewhat, yes.
Q Are you familiar with what is required to be resold?

A Yes.
Q Okay. Are you familiar with the fact that the only services that need to be resold are telecommunication services?
A Yes.
Q Is the term "telecommunication service" defined in the Act?
A I don't know.
Q You don't know what that definition is?
A I don't know if it's defined in the Act or not.
Q Do you know whether the term "telecommunications" is defined in the Act?
A I don't know.
Q But you are testifying that inside wire maintenance is a telecommunications service?
A I'm testifying that United should make it available for wholesale, for resale at a wholesale discount. I'm not necessarily testifying that inside wiring is a telecommunication service or not.
Q Okay. Describe voice mail to me if you will.
A Voice mail typically is a system where a recorder -- when you call a service and a recorder picks up and answers the phone for you and collects your messages.
Q It's not any different than an answering machine, is it?

A It's probably a glorified answering machine.
Q And do you know where this glorified answering machine is located?
A No.
Q Do you know whether it's located on Sprint's premises anywhere?
A I do not know where it's located.
Q You don't know anything about the technology of voice mail?
A Not a great deal. I mean I just call it -- I believe it's like a glorified answering machine.
Q Do you know how voice mail is defined by the FCC as either a telecommunications service or an enhanced service?
A I do not.
Q Are you contending that voice mail is a telecommunication service?
A No, I'm not.
MR. FONS: I have no further questions.
MR. KEATING: Staff doesn't have any questions.
MS. McMILLIN: I have no questions.
(WHEREUPON, THE DEPOSITION WAS CONCLUDED)

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ERRATA SHEET

DOCKET NUMBER 961230-TP
GREGORY JAMES DARNELL
DECEMBER 13, 1996

CERTIFICATE OF DEPONENT

This is to certify that I, GREGORY JAMES DARNELL, have read the foregoing transcription of my testimony, Page 1 through 31, given on December 13, 1996 in Docket Number 961230-TP and find the same to be true and correct, with the exceptions, and/or corrections, if any, as shown on the errata sheet attached hereto.

GREGORY JAMES DARNELL

Sworn to and subscribed before me this _____ day of _____, 19____

NOTARY PUBLIC
State of _____
My Commission Expires:

STATE OF FLORIDA)
COUNTY OF LEON)

CERTIFICATE OF OATH

I, the undersigned authority, certify that GREGORY J. DARNELL personally appeared before me and was duly sworn.

WITNESS my hand and official seal this 14th day of December, 1996.

NANCY S. METZKE
Notary Public - State of

REPORTER'S DEPOSITION CERTIFICATE

STATE OF FLORIDA)
COUNTY OF LEON)

I, NANCY S. METZKE, Certified Shorthand Reporter and Registered Professional Reporter, certify that I was authorized to and did stenographically report the deposition of GREGORY JAMES DARNELL; that a review of the transcript was requested; and that the transcript is a true and complete record of my stenographic notes.

I FURTHER CERTIFY that I am not a relative, employee, attorney or counsel of any of the parties, nor am I a relative or employee of any of the parties' attorney or counsel connected with the action, nor am I financially interested in the action.

DATED this 13th day of December, 1996.

NANCY S. METZKE, RPR, CCR

WHOLESALE SERVICES: Pricing and Provisioning

A White Paper
on behalf of
MCI Telecommunications Corporation

by

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October 21, 1996

WHOLESALE SERVICES: Pricing and Provisioning

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WHOLESALE SERVICES: Pricing and Provisioning

This White Paper addresses several key wholesale service pricing and provisioning policy issues that must be resolved in the context of arbitrations under the Communications Act of 1996. The paper has been prepared jointly by the MCI policy expert witnesses listed in Appendix I. The major conclusions are as follows:

- An effective local resale market is essential to development of full facilities based local competition.
- In addition to promoting facilities based competition, resale of local services provides independent benefits to consumers through retail competition.
- In order to capture all of these benefits, all local telecommunications services must be made available for resale at discounts that fully reflect avoided costs.
- Wholesale services must not be provisioned in ways that discourage entry by resellers or unreasonably raise their costs.
- An avoided cost study must reflect the jurisdictional allocation of expenses.
- The appropriate resale discounts should be set on a state specific basis where the data allow, and at the Regional Company level otherwise.
- The discounts range from approximately 19 to 27 percent at the Regional Company level.

Section I summarizes federal legislative and regulatory requirements. Section II discusses the necessary conditions of an effective resale policy. Section III describes the avoided cost model employed here. The conclusions are in Section IV.

I. LEGISLATIVE AND REGULATORY REQUIREMENTS

The Telecommunications Act of 1996 (1996 Act) is designed to bring competition to local telecommunications markets. The 1996 Act recognizes that simply removing legal barriers to entry is insufficient to allow competition to evolve. A number of procompetitive steps are

necessary and explicitly required by the 1996 Act. For example, every incumbent local exchange carrier (ILEC) is required to provide requesting telecommunications carriers: (1) interconnection to its network; (2) access to its unbundled network elements; (3) physical collocation for interconnection or access to unbundled elements; and (4) retail telecommunications services for resale at wholesale prices (rates). Economic barriers to entry into local telephone markets will be reduced substantially with an effective resale policy. In other words, resale of all retail telecommunications services at wholesale rates is necessary to the development of local competition.

The 1996 Act imposes a duty upon ILECs to offer certain services for resale at wholesale rates. Specifically, Section 251(c)(4) requires ILECs:

> (A) to offer for resale at wholesale rates any telecommunications service that the carrier provides at retail to subscribers who are not telecommunications carriers; and
>
> (B) not to prohibit, and not to impose unreasonable or discriminatory conditions or limitations on, the resale of such telecommunications services, except that a state commission may, consistent with regulations prescribed by the Commission under this section, prohibit a reseller that obtains at wholesale rates a telecommunications service that is available at retail only to a category of subscribers from offering such service to a different category of subscribers.

The 1996 Act also provides guidance on the determination of wholesale prices for telecommunications services. Section 252(d)(3) states that:

> For the purposes of Section 251(c)(4), a state commission shall determine wholesale rates on the basis of retail rates charged to subscribers for the telecommunications service requested, excluding the portion thereof attributable to any marketing, billing, collection, and other costs that will be avoided by the local exchange carrier.

These statutory requirements are clear and concise. As described below, they are not only consistent with, they are essential to, the development of local competition.

The Federal Communications Commission (FCC) recently released its First Report and order in CC Docket No. 96-98, In the Matter of Implementation of the Local Competition Provisions of the Telecommunications Act of 1996, issued August 8, 1996 (251 Order). The 251 Order addresses the need for resale competition stating that:

> Resale will be an important entry strategy for many new entrants, especially in the short term when they are building their own facilities. Further, in some areas and for some new entrants, we expect that the resale option will remain an important entry strategy over the longer term. Resale will also be an important entry strategy for small businesses that may lack capital to compete in the local exchange market by purchasing unbundled elements or by building their own networks. In light of the strategic importance of resale to the development of competition, we conclude that it is especially important to promulgate national rules for use by state commissions in setting wholesale rates. (Paragraph 907).

The Order establishes ". . . a minimum set of criteria for avoided cost studies used to determine wholesale discount rates." (Paragraph 909) Sections 605 through 617 of Part 51 of the FCC Rules set forth the FCC's methodology. These Rules are attached as Appendix II. Beyond the minimum criteria, the FCC allows states ". . . broad latitude in selecting costing methodologies that comport with their own ratemaking practices for retail services." (Paragraph 910) States are allowed to select interim "default" rates from within a range prescribed by the FCC if an avoided cost study such as the one presented here is not available. (See FCC Rules Section 51.611.)

The methodology described here follows the approach suggested by the FCC. However, it is appropriate to account for the jurisdictional nature of some of the expenses that are avoided when ILECs no longer perform the retail function. The necessary adjustments are described in Section III.D below. As discussed below, these adjustments are consistent with state rate making practices and therefore comply with the express desire of the FCC to provide latitude to states.

II. NECESSARY CONDITIONS FOR EFFECTIVE RESALE

There are several conditions necessary for an effective local resale market. In general, the price of wholesale services must be reasonably related to the cost of providing the service and the wholesale services must be offered on reasonable terms and conditions. The specific conditions necessary for effective resale are discussed below.

A. Wholesale Rates Must Not Include ILEC Retailing Costs

Retail competition will provide consumer benefits. If ILECs are allowed to charge excessive wholesale service prices, competition will be thwarted. In any market, resellers or retailers require a margin between the retail price and the wholesale price sufficient to allow recovery of their expenses, including a reasonable profit. The FCC points out that:

> There has been considerable debate on the record in this proceeding and before the state commissions on whether section 252(d)(3) embodies an "avoided" cost standard or an "avoidable" cost standard. We find that "the portion [of the retail rate] . . . attributable to costs that will be avoided" includes all of the costs that the LEC incurs in maintaining a retail, as opposed to a wholesale, business. In other words, the avoided costs are those that an incumbent LEC would no longer incur if it were to cease retail operations and instead provide all of its services through resellers. Thus, we reject the arguments of incumbent LECs and others who maintain that the LEC must actually experience a reduction in its operating expenses for a cost to be considered "avoided" for purposes of section 252(d)(3). We do not believe that Congress intended to allow incumbent LECs to sustain artificially high wholesale prices by declining to reduce their expenditures to the degree that certain costs are readily avoidable. We therefore interpret the 1996 Act as requiring states to make an objective assessment of what costs are reasonably avoidable when a LEC sells its services wholesale. We note that Colorado, Georgia, Illinois, New York, and Ohio commissions have all interpreted the 1996 Act in this manner. (251 Order, Paragraph 911).

If avoided costs are estimated correctly, and then subtracted from retail prices, efficient resellers should be able to succeed in the retail market.

B. All Retail Services Must Be Offered at a Discount

All of the telecommunications services offered to end-users must be made available to resellers at a wholesale discount. This includes Centrex, optional plans, grandfathered services, promotions and contract services. Also, all contract services must be available for resale. This includes government and state agency contracts as well as any "umbrella" contract that allows other entities to participate and obtain the benefits of a master contract. All ILEC retail services are at least partial substitutes for one another.[1] Therefore, absent this requirement, ILECs will be able to discriminate against resellers by making offers to customers that their retail competitors are unable to match. Retail competitors may also wish to resell services such as Voice Mail and Inside Wire. These services would likely be made available at avoided cost if the wholesale market were competitive.

Ancillary services must also be made available for resale. This includes custom calling services, CLASS features, and all Centrex features.[2] While some of these features may not be regulated, depending on the state jurisdiction or the jurisdictional nature of the service, they are all telecommunications services. If some features are not discounted, the ILECs' reseller competitors effectively will be denied the opportunity to market to a significant group of customers because the lack of a discount on these features will reduce reseller margins to inadequate levels.

Several state Commissions have already addressed the need for identifying services available for resale and the need for unrestricted resale. Several of these decisions are described in the FCC's 251 Order. (See Paragraphs. 898-906.)

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[1] The FCC Rules permit states to restrict "cross-class" selling. See Section 51.613(a)(1).

[2] These services are marketed by different names in different telephone company service areas.

The FCC's Rules also require promotions to be offered at a discount in certain circumstances. (See Section 51.613(a)(2).) Granting exceptions to the requirement that all services be made available at wholesale discounts may lead to abuse. States should be alert to this possibility and be prepared to take corrective action against ILECs that abuse the exceptions.

C. Service Quality and Adequate Wholesale-Reseller Interfaces Must be Maintained

The FCC has ruled that ILECs must provide resale services to competitors under the same terms and conditions it enjoys itself. It is crucial to a successful resale plan that interfaces between the ILEC's operations support systems and resellers' systems are adequate to allow the reseller to provide service to its customers efficiently. The Commission also must ensure that ILECs offer resellers the same quality service they provide to themselves and their own retail customers. To accomplish this, ILECs must implement systems and procedures that permit the ordering and use of wholesale services under the same timetables available to the ILEC. These systems must include:

- Pre-Service Ordering Capabilities. On-line access to all information needed to verify availability of services and features, scheduling of service installation, and number assignment.

- On-Line, automated order processing. Capability of transmitting customer orders to the switch office and provide the reseller with notice of confirmation and completion of its order. Competitively-neutral long distance and local presubscribed carrier administration processes must be implemented. Existing ILEC on-line systems are not necessarily acceptable for operational interfaces. Full electronic interfaces between ILEC and CLEC systems are required.

- Exchange of billing data and exchange of customer account data on a timely basis. This must be done on a confidential basis.

- On-Line Monitoring. Monitor the network, isolate trouble spots, perform network tests, and schedule reports.

- Service quality reports. Documenting service quality ILECs provide themselves compared to the service they provide to others.

All of these requirements are consistent with the Commission's finding that " . . . service made available for resale be at least equal in quality to that provided by the incumbent LEC to itself or to any subsidiary, affiliate, or any other party . . . " (251 Order, Paragraph 970).[3]

D. Branding Is an Important Element of Resale Competition

Resellers require carrier-specific branding for all customer contacts. Customers naturally expect services to be provisioned, serviced and maintained by their carrier of choice, regardless of whether the service is actually provided by another carrier through a resale arrangement. Customer confusion will be significantly diminished if the customer does not perceive that resold services are actually provided by another carrier.

Customers would experience concern, confusion, and dissatisfaction when placing a bill inquiry, a directory assistance call, or an operator service call to their provider of choice if they are greeted with the name of their old telephone company. Customers may even conclude that they have been "slammed." State Commissions must ensure that resale of all ILEC retail services occurs with the least amount of customer confusion possible. Branding will minimize customer confusion with respect to resold ILEC services.

In a resale environment, differentiation of the underlying product is virtually impossible. Competitors must rely upon other factors to win customer loyalty. Superior customer service, simplified billing, and innovative pricing will provide the only opportunities to differentiate products from the underlying network provider. Without the ability to brand all resold LEC

[3]MCI's witness for Operations Support Systems (OSS) offers a more detailed discussion of service quality in an attachment to the OSS White Paper.

services, reseller efforts to provide superior customer services are diluted. Brand dilution makes the investment in these new service or billing innovations more difficult to justify.

A uniform branding standard also will reduce customer confusion as the industry moves into an unbundled environment. For example, as competitors develop their own operator services capabilities, the change in the provider of this service will be transparent to the customer.

In sum, when end users select a local reseller it is important that they can clearly identify their service provider and its brand. Without a clear brand image the customer could face uncertainty when using directory or operator services. Such clarity can only be achieved by: (1) making reasonably available to local service resellers the ability to brand their service at all points of customer-contact, and (2) barring the incumbent LEC from unreasonably interfering with such branding. As the FCC points out, "this brand identification is critical to reseller attempts to compete with incumbent LECs and will minimize customer confusion." (251 Order, Paragraph 971)

III. SETTING WHOLESALE RATES -- PRACTICE

The FCC's Order establishes minimum criteria for the avoided cost methodology based broadly on the MCI study. Essentially, the costs in certain FCC Part 32 Uniform System of Accounts (USOA) accounts are identified as directly avoided while costs in other accounts are treated as indirectly avoided. The avoided indirect costs are calculated by determining the ratio of directly avoided costs to total costs and then applying that proportion to the accounts containing indirectly avoided costs. MCI proposes the use of account data from 1995 for the calculation of the discount. The data are immediately verifiable. Moreover, as demonstrated in the table below, the trend of the resulting discounts suggests that the use of 1995 data will yield a conservative

wholesale price discount.

A. Directly Avoided Costs

The following specific accounts from the USOA are directly avoided (see Code of Federal Regulations, Title 47, Telecommunication, Part 32):

> Account 6611: Product management - This account includes costs incurred in performing administrative activities related to marketing products and services. This includes competitive analysis, product and service identification and specification, test market planning, demand forecasting, product life cycle analysis, pricing analysis, and identification and establishment of distribution channels. This account is one of the ILECs' marketing costs, which are expressly listed as avoided by the 1996 Act. Product management is a function specifically tied to determining the market demand for retail sales, which the ILEC will offer in competition with the purchaser of wholesale services. Purchasers of wholesale service from the ILECs should not be required to subsidize the ILECs' costs of competing with them.
>
> Account 6612: Sales - This account includes costs incurred in selling products and services. This includes determination of individual customer needs, development and presentation of customer proposals, sales order preparation and handling, and preparation of sales records. In contrast, carriers seeking to resell an ILEC service will simply order the service on a wholesale basis - no ILEC sales resources are required.
>
> Account 6613: Product advertising - This account includes costs incurred in developing and implementing promotional strategies to stimulate the purchase of products and services, but excludes non-product-related advertising, such as corporate image, stock and bond issue and employment advertisement, which are included in the appropriate functional accounts. This is another of the Marketing expenses specifically excluded by the 1996 Act. As in the case of Sales and Product Management costs, Product Advertising is a function that is required to make retail sales, and is therefore avoided if the ILEC sells a wholesale service.
> Account 6621: Call completion services - This account includes costs incurred in helping customers place and complete calls, except directory assistance. This includes handling and recording, intercept, quoting rates, time and charges; and all other activities involved in the manual handling of calls. These expenses are incurred to serve the retail customers of the ILEC. Competing ILECs will either provide this service themselves or contract for it separately with the ILEC or some other service provider. In either case, the costs recorded in this account should not be bundled into the wholesale rate.

Account 6622: Number services - This account includes costs incurred in providing customer number and classified listings. This includes preparing or purchasing, compiling, and disseminating those listings through directory assistance or other means. As with Account 6621, a purchaser of the ILECs' wholesale services will either purchase this separately from the ILEC or some other provider, or provide this service itself. In either case, the costs recorded in this account should not be bundled into the wholesale rate.

Account 6623: Customer services -

(a) This account includes costs incurred in establishing and servicing customer accounts. This includes:
   (1) Initiating customer service orders and records;
   (2) Maintaining and billing customer accounts;
   (3) Collecting and investigating customer accounts, including collecting revenues, reporting receipts, administering collection treatment, and handling contacts with customers regarding adjustments of bills;
   (4) Collecting and reporting pay station receipts; and
   (5) Instructing customers in the use of products and services.

b) This account also includes amounts paid by interexchange carriers or other exchange carriers to another exchange carrier for billing and collection services.

B. *Indirectly Avoided Costs*

Within the USOA there are a number of expense accounts that are either common costs or general overhead. By definition, overhead costs support all other functions, including those that are avoided, such as marketing. For example, the Human Resources department incurs expenditures in the staffing of the marketing department. As marketing expenses are avoided, so are the expenses incurred in supporting marketing. Therefore, the portion of these expense items equal to the proportion of direct avoided costs to total expense is excluded as an avoided cost. Consistent with the FCC's paragraph 918, account 5301 rather than 6790 is used to calculate the avoided uncollectible revenues.

The following USOA accounts include common costs or general overhead which support marketing and customer service operations:

6120 - General Support
6711 - Executive
6712 - Planning
6721 - Accounting and finance
6722 - External Relations
6723 - Human resources
6724 - Information management
6725 - Legal
6726 - Procurement
6727 - Research and Development
6728 - Other general and administrative, and
5301 - Uncollectibles

Expenses in these accounts are, at least, partially avoidable.

C. Wholesaling Costs

While the ILECs will avoid substantial costs when they provide wholesale services, they will incur a small amount of incremental expenses to service the accounts of the resellers. However, these costs will be quite small. The ILECs already are set-up to perform the wholesaling function because they provide wholesale-like functions to interexchange carriers and Enhanced Service Providers. The incremental cost of providing these services to resellers of wholesale local exchange service should be minimal. The FCC addresses this issue by treating only 90 percent of the costs in certain of the directly avoided categories as avoided for purposes of setting default discounts. Specifically, the FCC determined that 90 percent of accounts 6610, and 6623 would be avoided, while 100 percent of accounts 6621 and 6622 would be avoided.

The FCC approach is very conservative. For example, Account 6623 (Customer Services) records the cost of setting up and billing end user accounts. The purchaser of wholesale services will be providing this service to its own end users. Any cost of billing the purchaser of wholesale

services, who will be billed for many end user lines, will be minuscule in comparison with the cost of billing each of those individual lines separately. Billing retail customers requires setting up accounts and billing individual customers. Wholesale customers, on the other hand, will be fewer in number, and are more acquainted with billing processes, thus enabling them to be served at much lower cost. Although there may be some minor Customer Services costs incurred by ILECs to provide wholesale services, those costs are so small that they could reasonably be completely excluded as avoided costs. Nevertheless, MCI has followed the approach used by the FCC for calculating default discounts and retained a 10 *per cent* of the expenses in these accounts in the wholesale rate.

D. Jurisdictional Issues

The FCC approach divides total avoided costs by total expenses on a "subject to separations" basis. That is, both interstate and intrastate costs were included. MCI's original model used this approach. However, this study uses the original MCI model, as modified by the FCC, using ARMIS 43-04 data on state operations, rather than the Subject to Separations data in the original study.

The services to be resold are largely intrastate. The FCC has specifically concluded that even though access charges will not be moved to economic cost until after a transition period, interstate access services will not be subject to the wholesale discount. (paras. 873-874) Therefore, it is necessary for consistency to calculate the appropriate wholesale discount by dividing total avoided ARMIS intrastate costs by the total intrastate expenses for services that will be resold. Absent this modification, both the numerator and the denominator of the discount calculation will include expenses allocated to services that will not be resold. The necessary

revision can be done with the aid of ARMIS Report 43-04, which breaks down the relevant costs on a jurisdictional basis.[4]

E. Results

Having identified the accounts that can be fully or partially associated with retailing functions that the ILEC will not perform, the next step is to quantify the actual savings and produce a percentage discount. The results on a holding company basis are shown below.[5]

Wholesale Pricing Discount Model

Summary, 1991 - 1995, 1996 Estimate

Year	Ameritech	Bell Atlantic	BellSouth	NYNEX	Pac Tel	South-western Bell	U S West	GTE*
1991	21.6%	21.5%	21.6%	20.3%	22.4%	21.1%	18.9%	19.0%
1992	23.1%	21.4%	22.2%	21.3%	24.5%	20.4%	20.9%	18.7%
1993	24.5%	22.3%	22.8%	21.9%	26.0%	22.5%	20.9%	19.1%
1994	25.3%	22.0%	22.8%	21.4%	26.1%	21.9%	20.7%	19.4%
1995	27.4%	22.0%	22.3%	22.9%	25.6%	21.6%	20.8%	19.3%

[4] Most of the interstate costs in the "directly avoided" ARMIS accounts will be avoided by ILECs selling local services at wholesale. That some of these costs appear in interstate accounts is an artifact of the seParagraphtions process. Therefore, it would be appropriate to add interstate expenses in these accounts to the numerator of the discount calculation. This study does not take this step in recognition of the fact that complex jurisdictional issues are raised thereby. MCI will modify its wholesale discount studies if the FCC rules on this issue.

[5] GTE data are for California, Texas, Florida, and Washington only. There are data missing for one state for Bell Atlantic in 1991 and for BellSouth and US West in 1992.

1996E	29.1%	22.2%	22.5%	23.6%	26.5%	21.7%	21.3%	19.3%

Appendix III shows the spreadsheet model that produces these discounts. The 1996 estimate is based on the trend over time.

F. Application of Discounts

Discounts should be developed and applied on a uniform basis to promote consistency and simplify the process. The wholesale discount as calculated in this study for each ILEC should be applied to each of the telecommunications services offered at wholesale rates. The published information ARMIS Report 43-04 data provide a sufficient basis for an aggregate discount across all services. These data are broadly consistent across ILECs and are reported in a format that is familiar. Service-by-service data are much harder to come by. Even if more detailed information were publicly available on a service-by-service basis, the consistency of the information would be questionable due to the numerous allocations and assumptions the ILEC would have to make to develop the service-specific information. While the FCC Rules do not rule out service-specific discounts, requiring the ILEC to provide such detailed information on a service-by-service basis would be an administrative burden for the ILECs and the responsible federal and state regulatory agencies. Moreover, the result would be highly debatable service-by-service discount levels.

The discount should also apply to each rate element. Any other basis provides opportunities for abuse. For example, applying the discount on revenue per minute for a service may penalize resellers whose sales by rate element are weighted differently than those of the ILEC or other resellers.

IV. CONCLUSION

Wholesale discounts are essential to the development of local competition. Adequate wholesale discounts will provide immediate consumer benefits by allowing retail competition to begin in advance of full facilities based competition. The methodology described here for developing these discounts is analytically correct and easy to administer.

Appendix I -- Commission Resale Rules

§ 51.605 Additional obligations of incumbent local exchange carriers.

(a) An incumbent LEC shall offer to any requesting telecommunications carrier any telecommunications service that the incumbent LEC offers on a retail basis to subscribers that are not telecommunications carriers for resale at wholesale rates that are at the election of the state commission--

(1) consistent with the avoided cost methodology described in §§ 51.607 and 51.609 of this part; or

(2) interim wholesale rates, pursuant to § 51.611 of this part,

(b) Except as provided in § 51.613 of this part, an incumbent LEC shall not impose restrictions on the resale by a requesting carrier of telecommunications services offered by the incumbent LEC.

§ 51.607 Wholesale pricing standard.

(a) The wholesale rate that an incumbent LEC may charge for a telecommunications service provided for resale to other telecommunications carriers shall equal the incumbent LEC's existing retail rate for the telecommunications service, less avoided retail costs, as described in § 51.609 of this part.

(b) For purposes of this subpart, exchange access services, as defined in section 3 of the Act, shall not be considered to be telecommunications services that incumbent LECs must make available for resale at wholesale rates to requesting telecommunications carriers.

§ 51.609 Determination of avoided retail costs.

(a) Except as provided in § 51.611 of this part, the amount of avoided retail costs shall be determined on the basis of a cost study that complies with the requirements of this section.

(b) Avoided retail costs shall be those costs that reasonably can be avoided when an incumbent LEC provides a telecommunications service for resale at wholesale rates to a requesting carrier.

(c) For incumbent LECs that are designated as Class A companies under § 32.11 of this chapter, except as provided in paragraph (d), avoided retail costs shall:

(1) include, as direct costs, the costs recorded in USOA accounts 6611 (product management), 6612 (sales), 6613 (product advertising), 6621 (call completion services), 6622 (number services), and 6623 (customer services) (§§ 32.6611, 32.6612, 32.6613, 32.6621, 32.6622, and 32.6623);

(2) include, as indirect costs, a portion of the costs recorded in USOA accounts 6121-6124 (general support expenses), 6612, 6711, 6721-6728 (corporate operations expenses), and 5301 (telecommunications uncollectibles) (§§ 32.6121-32.6124, 32.6612, 32.6711, 32.6721-

32.6728, and 32.5301); and

(3) not include plant-specific expenses and plant non-specific expenses, other than general support expenses (§§ 32.6110-32.6116, 32.6210-32.6565).

(d) Costs included in accounts 6611-6613 and 6621-6623 described in paragraph (c) (§§ 32.6611-32.6613 and 32.6621-32.6623) may be included in wholesale rates only to the extent that the incumbent LEC proves to a state commission that specific costs in these accounts will be incurred and are not avoidable with respect to services sold at wholesale, or that specific costs in these accounts are not included in the retail prices of resold services. Costs included in accounts 6110-6116 and 6210-6565 described in paragraph (c) (§§ 32.6110-32.6116, 32.6210-32.6565) may be treated as avoided retail costs, and excluded from wholesale rates, only to the extent that a party proves to a state commission that specific costs in these accounts can reasonably be avoided when an incumbent LEC provides a telecommunications service for resale to a requesting carrier.

(e) For incumbent LECs that are designated as Class B companies under § 32.11 of this chapter and that record information in summary accounts instead of specific USOA accounts, the entire relevant summary accounts may be used in lieu of the specific USOA accounts listed in paragraphs (c) and (d).

Appendix I -- Commission Resale Rules

§ 51.605 Additional obligations of incumbent local exchange carriers.

(a) An incumbent LEC shall offer to any requesting telecommunications carrier any telecommunications service that the incumbent LEC offers on a retail basis to subscribers that are not telecommunications carriers for resale at wholesale rates that are at the election of the state commission--

(1) consistent with the avoided cost methodology described in §§ 51.607 and 51.609 of this part; or

(2) interim wholesale rates, pursuant to § 51.611 of this part,

(b) Except as provided in § 51.613 of this part, an incumbent LEC shall not impose restrictions on the resale by a requesting carrier of telecommunications services offered by the incumbent LEC.

§ 51.607 Wholesale pricing standard.

(a) The wholesale rate that an incumbent LEC may charge for a telecommunications service provided for resale to other telecommunications carriers shall equal the incumbent LEC's existing retail rate for the telecommunications service, less avoided retail costs, as described in § 51.609 of this part.

(b) For purposes of this subpart, exchange access services, as defined in section 3 of the Act, shall not be considered to be telecommunications services that incumbent LECs must make available for resale at wholesale rates to requesting telecommunications carriers.

§ 51.609 Determination of avoided retail costs.

(a) Except as provided in § 51.611 of this part, the amount of avoided retail costs shall be determined on the basis of a cost study that complies with the requirements of this section.

(b) Avoided retail costs shall be those costs that reasonably can be avoided when an incumbent LEC provides a telecommunications service for resale at wholesale rates to a requesting carrier.

(c) For incumbent LECs that are designated as Class A companies under § 32.11 of this chapter, except as provided in paragraph (d), avoided retail costs shall:

(1) include, as direct costs, the costs recorded in USOA accounts 6611 (product management), 6612 (sales), 6613 (product advertising), 6621 (call completion services), 6622 (number services), and 6623 (customer services) (§§ 32.6611, 32.6612, 32.6613, 32.6621, 32.6622, and 32.6623);

(2) include, as indirect costs, a portion of the costs recorded in USOA accounts 6121-6124 (general support expenses), 6612, 6711, 6721-6728 (corporate operations expenses), and 5301 (telecommunications uncollectibles) (§§ 32.6121-32.6124, 32.6612, 32.6711, 32.6721-

32.6728, and 32.5301); and

(3) not include plant-specific expenses and plant non-specific expenses, other than general support expenses (§§ 32.6110-32.6116, 32.6210-32.6565).

(d) Costs included in accounts 6611-6613 and 6621-6623 described in paragraph (c) (§§ 32.6611-32.6613 and 32.6621-32.6623) may be included in wholesale rates only to the extent that the incumbent LEC proves to a state commission that specific costs in these accounts will be incurred and are not avoidable with respect to services sold at wholesale, or that specific costs in these accounts are not included in the retail prices of resold services. Costs included in accounts 6110-6116 and 6210-6565 described in paragraph (c) (§§ 32.6110-32.6116, 32.6210-32.6565) may be treated as avoided retail costs, and excluded from wholesale rates, only to the extent that a party proves to a state commission that specific costs in these accounts can reasonably be avoided when an incumbent LEC provides a telecommunications service for resale to a requesting carrier.

(e) For incumbent LECs that are designated as Class B companies under § 32.11 of this chapter and that record information in summary accounts instead of specific USOA accounts, the entire relevant summary accounts may be used in lieu of the specific USOA accounts listed in paragraphs (c) and (d).

§ 51.611 Interim wholesale rates.

(a) If a state commission cannot, based on the information available to it, establish a wholesale rate using the methodology prescribed in § 51.609 of this part, then the state commission may elect to establish an interim wholesale rate as described in paragraph (b) of this section.

(b) The state commission may establish interim wholesale rates that are at least 17 percent, and no more than 25 percent, below the incumbent LEC's existing retail rates, and shall articulate the basis for selecting a particular discount rate. The same discount percentage rate shall be used to establish interim wholesale rates for each telecommunications service.

(c) A state commission that establishes interim wholesale rates shall, within a reasonable period of time thereafter, establish wholesale rates on the basis of an avoided retail cost study that complies with § 51.609 of this part.

§ 51.613 Restrictions on resale.

(a) Notwithstanding § 51.605(b) of this part, the following types of restrictions on resale may be imposed:

(1) *Cross-class selling*. A state commission may permit an incumbent LEC to prohibit a requesting telecommunications carrier that purchases at wholesale rates for resale, telecommunications services that the incumbent LEC makes available only to residential customers or to a limited class of residential customers, from offering such services to classes of customers that are not eligible to subscribe to such services from the incumbent LEC.

(2) *Short term promotions*. An incumbent LEC shall apply the wholesale discount to the ordinary rate for a retail service rather than a special promotional rate only if:

(A) such promotions involve rates that will be in effect for no more than 90 days; and

(B) the incumbent LEC does not use such promotional offerings to evade the wholesale rate obligation, for example by making available a sequential series of 90-day promotional rates.

(b) With respect to any restrictions on resale not permitted under paragraph (a), an incumbent LEC may impose a restriction only if it proves to the state commission that the restriction is reasonable and nondiscriminatory.

(c) *Branding*. Where operator, call completion, or directory assistance service is part of the service or service package an incumbent LEC offers for resale, failure by an incumbent LEC to comply with reseller unbranding or rebranding requests shall constitute a restriction on resale.

(1) An incumbent LEC may impose such a restriction only if it proves to the state commission that the restriction is reasonable and nondiscriminatory, such as by proving to a state commission that the incumbent LEC lacks the capability to comply with unbranding or rebranding requests.

(2) For purposes of this subpart, unbranding or rebranding shall mean that operator, call completion, or directory assistance services are offered in such a manner that an incumbent LEC's brand name or other identifying information is not identified to subscribers, or that such services are offered in such a manner that identifies to subscribers the requesting carrier's brand name or other identifying information.

§ 51.615 Withdrawal of services.

When an incumbent LEC makes a telecommunications service available only to a limited group of customers that have purchased such a service in the past, the incumbent LEC must also make such a service available at wholesale rates to requesting carriers to offer on a resale basis to the same limited group of customers that have purchased such a service in the past.

§ 51.617 Assessment of end user common line charge on resellers.

(a) Notwithstanding the provision in § 69.104(a) of this chapter that the end user common line charge be assessed upon end users, an incumbent LEC shall assess this charge, and the charge for changing the designated primary interexchange carrier, upon requesting carriers that purchase telephone exchange service for resale. The specific end user common line charge to be assessed will depend upon the identity of the end user served by the requesting carrier.

(b) When an incumbent LEC provides telephone exchange service to a requesting carrier at wholesale rates for resale, the incumbent LEC shall continue to assess the interstate access charges provided in part 69, other than the end user common line charge, upon interexchange carriers that use the incumbent LEC's facilities to provide interstate or international telecommunications services to the interexchange carriers' subscribers.

Appendix II -- Spreadsheet Model

The simple spreadsheet model used to calculate the discounts is illustrated below. The example chosen is Bell Atlantic -- DC. The row number comes from the appropriate ARMIS Report. The 19.46 factor is the ratio between total directly avoided expenses and total expenses.

	ARMIS Row Number	USOA Account	Row Name	
1	4040	5301	Uncollectible36/69	5.663
2			% Avoided	19.46%
3			$ Avoided	1.102
4	4050	Total Revenues	TotRevIsUnc36/69	343.358
5	5000	6110	NetworkSupp36/69	138
6			% Avoided	0.00%
7			$ Avoided	0
8	5010	6120	GeneralSupp36/69	27.915
9			% Avoided	19.46%
10			$ Avoided	5.431
11	5026	6210+6220+6230	TotCOExp36/69	16.826
12			% Avoided	0.00%

	ARMIS Row Number	USOA Account	Row Name	
13			$ Avoided	0
14	5042	6310	TotOthIOT36/69	7.668
15			% Avoided	0.00%
16			$ Avoided	0
17	5076	6410	TotC&WFExp36/69	10.388
18			% Avoided	0.00%
19			$ Avoided	0
20	6000	6510	OtherPP&E36/69	700
21			% Avoided	0.00%
22			$ Avoided	0
23	6010	6530	NetworkOper36/69	29.098
24			% Avoided	0.00%
25			$ Avoided	0
26	6012	6540	Access36/69	0
27			% Avoided	0.00%
28			$ Avoided	0
29	6260	6560	TotDep/Amort36/69	77.493
30			% Avoided	0.00%
31			$ Avoided	0
32	7000	6610	TotMkting36/69	16.227
33			% Avoided	90.00%

	ARMIS Row Number	USOA Account	Row Name	
34			$ Avoided	14.604
35	7060	6621+6622	TotTelOp36/69	10.700
36			% Avoided	100.00%
37			$ Avoided	10.700
38	7076	remainder 6622	TotPubDir36/69	2,057
39			% Avoided	100.00%
40			$ Avoided	2.057
41	7310	6623	TotOthCSvc36/69	28.832
42			% Avoided	90.00%
43			$ Avoided	25.949
44	7334	6710+6720	TotCorpOper36/69	40.305
45			% Avoided	19.46%
46			$ Avoided	7.842
a			Total State Revenues	343.358
b			Total Expenses	274.010
c			Total Avoided	67.684
d			% Direct Expenses Avoided	19.46%
e			**Wholesale Discount**	**24.70%**

Vita of Don J. Wood
914 Stream Valley Trail, Alpharetta, Georgia 30202 ■ (770) 475-9971, FAX (770) 475-9972

EDUCATION

Emory University, Atlanta, Ga.
BBA in Finance, with Distinction.

College of William and Mary, Williamsburg, Va.
MBA, with concentration in Finance and Microeconomics.

CURRENT EMPLOYMENT

Don J. Wood provides economic and regulatory analysis services in telecommunications and related industries. He has been employed in a management capacity at a major Local Exchange Company and an Interexchange Carrier, and has been directly involved in both the development and implementation of regulatory policy. He has presented testimony before the Regulatory Commissions of twenty-three states and the District of Columbia, state courts, and has prepared comments for filing with the Federal Communications Commission.

PREVIOUS EXPERIENCE

BellSouth Services, Inc.

Staff Manager responsible for conducting cost of service studies to be filed for regulatory purposes at State Commissions and FCC. Developed new costing methodologies and models for use by other analysts.

MCI Telecommunications Corporation.

Manager of Regulatory Analysis, Southeast Division. Responsible for development and implementation of regulatory policy for nine state division of the company. Duties included testimony before State Commissions, preparation of related pleadings, settlement negotiations, and development of relationships with Commission Staff and key industry personnel. After company reorganization, responsibilities expanded to new 15 state Southern Division.

Manager, Corporate Economic Analysis and Regulatory Affairs. Responsible for national regulatory policy development. Acted as part of a four person internal consulting team, specifically assigned to new/complex issues. Testimony before State Commissions throughout eastern US and comments/lobbying at FCC.

FLORIDA PUBLIC SERVICE COMMISSION
DOCKET NO. 961230-TP EXHIBIT NO. 12
COMPANY/
WITNESS:
DATE 12-13-96

TESTIMONY - STATE REGULATORY COMMISSIONS:

Alabama Public Service Commission

Docket No. 19356, Phase III: Alabama Public Service Commission vs. All Telephone Companies Operating in Alabama, and Docket 21455: AT&T Communications of the South Central States, Inc., Applicant, Application for a Certificate of Public Convenience and Necessity to Provide Limited IntraLATA Telecommunications Service in the State of Alabama.

Docket No. 20895: In Re: Petition for Approval to Introduce Business Line Termination for MCI's 800 Service.

Docket No. 21071: In Re: Petition by South Central Bell for Introduction of Bidirectional Measured Service.

Docket No. 21067: In Re: Petition by South Central Bell to Offer Dial Back-Up Service and 2400 BPS Central Office Data Set for Use with PulseLink Public Packet Switching Network Service.

Docket No. 21378: In Re: Petition by South Central Bell for Approval of Tariff Revisions to Restructure ESSX and Digital ESSX Service.

Docket No. 21865: In Re: Petition by South Central Bell for Approval of Tariff Revisions to Introduce Network Services to be Offered as a Part of Open Network Architecture.

Arkansas Public Service Commission

Docket No. 92-337-R: In the Matter of the Application for a Rule Limiting Collocation for Special Access to Virtual or Physical Collocation at the Option of the Local Exchange Carrier.

State of Connecticut, Department of Utility Control

Docket 91-12-19: DPUC Review of Intrastate Telecommunications Services Open to Competition (Comments).

Docket No. 94-07-02: Development of the Assumptions, Tests, Analysis, and Review to Govern Telecommunications Service Reclassifications in Light of the Eight Criteria Set Forth in Section 6 of Public Act 94-83 (Comments).

Delaware Public Service Commission

Docket No. 93-31T: In the Matter of the Application of The Diamond State Telephone Company for Establishment of Rules and Rates for the Provision of IntelliLinQ-PRI and IntelliLinQ-BRI.

Docket No. 41: In the Matter of the Development of Regulations for the Implementation of the Telecommunications Technology Investment Act.

Florida Public Service Commission

Docket No. 881257-TL: In Re: Proposed Tariff by Southern Bell to Introduce New Features for Digital ESSX Service, and to Provide Structural Changes for both ESSX Service and Digital ESSX Service.

Docket No. 880812-TP: In Re: Investigation into Equal Access Exchange Areas (EAEAs), Toll Monopoly Areas (TMAs), 1+ Restriction to the Local Exchange Companies (LECs), and Elimination of the Access Discount.

Docket No. 890183-TL: In Re: Generic Investigation into the Operations of Alternate Access Vendors.

Docket No. 870347-TI: In Re: Petition of AT&T Communications of the Southern States for Commission Forbearance from Earnings Regulation and Waiver of Rule 25-4.495(1) and 25-24.480 (1) (b), F.A.C., for a trial period.

Docket No. 900708-TL: In Re: Investigation of Methodology to Account for Access Charges in Local Exchange Company (LEC) Toll Pricing.

Docket No. 900633-TL: In Re: Development of Local Exchange Company Cost of Service Study Methodology.

Docket No. 910757-TP: In Re: Investigation into the Regulatory Safeguards Required to Prevent Cross-Subsidization by Telephone Companies.

Docket No. 920260-TL: In Re: Petition of Southern Bell Telephone and Telegraph Company for Rate Stabilization, Implementation Orders, and Other Relief.

Docket No. 950985-TP: In Re: Resolution of Petitions to establish 1995 rates, terms, and conditions for interconnection involving local exchange companies and alternative local exchange companies pursuant to Section 364.162, Florida Statutes.

Georgia Public Service Commission

Docket No. 3882-U: In Re: Investigation into Incentive Telephone Regulation in Georgia.

Docket No. 3883-U: In Re: Investigation into the Level and Structure of Intrastate Access Charges.

Docket No. 3921-U: In Re: Compliance and Implementation of Senate Bill 524.

Docket No. 3905-U: In Re: Southern Bell Rule Nisi.

Docket No. 3995-U: In Re: IntraLATA Toll Competition.

Docket No. 4018-U: In Re: Review of Open Network Architecture (ONA) (Comments).

Docket No. 5258-U: In Re: Petition of BellSouth Telecommunications for Consideration and Approval of its "Georgians FIRST" (Price Caps) Proposal.

Docket No. 5825-U: In Re: The Creation of a Universal Access Fund as Required by the Telecommunications Competition and Development Act of 1995.

Iowa Utilities Board

Docket No. RPU-95-10.

Docket No. RPU-95-11.

Kentucky Public Service Commission

Administrative Case No. 10321: In the Matter of the Tariff Filing of South Central Bell Telephone Company to Establish and Offer Pulselink Service.

Administrative Case No. 323: In the Matter of An Inquiry into IntraLATA Toll Competition, An Appropriate Compensation Scheme for Completion of IntraLATA Calls by Interexchange Carriers, and WATS Jurisdictionality.

- Phase IA: Determination of whether intraLATA toll competition is in the

public interest.

- Phase IB: Determination of a method of implementing intraLATA competition.

- Rehearing on issue of Imputation.

Administrative Case No. 90-256, Phase II: In the Matter of A Review of the Rates and Charges and Incentive Regulation Plan of South Central Bell Telephone Company.

Administrative Case No. 336: In the Matter of an Investigation into the Elimination of Switched Access Service Discounts and Adoption of Time of Day Switch Access Service Rates.

Administrative Case No. 91-250: In the Matter of South Central Bell Telephone Company's Proposed Area Calling Service Tariff.

Louisiana Public Service Commission

Docket No. 17970: In Re: Investigation of the Revenue Requirements, Rate Structures, Charges, Services, Rate of Return, and Construction Program of AT&T Communications of the South Central States, Inc., in its Louisiana Operations.

Docket No. U-17949: In the Matter of an Investigation of the Revenue Requirements, Rate Structures, Charges, Services, Rate of Return, and Construction Program of South Central Bell Telephone Company, Its Louisiana Intrastate Operations, The Appropriate Level of Access Charges, and All Matters Relevant to the Rates and Service Rendered by the Company.

- Subdocket A (SCB Earnings Phase)

- Subdocket B (Generic Competition Phase)

Docket No. 18913-U: In Re: South Central Bell's Request for Approval of Tariff Revisions to Restructure ESSX and Digital ESSX Service.

Docket No. U-18851: In Re: Petition for Elimination of Disparity in Access Tariff Rates.

Public Service Commission of Maryland

Case 8584, Phase II: In the Matter of the Application of MFS Intelenet of Maryland, Inc. for Authority to Provide and Resell Local Exchange and Intrastate Telecommunications Services in Areas Served by C&P Telephone Company of Maryland.

Case 8715: In the Matter of the Inquiry into Alternative Forms of Regulating Telephone Companies.

Mississippi Public Service Commission

Docket No. U-5086: In Re: MCI Telecommunications Corporation's Metered Use Service Option D (Prism I) and Option E (Prism II).

Docket No. U-5112: In Re: MCI Telecommunications Corporation's Metered Use Option H (800 Service).

Docket No. U-5318: In Re: Petition of MCI for Approval of MCI's Provision of Service to a Specific Commercial Banking Customers for Intrastate Interexchange Telecommunications Service.

Docket 89-UN-5453: In Re: Notice and Application of South Central Bell Telephone Company for Adoption and Implementation of a Rate Stabilization Plan for its Mississippi Operations.

Docket No. 90-UA-0280: In Re: Order of the Mississippi Public Service Commission Initiating Hearings Concerning (1) IntraLATA Competition in the Telecommunications Industry and (2) Payment of Compensation by Interexchange Carriers and Resellers to Local Exchange Companies in Addition to Access Charges.

Docket No. 92-UA-0227: In Re: Order Implementing IntraLATA Competition.

New York Public Service Commission

Case No. 28425: Proceeding on Motion of the Commission as to the Impact of the Modification of Final Judgement and the Federal Communications Commission's Docket 78-72 on the Provision of Toll Service in New York State.

North Carolina Public Utilities Commission

Docket No. P-100, Sub 72: In the Matter of the Petition of AT&T to Amend Commission Rules Governing Regulation of Interexchange Carriers (Comments).

Docket No. P-141, Sub 19: In the Matter of the Application of MCI Telecommunications Corporation to Provide InterLATA Facilities-Based Telecommunications Services (Comments).

Docket No. P-55, Sub 1013: In the Matter of Application of BellSouth Telecommunications, Inc. for, and Election of, Price Regulation.

Docket Nos. P-7, Sub 825 and P-10, Sub 479: In the Matter of Petition of Carolina Telephone and Telegraph and Central Telephone Company for Approval of a Price Regulation Plan Pursuant to G.S. 62-133.5.

Docket No. P-19, Sub 277: In the Matter of Application of GTE South Incorporated for and Election of, Price Regulation.

Public Utilities Commission of Ohio

Case No. 93-487-TP-ALT: In the Matter of the Application of The Ohio Bell Telephone Company for Approval of an Alternative Form of Regulation.

Oklahoma Corporation Commission

Cause No. PUD 01448: In the Matter of the Application for an Order Limiting Collocation for Special Access to Virtual or Physical Collocation at the Option of the Local Exchange Carrier.

Public Utility Commission of Oregon

Docket No. UT 119: In the Matter of an Investigation into Tariffs Filed by US West Communications, Inc., United Telephone of the Northwest, Pacific Telecom, Inc., and GTE Northwest, Inc. in Accordance with ORS 759.185(4).

Pennsylvania Public Utilities Commission

Docket No. I-00910010: In Re: Generic Investigation into the Current Provision of InterLATA Toll Service.

Docket No. P-00930715: In Re: The Bell Telephone Company of Pennsylvania's Petition and Plan for Alternative Form of Regulation under Chapter 30.

Docket No. R-00943008: In Re: Pennsylvania Public Utility Commission v. Bell Atlantic-Pennsylvania, Inc. (Investigation of Proposed Promotional Offerings Tariff).

Docket No. M-00940587: In Re: Investigation pursuant to Section 3005 of the Public Utility Code, 66 Pa. C. S. §3005, and the Commission's Opinion and Order at Docket No. P-930715, to establish standards and safeguards for competitive services, with particular emphasis in the areas of cost allocations, cost studies, unbundling, and imputation, and to consider generic issues for future rulemaking.

South Carolina Public Service Commission

Docket No. 90-626-C: In Re: Generic Proceeding to Consider Intrastate Incentive Regulation.

Docket No. 90-321-C: In Re: Petition of Southern Bell Telephone and Telegraph Company for Revisions to its Access Service Tariff Nos. E2 and E16.

Docket No. 88-472-C: In Re: Petition of AT&T of the Southern States, Inc., Requesting the Commission to Initiate an Investigation Concerning the Level and Structure of Intrastate Carrier Common Line (CCL) Access Charges.

Docket No. 92-163-C: In Re: Position of Certain Participating South Carolina Local Exchange Companies for Approval of an Expanded Area Calling (EAC) Plan.

Docket No. 92-182-C: In Re: Application of MCI Telecommunications Corporation, AT&T Communications of the Southern States, Inc., and Sprint Communications Company, L.P., to Provide IntraLATA Telecommunications Services.

Docket No. 95-720-C: In Re: Application of BellSouth Telecommunications, Inc. d/b/a Southern Bell Telephone and Telegraph Company for Approval of an Alternative Regulation Plan.

Tennessee Public Service Commission

Docket No. 90-05953: In Re: Earnings Investigation of South Central Bell Telephone Company.

Docket Nos. 89-11065, 89-11735, 89-12677: AT&T Communications of the South Central States, MCI Telecommunications Corporation, US Sprint Communications

Company -- Application for Limited IntraLATA Telecommunications Certificate of Public Convenience and Necessity.

Docket No. 91-07501: South Central Bell Telephone Company's Application to Reflect Changes in its Switched Access Service Tariff to Limit Use of the 700 Access Code.

Public Utility Commission of Texas

Docket No. 12879: Application of Southwestern Bell Telephone Company for Expanded Interconnection for Special Access Services and Switched Transport Services and Unbundling of Special Access DS1 and DS3 Services Pursuant to P. U. C. Subst. R. 23.26.

Virginia State Corporation Commission

Case No. PUC920043: Application of Virginia Metrotel, Inc. for a Certificate of Public Convenience and Necessity to Provide InterLATA Interexchange Telecommunications Services.

Case No. PUC920029: Ex Parte: In the Matter of Evaluating the Experimental Plan for Alternative Regulation of Virginia Telephone Companies.

Case No. PUC930035: Application of Contel of Virginia, Inc. d/b/a GTE Virginia to implement community calling plans in various GTE Virginia exchanges within the Richmond and Lynchburg LATAs.

Case No. PUC930036: Ex Parte: In the Matter of Investigating Telephone Regulatory Methods Pursuant to Virginia Code § 56-235.5, & Etc.

Washington Utilities and Transportation Commission

Docket Nos. UT-941464, UT-941465, UT-950146, and UT-950265 (Consolidated): Washington Utilities and Transportation Commission, Complainant, vs. US West Communications, Inc., Respondent; TCG Seattle and Digital Direct of Seattle, Inc., Complainant, vs. US West Communications, Inc., Respondent; TCG Seattle, Complainant, vs. GTE Northwest Inc., Respondent; Electric Lightwave, Inc., vs. GTE Northwest, Inc., Respondent.

Docket No. UT-950200: In the Matter of the Request of US West Communications, Inc. for an Increase in its Rates and Charges.

Public Service Commission of Wyoming

Docket No. 70000-TR-95-238: In the Matter of the General Rate/Price Case Application of US West Communications, Inc.

Docket No. PSC-96-32: In the Matter of Proposed Rule Regarding Total Service Long Run Incremental Cost (TSLRIC) Studies.

Public Service Commission of the District of Columbia

Formal Case No. 814, Phase IV: In the Matter of the Investigation into the Impact of the AT&T Divestiture and Decisions of the Federal Communications Commission on Bell Atlantic - Washington, D. C. Inc.'s Jurisdictional Rates.

COMMENTS - FEDERAL COMMUNICATIONS COMMISSION

CC Docket No. 92-91: In the Matter of Open Network Architecture Tariffs of Bell Operating Companies.

CC Docket No. 93-162: Local Exchange Carriers' Rates, Terms, and Conditions for Expanded Interconnection for Special Access.

CC Docket No. 91-141: Common Carrier Bureau Inquiry into Local Exchange Company Term and Volume Discount Plans for Special Access.

CC Docket No. 94-97: Review of Virtual Expanded Interconnection Service Tariffs.

CC Docket No. 94-128: Open Network Architecture Tariffs of US West Communications, Inc.

CC Docket No. 94-97, Phase II: Investigation of Cost Issues, Virtual Expanded Interconnection Service Tariffs.

Exhibit ___ (DJW-2) and Exhibit ___ (DJW-3) and Summary numbers for page 21 will be provided as soon as possible

User Inputs

	B	C	D	E	G	H	I
1	Note: Anything in italics in the two columns containing values is a calculated value.					10/28/96 11:33	
2	***Don't change any of these manually.***					Complete	
3							
4	You may change any of the input values (highlighted in blue) directly in this sheet.						
5	However, if you subsequently use one of the dialogs to set values, any values entered						
6	there will override any changes you make manually here.						
7							
8	**State**		*Florida*		Workfile		
9	Company 1		*Sprint LTD (Centel/United)*		Workfile path		
10	Company 2				ID Code	HMG0819961400	
11	Company 3						
12				Variable			
13	Input Name	Default	Inputs	Name	Module	Sheet	Cell Ref
14							
15	**Cost of Capital Factors**						
16	***Depreciation Lives***						
17	Loop Distribution	20	20	DistLife	Expense	Inputs	H37
18	Loop Feeder	20	20	FeedLife	Expense	Inputs	H38
19	Loop Concentrator	10	10	ConcLife	Expense	Inputs	H39
20	Wire Center	37	37	WireLife	Expense	Inputs	H41
21	End Office Switching	14.3	14.3	EOLife	Expense	Inputs	H40
22	Tandem Switching	14.3	14.3	TandLife	Expense	Inputs	H42
23	Transport Facilities	19	19	TransLife	Expense	Inputs	H44
24	Operator Systems	8	8	OpLife	Expense	Inputs	H43
25	STP	14	14	STPLife	Expense	Inputs	H45
26	SCP	14	14	SCPLife	Expense	Inputs	H46
27	Links	19	19	LinkLife	Expense	Inputs	H47
28	Public Telephones	9	9	PubLife	Expense	Inputs	H48
29	General Support	7	7	GenLife	Expense	Inputs	H49
30							
31	***Cost of Capital***						
32	Debt Percent	45.00%	45.00%	DebtP	Expense	Inputs	C34
33	Cost of Debt	7.70%	7.70%	DebtCost	Expense	Inputs	C35
34	Cost of Equity	11.90%	11.90%	EquityCost	Expense	Inputs	C37
35	*Equity Percent*	*55.00%*	*55.00%*				
36	*Overall Cost of Capital*	*10.01%*	*10.01%*				
37							
38							
39	**Misc Expense Factors**						
40							
41	Variable Overhead Factor	10.00%	10.00%	VarOvhd	Expense	Inputs	C42
42	Federal Income Tax Rate	40.00%	40.00%	FITRate	Expense	Inputs	H35
43	Other Taxes Factor	5.00%	5.00%	OtherTax	Expense	Inputs	C43
44	Operating State and Local Income Tax F	1.00%	1.00%	StateIT	Expense	Inputs	C44
45	Billing/Bill Inquiry per line per month	$1.22	$1.22	Billing	Expense	Inputs	C45
46	Directory Listing per line per month	$0.15	$0.15	Directory	Expense	Inputs	C46
47	Forward-Looking Network Operations Fac	70.00%	70.00%	NetOps	Expense	Inputs	C48
48	Central Office Switching Expense Factor	2.69%	2.69%	COSwitch	Expense	Inputs	C47
49	End Office Traffic-Sensitive Fraction	70.00%	70.00%	EOTraffic	Expense	Inputs	C51
50	per-line Monthly LNP Cost	$0.25	$0.25	LNP	Expense	Inputs	C52
51	alternative CO switching factor	0.0269	0.0269	ACOSF	Expense	Inputs	C49
52	alternative circuit equipment factor	0.0153	0.0153	ACEF	Expense	Inputs	C50
53	Carrier-carrier customer service per line p	$1.56	$1.56	CarCar	Expense	Inputs	C58
54	NID expense per line per year	$3.00	$3.00	NIDExp	Expense	Inputs	C59
55	Swithc line circuit offset per DLC line	$35.00	$35.00	CircOffs	Expense	Inputs	C62
56							
57	**Fill Factors**						
58	Cable						
59	*Feeder*						
60	0-5	0.65	0.65	Feeder0	Loopmaster	Input	S18
61	5-200	0.75	0.75	Feeder5	Loopmaster	Input	S19
62	200-650	0.80	0.80	Feeder200	Loopmaster	Input	S20
63	650-850	0.80	0.80	Feeder650	Loopmaster	Input	S21
64	850-2550	0.80	0.80	Feeder850	Loopmaster	Input	S22
65	2550+	0.80	0.80	Feeder2550	Loopmaster	Input	S23
66							
67	*Distribution*						

User Inputs

	B	C	D	E	G	H	I
68	0-5	0.50	0.50	Dist0	Loopmaster	Input	T18
69	5-200	0.55	0.55	Dist5	Loopmaster	Input	T19
70	200-650	0.60	0.60	Dist200	Loopmaster	Input	T20
71	650-850	0.65	0.65	Dist650	Loopmaster	Input	T21
72	850-2550	0.70	0.70	Dist850	Loopmaster	Input	T22
73	2550+	0.75	0.75	Dist2550	Loopmaster	Input	T23
74							
75	**EO Switching Parameters**						
76							
77	Busy hour call attempts, residential	1.3	1.3	BHCAR	WireCenter	traffic and cost inputs	F28
78	Busy hour call attempts, business	3.5	3.5	BHCAB	WireCenter	traffic and cost inputs	F29
79	Switch Maximum Line Size	100,000	100,000	MaxLines	WireCenter	traffic and cost inputs	C27
80	Switch Maximum Line Fill	0.8	0.8	MaxLineFill	WireCenter	traffic and cost inputs	C29
81	Switch Maximum Processor Occupancy	0.9	0.9	MaxProc	WireCenter	traffic and cost inputs	C30
82	Processor Feature Loading Multiplier	1	1	FeatureMult	WireCenter	traffic and cost inputs	C31
83	Switch Installation Multiplier	1.1	1.1	InstallMult	WireCenter	traffic and cost inputs	C33
84							
85	*Switch Parameters*						
86	Switch real-time limit, BHCA						
87	1 - 1,000	10,000	10,000	BHCA1	WireCenter	traffic and cost inputs	C16
88	1,000 - 10,000	50,000	50,000	BHCA2	WireCenter	traffic and cost inputs	C17
89	10,000 - 40,000	200,000	200,000	BHCA3	WireCenter	traffic and cost inputs	C18
90	40,000+	600,000	600,000	BHCA4	WireCenter	traffic and cost inputs	C19
91							
92	Switch traffic limit, BHCCS						
93	1 - 1,000	10,000	10,000	BHCCS1	WireCenter	traffic and cost inputs	C23
94	1,000 - 10,000	50,000	50,000	BHCCS2	WireCenter	traffic and cost inputs	C24
95	10,000 - 40,000	500,000	500,000	BHCCS3	WireCenter	traffic and cost inputs	C25
96	40,000+	1,000,000	1,000,000	BHCCS4	WireCenter	traffic and cost inputs	C26
97							
98	*Switch cost points* lines						
99	Low line size	2,782	2,782	LowSize	WireCenter	traffic and cost inputs	F6
100	Mid line size	11,200	11,200	MidSize	WireCenter	traffic and cost inputs	G6
101	High line size	80,000	80,000	HighSize	WireCenter	traffic and cost inputs	H6
102	cost/line						
103	Low line size	$220.00	$220.00	LowCost	WireCenter	traffic and cost inputs	F5
104	Mid line size	$86.00	$86.00	MidCost	WireCenter	traffic and cost inputs	G5
105	High line size	$59.00	$59.00	HighCost	WireCenter	traffic and cost inputs	H5
106							
107	Residential Holding Time Multiplier	1.00	1.00	resHT	WireCenter	traffic and cost inputs	F19
108	Business Holding Time Multiplier	1.00	1.00	busHT	WireCenter	traffic and cost inputs	F20
109	Busy Hour fraction of daily usage	0.10	0.10	BHF	WireCenter	traffic and cost inputs	F16
110	Annual to daily usage reduction factor	270.00	270.00	UsRed	WireCenter	traffic and cost inputs	F17
111							
112	**Interoffice and Tandem Parameters**						
113							
114	Operator Traffic Fraction	0.02	0.02	OpFrac	WireCenter	traffic and cost inputs	C39
115	Total Interoffice Traffic Fraction	0.65	0.65	InterFrac	WireCenter	traffic and cost inputs	C40
116	Direct-Routed Fraction of Local Interoffice	0.98	0.98	DirectFrac	WireCenter	traffic and cost inputs	C43
117	Maximum Trunk Occupancy, CCS	27.5	27.5	TrunkCCS	WireCenter	traffic and cost inputs	C46
118	Trunk Termination Investment, per end	$100	$100	TermInv	WireCenter	traffic and cost inputs	C47
119	Average Direct Route Distance, miles	10	10	Miles	WireCenter	traffic and cost inputs	C48
120	Average Trunk Usage Fraction	0.3	0.3	TrunkFrac	WireCenter	traffic and cost inputs	C50
121							
122	*Toll traffic inputs*						
123	Tandem-routed % of total intraLATA traffi	0.2	0.2	tandLATA	WireCenter	traffic and cost inputs	F82
124	Average direct intraLATA route distance,	25	25	LATAdist	WireCenter	traffic and cost inputs	F83
125	Tandem-routed % of total interLATA traffi	0.2	0.2	tandAccess	WireCenter	traffic and cost inputs	F85
126	Average direct access route distance, mi.	15	15	Accessdist	WireCenter	traffic and cost inputs	F86
127							
128							
129	*Tandem Switching parameters*						
130	real time limit, BHCA	1,500,000	1,500,000	tandBHCA	WireCenter	traffic and cost inputs	C53
131	port limit, trunks	120,000	120,000	portlimit	WireCenter	traffic and cost inputs	C54
132	common equipment investment	$1,000,000	$1,000,000	tandcominv	WireCenter	traffic and cost inputs	C55
133	maximum trunk fill	0.8	0.8	maxtrunkfill	WireCenter	traffic and cost inputs	C56
134	maximum real time occupancy	0.9	0.9	tandmaxocc	WireCenter	traffic and cost inputs	C57
135	common equipment intercept factor	0.25	0.25	tandintercept	WireCenter	traffic and cost inputs	C58
136							

User Inputs

	B	C	D	E	G	H	I
137	**Wire Center Parameters**						
138							
139	Lot size, multiplier of switch room size	2	2	LotSize	WireCenter	traffic and cost inputs	C71
140	Tandem/EO wire center common factor	0.4	0.4	WCcomm	WireCenter	traffic and cost inputs	C73
141							
142	*Power and frame investment*	sum of power & frame					
143	0	$10,000	$10,000	PF1	WireCenter	traffic and cost inputs	C83
144	1,000	$20,000	$20,000	PF2	WireCenter	traffic and cost inputs	C84
145	5,000	$40,000	$40,000	PF3	WireCenter	traffic and cost inputs	C85
146	25,000	$100,000	$100,000	PF4	WireCenter	traffic and cost inputs	C86
147	50,000	$500,000	$500,000	PF5	WireCenter	traffic and cost inputs	C87
148							
149	*Switch Room size table*	floor area required					
150	0	500	500	Room1	WireCenter	traffic and cost inputs	C92
151	1,000	1,000	1,000	Room2	WireCenter	traffic and cost inputs	C93
152	5,000	2,000	2,000	Room3	WireCenter	traffic and cost inputs	C94
153	25,000	5,000	5,000	Room4	WireCenter	traffic and cost inputs	C95
154	50,000	10,000	10,000	Room5	WireCenter	traffic and cost inputs	C96
155							
156	*Construction costs, per sq ft*	construction/$/sq ft					
157	0	$75	$75	Const1	WireCenter	traffic and cost inputs	C102
158	1,000	$85	$85	Const2	WireCenter	traffic and cost inputs	C103
159	5,000	$100	$100	Const3	WireCenter	traffic and cost inputs	C104
160	25,000	$125	$125	Const4	WireCenter	traffic and cost inputs	C105
161	50,000	$150	$150	Const5	WireCenter	traffic and cost inputs	C106
162							
163	*Land price, per sq ft*	price/sq ft					
164	0	$5.00	$5.00	Land1	WireCenter	traffic and cost inputs	C111
165	1,000	$7.50	$7.50	Land2	WireCenter	traffic and cost inputs	C112
166	5,000	$10.00	$10.00	Land3	WireCenter	traffic and cost inputs	C113
167	25,000	$15.00	$15.00	Land4	WireCenter	traffic and cost inputs	C114
168	50,000	$20.00	$20.00	Land5	WireCenter	traffic and cost inputs	C115
169							
170	**Distribution Structure Inputs**						
171							
172	*Aerial Fraction*						
173	0-5	0.5	0.5	distaerial1	Convergence	Inputs	C46
174	5-200	0.5	0.5	distaerial2	Convergence	Inputs	C47
175	200-650	0.5	0.5	distaerial3	Convergence	Inputs	C48
176	650-850	0.5	0.5	distaerial4	Convergence	Inputs	C49
177	850-2550	0.4	0.4	distaerial5	Convergence	Inputs	C50
178	2550+	0.65	0.65	distaerial6	Convergence	Inputs	C51
179							
180	*Buried Fraction*						
181	0-5	0.5	0.5	distbur1	Convergence	Inputs	D46
182	5-200	0.5	0.5	distbur2	Convergence	Inputs	D47
183	200-650	0.5	0.5	distbur3	Convergence	Inputs	D48
184	650-850	0.5	0.5	distbur4	Convergence	Inputs	D49
185	850-2550	0.5	0.5	distbur5	Convergence	Inputs	D50
186	2550+	0.05	0.05	distbur6	Convergence	Inputs	D51
187							
188	*Underground Fraction*						
189	*0-5*	*0*	*0*	*distug1*	Calculated	Inputs	E46
190	*5-200*	*0*	*0*	*distug2*	Calculated	Inputs	E47
191	*200-650*	*0*	*0*	*distug3*	Calculated	Inputs	E48
192	*650-850*	*0*	*0*	*distug4*	Calculated	Inputs	E49
193	*850-2550*	*0.1*	*0.1*	*distug5*	Calculated	Inputs	E50
194	*2550+*	*0.3*	*0.3*	*distug6*	Calculated	Inputs	E51
195							
196	*Buried Installation/foot*						
197	0-5	$2.00	$2.00	distburinv1	Convergence	Inputs	G46
198	5-200	$2.00	$2.00	distburinv2	Convergence	Inputs	G47
199	200-650	$2.00	$2.00	distburinv3	Convergence	Inputs	G48
200	650-850	$3.00	$3.00	distburinv4	Convergence	Inputs	G49
201	850-2550	$3.00	$3.00	distburinv5	Convergence	Inputs	G50
202	2550+	$20.00	$20.00	distburinv6	Convergence	Inputs	G51
203							
204	*Conduit Installation/foot*						
205	0-5	$25.00	$25.00	distcondinv1	Convergence	Inputs	H46

User Inputs

	B	C	D	E	G	H	I
206	5-200	$25.00	$25.00	distcondinv2	Convergence	Inputs	H47
207	200-650	$25.00	$25.00	distcondinv3	Convergence	Inputs	H48
208	650-850	$25.00	$25.00	distcondinv4	Convergence	Inputs	H49
209	850-2550	$45.00	$45.00	distcondinv5	Convergence	Inputs	H50
210	2550+	$70.00	$70.00	distcondinv6	Convergence	Inputs	H51
211							
212	Pole spacing, feet	150	150	distpolespace	Convergence	Inputs	C53
213	Pole investment	$450	$450	distpoleinv	Convergence	Inputs	C54
214	Conduit investment per foot	$1.00	$1.00	distcondinv	Convergence	Inputs	C55
215	Manhole investment, per manhole	$3,000	$3,000	distmanhinv	Convergence	Inputs	C56
216	Buried cable armoring multiplier	1.1	1.1	distarmormult	Convergence	Inputs	C57
217							
218	**Copper Feeder Structure Inputs**						
219							
220	*Aerial Fraction*						
221	0-5	0.5	0.5	cufeedaerial1	Convergence	Inputs	C64
222	5-200	0.5	0.5	cufeedaerial2	Convergence	Inputs	C65
223	200-650	0.5	0.5	cufeedaerial3	Convergence	Inputs	C66
224	650-850	0.4	0.4	cufeedaerial4	Convergence	Inputs	C67
225	850-2550	0.1	0.1	cufeedaerial5	Convergence	Inputs	C68
226	2550+	0.05	0.05	cufeedaerial6	Convergence	Inputs	C69
227							
228	*Buried Fraction*						
229	0-5	0.45	0.45	cufeedbur1	Convergence	Inputs	D64
230	5-200	0.45	0.45	cufeedbur2	Convergence	Inputs	D65
231	200-650	0.45	0.45	cufeedbur3	Convergence	Inputs	D66
232	650-850	0.4	0.4	cufeedbur4	Convergence	Inputs	D67
233	850-2550	0.1	0.1	cufeedbur5	Convergence	Inputs	D68
234	2550+	0.05	0.05	cufeedbur6	Convergence	Inputs	D69
235							
236	*Underground Fraction*						
237	*0-5*	*0.05*	*0.05*	*cufeedug1*	Calculated	Inputs	E64
238	*5-200*	*0.05*	*0.05*	*cufeedug2*	Calculated	Inputs	E65
239	*200-650*	*0.05*	*0.05*	*cufeedug3*	Calculated	Inputs	E66
240	*650-850*	*0.2*	*0.2*	*cufeedug4*	Calculated	Inputs	E67
241	*850-2550*	*0.8*	*0.8*	*cufeedug5*	Calculated	Inputs	E68
242	*2550+*	*0.9*	*0.9*	*cufeedug6*	Calculated	Inputs	E69
243							
244	*Buried Installation/foot*						
245	0-5	$2.00	$2.00	cufeedburinv1	Convergence	Inputs	G64
246	5-200	$2.00	$2.00	cufeedburinv2	Convergence	Inputs	G65
247	200-650	$2.00	$2.00	cufeedburinv3	Convergence	Inputs	G66
248	650-850	$3.00	$3.00	cufeedburinv4	Convergence	Inputs	G67
249	850-2550	$3.00	$3.00	cufeedburinv5	Convergence	Inputs	G68
250	2550+	$25.00	$25.00	cufeedburinv6	Convergence	Inputs	G69
251							
252	*Conduit Installation/foot*						
253	0-5	$25.00	$25.00	cufeedcondinv1	Convergence	Inputs	H64
254	5-200	$25.00	$25.00	cufeedcondinv2	Convergence	Inputs	H65
255	200-650	$25.00	$25.00	cufeedcondinv3	Convergence	Inputs	H66
256	650-850	$25.00	$25.00	cufeedcondinv4	Convergence	Inputs	H67
257	850-2550	$45.00	$45.00	cufeedcondinv5	Convergence	Inputs	H68
258	2550+	$75.00	$75.00	cufeedcondinv6	Convergence	Inputs	H69
259							
260	*Manhole Spacing, ft.*						
261	0-5	800	800	cufeedman1	Convergence	Inputs	F64
262	5-200	800	800	cufeedman2	Convergence	Inputs	F65
263	200-650	800	800	cufeedman3	Convergence	Inputs	F66
264	650-850	800	800	cufeedman4	Convergence	Inputs	F67
265	850-2550	600	600	cufeedman5	Convergence	Inputs	F68
266	2550+	400	400	cufeedman6	Convergence	Inputs	F69
267							
268	Pole spacing, feet	150	150	ufeedpolespac	Convergence	Inputs	C71
269	Pole investment	$450	$450	cufeedpoleinv	Convergence	Inputs	C72
270	Conduit investment per foot	$1.00	$1.00	cufeedcondinv	Convergence	Inputs	C73
271	Manhole investment, per manhole	$3,000	$3,000	cufeedmanhinv	Convergence	Inputs	C74
272	Buried cable armoring multiplier	1.1	1.1	ufeedarmormul	Convergence	Inputs	C75
273							
274	**Fiber Feeder Structure Inputs**						

User Inputs

	B	C	D	E	G	H	I
275							
276	*Aerial Fraction*						
277	0-5	0.35	0.35	fibfeedaerial1	Convergence	Inputs	C81
278	5-200	0.35	0.35	fibfeedaerial2	Convergence	Inputs	C82
279	200-650	0.35	0.35	fibfeedaerial3	Convergence	Inputs	C83
280	650-850	0.2	0.2	fibfeedaerial4	Convergence	Inputs	C84
281	850-2550	0.1	0.1	fibfeedaerial5	Convergence	Inputs	C85
282	2550+	0.05	0.05	fibfeedaerial6	Convergence	Inputs	C86
283							
284	*Buried Fraction*						
285	0-5	0.6	0.6	fibfeedbur1	Convergence	Inputs	D81
286	5-200	0.6	0.6	fibfeedbur2	Convergence	Inputs	D82
287	200-650	0.6	0.6	fibfeedbur3	Convergence	Inputs	D83
288	650-850	0.6	0.6	fibfeedbur4	Convergence	Inputs	D84
289	850-2550	0.1	0.1	fibfeedbur5	Convergence	Inputs	D85
290	2550+	0.05	0.05	fibfeedbur6	Convergence	Inputs	D86
291							
292	*Underground Fraction*						
293	*0-5*	*0.05*	*0.05*	*fibfeedug1*	Calculated	Inputs	E81
294	*5-200*	*0.05*	*0.05*	*fibfeedug2*	Calculated	Inputs	E82
295	*200-650*	*0.05*	*0.05*	*fibfeedug3*	Calculated	Inputs	E83
296	*650-850*	*0.2*	*0.2*	*fibfeedug4*	Calculated	Inputs	E84
297	*850-2550*	*0.8*	*0.8*	*fibfeedug5*	Calculated	Inputs	E85
298	*2550+*	*0.9*	*0.9*	*fibfeedug6*	Calculated	Inputs	E86
299							
300	*Buried Installation/foot*						
301	0-5	$2.00	$2.00	fibfeedburinv1	Convergence	Inputs	G81
302	5-200	$2.00	$2.00	fibfeedburinv2	Convergence	Inputs	G82
303	200-650	$2.00	$2.00	fibfeedburinv3	Convergence	Inputs	G83
304	650-850	$3.00	$3.00	fibfeedburinv4	Convergence	Inputs	G84
305	850-2550	$3.00	$3.00	fibfeedburinv5	Convergence	Inputs	G85
306	2550+	$20.00	$20.00	fibfeedburinv6	Convergence	Inputs	G86
307							
308	*Conduit Installation/foot*						
309	0-5	$25.00	$25.00	fibfeedcondinv1	Convergence	Inputs	H81
310	5-200	$25.00	$25.00	fibfeedcondinv2	Convergence	Inputs	H82
311	200-650	$25.00	$25.00	fibfeedcondinv3	Convergence	Inputs	H83
312	650-850	$25.00	$25.00	fibfeedcondinv4	Convergence	Inputs	H84
313	850-2550	$45.00	$45.00	fibfeedcondinv5	Convergence	Inputs	H85
314	2550+	$70.00	$70.00	fibfeedcondinv6	Convergence	Inputs	H86
315							
316	*Manhole Spacing, ft.*						
317	0-5	2,000	2,000	fibfeedman1	Convergence	Inputs	F81
318	5-200	2,000	2,000	fibfeedman2	Convergence	Inputs	F82
319	200-650	2,000	2,000	fibfeedman3	Convergence	Inputs	F83
320	650-850	2,000	2,000	fibfeedman4	Convergence	Inputs	F84
321	850-2550	2,000	2,000	fibfeedman5	Convergence	Inputs	F85
322	2550+	2,000	2,000	fibfeedman6	Convergence	Inputs	F86
323							
324	Buried cable armoring per foot, fiber	$0.20	$0.20	ibfeedarmormul	Convergence	Inputs	C88
325							
326	**Misc Loop Investment Inputs**						
327							
328	Drop investment per line	$40.00	$40.00	dropinv	Convergence	Inputs	J3
329	NID investment per line	$30.00	$30.00	NIDInv	Convergence	Inputs	J4
330	Terminal and splice per line	$35.00	$35.00	SpliceInv	Convergence	Inputs	J5
331	Average lines per business location	4	4	BusLinesLoc	Convergence	Inputs	J6
332	Feeder structure fraction shared w/ intero	0.25	0.25	FeedShare			
333							
334	*Distribution structure % assigned to telephone*						
335	aerial	0.33	0.33	AirDistTel	Expense	Inputs	F59
336	buried	0.33	0.33	BurDistTel	Expense	Inputs	H59
337	underground	0.33	0.33	UgDistTel	Expense	Inputs	G59
338							
339	*Feeder structure % assigned to telephone*						
340	aerial	0.33	0.33	AirFeedTel	Expense	Inputs	F60
341	buried	0.33	0.33	BurFeedTel	Expense	Inputs	H60
342	underground	0.33	0.33	UgFeedTel	Expense	Inputs	G60
343							

User Inputs

	B	C	D	E	G	H	I
344	*SAI investment, installed*						
345	*Distribution cable size*	copper feeder					
346	0	$500.00	$500.00	cuSAI1	Convergence	Inputs	I16
347	100	$700.00	$700.00	cuSAI2	Convergence	Inputs	I17
348	200	$900.00	$900.00	cuSAI3	Convergence	Inputs	I18
349	400	$1,100.00	$1,100.00	cuSAI4	Convergence	Inputs	I19
350	600	$1,300.00	$1,300.00	cuSAI5	Convergence	Inputs	I20
351	900	$1,500.00	$1,500.00	cuSAI6	Convergence	Inputs	I21
352	1200	$1,700.00	$1,700.00	cuSAI7	Convergence	Inputs	I22
353	1800	$1,900.00	$1,900.00	cuSAI8	Convergence	Inputs	I23
354	2400	$2,100.00	$2,100.00	cuSAI9	Convergence	Inputs	I24
355	3000	$2,300.00	$2,300.00	cuSAI10	Convergence	Inputs	I25
356	3600	$2,500.00	$2,500.00	cuSAI11	Convergence	Inputs	I26
357							
358	*Distribution cable size*	fiber feeder					
359	0	$2,500.00	$2,500.00	fibSAI1	Convergence	Inputs	J16
360	100	$2,700.00	$2,700.00	fibSAI2	Convergence	Inputs	J17
361	200	$2,900.00	$2,900.00	fibSAI3	Convergence	Inputs	J18
362	400	$3,100.00	$3,100.00	fibSAI4	Convergence	Inputs	J19
363	600	$3,300.00	$3,300.00	fibSAI5	Convergence	Inputs	J20
364	900	$3,500.00	$3,500.00	fibSAI6	Convergence	Inputs	J21
365	1200	$3,700.00	$3,700.00	fibSAI7	Convergence	Inputs	J22
366	1800	$3,900.00	$3,900.00	fibSAI8	Convergence	Inputs	J23
367	2400	$4,100.00	$4,100.00	fibSAI9	Convergence	Inputs	J24
368	3000	$4,300.00	$4,300.00	fibSAI10	Convergence	Inputs	J25
369	3600	$4,500.00	$4,500.00	fibSAI11	Convergence	Inputs	J26
370							
371	**Digital Loop Carrier Inputs**						
372							
373	*SLC (TR-303)*						
374	site, housing, and power per remote term	$3,000.00	$3,000.00	SLChouse	Convergence	Inputs	D26
375	maximum lines	672	672	SLCmaxlines	Convergence	Inputs	D27
376	remote terminal fill factor	0.9	0.9	SLCfill	Convergence	Inputs	D28
377	common equipment investment	$42,000.00	$42,000.00	SLCcomm	Convergence	Inputs	D29
378	channel unit investment per line	$75.00	$75.00	SLCchan	Convergence	Inputs	D30
379	DS-0s per fiber	$2,016.00	$2,016.00		Loopmaster	Input	X19
380	Fibers per remote terminal	4	4		Loopmaster	Input	Y19
381							
382	AFC						
383	site, housing, and power per remote term	$2,500.00	$2,500.00	AFChouse	Convergence	Inputs	D34
384	maximum lines	100	100	AFCmaxlines	Convergence	Inputs	D35
385	remote terminal fill factor	0.9	0.9	AFCfill	Convergence	Inputs	D36
386	common equipment investment	$10,000.00	$10,000.00	AFCcomm	Convergence	Inputs	D37
387	channel unit investment per line	$150.00	$150.00	AFCchan	Convergence	Inputs	D38
388	DS-0s per fiber	2,016	2,016		Loopmaster	Input	X20
389	Fibers per remote terminal	4	4		Loopmaster	Input	Y20
390							
391	Fiber feeder distance threshold, ft. (feeder	9,000	9,000		Loopmaster	Input	W23
392							
393	**Signaling Parameters**						
394							
395	STP Link Capacity	720	720	STPcap	WireCenter	traffic and cost inputs	F39
396	STP Maximum Fill	0.8	0.8	STPfill	WireCenter	traffic and cost inputs	F40
397	STP Investment, per pair, fully equipped	$5,000,000.00	$5,000,000.00	STPInv	WireCenter	traffic and cost inputs	F41
398	STP common equipment investment, per	$1,000,000.00	$1,000,000.00	STPcomm	WireCenter	traffic and cost inputs	F42
399	Link Termination, both ends	$900.00	$900.00	LinkTerm	WireCenter	traffic and cost inputs	F43
400	Signaling Link Bit Rate	56000	56000	LinkRate	WireCenter	traffic and cost inputs	F45
401	Link Occupancy	0.4	0.4	LinkOcc	WireCenter	traffic and cost inputs	F46
402	C Link Cross-Section	24	24	LinkCross	WireCenter	traffic and cost inputs	F47
403	ISUP messages per interoffice BHCA	6	6	ISUPmsgs	WireCenter	traffic and cost inputs	F48
404	ISUP message length, bytes	25	25	ISUPlen	WireCenter	traffic and cost inputs	F49
405	TCAP messages per transaction	2	2	TCAPmsgs	WireCenter	traffic and cost inputs	F51
406	TCAP message length, bytes	100	100	TCAPlen	WireCenter	traffic and cost inputs	F52
407	Fraction of BHCA requiring TCAP	0.1	0.1	TCAPFrac	WireCenter	traffic and cost inputs	F53
408	SCP investment per transaction per seco	$20,000.00	$20,000.00	SCPInv	WireCenter	traffic and cost inputs	F54
409							
410							
411	**Misc Inputs**						
412							

User Inputs

	B	C	D	E	G	H	I
413	*Operator position parameters*						
414	Investment per position	$3,500.00	$3,500.00	opinv	WireCenter	traffic and cost inputs	C62
415	Maximum utilization per position, CCS	27	27	opccs	WireCenter	traffic and cost inputs	C63
416	Operator intervention factor	10	10	opint	WireCenter	traffic and cost inputs	C64
417	Operator position remote distance, mi.	0	0	opdist	WireCenter	traffic and cost inputs	C65
418							
419	*Other*						
420	DS0/DS1 crossover	24	24	DS0cross	Expense	Inputs	C60
421	DS1/DS3 crossover	28	28	DS1cross	Expense	Inputs	C61
422							
423	Public Telephone investment per station	$1,200.00	$1,200.00	PubInv	WireCenter	traffic and cost inputs	F130
424							
425	**Transport Investment**						
426							
427	*Terminal Investment*						
428	Number of Fibers	24	24	termfib	WireCenter	traffic and cost inputs	C142
429	FOT capacity, DS-3s	12	12	FOTcap	WireCenter	traffic and cost inputs	C143
430	FOT fill	0.8	0.8	FOTfill	WireCenter	traffic and cost inputs	C144
431	FOT, installed	$43,000.00	$43,000.00	FOTinst	WireCenter	traffic and cost inputs	C145
432	Pigtails	$60.00	$60.00	pigs	WireCenter	traffic and cost inputs	C146
433	Panel	$1,000.00	$1,000.00	panel	WireCenter	traffic and cost inputs	C147
434	EF&I, per hour	$55.00	$55.00	efi	WireCenter	traffic and cost inputs	C148
435	EF&I units	32	32	EFIU	WireCenter	traffic and cost inputs	D148
436							
437	*Medium Investment*						
438	Fraction of structure assigned to telephon	0.33	0.33	telfrac	WireCenter	traffic and cost inputs	C152
439	Fraction of structure shared with feeder	0.25	0.25	feedfrac	WireCenter	traffic and cost inputs	C153
440	Distance, mi.	41	41	dist	WireCenter	traffic and cost inputs	C154
441	Regenerator spacing, mi.	40	40	regensp	WireCenter	traffic and cost inputs	C155
442	Regenerator investment, installed	$15,000.00	$15,000.00	regeninv	WireCenter	traffic and cost inputs	C157
443	Fiber Cable investment per foot	$2.00	$2.00	fibinv	WireCenter	traffic and cost inputs	C159
444	Placement	$2.00	$2.00	fibplace	WireCenter	traffic and cost inputs	C160
445	Splice Spacing, ft.	20000	20000	splicesp	WireCenter	traffic and cost inputs	C161
446	Splice Cost	$15.00	$15.00	splice	WireCenter	traffic and cost inputs	C162
447	Trenching per foot	$45.00	$45.00	trench	WireCenter	traffic and cost inputs	C163
448	Resurfacing per foot	$10.00	$10.00	resurf	WireCenter	traffic and cost inputs	C164
449	Conduit per foot	$4.00	$4.00	condit	WireCenter	traffic and cost inputs	C165
450	Number of tubes	2	2	tubes	WireCenter	traffic and cost inputs	C166
451	Manhole investment	$5,000.00	$5,000.00	manhinv	WireCenter	traffic and cost inputs	C170
452	Manhole spacing	1000	1000	manhsp	WireCenter	traffic and cost inputs	C169
453	Buried installation per foot	$5.00	$5.00	burinst	WireCenter	traffic and cost inputs	C173
454	Pole investment	450	450	poleinv	WireCenter	traffic and cost inputs	C175
455	Pole spacing	150	150	polesp	WireCenter	traffic and cost inputs	C176
456	Underground percent	35.00%	35.00%	ugfrac	WireCenter	traffic and cost inputs	C179
457	Buried percent	50.00%	50.00%	burfrac	WireCenter	traffic and cost inputs	C180
458	Aerial percent	0.15	0.15	airfrac	WireCenter	traffic and cost inputs	C181
459							
460	**Call Attempts & DEMs**						
461							
462	*Call Attempts*						
463	Local	3,759,659,000	3,759,659,000	CALocal	WireCenter	traffic and cost inputs	F66
464	IntraLata Intrastate	209,658,571	209,658,571	CARaRa	WireCenter	traffic and cost inputs	F68
465	InterLata Intrastate	517,640,000	517,640,000	CAErRa	WireCenter	traffic and cost inputs	F69
466	InterLata Interstate	684,810,000	684,810,000	CaErEr	WireCenter	traffic and cost inputs	F70
467	Call Completion Fraction	0.70	0.70	CallComp	WireCenter	traffic and cost inputs	F67
468							
469	*DEMs*						
470	Local	18,545,325	18,545,325	DEMsLocal	WireCenter	traffic and cost inputs	F71
471	Intrastate	3,075,939	3,075,939	DEMsIntra	WireCenter	traffic and cost inputs	F72
472	Interstate	5,204,808	5,204,808	DEMsInter	WireCenter	traffic and cost inputs	F73
473	Local bus/res DEMs	1.1	1.1	LocalDF	WireCenter	traffic and cost inputs	K78
474	Intrastate bus/res DEMs	2	2	IntraDF	WireCenter	traffic and cost inputs	K79
475	Interstate bus/res DEMs	3	3	InterDF	WireCenter	traffic and cost inputs	K80
476							
477	**Line Counts**						
478							
479	Residential	1,227,659	1,227,659	LCRes	LineConv	Output	V3
480	Business	472,479	472,479	LCBus	LineConv	Output	W3
481	Special Access	93,847	93,847	LCSA	LineConv	Output	X3

User Inputs

	B	C	D	E	G	H	I
482	Public	11,269	11,269	LCPub	LineConv	Output	Y3
483							
484	**Cable Costs**						
485	*Feeder*						
486		*Underground*					
487		Cable Size Cost UG					
488		4200	74.25	74.25	FeedUG42	Loopmaster	Input	T64
489		3600	63.75	63.75	FeedUG36	Loopmaster	Input	T65
490		3000	53.25	53.25	FeedUG30	Loopmaster	Input	T66
491		2400	42.75	42.75	FeedUG24	Loopmaster	Input	T67
492		1800	32.25	32.25	FeedUG18	Loopmaster	Input	T68
493		1200	21.75	21.75	FeedUG12	Loopmaster	Input	T69
494		900	16.5	16.5	FeedUG9	Loopmaster	Input	T70
495		600	11.25	11.25	FeedUG6	Loopmaster	Input	T71
496		400	7.75	7.75	FeedUG4	Loopmaster	Input	T72
497		200	4.25	4.25	FeedUG2	Loopmaster	Input	T73
498		100	2.5	2.5	FeedUG1	Loopmaster	Input	T74
499		*Aerial*					
500		Cable Size Cost Aerial					
501		4200	74.25	74.25	FeedA42	Loopmaster	Input	U64
502		3600	63.75	63.75	FeedA36	Loopmaster	Input	U65
503		3000	53.25	53.25	FeedA30	Loopmaster	Input	U66
504		2400	42.75	42.75	FeedA24	Loopmaster	Input	U67
505		1800	32.25	32.25	FeedA18	Loopmaster	Input	U68
506		1200	21.75	21.75	FeedA12	Loopmaster	Input	U69
507		900	16.5	16.5	FeedA9	Loopmaster	Input	U70
508		600	11.25	11.25	FeedA6	Loopmaster	Input	U71
509		400	7.75	7.75	FeedA4	Loopmaster	Input	U72
510		200	4.25	4.25	FeedA2	Loopmaster	Input	U73
511		100	2.5	2.5	FeedA1	Loopmaster	Input	U74
512							
513	*Distribution*						
514		*Underground*					
515	Cable Size	Cost UG					
516		3600	63.75	63.75	DistUG36	Loopmaster	Input	X64
517		3000	53.25	53.25	DistUG30	Loopmaster	Input	X65
518		2400	42.75	42.75	DistUG24	Loopmaster	Input	X66
519		1800	32.25	32.25	DistUG18	Loopmaster	Input	X67
520		1200	21.75	21.75	DistUG12	Loopmaster	Input	X68
521		900	16.5	16.5	DistUG9	Loopmaster	Input	X69
522		600	11.25	11.25	DistUG6	Loopmaster	Input	X70
523		400	7.75	7.75	DistUG4	Loopmaster	Input	X71
524		200	4.25	4.25	DistUG2	Loopmaster	Input	X72
525		100	2.5	2.5	DistUG1	Loopmaster	Input	X73
526		50	1.625	1.625	DistUG5	Loopmaster	Input	X74
527		25	1.19	1.19	DistUG25	Loopmaster	Input	X75
528		*Aerial*					
529	Cable Size	Cost Aerial					
530		3600	63.75	63.75	DistA36	Loopmaster	Input	Y64
531		3000	53.25	53.25	DistA30	Loopmaster	Input	Y65
532		2400	42.75	42.75	DistA24	Loopmaster	Input	Y66
533		1800	32.25	32.25	DistA18	Loopmaster	Input	Y67
534		1200	21.75	21.75	DistA12	Loopmaster	Input	Y68
535		900	16.5	16.5	DistA9	Loopmaster	Input	Y69
536		600	11.25	11.25	DistA6	Loopmaster	Input	Y70
537		400	7.75	7.75	DistA4	Loopmaster	Input	Y71
538		200	4.25	4.25	DistA2	Loopmaster	Input	Y72
539		100	2.5	2.5	DistA1	Loopmaster	Input	Y73
540		50	1.625	1.625	DistA5	Loopmaster	Input	Y74
541		25	1.19	1.19	DistA25	Loopmaster	Input	Y75
542							
543	*Fiber*						
544		*Underground*					
545	Cable Size	Cost UG					
546		216	13.1	13.1	FiberUG216	Loopmaster	Input	W47
547		144	9.5	9.5	FiberUG144	Loopmaster	Input	W48
548		96	7.1	7.1	FiberUG96	Loopmaster	Input	W49
549		72	5.9	5.9	FiberUG72	Loopmaster	Input	W50
550		60	5.3	5.3	FiberUG60	Loopmaster	Input	W51

User Inputs

	B	C	D	E	G	H	I
551	48	4.7	4.7	FiberUG48	Loopmaster	Input	W52
552	36	4.1	4.1	FiberUG36	Loopmaster	Input	W53
553	24	3.5	3.5	FiberUG24	Loopmaster	Input	W54
554	18	3.2	3.2	FiberUG18	Loopmaster	Input	W55
555	12	2.9	2.9	FiberUG12	Loopmaster	Input	W56
556	*Aerial*						
557	Cable Size	Cost Aerial					
558	216	13.1	13.1	FiberA216	Loopmaster	Input	X47
559	144	9.5	9.5	FiberA144	Loopmaster	Input	X48
560	96	7.1	7.1	FiberA96	Loopmaster	Input	X49
561	72	5.9	5.9	FiberA72	Loopmaster	Input	X50
562	60	5.3	5.3	FiberA60	Loopmaster	Input	X51
563	48	4.7	4.7	FiberA48	Loopmaster	Input	X52
564	36	4.1	4.1	FiberA36	Loopmaster	Input	X53
565	24	3.5	3.5	FiberA24	Loopmaster	Input	X54
566	18	3.2	3.2	FiberA18	Loopmaster	Input	X55
567	12	2.9	2.9	FiberA12	Loopmaster	Input	X56
568							
569							
570							
571	**Fill Factors**						
572	Cable						
573	*Distribution*						
574	*0-5*	*0.50*	*0.50*		Convergence	inputs	N5
575	5-200	*0.55*	*0.55*		Convergence	inputs	N6
576	200-650	*0.60*	*0.60*		Convergence	inputs	N7
577	650-850	*0.65*	*0.65*		Convergence	inputs	N8
578	850-2550	*0.70*	*0.70*		Convergence	inputs	N9
579	2550+	*0.75*	*0.75*		Convergence	inputs	N10
580							
581	**Transport Investment**						
582	Local Direct Routes						
583	*Terminal Investment*						
584	Number of Fibers	*24*	*24*		WireCenter	traffic and cost inputs	C200
585	FOT capacity, DS-3s	*12*	*12*		WireCenter	traffic and cost inputs	C201
586	FOT fill	*0.8*	*0.8*		WireCenter	traffic and cost inputs	C202
587	FOT, installed	*$43,000.00*	*$43,000.00*		WireCenter	traffic and cost inputs	C203
588	Pigtails	*$60.00*	*$60.00*		WireCenter	traffic and cost inputs	C204
589	Panel	*$1,000.00*	*$1,000.00*		WireCenter	traffic and cost inputs	C205
590	EF&I, per hour	*$55.00*	*$55.00*		WireCenter	traffic and cost inputs	C206
591	EF&I units	*32*	*32*		WireCenter	traffic and cost inputs	D206
592							
593	*Medium Investment*						
594	Fraction of structure assigned to telephon	*0.33*	*0.33*		WireCenter	traffic and cost inputs	C210
595		*0.25*	*0.25*				
596		*41*	*41*				
597	*Regenerator spacing, mi.*	*40*	*40*		WireCenter	traffic and cost inputs	C213
598	Regenerator investment, installed	*$15,000.00*	*$15,000.00*		WireCenter	traffic and cost inputs	C215
599	Fiber Cable investment per foot	*$2.00*	*$2.00*		WireCenter	traffic and cost inputs	C217
600	Placement	*$2.00*	*$2.00*		WireCenter	traffic and cost inputs	C218
601	Splice Spacing, ft.	*20000*	*20000*		WireCenter	traffic and cost inputs	C219
602	Splice Cost	*$15.00*	*$15.00*		WireCenter	traffic and cost inputs	C220
603	Trenching per foot	*$45.00*	*$45.00*		WireCenter	traffic and cost inputs	C221
604	Resurfacing per foot	*$10.00*	*$10.00*		WireCenter	traffic and cost inputs	C222
605	Conduit per foot	*$4.00*	*$4.00*		WireCenter	traffic and cost inputs	C223
606	Number of tubes	*2*	*2*		WireCenter	traffic and cost inputs	C224
607	Manhole investment	*$5,000.00*	*$5,000.00*		WireCenter	traffic and cost inputs	C226
608	Manhole spacing	*1000*	*1000*		WireCenter	traffic and cost inputs	C227
609	Buried installation per foot	*$5.00*	*$5.00*		WireCenter	traffic and cost inputs	C231
610	Pole investment	*450*	*450*		WireCenter	traffic and cost inputs	C233
611	*Pole spacing*	*150*	*150*		WireCenter	traffic and cost inputs	C234
612	Underground percent	*35.00%*	*35.00%*				
613	Buried percent	*50.00%*	*50.00%*				
614	Aerial percent	*0.15*	*0.15*				
615							
616							
617	**Transport Investment**						
618	intraLATA direct routes						
619	*Terminal Investment*						

User Inputs

	B	C	D	E	G	H	I
620	Number of Fibers	24	24		WireCenter	traffic and cost inputs	C259
621	FOT capacity, DS-3s	12	12		WireCenter	traffic and cost inputs	C260
622	FOT fill	0.8	0.8		WireCenter	traffic and cost inputs	C261
623	FOT, installed	$43,000.00	$43,000.00		WireCenter	traffic and cost inputs	C262
624	Pigtails	$60.00	$60.00		WireCenter	traffic and cost inputs	C263
625	Panel	$1,000.00	$1,000.00		WireCenter	traffic and cost inputs	C264
626	EF&I, per hour	$55.00	$55.00		WireCenter	traffic and cost inputs	C265
627	EF&I units	32	32		WireCenter	traffic and cost inputs	D265
628							
629	*Medium Investment*						
630	Fraction of structure assigned to telephon	0.33	0.33		WireCenter	traffic and cost inputs	C269
631	Fraction of structure shared with feeder	0.25	0.25				
632							
633	Regenerator spacing, mi.	40	40		WireCenter	traffic and cost inputs	C272
634	Regenerator investment, installed	$15,000.00	$15,000.00		WireCenter	traffic and cost inputs	C274
635	Fiber Cable investment per foot	$2.00	$2.00		WireCenter	traffic and cost inputs	C276
636	Placement	$2.00	$2.00		WireCenter	traffic and cost inputs	C277
637	Splice Spacing, ft.	20000	20000		WireCenter	traffic and cost inputs	C278
638	Splice Cost	$15.00	$15.00		WireCenter	traffic and cost inputs	C279
639	Trenching per foot	$45.00	$45.00		WireCenter	traffic and cost inputs	C280
640	Resurfacing per foot	$10.00	$10.00		WireCenter	traffic and cost inputs	C281
641	Conduit per foot	$4.00	$4.00		WireCenter	traffic and cost inputs	C282
642	Number of tubes	2	2		WireCenter	traffic and cost inputs	C283
643	Manhole investment	$5,000.00	$5,000.00		WireCenter	traffic and cost inputs	C287
644	Manhole spacing	1000	1000		WireCenter	traffic and cost inputs	C286
645	Buried installation per foot	$5.00	$5.00		WireCenter	traffic and cost inputs	C290
646	Pole investment	450	450		WireCenter	traffic and cost inputs	C292
647	Pole spacing	150	150		WireCenter	traffic and cost inputs	C293
648	Underground percent	35.00%	35.00%				
649	Buried percent	50.00%	50.00%				
650	Aerial percent	0.15	0.15				
651							
652							
653	**Transport Investment**						
654	Access Direct Routes						
655	*Terminal Investment*						
656	Number of Fibers	24	24		WireCenter	traffic and cost inputs	C318
657	FOT capacity, DS-3s	12	12		WireCenter	traffic and cost inputs	C319
658	FOT fill	0.8	0.8		WireCenter	traffic and cost inputs	C320
659	FOT, installed	$43,000.00	$43,000.00		WireCenter	traffic and cost inputs	C321
660	Pigtails	$60.00	$60.00		WireCenter	traffic and cost inputs	C322
661	Panel	$1,000.00	$1,000.00		WireCenter	traffic and cost inputs	C323
662	EF&I, per hour	$55.00	$55.00		WireCenter	traffic and cost inputs	C324
663	EF&I units	32	32		WireCenter	traffic and cost inputs	D324
664							
665	*Medium Investment*						
666	Fraction of structure assigned to telephon	0.33	0.33		WireCenter	traffic and cost inputs	C328
667							
668							
669	Regenerator spacing, mi.	40	40		WireCenter	traffic and cost inputs	C331
670	Regenerator investment, installed	15000	15000		WireCenter	traffic and cost inputs	C333
671	Fiber Cable investment per foot	2	2		WireCenter	traffic and cost inputs	C335
672	Placement	2	2		WireCenter	traffic and cost inputs	C336
673	Splice Spacing, ft.	$20,000.00	$20,000.00		WireCenter	traffic and cost inputs	C337
674	Splice Cost	$15.00	$15.00		WireCenter	traffic and cost inputs	C338
675	Trenching per foot	$45.00	$45.00		WireCenter	traffic and cost inputs	C339
676	Resurfacing per foot	10	10		WireCenter	traffic and cost inputs	C340
677	Conduit per foot	$4.00	$4.00		WireCenter	traffic and cost inputs	C341
678	Number of tubes	$2.00	$2.00		WireCenter	traffic and cost inputs	C342
679	Manhole investment	$5,000.00	$5,000.00		WireCenter	traffic and cost inputs	C346
680	Manhole spacing	$1,000.00	$1,000.00		WireCenter	traffic and cost inputs	C345
681	Buried installation per foot	5	5		WireCenter	traffic and cost inputs	C349
682	Pole investment	$450.00	$450.00		WireCenter	traffic and cost inputs	C351
683	Pole spacing	150	150		WireCenter	traffic and cost inputs	C352
684	Underground percent	$0.35	$0.35				
685	Buried percent	0.5	0.5				
686	Aerial percent	0.15	0.15				

COST OF NETWORK ELEMENTS Florida Sprint LTD (Centel/United)

Exhibit ___ (DJW-3)
Docket No. 961230

A. Loop elements

	0 - 5 lines/sq mi	5 - 200 lines/sq mi	200 - 650 lines/sq mi	650 - 850 lines/sq mi	850 - 2550 lines/sq mi	> 2550 lines/sq mi	Totals
Loop Distribution (including NID)							
Annual Cost	$ 12,454,139	$ 83,006,147	$ 28,177,190	$ 7,612,151	$ 39,443,196	$ 24,715,470	$ 195,408,293
Unit Cost/month	$ 57.14	$ 18.99	$ 8.04	$ 6.59	$ 5.38	$ 4.87	$ 9.02
Loop Concentration							
Annual Cost	$ 1,437,445	$ 16,996,020	$ 10,387,050	$ 2,748,077	$ 15,291,183	$ 7,042,829	$ 53,902,604
Unit Cost/month	$ 6.60	$ 3.89	$ 2.96	$ 2.38	$ 2.08	$ 1.39	$ 2.49
Loop Feeder							
Annual Cost	$ 1,666,708	$ 10,788,896	$ 6,512,128	$ 2,012,450	$ 16,923,815	$ 12,867,334	$ 50,771,332
Unit Cost/month	$ 7.65	$ 2.47	$ 1.86	$ 1.74	$ 2.31	$ 2.53	$ 2.34
Total Loop							
Annual Cost	$ 15,558,292	$ 110,791,063	$ 45,076,368	$ 12,372,679	$ 71,658,195	$ 44,625,633	$ 300,082,229
Unit Cost/month	$ 71.38	$ 25.35	$ 12.86	$ 10.72	$ 9.77	$ 8.79	$ 13.85
Total lines	18,163	364,204	292,186	96,225	611,193	423,283	1,805,254
Total lines served by DLC	18,163	335,047	211,723	57,286	316,035	140,936	1,079,190

	Annual Cost	Units		Unit Cost	
End office switching	$ 71,559,427				
1. Port	$ 21,467,828	1,711,407	switched lines	$ 1.05	per line/month
2. Usage	$ 50,091,599	21,991,648,017	*minutes*	$ 0.0023	per minute
Signaling network elements	$ 3,840,144				
1. Links	$ 100,561	304	links	$ 27.57	per link per month
2. STP	$ 2,607,576	14,128,741,847	TCAP + ISUP messages	$ 0.00018	per signaling message
3. SCP	$ 1,132,008	949,627,000	TCAP messages	$ 0.00119	per signaling message
Transport network elements					
1. Dedicated	$ 10,502,056	232,896	trunks	$ 3.76	per DS-0 equivalent/month
Switched	$ 6,270,177	139,049		$ 0.00037	per minute
Special	$ 4,231,879	93,847			
2. Common	$ 1,145,557	1,828,542,909	minutes	$ 0.00063	per minute per leg (orig or term)
3. Tandem switch	$ 4,062,400	1,653,675,936	minutes	$ 0.0025	per minute
Operator systems	$ 2,347,959				
Total	$ 393,539,772				
Total cost of switched network elements	$ 18.20	per line/month			

Intrastate Toll DEMs	**3,075,939,138**
Interstate Toll DEMs	**5,204,807,550**

10,044 trk-min/mo

				interLATA ded. trunks		62,816
Common Transport MOU				**end office trk port inv**	**$**	**21,528,123**
Local	**172,393,571**	**w/o OS usage**				
Intrastate Toll	**615,187,828**					
Interstate Toll	**1,040,961,510**					
	1,828,542,909					
Intrastate intraLATA Calls	**146,761,000**	**28.83%**	SOCCC message counts			
Intrastate interLATA Calls	**362,348,000**	**71.17%**				
	509,109,000					
		trunk port usage	30,914,120,606			
Calculation of EO Usage						
Local DEMs, incl OS	***18,545,325,128***	***69.1%***	***of total DEMs***			
Intraoffice Local DEMs	**9,668,847,597**					
Intraoffice Local Actual Min	**4,834,423,799**		**Dedicated Transport MOU**			
Interoffice Local Actual Min	**8,876,477,531**	**per end**	**Local, w/o OS**	4,223,642,493		
Intrastate Toll Actual Min	**3,075,939,138**		**IntraLATA Toll**	354,680,749		
Interstate Toll Actual Min	**5,204,807,550**		**InterLATA Toll**	7,571,385,190		
	21,991,648,017			12,149,708,431		
Tandem Switch MOU			**Dedicated Trunk-SW**	100,800		
Local	**86,196,786**					
IntraLATA Toll	**88,670,187**					
InterLATA Toll	**1,478,808,963**					
	1,653,675,936					

Cost Detail

Loops percent	1.01%	20.22%	16.19%	5.34%	33.87%	23.37%	100.00%
Loops	18,099	382,672	290,504	95,814	607,629	419,267	1,793,985

	Interconnected at end office	tandem	wtd average
Local interconnection	$ 0.0025	$ 0.0056	*n/a*
IXC switched access	$ 0.0028	$ 0.0059	$ 0.0035

per 800 attempt (TCAP)	$	0.0028
	$	0.0011
ISUP cost/transaction	$	0.0012
ISUP cost/completion	$	0.0016
IXC switched access MOU/comp		8.78
ISUP cost/min	$	0.0002
D link per month	$	20.68
DS-1 per month	$	90
DS-3 per month	$	2,525

	0 - 5 lines/sq mi	5 - 200 lines/sq mi	200 - 650 lines/sq mi	650 - 850 lines/sq mi	850 - 2550 lines/sq mi	> 2550 lines/sq mi	wtd average
NID cost per month	$ 0.56	$ 0.56	$ 0.53	$ 0.58	$ 0.54	$ 0.44	$ 0.52

trunk port costs		
per trunk port (DS-0)	$	3.31
per trunk port minute	$	0.00050
total EO usage per minute	$	0.00228
trk port/min	$	0.00050
other	$	0.00178

Exhibit ____ (DJW-4)
Docket No. 961230

Model Description

Hatfield Model

Version 2.2, Release 2

Hatfield Associates, Inc.
International Telecommunications Consultants
737 29th Street, Suite 200
Boulder, Colorado 80303

September 4, 1996

TABLE OF CONTENTS

I. INTRODUCTION

A. OVERVIEW{PRIVATE }

The Hatfield Model has been developed by Hatfield Associates, Inc. (HAI), of Boulder, Colorado, at the request of AT&T and MCI. Its purposes are: 1) to estimate the forward-looking economic cost of unbundled network elements referenced in § 252(d)(1)(A) and (B) of the Telecommunications Act of 1996 based on Total Element Long Run Incremental Cost (TELRIC) principles;[1] and 2) in a separate calculation using consistent procedures and input data, to estimate the forward-looking economic cost of the basic local telephone service that is the target of universal service funding mechanisms.[2]

B. EVOLUTION OF THE HATFIELD MODEL

The original version of the Hatfield Model was developed to produce estimates of the TSLRIC of basic local telephone service as part of an examination of the cost of universal service. This original model was a "greenfield" model in that it assumed all network facilities would be built without consideration given to the location of existing wire centers or transmission routes. When the original Benchmark Cost Model (BCM1)[3] became available, HAI revised the original Hatfield Model to incorporate certain loop investment data

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1 TELRIC is the term used by the Federal Communications Commission to refer to the total service long run incremental cost (TSLRIC) of unbundled network elements.

2 The definition of basic universal service used in the model includes the following functional components:

single-line, single-party access to the first point of switching in a local exchange network;

usage within a local exchange area;

touch tone capability;

a white pages directory listing; and

access to 911 services, operator services, directory assistance, and telecommunications relay service for the hearing-impaired.

Excluded from this definition are many other local telephone company services, such as toll calling, interexchange carrier access, custom calling and CLASS^{SM} features, and private line services, although the existence of such services is taken into account in developing the cost estimates for unbundled elements.

3 The Benchmark Cost Model is a model of basic local telephone service developed by MCI, NYNEX, Sprint, and U S WEST.

produced by BCM1. As a result, the Hatfield Model became a "scorched node" model that developed efficient, forward-looking network investments and costs for basic universal service based on existing wire center locations. Thus, this new version of the Hatfield Model combined results from BCM1's loop modeling (based on actual population distributions) with the extensive wire center and interoffice calculations from the earlier Hatfield Model.

Early in 1996, an expanded version of earlier Hatfield Models, referred to as the Hatfield Model, Version 2.2, Release 1, was developed to estimate the costs for unbundled network elements. It was submitted to the Federal Communications Commission (FCC) in CC Docket No. 96-98 on May 16 and 30, 1996, accompanied by descriptive documentation.[4] On July 3, 1996, this model was placed into the record of CC Docket No. 96-45 to assist the Commission in determining the economic costs of universal service.[5]

The Hatfield Model, Version 2.2, Release 2 (hereafter HM2.2.2), described in this document, estimates the efficient, forward-looking economic cost of both unbundled network elements and basic local telephone service. This release incorporates a number of enhancements over earlier versions.[6] HM2.2.2 derives certain of its inputs and methods from the BCM-PLUS model. The BCM-PLUS model is a derivative of BCM1 that has been developed for and is copyrighted by MCI Telecommunications Corporation.[7] Furthermore, because populated data workfiles now accompany HM2.2.2, Release 2 executes more quickly than Release 1, and without required user intervention.

The Hatfield Model comprises several workbook files in Microsoft Excel 7.0 for Windows 95 or Windows NT. An automated front end interface permits the user to select the study area to be modeled and to enter any desired user-adjustable input assumptions. The entire model will then execute without any

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4 See, Appendix E of the *Comments* of AT&T in CC Docket No. 96-98, In the Matter of Implementation of the Local Competition Provisions in the Telecommunications Act of 1996, and Appendix D of AT&T's *Reply Comments*. In the same proceeding, MCI submitted results based on an earlier "greenfield" version of the Model as Attachment 1 to its *Comments*.

5 Ex parte submission of L. Sawicki, MCI.

6 Appendix A to this documentation contains a summary of the differences between Release 1 and Release 2 of Version 2.2 of the Hatfield Model.

7 On July 3, 1996, Sprint Corporation and U S WEST presented version 2 of the BCM (BCM2) to the FCC. NYNEX and MCI are not sponsors of BCM2. A careful review by HAI indicates that all of BCM2's relevant enhancements over BCM1 are already present in the Hatfield Model. Furthermore, the Hatfield Model has important attributes and capabilities that are not available in the BCM2.

required user intervention.[8] Although AT&T and MCI typically have run HM2.2.2 for 49 continental U.S. study areas (Bell Operating Companies "BOCs" plus Southern New England Telephone Company), it may be run for any Tier 1 study area.[9]

C. PURPOSE OF THIS DOCUMENT

This document describes: 1) the structure and operation of HM2.2.2, and 2) inputs to the model, emphasizing those that can be changed by the user and their default values. It should be emphasized that the model provides a large number of inputs that can be altered by the user. However, the default values for these inputs are believed to be appropriate based on the experience and engineering judgment of HAI personnel and other subject matter experts.

II. STRUCTURE OF THE MODEL

A. GENERAL NETWORK COMPONENTS DESCRIPTION

This section describes generally the network components modeled in HM2.2.2. Figures 1, 2 and 3 depict the relationships among the network components discussed in the following sections.

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[8] Documentation of this automated user interface is provided in Appendix B.

[9] AT&T has retained telecommunications consultants from the Deloitte & Touche Consulting Group (and not Deloitte & Touche, LLP as might have been inferred from the prior reference to "Deloitte & Touche" in footnote 7 of AT&T's August 9, 1996 *Further Comments* in CC Docket No. 96-45), to provide additional Hatfield support. Deloitte & Touche Consulting Group personnel have: (1) provided analytical support to Hatfield and AT&T personnel; (2) assisted with data entry, results interpretation, and version and release testing; and (3) worked to improve the Hatfield Model's user interfaces, as well as to identify other areas for improvement with regard to the operation of the model.

1. Loop description

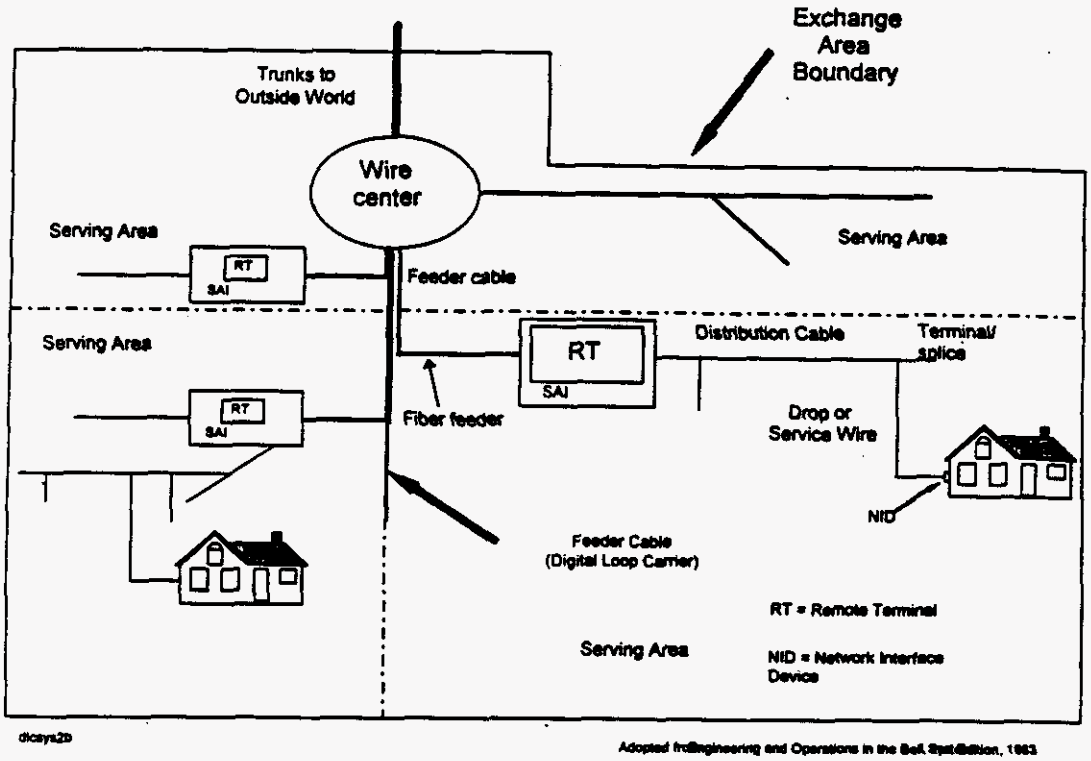

Figure 1 Loop components

a) General loop description

The local loop begins at a physical demarcation frame within the central office building (wire center). Copper cable feeder facilities terminate on the vertical side of the main distributing frame (MDF) in the wire center. Fiber optic feeder cable serving integrated digital loop carrier terminates on a fiber distribution frame in the wire center. At its distant end, the local loop terminates at the Network Interface Device (NID) at the customer's premises.

Loop cables are supported by "structures." These "structures" may be underground conduit, poles, or trenches for buried cable. Underground cable is distinguished from buried cable in that underground cable is placed in conduit, while buried cable comes into direct contact with soil.[10]

10 While the conduit supporting underground cable is placed in a trench, buried cable may either be placed in a trench or be directly plowed into the earth.

b) Local Loop Components

(1) NID

The demarcation point between the local carrier's network and the customer's inside wiring is known as the Network Interface Device (NID). This device terminates the drop wire and is an access point that may be used to isolate trouble between the carrier's network and the customer's premises wiring.

(2) Drop

A drop wire extends from the NID at the customer's premises to the block terminal at the distribution cable that runs along the street or the lot line.

(3) Block Terminal

The block terminal is the interface between the drop and the distribution cable. With aerial distribution cable, the block terminal is attached to a pole in the subscriber's backyard or at the edge of a road. If the distribution cable is buried, then the block terminal is contained within a pedestal.

(4) Distribution Cable

Distribution cable runs from each of the block terminals to the Serving Area Interface (SAI), also called a "cross box" or Serving Area Concept (SAC) box or connection. Distribution cable connects the feeder cable with all customer premises within a Census Block Group (CBG). The model assumes that each CBG contains one SAI, and that the SAI is placed one quarter of the way into the CBG. Distribution structure components may consist of poles, trenches and conduit. Manholes normally are not used in distribution facilities.

(5) Feeder facilities

Feeder cable may be copper wires or optical fibers. Feeder cables extend from the wire center to the SAIs. The Hatfield Model assumes that there is a standard feeder distance beyond which optical feeder cable will be installed and Digital Loop Carrier (DLC) equipment will be used to serve subscribers.

Feeder structure components also include poles, trenches and conduit. Manholes are also normally installed in conjunction with underground feeder cable. Manhole spacing is a function of population density and the type of feeder cable used. Manholes installed for underground fiber cable are normally farther apart than are manholes used with copper cables because the lightness and flexibility of fiber cable permits it to be pulled over longer lengths than copper cable. The costs of structure components are normally shared among at least three utilities, e.g., electric utilities, local exchange companies (LECs) and cable television (CATV) operators.

2. Interoffice network description

This section describes generally network components at the wire center and interoffice level. Figures 2 and 3 illustrate the relationships among the components described below.

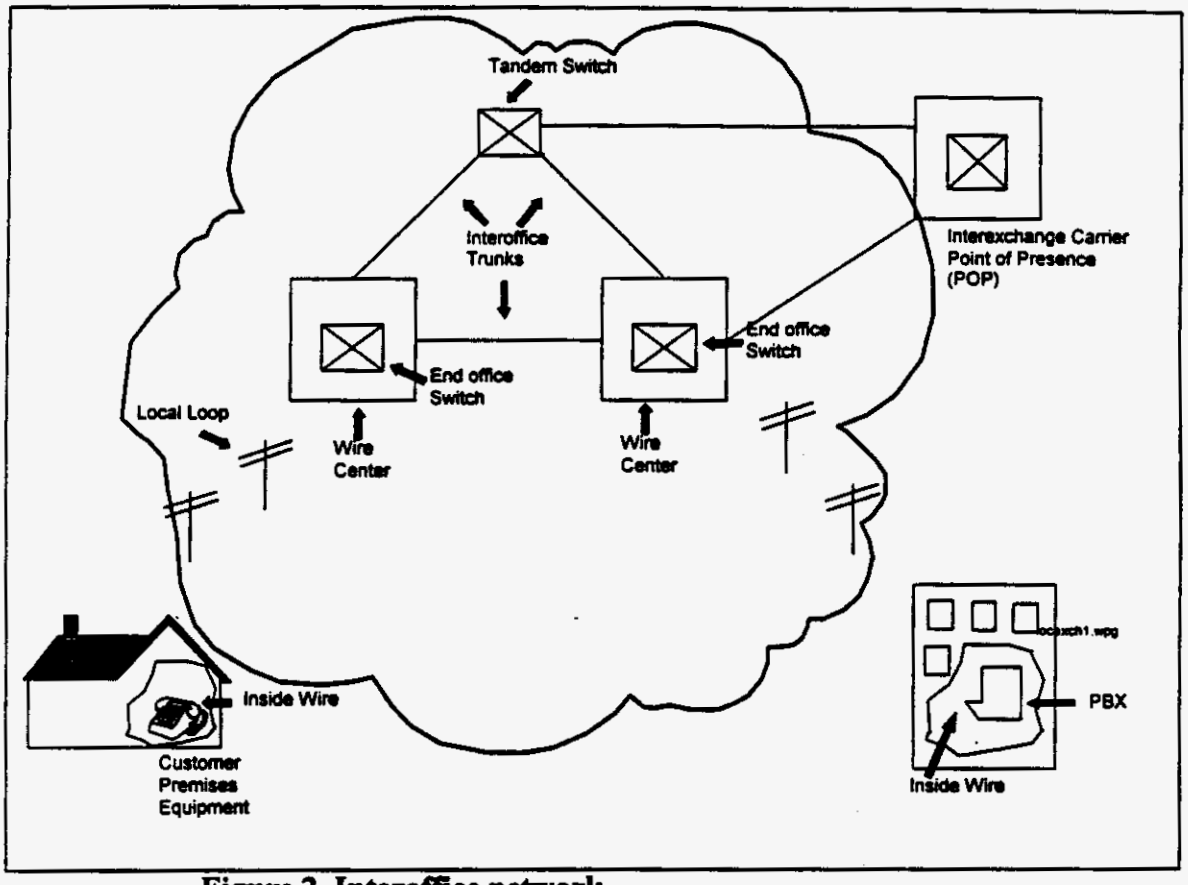

Figure 2 Interoffice network

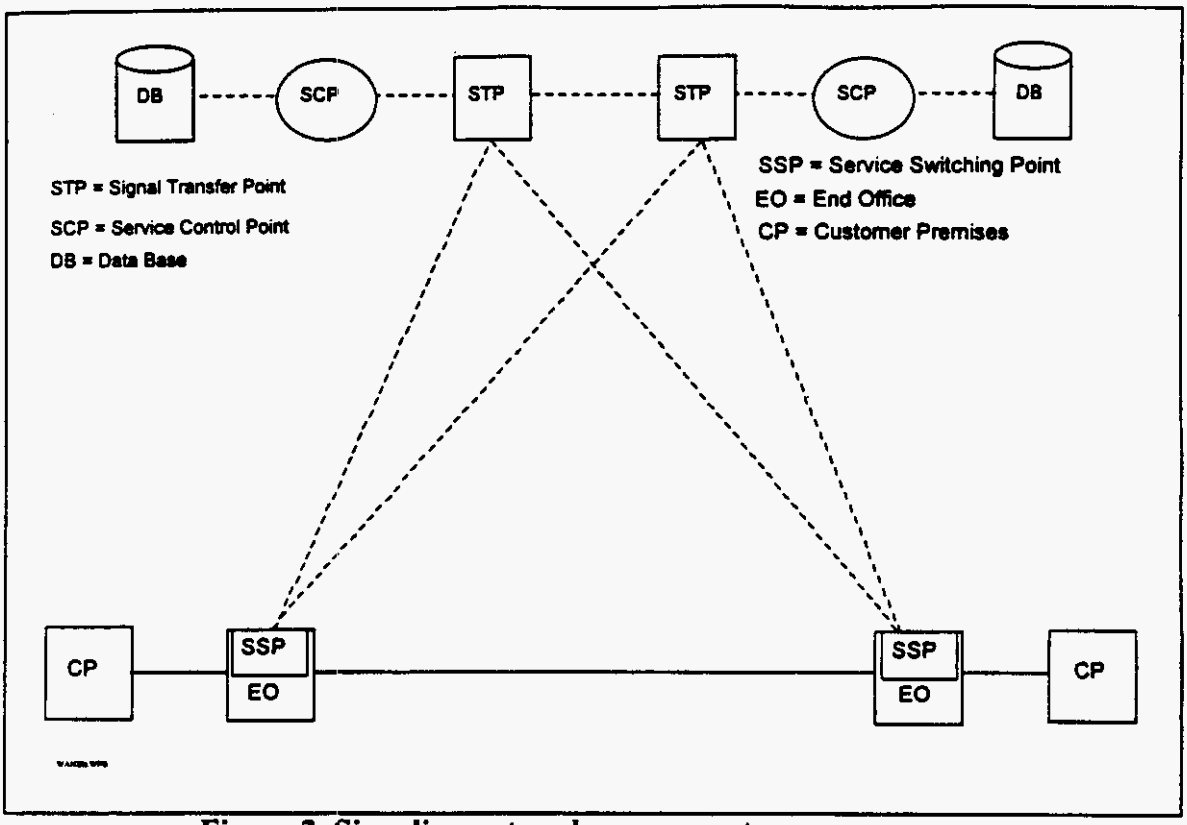

Figure 3 Signaling network components

a) Wire center

The wire center is a location from which local feeder routes emanate. A wire center normally contains at least one End Office (EO) switch and also may contain a tandem office, a Signal Transfer Point (STP), an operator tandem, or any combination of these facilities. Wire center physical facilities include a building, power and air conditioning systems, separate rooms housing switches, transmission equipment, distributing frames and entrance facilities for interoffice and loop cables.

b) End office switch

The end office switch provides dial tone to the switched access lines it serves. It also provides connections to other end offices via direct trunks, to tandem switches via tandem trunks, and to operator tandems via operator trunks. The model computes the numbers of trunks for each route according to input traffic assumptions and the breakdown of business, residential, and public access lines served by each end office switch.

c) Tandem switch

Tandem switches interconnect end office switches via tandem trunks. These trunks provide an alternate route for traffic between end offices when direct routes are unavailable. The tandem also may route access traffic between end offices and interexchange carriers' (IXC's) points of presence (POPs). Tandem switching functions often are performed by switches that also perform end office functions.

d) Signal transfer point

STPs route signaling messages between switching and control entities in a Signaling System 7 (SS7) network via signaling links between STPs and SS7-compatible end offices and tandems (called Service Switching Points "SSPs") as well as Service Control Points (SCPs). STPs are equipped in mated pairs, with at least one pair in each LATA.

e) Service switching points

SSPs are SS7-compatible end office or tandem switches. They communicate with each other and with SCPs through signaling links, which are 56 kbps dedicated circuits connecting SSPs with the mated STP pair serving the LATA.

f) Service control points

SCPs are databases residing in an SS7 network that contain various types of information such as IXC identification or routing instructions for 800 numbers in regional 800 databases and customer line information in Line Information Databases (LIDB).

B. OVERVIEW OF MODEL ORGANIZATION

Figure 4 shows the relationships among the various modules contained within HM2.2.2. An overview of each component module follows.

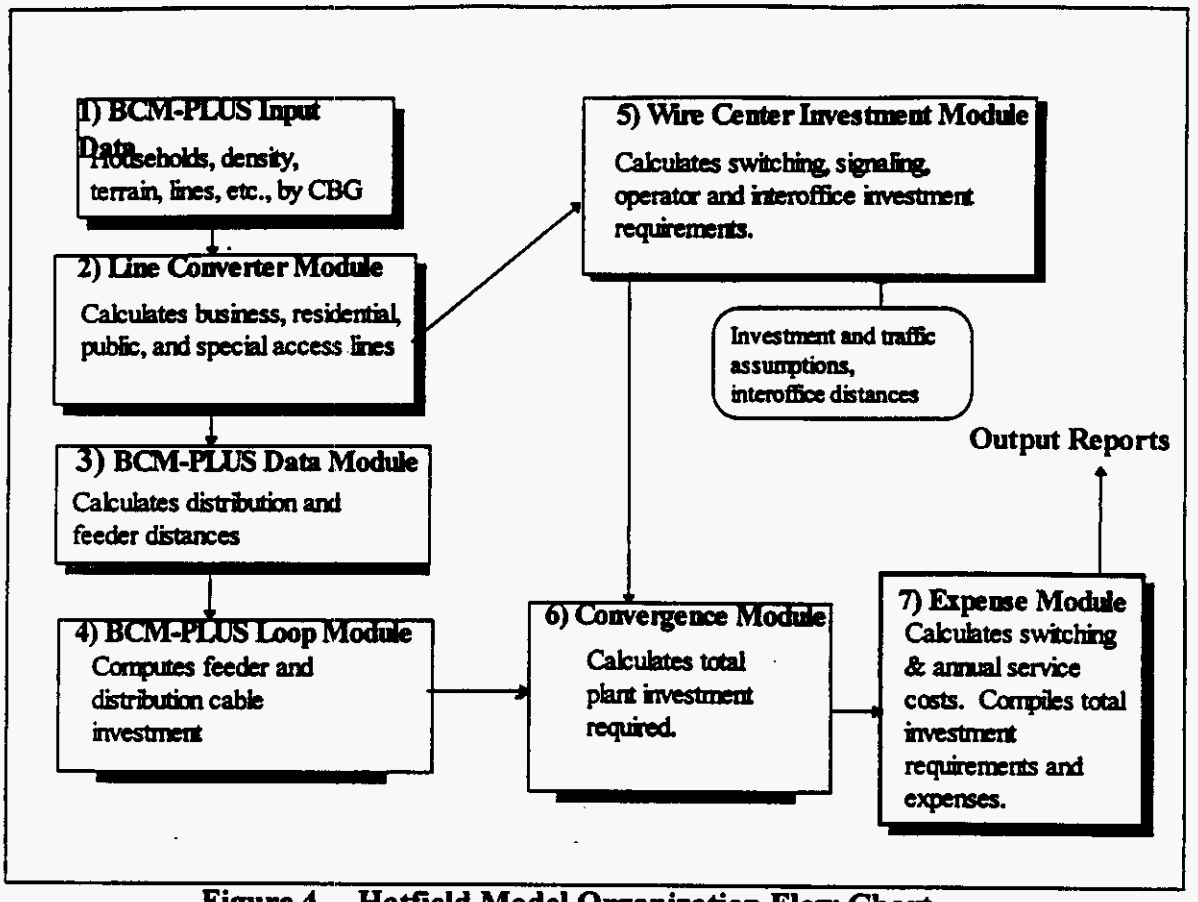

Figure 4 Hatfield Model Organization Flow Chart

1. BCM-PLUS loop input data file

The BCM-PLUS input data for the model generally consist of the original BCM state-by-state worksheets filed with the FCC.[11] The input household counts in each CBG (which in BCM1 were derived from 1990 Census Bureau data) have been replaced with 1995 household counts estimated from more recent Census Bureau data. As the following section discusses, HM2.2.2 modifies these BCM-PLUS data in several significant ways.

2. Line Converter Module

The model calculates all network costs on a per line basis, thus it must first determine the total access lines of all types within each CBG. The Line Converter Module transforms the Census data included in the BCM-PLUS input data files (which contain only household counts for each CBG) into total line counts by

[11] These data are for all states except Alaska. While the pertinent data for Alaska are included with BCM2, the BCM2 sponsors have placed more restrictive terms in the BCM2 license agreement that prohibit the use of these data for modeling use here.

customer type. The Line Converter Module performs this function while recognizing that residential subscriber penetration is less than 100%, that some residences contain second lines, and that business, public, and special access lines need also to be added. The module adds these latter line types based on other of its input data that indicate the number of business employees in each CBG. These line number calculations, which are performed on a CBG by CBG basis, are also required to accord with the number of lines that the incumbent LEC (ILEC) reports for the study area in ARMIS.

3. BCM-PLUS Data Module

The Data Module computes the distribution and feeder cable lengths necessary to serve each CBG and determines facilities placement difficulty according to geological parameters included in the BCM-PLUS input data.

4. BCM-PLUS Loop Module

The Loop Module estimates cable investments in each CBG according to the distribution and feeder lengths calculated in the Data Module. The module selects either fiber or copper feeder cable according to a user-adjustable parameter that specifies the feeder distance beyond which fiber is to be installed. The module then determines the size of copper or fiber cable required to serve each CBG according to user-adjustable maximum engineered fill levels for each population density range. Once the module has determined the required types and sizes of cable, it computes the total investment in feeder and distribution cables.[12]

5. Wire Center Module

The Wire Center Module computes investment in wire centers, switching (including end offices, tandems, and operator tandems), signaling, and interoffice transmission facilities. It uses line totals by type across all CBGs served by the wire center, along with user-adjustable traffic inputs, to estimate required switching capacities.

The model determines switching and interoffice capacity sufficient to serve all demand in the service area studied. HM2.2.2 derives its switch investment estimates by using data on typical per-line prices paid by BOCs, GTE and other independents,[13] and data from Table 2.10 of the FCC's *Statistics of Communications Common Carriers*, which provides the average number of access lines served by existing LEC switches.

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12 A later module, the Convergence Module, adds investment for placement and "structure" (conduit, poles, trenching, and manholes), as well as other components, including SAIs, terminals, splices, subscriber drops and NIDs.

13 See *U.S. Central Office Equipment Market – 1994*, McGraw-Hill.

6. Convergence Module

The Convergence Module combines output of the Loop Module (loop cable investments) with that of the Wire Center Module (per-line wire center and interoffice investments). The Convergence Module also adds investment in SAIs, buried, underground and aerial cable placement, terminals and splices, drop wires, NIDs, and structure components including poles, conduit, and manholes. Output from this module contains total investment for all plant categories by density range.

7. Expense Module

The Expense Module uses output from the Convergence Module to produce monthly costs of Unbundled Network Elements (UNEs) and basic local service. These costs include the annual user cost of capital for network investment (e.g., depreciation, return, and tax on return), network operating and maintenance expenses, and other per-line expenses incurred by ILECs in the provision of local service and UNEs. This module uses investment, revenue and expense data relationships that are available from ILEC ARMIS reports and allows the user to set different economic lives for various plant categories as well as adjust capital structure parameters.

C. MODULE DESCRIPTIONS

1. BCM-PLUS Input Data File

BCM-PLUS includes input data files organized by state. Each state file contains a list of that state's CBGs. CBGs are assumed to be served from the nearest existing wire center.[14] Each CBG appears as a separate record in a Microsoft Excel 7.0 spreadsheet, and each record includes a set of geometric parameters describing the physical relationship (distance and direction) between the center of the CBG and the wire center serving it. The data also contain certain geological parameters associated with the CBG that indicate bedrock depth, bedrock hardness, and soil type.[15] The input data file also contains the estimated number of households in each CBG as of 1995.

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[14] Because wire centers are associated with specific telephone companies, the model may be run on a company-specific basis.

[15] Studies of the effects of these parameters on the estimate of placement difficulty show that the parameters affect overall results only slightly. The HM2.2.2 Convergence Module produces much more accurate estimates of placement investment with user-adjustable inputs than did the original BCM with its undocumented input assumptions. As noted in the text, however, HM2.2.2 (continued)

2. Line converter module

a) Overview

HM2.2.2 engineers loop facilities for residence, business, public and special access lines. As shown in Figure 5, the Line Converter Module calculates total access line counts for each CBG, as well as overall line totals for use in the BCM-PLUS Data Module and the Wire Center Investment Module. The Line Converter Module replaces the household count in each CBG with estimated total access lines, including business, public, special access, and first and second residential lines. This allows the BCM-PLUS Loop Module to calculate the sizes of feeder and distribution cables required to serve the existing demand.

b) Description of inputs and assumptions

The Line Converter module uses access line demand data from the Operating Data Reports, ARMIS 43-08, submitted to the FCC annually by all Tier 1 LECs.[16] HM2.2.2 thus incorporates the following data.

- Residential access lines, both analog and digital. These totals measure all residential switched access lines, including flat rate (1FR) and measured rate (1MR) service.[17]
- Business access lines, including analog single line, analog multiline and digital. These totals include flat rate business (1FB) and measured rate business (1MB) single lines, PBX trunks, Centrex lines, hotel/motel long distance trunks and multi-line semi-public lines.[18]
- Special access lines, including analog and digital. These totals include dedicated lines connecting end users' premises to an IXC POP, but do not include intraLATA private lines.[19]

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increases feeder and distribution cable lengths in the presence of shallow bedrock or rocky soil types for routing of facilities around areas with difficult placement conditions.

16 See, Reporting Requirements for Certain Class A and Tier 1 Telephone Companies (Parts 31, 43, 67 and 69 of the FCC's Rules), CC Docket No. 86-182, 2 FCC Rcd 5770 (1987) (ARMIS Order), modified on recon., 3 FCC Rcd, 6375 (1988). Tier 1 LECs are those with more than $100 million in annual revenues from regulated services. This includes over 50 carriers.

17 Revision of ARMIS USOA Report (FCC Report 43-02) for Tier 1 Telephone Companies and Annual Report Form M, AAD 92-46, DA 92-1405, released October 16, 1992, Appendix C, at FCC Report 43-08 - Report Definition for Table S-3, page 2.

18 *Id.* at 1-2.

19 *Id.* at 2-3.

- Public access lines, which include lines associated with coin (public and semi-public) phones, but exclude customer owned pay telephone lines.[20]

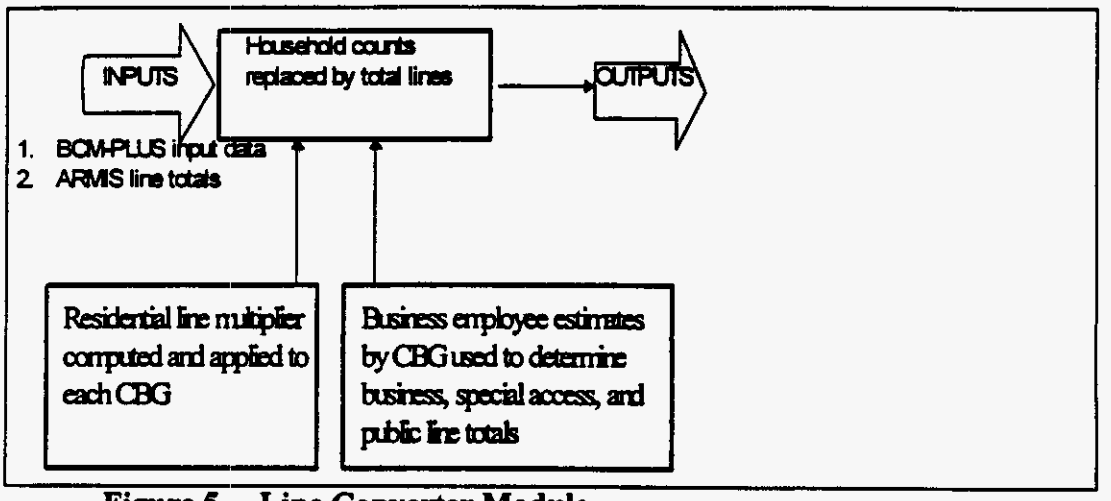

Figure 5 Line Converter Module

c) Explanation of calculations

In order to estimate loop plant investment properly, the model must consider the demand for all services, *e.g.*, business, first and second residential, special access and public access lines, within each CBG. Presumably, these service-specific demand data are known to the ILECs at a wire center or finer level. But because the ILECs have declared these data to be proprietary, absent Commission directive they are not available for incorporation into HM2.2.2.[21]

The Line Converter Module uses ARMIS access line data to assist in estimating total line counts per CBG. To compute residential lines in each CBG, the module multiplies the household count by the ratio of total reported residential access lines to total households. This accounts for total household penetration and multiple residential lines via a single average factor. The module similarly computes business lines in each CBG by multiplying the number of business employees in each CBG by the ratio of total reported business lines to total employees in the study area. Special access and public line calculations also are

20 *Id.* at 2.

21 Some BOCs, notably the Southwestern Bell companies, formerly published this information for use by their interexchange carrier customers, but the practice apparently has been discontinued. See, Southwestern Bell, *Interexchange Customer Information Handbook*, Volume IV (End Office Profile), 1987.

based on business employee counts because both services are closely associated with businesses.

d) Description of module outputs and connection to next module

The primary output from the Line Converter Module is the Input Data File -- with household counts in each CBG replaced by total residential, business, special access and public lines. The other data in the Input Data File pass through the module unchanged for eventual use by both the BCM-PLUS Data Module and the Wire Center Module.

3. BCM-PLUS Data module

a) Overview

The BCM-PLUS Data Module uses Line Converter Module output to calculate feeder, subfeeder, and distribution cable lengths. The BCM-PLUS Data Module uses the distance between each CBG and its serving wire center, and the area of each CBG, to estimate feeder and distribution cable lengths. In areas of increased placement difficulty, generally those CBGs with shallow bedrock (within one foot of the surface) or having rocky (*e.g.*, "bouldery") soil types, the Data Module increases the calculated feeder and distribution distances to allow for routing of facilities around these rocky conditions.

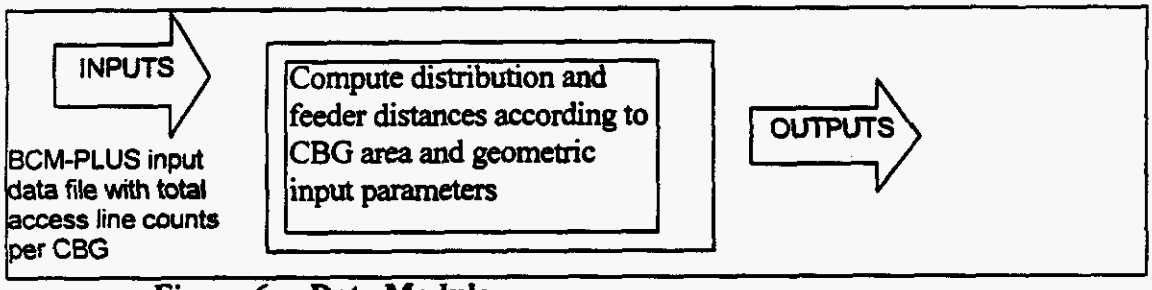

Figure 6 Data Module

b) Description of inputs and assumptions

The Data Module bases its loop length calculations on the following assumptions.

- Feeder cable extends from the wire center to an SAI located midway between the edge and the center of the CBG.
- There are four main feeder routes that leave each wire center, with sub-feeder routes placed at 90 degree angles from the main feeder routes.
- Customer premises are spaced uniformly across a CBG.

- Distribution cables extend from the SAI within the CBG to terminals serving several customers' premises.
- A variable number of equal-length distribution cables serve each CBG. The area of the CBG determines the length of each cable, and the CBG line density determines the number of cables.

A more detailed description of the model's feeder route design is contained in the documentation to Release 1.[22]

c) Explanation of calculations

Distribution Distance -- BCM-PLUS uses geometric relationships to calculate distribution distances. The distribution distance is the average distance between a customer premises and the SAI. The module calculates the average distribution distance within a CBG to equal 0.625 times the length of one side of the CBG.

SAI placement -- The Data Module adds sufficient feeder cable to place the SAI at a point midway between the CBG boundary and its center. This approach comports with telephone company outside plant engineering practices.

d) Outputs

The output of the BCM-PLUS Data Module includes total line counts per CBG, along with feeder and distribution cable lengths. Other parameters include "cable multipliers" used in a previous version to estimate combined placement investment. Because HM2.2.2 calculates separately cable placement and structure investments, these values are not used by BCM-PLUS.

4. BCM-PLUS Loop Module

This section discusses inputs and calculations in the BCM-PLUS Loop Module.

a) Module overview

The BCM-PLUS Loop Module estimates loop cable facilities investment for HM2.2.2. The Loop Module employs a "bottoms-up" network design process that uses forward-looking loop plant engineering and planning practices, publicly-available information on component prices, and least-cost cable sizing algorithms to estimate the outside plant investment appropriate to a TELRIC-based analysis.

22 See, note 4, *infra*.

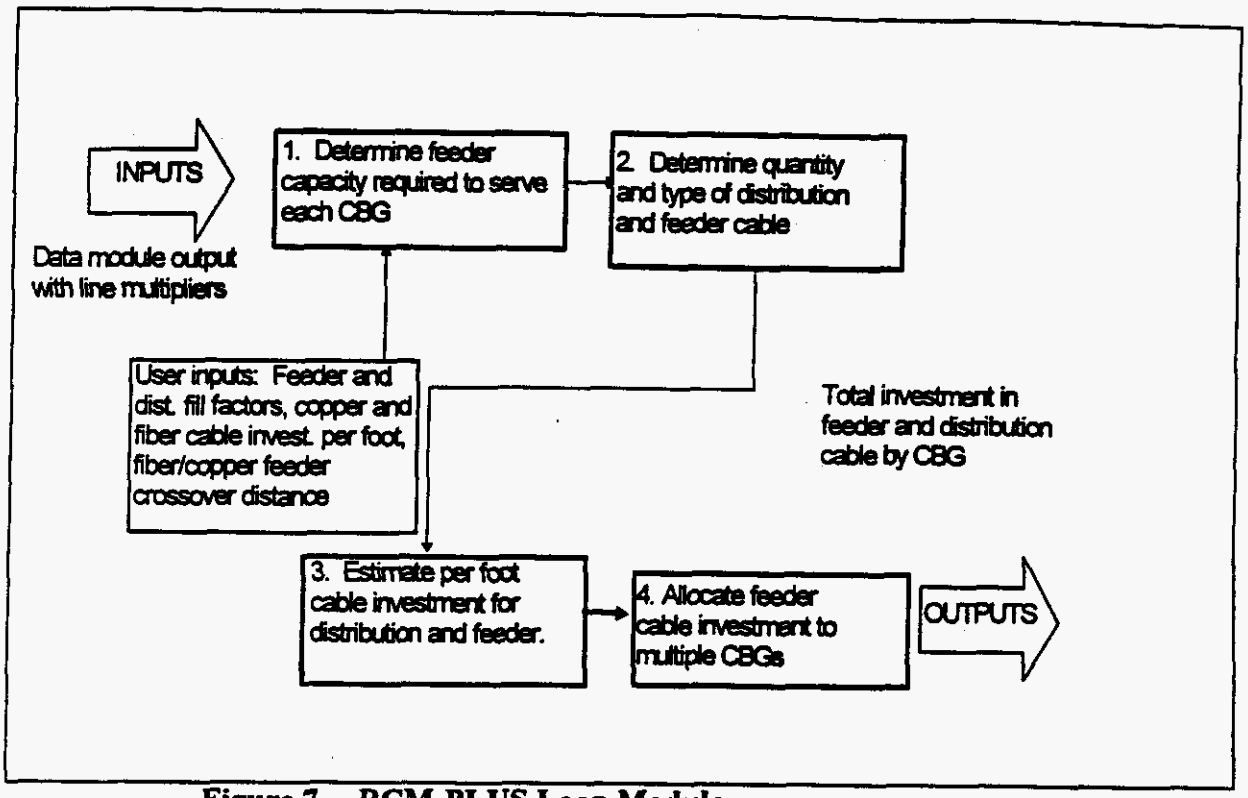

Figure 7 BCM-PLUS Loop Module

b) Description of inputs and assumptions

Inputs to the Loop Module include the per-foot investment cost for copper and fiber cable, the distance at which fiber feeder cable is installed, the number of DS-0s that can be carried on a single fiber, and the number of fibers required to feed a DLC remote terminal. There are separate per-unit investment tables for distribution, copper feeder, and fiber feeder cables. These tables show the assumed per-foot investment for cables having different cross sections. The default numbers in these tables assume discounted cable materials prices, along with per-unit costs for installation, engineering, and delivery.

c) Inputs derived from the Data Module

The following outputs from the Data Module are used as inputs by the Loop Module.

Feeder and Distribution Distances -- These are the feeder, sub-feeder and distribution lengths calculated for each CBG. The main feeder distance (called the "B" distance in the model) for each CBG is expressed as the incremental distance from the CBG to the CBG served by that feeder that is the next closest to the wire center (the "B segment" length). The formula used to develop B segment length is to first match the CBG with all others served by the same wire center and within the same quadrant (*i.e.*, on the same main feeder route). The module

then calculates the B segment length for each CBG by subtracting from its total B length the total B length associated with the next CBG closer to the wire center. Segmentation of the main feeder in this way allows the Loop Module to simulate the tapering of cable facilities along the feeder route.

The model also computes a "subfeeder" distance (called the "A" distance within the model) which is the distance from the main feeder route to the SAI in CBGs that are not astride the main feeder route.

d) User Specified Inputs

Because the Loop Module simulates the "bottoms up" development of a network, it requires several inputs specifying the type and purchase price for copper distribution cable and copper and fiber feeder cable, as well as maximum engineered cable fill factors that vary by density range. Because the actual prices paid for these components may vary from carrier to carrier, these values may be adjusted, if appropriate, by the user. The model, however, contains HAI's best estimates as default values for cable investment per foot and cable fill factors. These default values for fill factors and cable investment per foot are as follows:

Density (lines/sq. mi.)	Feeder fill	Distribution fill
0 - 5	0.65	0.50
25 - 200	0.75	0.55
200 - 650	0.80	0.60
650 - 850	0.80	0.65
850 - 2550	0.80	0.70
> 2550	0.80	0.75

Fiber feeder cable investment per foot (including engineering, delivery and installation)	
Fiber cable size(strands)	Investment per foot
12	$2.90
18	$3.20
24	$3.50
36	$4.10
48	$4.70
60	$5.30
72	$5.90
96	$7.10
144	$9.50
216	$13.10

Copper feeder cable investment per foot (including engineering, delivery and installation)	
Pairs in sheath	Investment per foot
100	$2.50
200	$4.25
400	$7.75
600	$11.25
900	$16.50
1200	$21.75
1800	$32.25
2400	$42.75
3000	$53.25
3600	$63.75
4200	$74.25

Distribution cable investment per foot (including engineering, delivery and installation)	
Copper cable sizes	Investment per foot
25	$1.19
50	$1.63
100	$2.50
200	$4.25
400	$7.75
600	$11.25
900	$16.50
1200	$21.75
1800	$32.25
2400	$42.75
3600	$63.75

Other user inputs are discussed in the feeder plant section below.

e) Distribution plant

This section examines components of the distribution facilities. The model assumes that all distribution cables serving a CBG are of equal length. The number of distribution cables per CBG varies by density range as shown below.

Density (lines/sq. mi.)	Number of cables
0 - 5	2
5 - 200	4
200 - 650	4
650 - 850	4
850 - 2,550	6
> 2550	8

The larger number of cables serving higher density CBGs reflects the fact that households will tend to be distributed more uniformly across densely populated CBGs than across less dense CBGs. In addition, customer premises plot sizes will be smaller. Lower numbers of cables serving lower density CBGs reflect the fact that customer premises will either be concentrated along a few roads, or clustered in towns rather than being distributed uniformly.

Mix of aerial and underground plant for distribution -- Distribution cables typically connect with the feeder network at one or more SAIs and run along streets within a defined area. Distribution plant may be aerial (carried on poles), underground (placed in conduit), or buried (plowed directly in the ground or placed in a trench without conduit). The proportions of aerial, underground and buried cable are user-adjustable variables set in the Convergence Module.

Unit Costs for Distribution Cable -- The default cable investment figures shown in the preceding table include discounted materials prices, engineering, delivery to the site, and placement or installation.[23] These costs are added to other loop investments in the Convergence Module, described later.)

Fill Factors for Distribution Cable -- The Loop Module permits users to input values specifying the maximum engineered level of plant utilization or "fill" for distribution and feeder cable.[24] Engineered cable fills are always less than 100% in practice, with some spare pairs necessary to accommodate unforeseen growth, breakage and line administration.

The effective fill factors achieved by the Hatfield Model are even lower than the engineered fill factors because the model requires that the next larger available cable size be installed to accommodate the engineered fill.

f) Feeder plant

Feeder cables extend along any of four routes from the wire center to one or more points where they are cross-connected to the distribution network. Depending on required feeder capacity, distance or economics may dictate that feeder be provisioned using various sizes of copper cabling, or fiber cables in conjunction with DLC systems. The Loop Module assumes that a CBG will be served with fiber-fed DLC equipment whenever the feeder length exceeds a user-adjustable threshold value (the default is 9,000 feet); otherwise it assumes copper feeder cable.

The user may specify the number of fibers assigned per DLC remote terminal. The default value is four. Similarly, the number of equivalent voice

23 Placement investment consists of pulling underground cable through conduit and mounting aerial cable on poles. It should not be confused with the actual "structure" investment in poles, conduit and manholes, or in the installation of structure components.

24 A cable fill factor represents the ratio of working lines (measured in terms of voice grade equivalent channels or copper wire pairs) to minimum installed line capacity.

circuits (DS-0s) that may be carried on this fiber may be set by the user. The default value is 2016, or 3 DS-3s.

Mix of aerial and underground plant for feeder -- These values are set in the Convergence Module, as they are for distribution cable.

g) Explanation of calculations

The Loop Module's calculations include the following:

- Selection of copper or fiber feeder cable to serve each CBG according to the user-adjustable threshold feeder distance (default is 9,000 ft).
- Sizing of main feeder segments to accommodate the cumulative capacity requirements along the route.
- Determination of the type and quantity of feeder facilities and distribution cables to meet each CBG's capacity requirements.

Applying unit investment costs to estimate total investment in loop cables -- The fundamental feeder length calculations, including the sharing of feeder sheath by multiple CBGs lying on a common route, are essentially unchanged from those described in the Release 1 documentation. The BCM-PLUS Data Module does, however, extend the SAI location into each CBG halfway to its center.

The BCM-PLUS Loop Module computes distribution cable lengths as 0.625 times the length of a side of the CBG. The number of cables serving a CBG varies according to the CBG's density range, as described in the Data Module discussion above. The Loop Module sizes the distribution cables according to the specified fill factor and number of cables in each CBG.

h) Description of model outputs

The Loop Module produces total investment by CBG for distribution and feeder cable. The Loop Module's "costing" worksheet contains these investments and is sent to the Convergence Module to determine overall network investment.

5. Wire Center Investment Module

a) Overview

This Module produces network investment estimates in the following categories:

Switching and wire center investment -- This category includes investment in local and tandem switches, along with associated investments in wire center facilities, including buildings, land, power systems and distributing frames.

Signaling network investment -- This includes investment in STPs, SCPs and signaling links.

Transport investment -- This category consists of investment in transmission systems supporting local interoffice (tandem and direct) trunks, intraLATA toll trunks (tandem and direct) and access trunks (tandem and direct). The model also separately calculates investment in operator trunks.

Operator Systems investment -- This includes investments in operator systems positions and operator tandems. The module allows the operator positions to be located at a distance from the operator tandem.

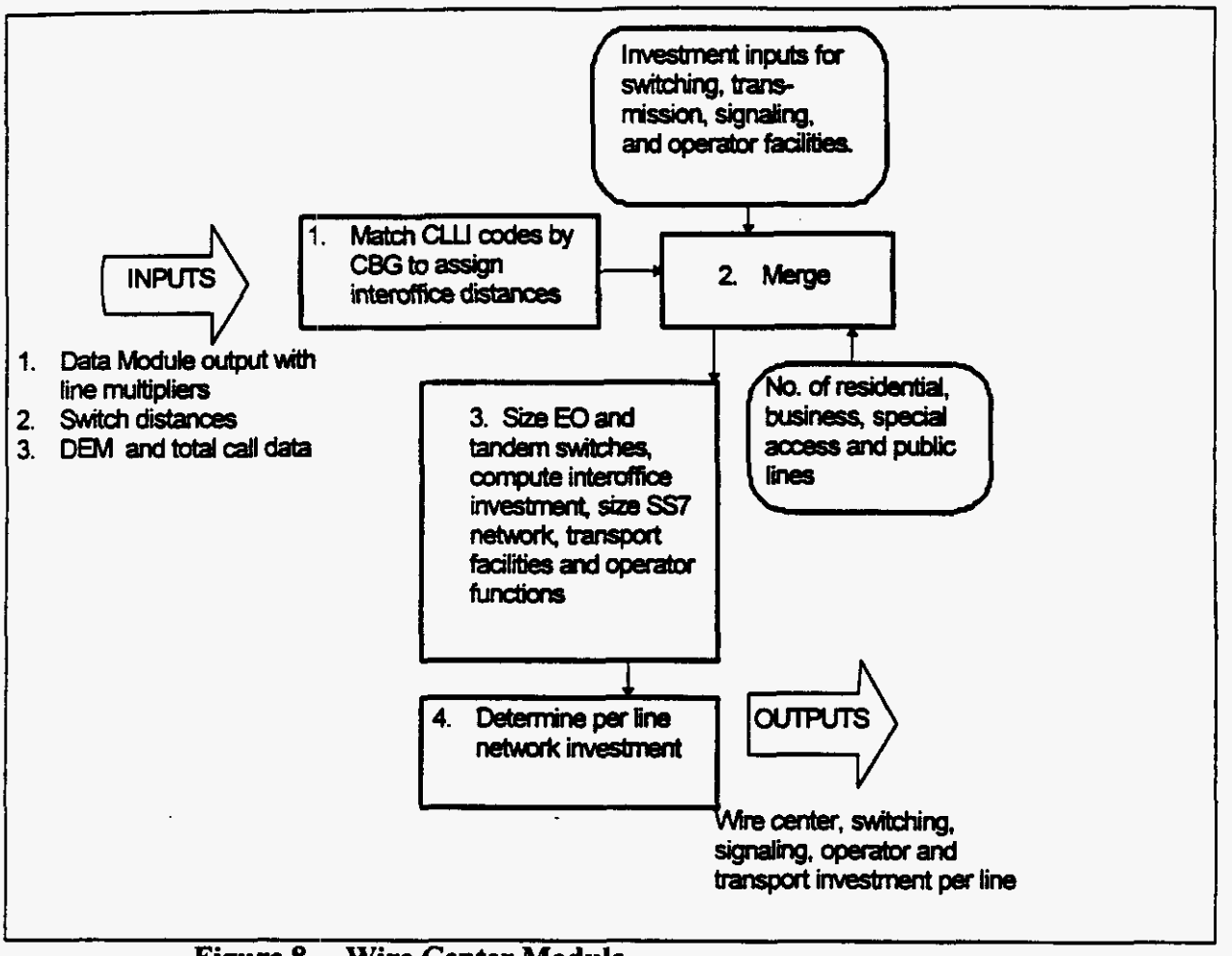

Figure 8 Wire Center Module

b) Description of inputs and assumptions

For the wire center module to compute required switching and transmission investments, it must have as inputs total line counts for each wire center, interoffice distances, traffic peakedness assumptions, as well as inputs describing the distribution of total traffic among local intraoffice, local interoffice, intraLATA toll, interexchange access and operator services. This module takes as data inputs overall line counts obtained from the Line Converter Module and interoffice distances for the calculation of transmission facilities investment.[25]

[25] The HM2.2.2 includes a set of interoffice distance calculations produced from wire center location information from Bellcore's Local Exchange Routing Guide (LERG). Because AT&T has now gained a site license for use of these data, users of the Hatfield Model no longer need to obtain their own copies of the LERG.

There are many user-adjustable input assumptions in the Wire Center module. The following sections discuss these assumptions, and Appendix C includes additional tables showing all of the default values for the module's input parameters.

c) Traffic assumptions

Many of the calculations in the Wire Center module rely on traffic assumptions suggested in Bellcore documents.[26] These inputs, which the user may alter, assume 1.3 busy hour call attempts (BHCA) per residential line and 3.5 BHCA per business line. Total busy hour usage is then determined based on published Dial Equipment Minutes (DEM) information. Other inputs, which may be changed by the user, specify the fraction of traffic that is interoffice, the fraction of traffic that flows to operator services, the local fraction of overall traffic, as well as breakdowns between direct-routed and tandem-routed local, intraLATA toll, and access traffic. Appendix C contains tables showing the default settings for these parameters.

d) Explanation of calculations

The following sections describe the calculations used to generate investments associated with switching, wire centers, interoffice transport, signaling and operator systems functions.

(1) Switching investment calculations

The Module places at least one end office switch in each wire center. It sizes the switches placed in the wire center by adding up all the switched lines in the CBGs served by the wire center, then compares this line total to the maximum allowable switch line size. This parameter is user-adjustable, but its default setting is at 100,000 lines with a fill factor of 0.80, yielding a maximum effective switch line size of 80,000. By default, the model will equip the wire center with a single switch if the number of switched access lines served by the wire center is no greater than 80,000. If a wire center serves 90,000 lines, the model will compute the investment required for two 45,000 line switches.[27] The wire center module also compares the BHCA produced by the mix of lines served by each switch with a user-adjustable processor capacity (default set at a maximum of 600,000 BHCA) to determine whether the switch is line-limited or processor real-time-limited.

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26 Bell Communications Research, *LATA Switching Systems Generic Requirements, Section 17: Traffic Capacity and Environment*, TR-TSY-000517, Issue 3, March 1989.

27 If multiple switches are required in the wire center, they are sized equally to allow for maximum growth on both switches.

Once the model determines the end office switch line size, it calculates the required investment per line from an investment function that relates per-line switching investment to switch line size. The data defining this function were obtained from a publicly-available study of the central office equipment market published annually by McGraw-Hill.[28] This study shows the average investment per new line of digital switching paid by BOCs to be $102, and by independents to be $235, in 1995.[29] The model combined these figures with average BOC (11,200) and independent (2,761) switch line sizes derived from data published in the FCC's *Statistics of Communications Common Carriers*, along with information on much larger switches obtained from switch manufacturers to develop the complete investment function.[30] The above per-line investment figures are for the entire end office switch, including trunk ports. These investment figures are then reduced by $16 per line to remove trunk port investment that will be accounted for in the module's trunk calculations. Figure 9 shows the resulting investment curve.

28 Northern Business Information study: *U.S. Central Office Equipment Market -- 1995*, McGraw-Hill.

29 These per-line average prices represent investments over all types of switching, including remote switching systems, hosts, and stand-alone end office switches. Through this scaling, the switching investment curve thus represents automatically the cost of the average profile of remote, host, and stand-alone applications of end office switches.

30 Federal Communications Commission, *Statistics of Communications Common Carriers*, Tables 2.3 and 2.4, 1994 edition.

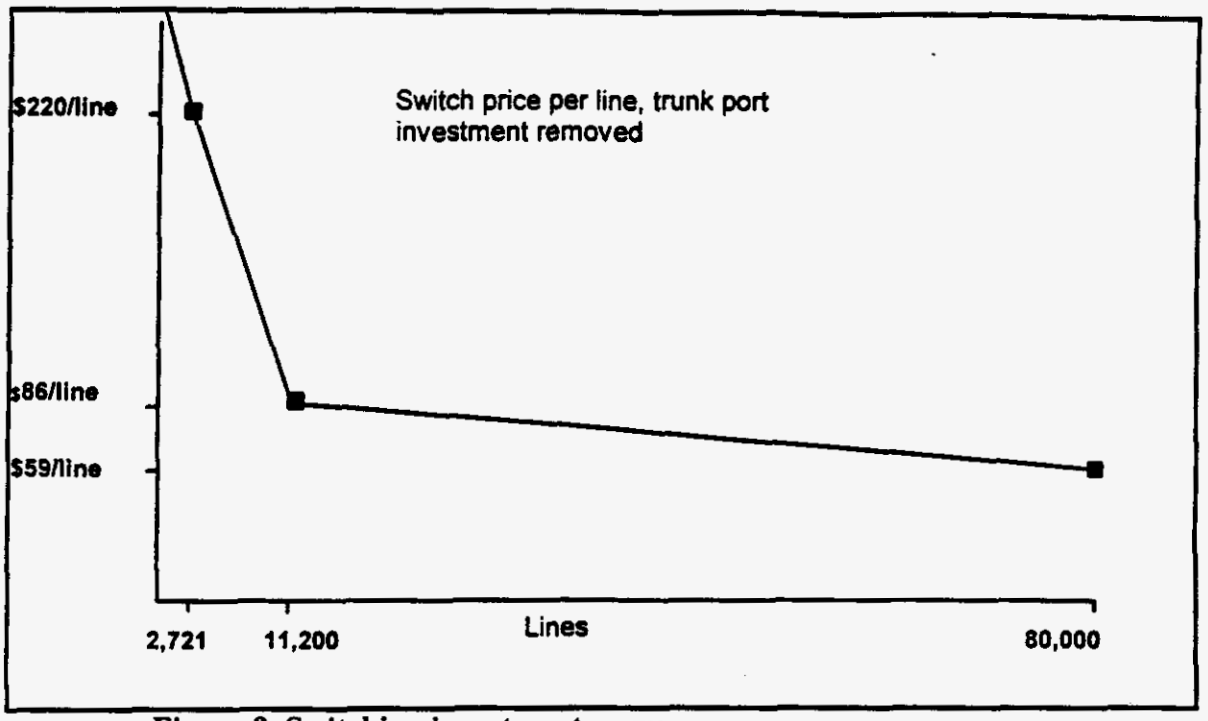


Figure 9 Switching investment curve

The wire center module uses existing tandem and end office wire center locations for computing interoffice transmission investments. A preprocessing step, relying on licensed LERG data, produces end office-to-tandem, end office-to-STP, tandem-to-STP, and STP-to-STP distances in a table that then is used by the module to estimate interoffice transmission facility investments. The module computes investments for end office and tandem "A" signaling links, "C" signaling links between the STPs in a mated pair, and it estimates investments in "D" signaling link segments that an interconnecting carrier such as an IXC may lease from the ILEC.

Tandem and operator tandem switching investments are computed according to assumptions contained in an AT&T report on interexchange capacity expansion costs filed with the FCC.[31] The investment calculation assigns a price to switch "common equipment," switching matrix and control structure, and adds to these amounts the investment in trunk interfaces. The numbers of trunks and their related investments, are derived from the transport calculations described below. The module recognizes that a significant fraction of local tandems also perform end office switching functions, and the inputs allow the user to vary the

31 AT&T, "An Updated study of AT&T's Competitors' Capacity to Absorb Rapid Demand Growth," filed with the FCC in CC Docket No. 79-252, April 24, 1995 ("AT&T Capacity Cost Study").

sharing of tandem common equipment with end office use. The default sharing value is 40%.

Wire center investments required to support end office and tandem switches are based on assumptions regarding the size of room required to house a switch (for end offices, this size varies according to the line sizes of the switch), construction costs, lot sizes, land acquisition costs and investment in power systems and distributing frames. The default values are shown in Appendix C.

The model computes required wire center investments separately for each switch. For wire centers housing multiple end office switches, the wire center investment calculation adds switch rooms to house each additional switch. Tandem wire center calculations assume the maximum switch room size, and further assume the tandem will reside in a wire center that contains at least one end office switch.

(2) Transport calculations

The traffic and routing assumptions listed above, along with the total mix of access lines served by each switch, form the basis for the model's transport calculations. The model determines the overall breakdown of traffic per subscriber according to the traffic assumptions and computes the numbers of trunks required to carry this traffic. These calculations are based on the fractions of total traffic assumed for interoffice, local direct routing, local tandem routing, intraLATA direct and tandem routing and access direct and tandem routing. These traffic fractions are applied to the total traffic generated in each wire center according to the mix of business and residential lines and appropriate per-line offered load assumptions. These trunk loading assumptions include a user-adjustable maximum trunk utilization of 27.5 CCS in the busy hour.[32]

The distance preprocessing calculations estimate interoffice distances using existing wire center and tandem locations. The calculation assumes rectilinear routing between end offices and tandems, and between switches and STPs. The resulting distances are greater than if they were calculated as airline mileage.

Average direct-route distances for local, intraLATA and access traffic are set as user-definable inputs. It is not possible to compute these values from wire center locations because existing exchange area definitions determine whether routes will carry local, intraLATA toll, or access traffic. In addition, the locations

[32] The 27.5 CCS value is based on an AT&T estimate of maximum per trunk utilization. See, AT&T Capacity Cost Study.

of IXC POPs may not be publicly available. Because of these factors, the default distances for direct transport are 10 miles for local routes, 25 miles for intraLATA routes, and 15 miles for access routes. The user may alter these values.

The model contains explicit transport facilities investment calculations to produce both termination and per-mile investments, each expressed per DS-0 (a 64 kbps voice-equivalent circuit). The assumptions underlying these calculations include the facilities capacity expressed at a default SONET transmission rate of OC-12, multiplexer installed price per end, regenerator spacing and investment, buried/underground/aerial composition, manhole spacing and investment, pole spacing and investment, along with ancillary investments such as splicing, optical patch panels, and "pigtail" (short connectorized fibers between strands in the cable and the optical patch panel) investment. Interoffice investment calculations also include a "sharing" factor that accounts for the sharing of structure used by feeder and interoffice facilities. This eliminates double-counting of structure between feeder and interoffice routes. The amount of sharing, expressed as a percentage of interoffice route miles, is a user-adjustable input. The default value is 25%.

(3) Tandem switch calculations

The module scales the investment in tandem switch common equipment according to the total number of tandem trunks computed for the study area. By doing so, it thus avoids equipping maximum-capacity tandems whenever a LATA is served by multiple tandems. The calculations also recognize that a significant fraction of tandems in practice are "Class 4/5" offices that serve both tandem and end office functions. A sharing fraction may be set by the user to reflect the incidence of such dual-purpose switches.

(4) Signaling network calculations

The Wire Center Module uses the preprocessed interoffice distances to compute signaling link investment for end office and tandem A links, C links between the STPs in a mated pair, and D link segments. The investment per link-mile is the same as the computed per-DS-0 investment described above.

The model always equips at least two signaling links per switch. It also computes required SS7 message traffic according to the call type and traffic assumptions described earlier. User inputs define the number and length of ISDN User Part (ISUP) messages required for interoffice call control. Default values are six messages per interoffice call attempt with twenty-five octets per message. These values are those assumed in the AT&T Capacity Cost Study.

Other inputs define the number and length of Transaction Capabilities Application Part (TCAP) messages required for database lookups, along with the

percentage of calls requiring TCAP message generation. Default values, also obtained from the AT&T Capacity Cost Study, are two messages per transaction, at 100 octets per message, and 10% of all calls requiring TCAP generation. If the message traffic from a given switch exceeds the link capacity (also user-adjustable and set at 56 kbps and 40% occupancy as default values), the model will add links to carry the computed message load. The total link distance calculation includes all the links required by a given switch.

STP capacity is expressed as the total number of signaling links each STP in a mated pair can terminate (default value is 720 with an 80% fill factor). The maximum investment per STP pair is set at $5 million, and may be changed by the user. These default values derive from the AT&T Capacity Cost Study. The STP calculation scales this investment based on the number of links the model requires to be engineered for the study area.

SCP investment is expressed in terms of dollars of investment per transaction per second. The transaction calculation is based on the fraction of calls requiring TCAP message generation, The total TCAP message rate in each LATA is then used to determine the total SCP investment. The default SCP investment is $20,000 per transaction per second and is based on a number reported in the AT&T Capacity Cost Study.

(5) Operator systems calculations

Operator tandem and trunk requirements are based on the operator traffic fraction inserted by the user into the model and on the overall maximum trunk occupancy value of 27.5 CCS discussed above. Operator tandem investment assumptions are the same as for local tandems.

Operator positions are assumed to be based on current personal computer terminal technology. The default operator position investment is $3500. The Model includes assumptions for maximum operator "occupancy" expressed in CCS. The default assumption is that each position can be in service 27.5/36 of the busy hour. This value is related to the maximum trunk occupancy assumption described above. Also, because many operator services traditionally handled by human operators may now be served by announcement sets and voice response systems, the model includes a "human intervention" factor that reflects the fraction of calls that require human operator assistance. The default factor is 10, which is believed to be a conservative estimate. (A factor of ten implies that one out of ten calls will require human intervention).

6. Convergence module

The Convergence Module combines the loop cable investments produced by BCM-PLUS with the wire center, switching, transport, signaling and operator

systems investments calculated by the Wire Center Investment Module. The output of the Convergence Module is the complete collection of network investments stated by density range for use by the Expense module.

The module adds structure investment to the loop cable investments produced by the Loop Module based directly on the number of sheath miles of cable to be installed. The previous version of the Hatfield Model relied on BCM estimates of loop structure components which were calculated by applying "cable multipliers" to loop cable investment. The cable multipliers produced estimates of structure that varied directly with cable investment. In some cases, the structure estimates per unit length were unacceptably low. The multiplier approach also improperly made structure investment a function of cable materials price discounts.

In Release 2, the Convergence Module includes user-defined inputs for conduit investment, pole investment and spacing, manhole investment and spacing, trenching and direct burial investment, and breakdowns of aerial, buried, and underground cable. Although the Loop Module cable investment inputs include values for aerial and underground cable, where buried cable is required the Convergence Module adds an incremental amount per foot to represent the increased investment in armoring that is characteristic of cable intended to be directly buried. The default assumptions, which vary by density range, appear in Appendix C. There are separate sets of default inputs for distribution, copper feeder and fiber feeder facilities.[33]

The following tables display the default values for structure type:

Distribution Structure			
Density Range	Aerial Fraction	Buried Fraction	Underground Fraction
0 - 5	0.50	0.50	-
5 - 200	0.50	0.50	-
200 - 650	0.50	0.50	-
650 - 850	0.50	0.50	-
850 - 2550	0.40	0.50	0.10
> 2550	0.65	0.05	0.30

[33] The HM2.2.2 Convergence Module still performs certain loop-related calculations. These were originally included in this module to correct deficiencies in the initial BCM loop calculations. HAI has chosen to keep these additional calculations in the Convergence Module even after the incorporation of BCM-PLUS into HM2.2.2.

Copper Feeder Structure			
Density	Aerial Fraction	Buried Fraction	Underground Fraction
0 - 5	0.50	0.45	0.05
5 - 200	0.50	0.45	0.05
200 - 650	0.50	0.45	0.05
650 - 850	0.40	0.40	0.20
850 - 2550	0.10	0.10	0.80
> 2550	0.05	0.05	0.90

Fiber Feeder Structure			
Density Range	Aerial Fraction	Buried Fraction	Underground Fraction
0 - 5	0.35	0.60	0.05
5 - 200	0.35	0.60	0.05
200 - 650	0.35	0.60	0.05
650 - 850	0.20	0.60	0.20
850 - 2550	0.10	0.10	0.80
> 2550	0.05	0.05	0.90

The Convergence Module adds several components to the loop cable investments produced by the Loop Module: NIDs, SAIs, terminals and subscriber drops. The drop and terminal/splice values are added for each line directly. The model computes one NID per household and one NID for every four (a user-adjustable value) business lines. The default per-unit investments are $30 for the NID (obtained from discussions with subject matter experts); $40 for the drop (taken from the New England Telephone Incremental Cost Study[34]), and $35 for the terminal and splice.

The SAI investments depend on whether copper or fiber feeder cable feeds a particular CBG. If the feeder cable is copper, the SAI is a simple cross-connect arrangement. This arrangement's investment is obtained from a table listing SAI installed prices by total lines served. For optical feeder cable, the SAI consists of an optical patch panel for connecting the cable to the remote terminal, along with an associated cross-connect for connecting the subscriber loops to the analog side of the remote terminal. Investment assumptions for both types of SAIs include engineering, a housing, and site preparation, along with common equipment and

[34] NYNEX, 1993 New Hampshire Incremental Cost Study

per-line investments in channel units. A separate fill factor applies to the number of lines served by each set of common equipment.

Structure investment (*i.e.*, poles, conduit, trenches, and manholes) generally are shared among utilities, typically LECs, CATV operators, electric utilities, and others, including competitive access providers (CAPs) and IXCs. To the extent that several utilities may place cables in common trenches, conduits or on common poles, it is appropriate to share the costs of these structure items among them. Because the Convergence Module reports investments in different structure separately to the Expense Module, the user may select the fraction of each type of distribution and feeder structure investment that should be assigned to local telephone service.

The Convergence Module also adds investment for integrated DLC equipment. Inputs include site and power, common equipment, and per-line investment in channel units. The module allows two types of DLC equipment as described in the Release 1 documentation: TR-303-compatible SLC®-2000 equipment, used in all but the lowest density zone, and proprietary equipment manufactured by Advanced Fibre Communications, a California company, in the 0-5 lines per square mile range.

The Convergence Module produces investments in the following categories for each of the six density ranges:

- Distribution (aerial, buried, and underground copper cable and associated structure)
- Concentration (DLC remote terminal and associated investment in power, site preparation, and housing)
- Feeder (aerial, buried and underground fiber and copper feeder cable and associated structure)
- Switching (end office and tandem switching investment)
- Wire center (end office and tandem wire center investment)
- Operator services (operator tandem switching, tandem wire center, trunks and operator positions)
- Transport (common and dedicated)
- STPs
- SCPs
- Signaling links
- NID, drop, terminal and splice, and SAI

In addition, the Convergence Module output sheet summarizes line and trunk counts, and passes other parameters, such as tandem routing fractions and DEMs, to the Expense Module. Line counts include residential, business, special access and public access lines, and the module also reports households in each density range.

7. Expense Module

a) Overview

The Expense Module provides per-line and per-month cost summaries for each unbundled network element defined by the model, and for basic universal service. It does so by calculating capital carrying cost, operating expenses, network operation expenses, and attributable support expenses for each of eleven UNEs plus public telephone terminal equipment.

The Expense Module uses the output of the Convergence Module to capitalize the investments needed for each UNE and the per-line investments for basic universal service. The module requires investment, revenue and expense data reported by individual LECs in their annual ARMIS reports. The Module's other required inputs are capital structure parameters (e.g., debt/equity ratio, costs of debt and equity) as well as the total network investment produced by the Convergence Module.

The Expense Module uses ARMIS data to calculate several expense-to-investment ratios to be applied to the investments in different plant categories as computed by the model. It also uses estimates of LEC revenues, tax rates, costs of debt and equity and economic service lives for various types of network equipment.

This section describes the inputs and assumptions of the Expense Module, including ARMIS data, capital structure parameters and expense factors built into the module. It also explains the calculations used to determine capital costs and operating expenses.

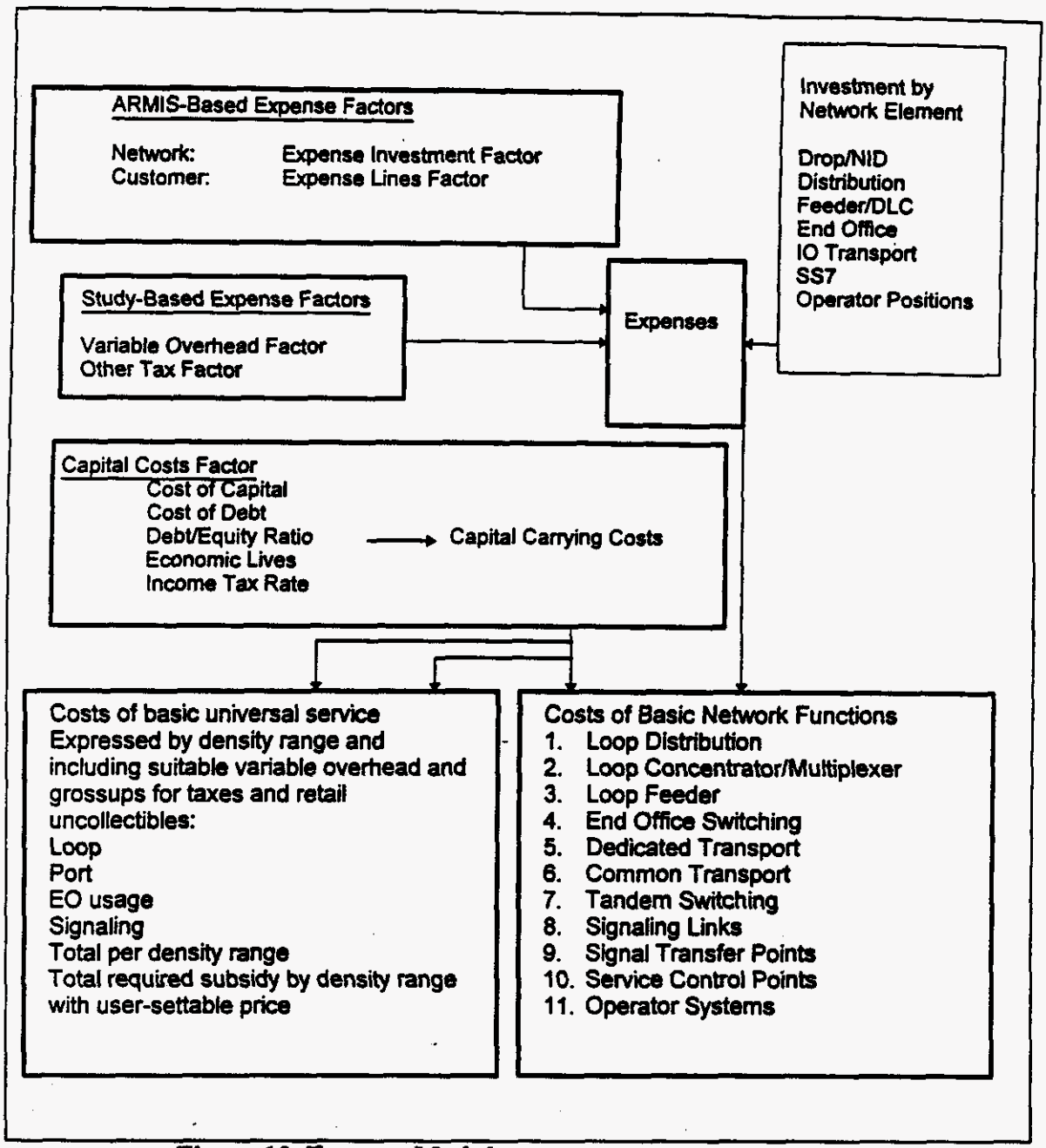


Figure 10 Expense Module

b) Description of inputs and assumptions

(1) ARMIS data

The ARMIS data used in the Expense Module include investment and operating expenses and revenues for a given local carrier and state. These data are used to derive the total investments, expenses and revenues for each UNE. The

investment, expense and revenue categories are listed below, and described in detail in the Calculations section.

(a) plant specific operations

- end office and tandem switching -- digital switching, operator systems
- transmission -- circuit equipment, transmission
- information origination and termination -- public telephone, terminal equipment
- cable and wire facilities -- poles, cable, conduit

(b) plant non-specific operations

- provisioning
- power
- plant operations
- network administration
- testing
- general support equipment -- land, buildings, vehicles, furniture, office and other equipment

In addition, ARMIS data include local network service revenues by the following categories:

- access revenue -- end user, switched and special access revenue
- basic service revenue
- long distance network revenue

(c) Capital structure parameters

The Expense Module requires capital structure parameters to calculate the carrier's Weighted Average Cost of Capital (WACC), which is a discount factor used to calculate capitalized costs of UNEs and basic local service. Parameters required are for the carrier's debt/equity ratio, cost of debt, and cost of equity.

(d) Factors built into the expense module

The module uses a number of ratios and factors to calculate monthly per-line loop and annual switching costs. These factors are explained in detail in the Calculations section.

(e) Other user inputs

There are several explicit user inputs to the Expense Module, including economic lives by plant category, variable overhead factor, forward-looking Network Operations expense reduction factor, similar forward-looking expense factors for switching and circuit equipment, other taxes (principally franchise fees), and structure assignment factors. The model uses the latter to assign structure investment to telephone subscribers. Generally, plant structure (conduit, poles, and trenches) will be shared by several service providers. The structure assignment parameters in the Expense Module allow the user to vary the amount of structure investment for aerial, underground, and buried feeder and distribution facilities assigned to telephone users. The default value is 0.33 for all categories.

Other user inputs include an explicit value for the monthly cost per line for local number portability (set at a default of $0.25/line/month), a quantity used in estimating basic local service monthly costs. There is also a monthly factor of $1.22 per line that accounts for bill generation and bill inquiries relating to basic local service. The model includes a value for the NID's annual maintenance expense, the default is $3.00 per NID. There is an input for carrier-to-carrier customer expense, set at $1.56 per line per year, which is used in the determination of UNE costs. This default value derives from Tier 1 LEC expenses for servicing the access accounts of their IXC customers reported in ARMIS 43-04 for 1995.

Appendix C shows all user inputs to the Expense Module.

c) Explanation of calculations

The Expense Module is driven primarily by the calculated annual capital cost and operating expenses of the carrier(s) under study. All costs are summarized for each of the eleven UNEs. The algorithms used to determine these amounts are described below.

(1) Capital costs

The model calculates annual capital cost for each UNE based on the net plant investment, the expected service life (depreciation), the return on the net asset and the grossed-up income tax on the return of the net asset. The model assumes straight-line depreciation and assumes that cash flows are in arrears (*i.e.*, return from assets, tax gross-ups and depreciation are applied at the end of each year).

The WACC, the capital structure, and the cost of debt and equity must be provided for the modeled entity. Based on these data, the model calculates the investments required for each UNE. The model then determines the appropriate levelized monthly cost of these investments based on the economic lives for each of the UNEs.

(2) Operating Expenses - General

Operating expenses are derived from historic expense factors which are calculated from balance sheet and expense account information reported in carriers' ARMIS reports. These expense factors are applied to the investments developed by the Hatfield Model to determine associated operating expense amounts.

Certain expenses, particularly those for network maintenance, are strongly related to their associated capital investments. The Expense Module estimates these expenses using factors computed from the carrier's ARMIS reports. Other expenses, such as network operations, vary directly with the number of lines provisioned rather than with capital investment. Expenses for these elements are scaled by the number of access lines supported. Uncollectibles expense is calculated as a percentage of revenues.

(3) Network-Related Expenses and Expense Factors

The Expense Module assigns network-related expenses to each of eleven UNEs, plus public telephone terminal equipment. The module also assigns the cost of capital, expenses, total investment and attributable support expense to each UNE.

These network and non-network operating expenses are added to annual capital costs to determine the total economic cost of each UNE. Each network-related expense is described below:

Network Support -- This category includes the expenses associated with motor vehicles, aircraft, special purpose vehicles, garage and other work equipment.

Central Office Switching -- This includes end office and tandem switching, as well as equipment expenses.

Central Office Transmission -- This includes circuit equipment expenses associated with transport investment.

Cable and Wire -- This category includes expenses associated with poles, aerial cable, underground/buried cable and conduit systems. This expense varies directly with capital investment.

Network Operations -- The Network Operations category includes power, provisioning, engineering and network administration expenses.

The Expense Module uses specific forward-looking expense factors for digital switching and for central office transmission. These values derive from the New England Telephone Incremental Cost Study. The module similarly computes forward-looking Network Operations expenses based on corresponding ARMIS-

reported expenses. Because total Network Operations expense is strongly line-dependent, the model computes this expense as a per-line additive value based on ARMIS-reported total Network Operations expense divided by the number of access lines, then deducting 30% of this quotient to produce a forward-looking estimate.[35]

(4) Non-network-related operating expenses and expense factors

The Expense Module assigns non-network related expenses to each density range based on its proportion to total expenses in each category. Each of these expenses is described below.

Variable support -- Historical variable support expenses for LECs are substantially higher than those of similar service industries operating in more competitive environments. Based on studies of these variable support expenses in competitive industries, such as the interexchange industry, the model applies a conservative 10% variable support factor to the total costs estimated for UNEs as well as basic local service.

General Support Equipment -- The module calculates investments for furniture, office equipment and general purpose computers. The Model uses actual 1995 company investments to determine the ratio of investments in the above categories to total investment. The ratio is then multiplied by the network investment estimated by the Model to produce the investment in general support equipment. The recurring costs of these items are then calculated in the same way as recurring costs for network investment.

(5) Revenues

Revenues are used to calculate the uncollectibles factor. This factor is a ratio of uncollectibles expense to adjusted net revenue. The module computes both retail and wholesale uncollectibles factors. The retail factor is applied to basic local telephone service monthly costs and the wholesale factor used in the calculation of UNE costs.

d) Outputs of the Expense Module

The Expense Module displays results in a series of reports which depict detailed investments and expenses for each UNE for each density range, summarized investments and expenses for all UNEs, unit costs by UNE and total

35 Although forecasting forward-looking expenses is difficult, there is evidence that the 30% reduction from currently reported per-line Network Operations expense is conservative. Testimony before the California Public Utilities Commission (Testimony of R. L. Scholl, Universal Service Proxy Cost Models, April 17, 1996, p. 11) states that Pacific Bell's forward-looking Network Operations expenses are 55% less than current per-line values computed from Pacific Bell's 1994 ARMIS data.

annual and monthly network costs, as well as basic local service costs per household.

(1) Unbundled Network Elements outputs

The Hatfield Model produces cost estimates for eleven UNEs, plus public telephone terminal equipment. These UNEs represent an unbundling of the local exchange network into discrete functions, which can be used singly or in any combination to furnish services. The UNEs are described below and their inter-relationships are illustrated in Figure 11.

Loop Distribution -- The individual communications channel originating from the DLC remote terminal or SAI and terminating at the customer's premises. In the Hatfield Model, this UNE also includes the investments in NID, drop and terminal/splice.

Loop Concentrator/Multiplexer -- The DLC remote terminal at which individual subscriber traffic is multiplexed and connected to loop distribution for termination at the customer's premises. The Hatfield Model includes DLC equipment and SAI investment in this UNE.

Loop Feeder -- The facilities on which subscriber traffic is carried from the line side of the end office switch to the DLC remote terminal or SAI. The UNE includes copper feeder and fiber feeder cable, plus associated structure investments (poles, conduit, etc.)

End Office Switching -- The facility connecting lines to lines, or lines to trunks. The end office represents the first point of switching. As modeled in the Hatfield Model, this UNE includes the end office switching machine investments and associated wire center costs, including distributing frames, power, land and building investments.

Operator Systems -- The systems that process and record special toll calls, public telephone toll calls, and other types of calls requiring operator assistance, as well as Directory Assistance. The investments identified in the Hatfield Model for the Operator Systems UNE include the operator position equipment, operator tandem (including required subscriber databases), wire center and operator trunks.

Dedicated Transport -- The full-period, bandwidth-specific interoffice transmission path between LEC wire centers or between LEC wire centers and an IXC POP. It provides the ability to offer individual and/or multiplexed switched and special services circuits between switches. Interoffice transport investments that provide dedicated transport are assigned to this UNE.

Common Transport -- A trunk between two switching systems on which traffic is commingled to include LEC traffic as well as traffic to and from other local or interexchange carriers. These trunks may originate at an end office and terminate at a tandem switch or at another end office. Interoffice transport investments that provide common transport are assigned to this UNE.

Tandem Switching -- The facility that provides the function of connecting trunks to trunks for the purpose of completing interoffice calls. Similar types of investments as are included in the End Office Switching UNE are also reflected in the Tandem Switching UNE.

Signaling Links -- Transmission facilities in a signaling network that carry all out-of-band signaling traffic between end office and tandem switches and STPs, between STPs, and between STPs and SCPs. Signaling link investment developed by the Hatfield Model and assigned to this UNE.

Signal Transfer Point -- This facility provides the function of routing TCAP and ISUP messages between network nodes (end offices, tandems and SCPs). The model estimates STP investment and assigns it to this UNE.

Service Control Point -- The node in the signaling network to which requests for call handling information (*e.g.*, translations for local number portability) are directed and processed. The SCP contains service logic and customer specific information required to process individual requests. The model estimates SCP investment and assigns it to this UNE.

(2) Universal Service Fund Outputs

The calculation of costs for basic local service is based on the costs of the UNEs constituting this service. These are the loop, local portions of end office and tandem switching, transport facilities for local traffic, and the local portions of signaling investment. No operator services or SCP investments are included. In addition, these UNE cost elements are adjusted to accommodate other items such as retail uncollectibles rather than wholesale uncollectibles. Finally, certain retail expenses required by basic local service, such as billing and bill inquiry, directory listings, number portability costs, etc. are added.

For illustrative purposes, the USF sheet in the expense module compares the monthly cost per line in each density range to a user-adjustable "affordable" monthly price for local service (which include the End User Common Line charge). If the cost exceeds the "affordable" price, the model accumulates the total required annual subsidy at the stated price level according to the number of households in each density range.

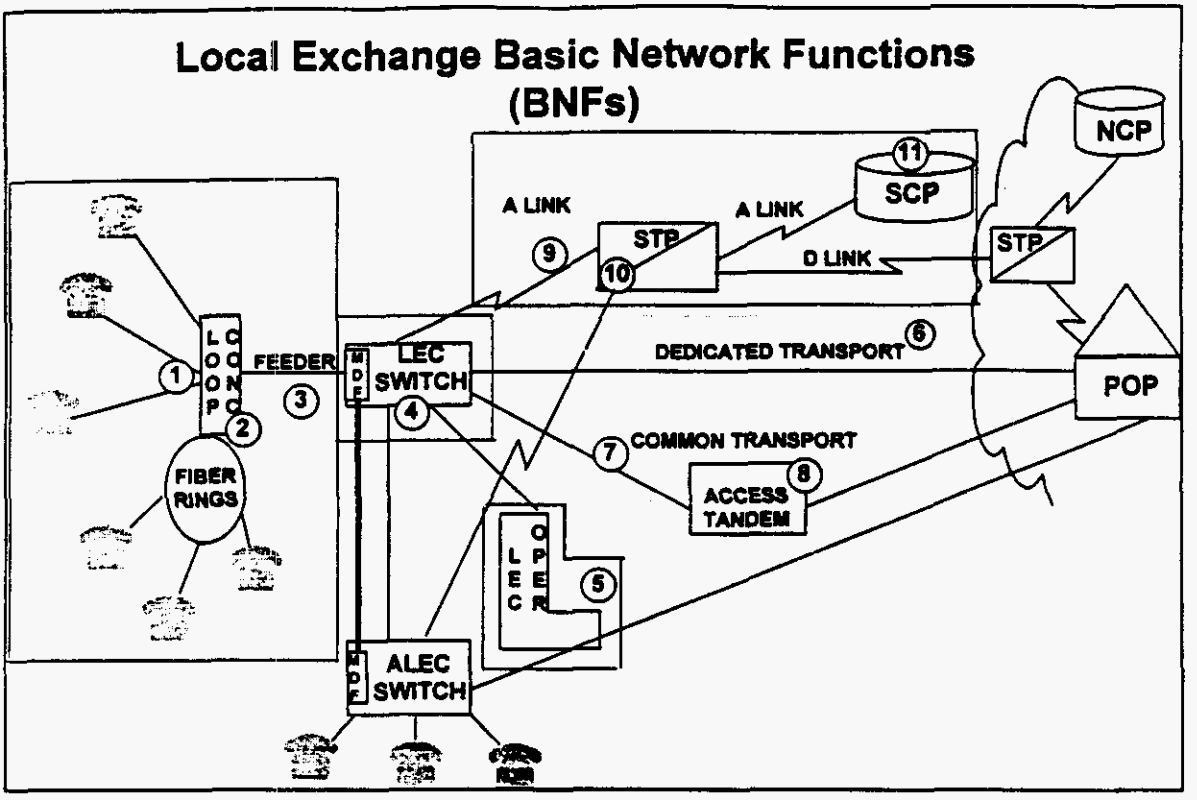


Figure 11 Local Exchange Network Elements

III. SUMMARY

In its Version 2.2, Release 2 formulation, the Hatfield Model estimates reliably and consistently both the forward-looking economic cost of unbundled local exchange network elements and the forward-looking economic cost of basic local telephone service. Because both of these calculations are performed in adherence to TELRIC/TSLRIC principles, Hatfield Model cost estimates provide an accurate basis for the efficient pricing of unbundled network elements and the calculation of efficient universal service funding requirements.

HM2.2.2's methodology is transparent, and it uses public source data for its inputs. These default input values represent the developers' best judgments of efficient, forward-looking engineering and economic practices. But, because many of these inputs are adjustable, users of HM2.2.2 can use the model's automated interface to model directly and simply any desired alternative scenario.

Appendix A

Summary of Changes Between Releases 1 and 2 of the Hatfield Model, Version 2.2

This document describes changes made to the Hatfield Model Version 2.2 between Release 1 and Release 2. The discussions refer specifically to changes incorporated in Release 2 that modify the updated Release 1 version as filed publicly with the FCC on May 30, 1996.

A Benchmark Cost Model (BCM) derivative work called BCM-PLUS has been developed for and copyrighted by MCI Telecommunications Corporation and incorporated into the Release 2 version of the Hatfield Model (which, in this description, is known as HM2.2.2, for Hatfield Model Version 2.2 Release 2). HM2.2.2 also includes an automated user interface with dialog boxes that allow the user to change options and adjust inputs. The interface automates the running of the model as well.

BCM-PLUS Modules

Data module

1. Input and output sheets include an additional column containing business line counts per census block group (CBG).

2. Feeder and distribution distances are increased by 20% in the presence of rocky terrain to accommodate routing of facilities around difficult placement conditions.

3. Feeder length calculation modified to place SAI inside CBG by one-fourth the length of a CBG side.

Loop module

1. The distance at which fiber feeder is assumed is now user-adjustable. In the original BCM, the model assumed fiber feeder cables for total loop lengths of 12,000 ft or greater. In the new version, the calculation is based on total feeder length, and the threshold distance may be adjusted by the user to any value. The default setting is 9,000 ft.

2. The DS-0 capacity per fiber is now adjustable with a default value of 2016 (equivalent to 3 DS-3s). In the original version, the model included a fixed capacity of 672 DS-0s (1 DS-3) per fiber.

3. The number of fibers required per digital loop carrier remote terminal is now adjustable. The default setting is four fibers, which is the same as the value fixed in the original BCM.

4. Lookup tables for optical feeder cable investment now allow user adjustment of cable sizes. The default maximum cable size is now 216 fibers. In the first BCM version, the maximum cross sections for optical and copper fiber and distribution cables were fixed. Also, fiber and copper cable investments per unit length have been adjusted to include engineering, delivery, and installation in addition to material investment. The original BCM did not include installation, engineering, and delivery in this table. The default distribution cable investment table now includes 25-pair cable.

5. The module now computes varying numbers of distribution cables according to density range to accommodate different population distributions in high and low density ranges.

6. Density ranges are now expressed in terms of lines per square mile instead of households per square mile.

Hatfield Model modules

Line Multiplier (now Line Converter) Module:

1. The original Line Multiplier Module used user-specified line multipliers that varied by density range to estimate total residential, business, special access, and public lines. The new Line Converter module applies uniform multipliers to all CBGs to compute residential access lines in each density zone. The business, special access, and public line calculations are based on data that estimate the number of business employees in each CBG. All line totals are computed to match those shown in the ILEC's most recent ARMIS 43-08 reports.

2. The input data contains estimated 1995 household counts per CBG in place of the 1990 counts in the original BCM data.

3. The module computes CBG density in terms of lines, instead of households, per square mile.

Wire Center Investment Module

1. The module removes previous double-counting of trunk ports by reducing the input per-line switching investment by $16 per line, because the model separately calculates the investment in trunk ports for the switches in each wire center and adds the total trunk port investment to the total switching investment in each wire center.

2. STP size is now scaled by the number of A links in the study area; the model previously equipped maximum-capacity STPs in all cases.

3. The module now computes Signaling System 7 C and D link investments, where it previously calculated only A link investments.

4. The transmission facilities investment, expressed as investment per DS-0-mile, is now calculated explicitly for each of the following routes:

common (tandem)
local direct
intra LATA direct
IXC switched access direct
special access

The calculations allow separate user assumptions for optical patch panels, optical multiplexers, regenerator investment and spacing, installation costs, mix of buried/underground/aerial plant, and manhole and pole spacing and installation.

5. The module eliminates double counting of structure costs typically shared between interoffice and feeder facilities.

6. The model now contains reconciled usage calculations between the Expense Module and Wire Center Investment Module.

7. Operator services positions may now be remote from the operator tandem. The user may select the distance; the default value is zero.

8. The module now includes tandem-to-POP switched access direct transport facilities.

9. The end office capacity limits now include entries for switch traffic; they previously included line and processor real-time limits. There are also separate holding time multipliers for business and residence lines to allow users to compute the effects of increased holding time on costs.

10. The module now uses pre-processed interoffice distance data derived from end office, tandem, and STP locations listed in the Local Exchange Routing Guide. This facilitates the running of the model.

Convergence Module

1. The module now separately computes structure costs for aerial, buried, and underground facilities, including poles, conduit, trenching, and manholes. The model independently treats underground and buried cable. The new version eliminates previous double counting of terminals and splices. All structure factors, including the mix of aerial, buried, and underground distribution and feeder facilities are user definable.

2. Digital loop carrier investment is now computed from "ground up." The calculation includes site, housing, power, engineering, common equipment (including multiplexing at the wire center), and line cards.

3. The new version corrects a previous calculation error in local direct and local tandem trunk investment.

4. Default settings eliminate optical multiplexers from the Serving Area Interface. Sufficient fiber capacity exists to allow dedicated fibers to serve each remote terminal, as is consistent with current practices.

Expense Module

1. The module allows economic lives of up to 50 years to be input, (previous maximum permitted life was 32 years).

2. Consistent with the new structure calculations and incorporation of separate underground and buried facilities inputs, the model now calculates separate expense factors for the following network components:

Aerial cable
Underground cable
Buried cable
Poles
Manholes
Conduit

Previously, only aerial and underground factors were calculated.

3. Double counting of DLC terminations and end office line circuits is eliminated.

4. Trunk port costs can now be estimated per DS-0 or per minute.

5. Default user inputs for cost of debt, equity, and debt/equity ratio have been changed.

6. Separate uncollectibles rates for retail and carrier-to-carrier are specified.

7. The module eliminates a previous triple counting of NID (other terminal equipment) investment.

8. Drops are now computed per household rather than per line basis.

9. Dedicated trunking calculations have been reconciled between the Expense Module and the Wire Center Investment Module.

10. IXC switched access and local interconnection unit costs have been added to a new "Cost Detail" worksheet in the Expense Module.

11. NID expenses are now based on ARMIS-reported regulated expense per line (other terminal account); they previously included all "other terminal" expenses and, as a result, overstated NID maintenance expenses.

12. A user-definable carrier-to-carrier customer service expense has been added. Its default value is set at $1.56/line/year -- based on ARMIS 43-04 data on current ILEC expense in serving IXC's access accounts.

13. The new version includes a NID monthly cost calculation in the "Cost Detail" worksheet.

14. Structure sharing fractions have been expanded to allow the user to set independent parameters for aerial, buried, and underground distribution and feeder structure. Default values are 0.33 for all categories.

15. The module now contains a Universal Service Module with the following features:

Network cost built up from UNEs

Network Operations factored to reflect local service only

Local number portability costs have been added as a user input; with a default setting of $0.25 per line per month.

Appendix B

Instruction Manual

Hatfield Model Version 2.2, Release 2

Automated Interface

I. GETTING STARTED

A. SYSTEM REQUIREMENTS

The Hatfield Model (HM) Automated Interface requires the following minimum PC system components to run properly:

- Pentium 133 MHz processor or higher
- 128 MB RAM or more
- CD-ROM drive
- Microsoft Windows 95 or Windows NT operating system
- Microsoft Excel version 7.0

B. TERMINOLOGY

The following terminology is used in this documentation when referring to the Hatfield Model and its components:

HM Modules: The HM Modules are the six functional Excel files which comprise the HM. They are Line Converter, Data Master, Loop Master, Wire Center, Convergence, and Expense.

HM Interface: The user interface to the Hatfield model, which is contained in the Excel file HM_Interface.xls. (Figure 1 shows what the HM Interface looks like.)

Workfile: A workfile is an Excel file created by the HM which contains state-specific HM data and outputs, and can reflect user-specified input parameters. Although the workfile is created by the HM, the user must provide a filename.

Data Template: The data template is a special workfile which contains the default inputs for each state. Data templates use a filename convention which looks like: AZ_rboc__tmplt.xls. Data templates should not be modified by HM users.

C. DIRECTORY STRUCTURE

The HM Interface assumes a basic directory structure as follows:

- HM modules should be stored in C:\hatfield modules
- HM data templates should be stored in C:\hatfield templates

The HM Interface allows users to specify which directories the HM components reside in by selecting 'HM Tools/Set Up Paths and Directories', but it is recommended that the default settings be used.

CD-ROM users should ensure that the paths and filenames point to the appropriate CD-ROM drive (e.g., D:\).

II. RUNNING THE HATFIELD MODEL

D. CREATING A NEW WORKFILE

- Select 'HM Tools/New HM Workfile...'
- Select the appropriate state from the dialog box.
- Select 'HM Tools/Save HM Workfile...' to give the workfile a unique name.
- Press 'GO!'
- Save Expense Module when HM is done calculating
- Select 'HM Tools/Close HM Workfile...' when finished

E. MODIFYING AN EXISTING WORKFILE

Once a workfile has been created, it can be modified to reflect different input parameters. To modify an existing workfile:

- Select 'HM Tools/Open HM Workfile...'
- Modify inputs as necessary, using process described below
- Press 'GO!'
- Save Expense Module when HM is done calculating
- Select 'HM Tools/Close HM Workfile...' when finished

F. CHANGING USER INPUTS

The HM contains several hundred user-adjustable parameters, each of which can be easily modified using the HM Interface. To change a user input, open the appropriate workfile, and select the desired category of inputs from the 'HM Inputs' menu. A dialog box will appear, in which alternative inputs may be specified. (See Figure 2.) If the workfile is saved, the alternative inputs will be saved with it. However, default inputs can always be restored by clicking the 'Reset Defaults' button on the input dialog box.

G. TROUBLESHOOTING

- If the HM Interface displays 'Cannot find file...' errors, ensure that the paths and filenames are correctly specified in the 'HM Tools/Set Paths and Filenames...' menu.
- In the unlikely event that the HM crashes, it is always best to restart.

Figure 1: HM Interface

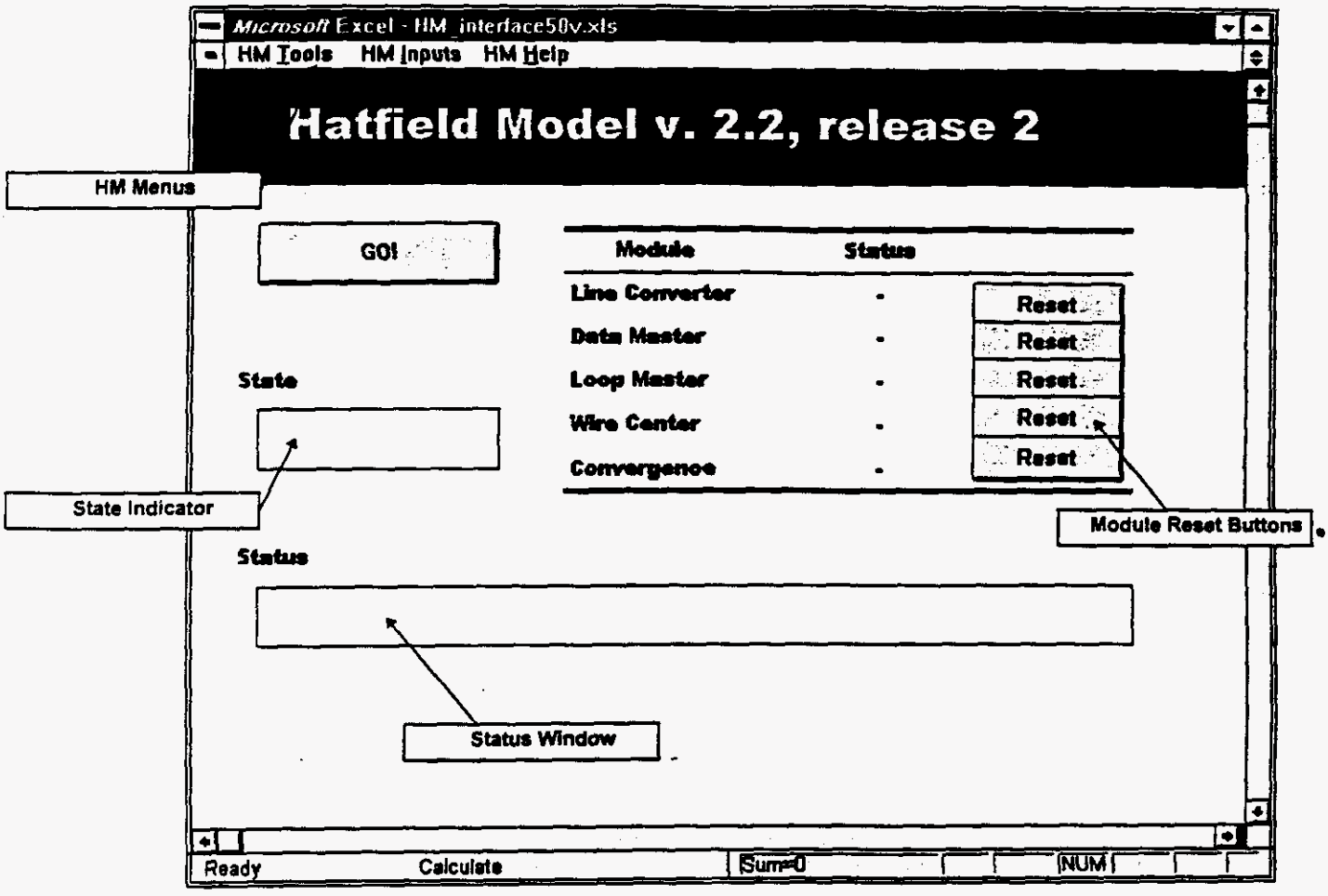
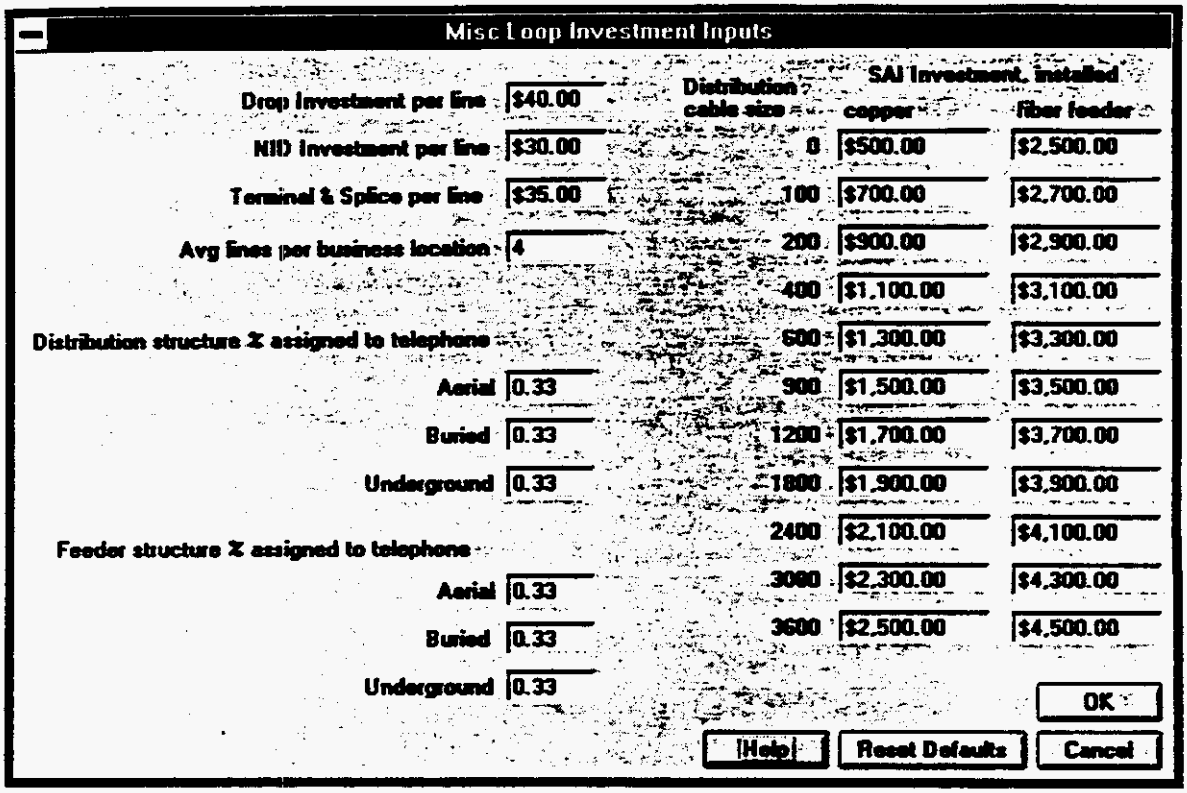


Figure 2: Sample User Input Dialog Box



BCM-PLUS Loop Module Inputs

Cable fill factors

density	Feeder	Distribution
0	0.65	0.5
5	0.75	0.55
200	0.8	0.6
650	0.8	0.65
850	0.8	0.7
2550	0.8	0.75

DS-0s per fiber		Fibers per RT
DLC case	2016	4
AFC case	2016	4

Fiber feeder distance threshold, ft

9,000

Fiber feeder cable inv per foot

Cable Size	u/g	aerial
216	$ 13.10	$ 13.10
144	$ 9.50	$ 9.50
96	$ 7.10	$ 7.10
72	$ 5.90	$ 5.90
60	$ 5.30	$ 5.30
48	$ 4.70	$ 4.70
36	$ 4.10	$ 4.10
24	$ 3.50	$ 3.50
18	$ 3.20	$ 3.20
12	$ 2.90	$ 2.90

Distribution cable inv per ft

Cable Size	u/g	aerial
3600	$ 63.75	$ 63.75
3000	$ 53.25	$ 53.25
2400	$ 42.75	$ 42.75
1800	$ 32.25	$ 32.25
1200	$ 21.75	$ 21.75
900	$ 16.50	$ 16.50
600	$ 11.25	$ 11.25
400	$ 7.75	$ 7.75
200	$ 4.25	$ 4.25
100	$ 2.50	$ 2.50
50	$ 1.63	$ 1.63
25	$ 1.19	$ 1.19

Copper feeder cable inv per ft

Cable Size	u/g	aerial
4200	$ 74.25	$ 74.25
3600	$ 63.75	$ 63.75
3000	$ 53.25	$ 53.25
2400	$ 42.75	$ 42.75
1800	$ 32.25	$ 32.25
1200	$ 21.75	$ 21.75
900	$ 16.50	$ 16.50
600	$ 11.25	$ 11.25
400	$ 7.75	$ 7.75
200	$ 4.25	$ 4.25
100	$ 2.50	$ 2.50

Wire Center Investment Module Inputs

EO switching and traffic parameters

switch real-time limit, BHCA

lines	limit
1	10,000
1,000	50,000
10,000	200,000
40,000	600,000

switch traffic limit, BHCCS

lines	limit
1	10,000
1,000	50,000
10,000	500,000
40,000	1,000,000

switch maximum line size	100,000
switch max line fill	0.80
switch max processor occupancy	0.90
processor feature loading multiplier	1.00
switch installation multiplier	1.1

Interoffice parameters

operator traffic fraction	0.02
total interoffice traffic fraction	0.65
direct-routed fraction of local interoffice	0.98

Transmission parameters

maximum trunk occupancy, CCS		27.5
trunk port, per end	$	100.00
average direct route distance, miles		10
average trunk usage fraction		0.3

Tandem switching parameters

real time limit, BHCA		1,500,000
port limit, trunks		120,000
common equipment investment	$	1,000,000
maximum trunk fill		0.8
maximum real time occupancy		0.9
common equipment intercept factor		0.25

switch price/line size references

switch price per line, less trunk circuits @	$ 220.00	$ 86.00	$ 59.00
switch line size	2,782	11,200	80,000

BH fraction of daily usage	0.10
Annual to daily usage reduction factor	270
residential holding time multiplier	1.0
business holding time multiplier	1.0

(offered load assumed for afternoon busy hour)

call attempts/BH

residential	1.3
business	3.5

Signaling parameters

STP link capacity		720
STP maximum fill		0.8
STP investment, per pair, fully equipped	$	5,000,000
STP common equipment investment, per pair	$	1,000,000
link termination, both ends	$	900
signaling link bit rate		56,000
link occupancy		0.4
C link cross section		24
ISUP messages per interoffice BHCA		6
ISUP message length, bytes		25
TCAP messages per transaction		2
TCAP message length, bytes		100
fraction of BHCA requiring TCAP		0.10
SCP investment/transaction/second	$	20,000

Wire Center Investment Module Inputs

Operator position parameters		
investment per position	$	3,500
maximum utilization per position, CCS		27
operator intervention factor		10
operator position remote distance, mi		0
Wire center parameters		
lot size, multiplier of switch room size		2
tandem/EO wire center common factor		0.40

Power and frame investment	
served lines in wire center	**sum of power and frame**
0	$ 10,000
1,000	$ 20,000
5,000	$ 40,000
25,000	$ 100,000
50,000	$ 500,000

Switch room size table	
switch size, lines	**floor area required**
0	500
1,000	1,000
5,000	2,000
25,000	5,000
50,000	10,000

Construction costs, per sq ft	
switch size, lines	**construction, $/sq ft**
0	$ 75
1,000	$ 85
5,000	$ 100
25,000	$ 125
50,000	$ 150

Land price, per sq ft	
lines in wire center	**price/sq ft**
0	$ 5.00
1,000	$ 7.50
5,000	$ 10.00
25,000	$ 15.00
50,000	$ 20.00

Toll traffic inputs		
local call attempts		
call completion factor		0.70
intraLATA calls completed		
interLATA intrastate calls completed		
interLATA interstate calls completed		
local DEMs, thousands		
intrastate DEMs, thousands		
interstate DEMs, thousands		
tandem-routed fraction of total intraLATA traffic		0.2
average direct intraLATA route distance, mi		25
tandem-routed fraction of total interLATA traffic		0.2
average direct access route distance, mi		15

Interoffice transport investment	**Unit Cost**	
Terminal investment		
Number of fibers		24
FOT capacity, DS-3s		12
FOT fill		0.80
FOT, installed	$	43,000
Pigtails	$	60
Panel	$	1,000
EF&I, per hour	$	55
Medium investment		
Fraction of structure assigned to telephone		0.33
Fraction of structure shared with feeder		0.25
Distance, mi		41
Regenerator spacing, mi		40
Regenerator investment, installed	$	15,000
Fiber cable inv/ft	$	2.00
Placement	$	2.00
Splice spacing,ft		20,000
Splice cost	$	15.00
Trenching/ft	$	45.00
Resurfacing/ft	$	10.00
Conduit/ft	$	4.00
Number of tubes		2
Manhole spacing		1,000
Manhole inv per manhole	$	5,000
Total Conduit		
Buried installation/ft	$	5.00
Pole inv.	$	450
Pole spacing		150
Weighting		

Wire Center Investment Module Inputs

Public telephone, per station	$	1.200

underground	0.3500
buried	0.5000
aerial	0.1500

Convergence Module Inputs

drop investment per line	$	40
NID investment per line	$	30
terminal and splice per line	$	35
average lines per business location		4

Distribution cable size	SAI investment (installed) copper feeder	SAI investment (installed) fiber feeder
0	$ 500.00	$ 2,500.00
100	$ 700.00	$ 2,700.00
200	$ 900.00	$ 2,900.00
400	$ 1,100.00	$ 3,100.00
600	$ 1,300.00	$ 3,300.00
900	$ 1,500.00	$ 3,500.00
1200	$ 1,700.00	$ 3,700.00
1800	$ 1,900.00	$ 3,900.00
2400	$ 2,100.00	$ 4,100.00
3000	$ 2,300.00	$ 4,300.00
3600	$ 2,500.00	$ 4,500.00

Digital loop carrier inputs

BCM "SLC" (TR-303)

site, housing, and power per RT	$	3,000
maximum lines		672
RT fill factor		0.90
common equipment investment	$	42,000
channel unit investment per line	$	75

BCM "AFC"

site, housing, and power per RT	$	2,500
maximum lines		100
RT fill factor		0.90
common equipment investment	$	10,000
channel unit investment per line	$	150

Convergence Module Inputs

Distribution structure Inputs

density range limit	aerial fraction	buried fraction	underground fraction	buried installation/foot	conduit installation/foot
0	0.50	0.50	-	$ 2.00	$ 25.00
5	0.50	0.50	-	$ 2.00	$ 25.00
200	0.50	0.50	-	$ 2.00	$ 25.00
650	0.50	0.50	-	$ 3.00	$ 25.00
850	0.40	0.50	0.10	$ 3.00	$ 45.00
2550	0.65	0.05	0.30	$ 20.00	$ 70.00

pole spacing, feet	150	
pole investment	$ 450	
conduit investment per foot	$ 1.00	w/o trenching
manhole investment, per manhole	$ 3,000	
buried cable armoring multiplier	1.10	

Feeder structure inputs

Copper

density range limit	aerial fraction	buried fraction	underground fraction	manhole spacing, f	buried installation/foot	conduit installation/foot
0	0.50	0.45	0.05	800	$ 2.00	$ 25.00
5	0.50	0.45	0.05	800	$ 2.00	$ 25.00
200	0.50	0.45	0.05	800	$ 2.00	$ 25.00
650	0.40	0.40	0.20	800	$ 3.00	$ 25.00
850	0.10	0.10	0.80	600	$ 3.00	$ 45.00
2550	0.05	0.05	0.90	400	$ 25.00	$ 75.00

pole spacing, feet	150	
pole investment	$ 450	
conduit investment per foot	$ 1.00	w/o trenching
manhole investment, per manhole	$ 3,000	
buried cable armoring multiplier, Cu	1.10	

Fiber

density range limit	aerial fraction	buried fraction	underground fraction	manhole spacing, f	buried installation/foot	conduit installation/foot
0	0.35	0.60	0.05	2000	$ 2.00	$ 25.00
5	0.35	0.60	0.05	2000	$ 2.00	$ 25.00
200	0.35	0.60	0.05	2000	$ 2.00	$ 25.00
650	0.20	0.60	0.20	2000	$ 3.00	$ 25.00
850	0.10	0.10	0.80	2000	$ 3.00	$ 45.00
2550	0.05	0.05	0.90	2000	$ 20.00	$ 70.00

Buried cable armoring per foot, fiber	$ 0.20	

Expense Module Inputs

Debt fraction		0.45
Cost of Debt		0.077
Cost of Equity		0.119
corporate overhead factor		0.100
other taxes factor		0.050
operating state and local income tax factor		0.010
billing/bill inquiry per line per month	$	1.22
directory listing per line per month	$	0.15
service order processing fraction of 6623		0.346
forward-looking network operations factor		0.700
alternative CO switching factor		0.0269
alternative circuit equipment factor		0.0153
EO traffic-sensitive fraction		0.70
per-line monthly LNP cost	$	0.25
Carrier-carrier customer service, per line per year	$	1.56
NID expense per line per year	$	3.00
DS-0/DS-1 crossover		24
DS-1/DS-3 crossover		28
Switch line circuit offset per DLC line	$	35.00

economic life and tax inputs

tax rate	0.40
economic life -- 50 years maximum	
loop distribution	20
loop feeder	20
loop concentrator	10
end office switching	14.3
wire center	37
tandem switching	14.3
OS investment	8
transport facilities	19
STP	14
SCP	14
links	19
public telephones	9
general support	7

Structure fraction assigned to telephone

distribution	
aerial	0.33
underground	0.33
buried	0.33
feeder	
aerial	0.33
underground	0.33
buried	0.33

Q How would you describe the business of Wood & Wood?

A Telecommunications consulting.

Q Does your firm have a brochure or marketing resume of any kind?

A No.

Q Does Wood & Wood do consulting work for companies outside the telecommunications industry?

A No.

Q I think this was clear from my previous question

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DOCKET NO. 961230-TP EXHIBIT NO 13
COMPANY/ WITNESS: STAFF
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when you were at GDS, but has Wood & Wood ever provided consulting services to GTE?

A No.

Q Has Wood & Wood provided consulting services to any local exchange carrier?

A If you mean incumbent local exchange carriers, no.

Q That is what I mean.

A If you mean the desire of other carriers to become local exchange carriers, that's a different question.

Q With your clarification, I mean ILECs.

A Yes, no ILECs.

Q And obviously from your appearance here today you are currently consulting for AT&T and MCI, correct?

A That's right.

Q Have you done consulting work for any other long-distance carrier at Wood & Wood?

A Yes, I've done work for companies that part of their business is long distance, but they may or may not be -- they may or may not hold themselves out as primarily a long-distance provider.

Q What percentage of your professional activities on behalf of Wood & Wood have been for AT&T?

A Over the entire history, I've never really given

that much thought.

Q Would it be as much as 50 percent?

A No.

Q Would it be as much as 25 percent?

A Possibly.

Q How about MCI, same question, approximately what percentage of your activities for Wood & Wood have been for MCI?

A More than that, perhaps as much as 50.

Q So would AT&T and MCI account for approximately 75 percent of your consulting work since you formed your firm?

A Again, in terms of rough ball park estimates, that may be as good as any, although added together that seems a little high.

Q In terms of your firm's gross annual revenues, what percentage of your firm's gross annual revenues -- Are you on a calendar year or fiscal year?

A Calendar.

Q In fiscal year 1995 what would have been derived from AT&T and/or MCI?

A Well, I'm not entirely comfortable giving you too many more particulars of the business, but I would say as a general statement the revenue tracks the amount of time certainly.

Q Would that also have been true in fiscal year 1994?

A I suspect it would have been.

Q With three quarters of the current fiscal year under our belt now, would you expect that '96 would be about the same as '95 and '94, or would you expect --

A Well, the fortunate thing about having a CPA as a partner is that these are not the sorts of things that I work with from day to day. As far as gross ball park estimates, I think that figure is fine. But this is, quite frankly, not something that I focus on.

Q Has your level of work, and by level of work I mean as you divide up your time commitments, in 1996, has it been insofar as your work for AT&T and MCI, has it been about the same as it was in 1995, or has your level of work for those two companies increased in 1996?

A I think everyone's level of work has increased in 1996.

Q In terms of the proportion of the whole, though, would you say that in 1996 you yourself, not the firm, but you yourself would have devoted as much as 75 percent of your professional work for AT&T and MCI?

A Again, we are talking gross ball park estimates, I think that figure is probably as good as any we can probably come up with.

Q Have you published anything in the telecommunications field?

A In terms of journal articles?

Q Yes, sir.

A No.

Q Have you written any books in the telecommunications field?

A No.

Q Have you published anything on the subject of cost modeling?

A No.

Q Have you published on the general subject of economics?

A No.

Q Have you written any books or articles on any subjects that have been published?

A Yes.

Q What would that be?

A When I was a graduate student at William and Mary, I was employed by the bureau of business research, and I published statistical economic data for the State of Virginia and the analysis of that data, employment growth figures by sector, for example, those type articles. Well, during my entire tenure at William and Mary, over a two-year span.

Q Where would they have been published?

A I believe the publication is the Virginia Business Report.

Q That's a government publication?

A It's a bureau of business research publication. The bureau itself consists of academic folks from a number of Virginia institutions, I believe; but at that time, at least, it was headquartered at William and Mary.

Q Since you got your master's from William and Mary in 1987, then you have not published anything on any subject?

A No.

Q Are you a member of any professional associations?

A No.

Q Have you ever been?

A Well, I guess it depends on what you mean by professional organizations. I'm a member of the Emory Business School Club, for example, which is by some definition a professional organization; but as far as national economic organizations or something like that, no, I'm not.

Q You are not a licensed professional engineer, I take it?

A No, I'm not.

Q Have you ever attempted to be?

A No.

Q Have you undertaken to be certified in any professional specialty?

A No.

Q Have you undertaken any course of study toward obtaining a Ph.D.

A No.

Q What did you do to prepare to offer prefiled written testimony in this proceeding, the one in which this deposition is being taken, with respect to the Hatfield model?

A I had been reviewing the Hatfield model for several months now. I've had a number of meetings and presentations from the developers of the model. They have received feedback from me and other consultants as they were developing Release 2 of the model, which is what is

being presented in this proceeding. I have evaluated the methodology that they used, the input assumptions that they've made. I have run the model. I have had responsibility for how the model was run and the inputs that were used for the run that was used to produce the results in this proceeding.

Q What else if anything have you done to prepare for your testimony in this proceeding? For example, have you read the pertinent provisions of the Telecom Act?

A Yes, I have.

Q Have you read the pertinent provisions, if there are any pertinent provisions left, of the First Report and Order?

A Yes, I have.

Q Approximately when were you retained by AT&T or MCI to offer testimony with respect to the Hatfield model?

A Well, I was asked -- there are two dates in a row. I was asked perhaps back in a mid June time frame, perhaps an early June time frame to review the model, analyze it to my satisfaction and then respond back to them as to whether I would be willing to sponsor it or not. Certainly if the model had not checked out I wouldn't be here sponsoring it. After some number of discussions at a later date, and I don't know the exact date, several weeks later, I did agree to sponsor the model in a number of

these proceedings.

Q The version of the Hatfield model that you are sponsoring in these proceedings is Version 2.2?

A Release 2.

Q Release 2?

A That's right.

Q Version 2.2, Release 2?

A That's right.

Q When was that issued?

A The current form was finalized on August 20th. There was a preliminary version of the model that was used, and actually was used to prepare preliminary results for a number of these proceedings earlier in August. August '96 is the answer, but I don't know the exact date for that preliminary release.

Q When was Release 1 released?

A Back in the spring, probably in April or so. I was not directly involved in the process when Release 1 -- well, let me make sure I'm being precise with dates. I think the April time frame is right for Release 1. It may have been somewhat earlier than that.

Q I'm just trying to fix when you became involved in this matter insofar as the Hatfield model is concerned. I gather from your testimony then when you were first asked to evaluate the Hatfield model, Release 1 was in effect?

A That's right.

Q But Release 2 had not yet become effective?

A That's right.

Q And did you participate in the work that led to the development of Release 2?

A I participated in a number of feedback sessions to the model developers. I am not, nor do I pretend to be a developer of the model itself.

Q Would you have been able to sponsor Release 1?

A It depends on what it was purported to -- the results were purported to be. I think, if -- well, let be absolutely clear. It is accurate to characterize the results of Release 2 as including all of those costs that an efficient provider of wholesale unbundled network functions would incur in its operations, and that's a very inclusive statement, and I think it's accurate.

What was missing from Release 1, if one wanted to make that statement, were costs that were associated with what had been referred to as carrier-to-carrier operations. In other words, it's not as expensive to offer service, market service and bill to carrier customers as it is to retail customers, but it is not free either; and that estimate of cost was missing from Release 1. It has been included in Release 2.

Q Would it be fair to say then that you found

Release 1 to be deficient in some respects?

A Well, I'm not sure deficient is the right word. I think there were certainly areas in which I gave feedback and others gave feedback. One is the carrier-to-carrier cost issue. Another is that, quite frankly, the thing was a little cumbersome. What resulted from that feedback is the graphical user interface that has been incorporated in Release 2. There was of course awareness also during this development period that there were some number of recognized shortcomings with regard to the BCM-1 modules that were being used, but at the time I became involved work was already underway to address those shortcomings, and so I came on board with knowledge that those issues were being addressed.

Q Approximately how many feedback sessions with the model developers did you participate in over the summer?

A Four or five.

Q Who did you meet with in those sessions?

A Robert Mercer of Hatfield Associates, Richard Chandler of Hatfield Associates; they are two of the primary authors of the model. Also, I believe it's John Donovan; he is a consultant. He is a subcontractor of Hatfield; he is not a member of the firm, but he has provided some expertise. Also some number of the Deloitte-Touche Consulting Group team that has been

assigned to assist with the development of the model and to actually process the runs that are being used in the states.

Q Did any representatives, and by representatives I mean employees of AT&T or MCI, participate in these feedback sessions?

A Yes.

Q Who would they have been?

A Oh, they would have been -- probably grand total, it wasn't the same folks at each meeting, it could have been 150 people involved.

Q Where did these feedback sessions take place?

A Denver on two occasions, Oakton, Virginia. I attended one telephonically. I believe it was also in Denver at a different location. Of course many of these occurred in Denver because Hatfield was located there in Boulder.

Q Was the Denver session at the offices of Hatfield and Associates?

A No, these were all at hotel meeting rooms. Again, there were quite a few folks involved.

Q Was the meeting in Oakton, Virginia, was that at AT&T's office?

A Yes, it was.

Q So there was a meeting in Denver at a hotel;

there was a meeting in Oakton, Virginia at AT&T; there was at least one meeting that you attended telephonically?

A Which was also a hotel. Actually there were two hotel conference room meetings in Denver that I attended in person and one that I attended telephonically and one in Oakton that I attended. And I feel like I'm leaving one out and I apologize. It may come to me in the next few minutes. I'd be happy to tell you if it does.

Q That would be much appreciated. Thank you.

Do you know whether or not any lawyers for AT&T and MCI participated in any of those feedback sessions?

A Yes, they did.

Q Would counsel for AT&T or MCI have participated in all of the feedback sessions?

A Yes.

Q Do you know whether there were feedback sessions during the development of Release 2 in addition to the four that you participated in?

A I don't believe there were. And to make my previous response complete, the meeting that I could not recall a minute ago was in Basking Ridge.

Q Forgive me, I don't know where that is.

A New Jersey.

Q And would that have been at AT&T's office?

A I believe it's called the AT&T Learning Center.

It was a conference site that was able to accommodate that large number of folks.

Q And that's an AT&T facility?

A Yes, it is. Purely because I suspect they got a better deal there than they would have at an outside hotel.

Q If you own it, it's easier that way.

A Apparently. And yes, there were attorneys present at that meeting also.

Q Are you aware of any additional development of the Hatfield model after the publication of Release 2?

A It's my understanding that there is -- of course with any good cost model, there is development underway to add new features. I don't know which features will be included in the new release, but I'm sure they are working on them.

Q So when you say you are sure they are working on them, who is working on them?

A The Hatfield development team.

Q And when you say the Hatfield development team, would that be Messieurs Mercer, Chandler, Donovan and people from Deloitte?

A And individuals who worked for Mercer, Chandler and Donovan.

Q And representatives of AT&T and MCI?

A I don't think so.

Q Would that be Release 3 then that is under development?

A Given my understanding of the numbering system that they have decided to use, I expect that that would be denominated as 2.2, Release 3.

Q Do you know when Version 2.2, Release 3 is due to be completed?

A Oh, no.

Q Why is it necessary to further refine the Hatfield model?

A Well, I didn't suggest they were further refining it, although I think --

Q How would you describe what they are doing to it?

A Well, I think what I described to you before, is that they are adding features to the model, and they are certainly adding unbundled network elements to the list, to the extent that they identify a need -- that their clients identify a need to have additional elements costed; but I would suspect any cost model to be continuously refined. In fact, I would probably characterize it as irresponsible if the developer of a model didn't continue to refine it.

Q And the purpose then for continuing to refine it is to make it better or more accurate, correct?

A I think that is always true with any efforts at refinement.

Q In preparation for the opinion you hope to render in this proceeding, have you reviewed the prefiled written or deposition testimony of any other of AT&T or MCI's experts?

A I have seen certainly the direct testimony of both companies. I can't say that I've seen all the rebuttal because that is just recently been developed and filed.

Q Whose direct testimony have you reviewed?

A Whoever is on the list for both companies, and I can't tell you beyond that. As I gave you before, the list of states and the witness lineup is slightly different in each one, so I can't tell you which names at this point are associated with which state, but I did review the packages as they are put together, the direct testimony packages as they are put together.

Q I take it then you reviewed Mr. Mercer's direct testimony in various states?

A Yes, I have.

Q Can you remember the names of any other AT&T or MCI Hatfield witnesses that you have reviewed?

A Oh, Hatfield witnesses?

Q Yes, I'm sorry, I should have been more precise. I'm referring only to Hatfield witnesses.

A Mr. Mercer has testified. Mr. Steven Siwek,

S-i-w-e-k, is presenting some Hatfield testimony in some states, and I believe Daniel Alger, A-l-g-e-r, is also providing some Hatfield testimony. He is an employee of Mr. Siwek's firm.

Q And Mr. Siwek's firm?

A Economists Incorporated, Inc.

Q Do you know whether or not AT&T or MCI ran the Hatfield model for GTE Florida before the preliminary version of Release 2 was available?

A I don't know if there was a 2.2, Release 1 run or not. If it were, it occurred prior to my involvement with the review of the model.

Q So you have never seen a Release 1 Hatfield model for GTE Florida?

A That's right. My very strong suspicion is that there is no such thing.

Q But you don't know one way or the other?

A That's right. I was not involved in its preparation.

Q Do you know enough about the current deliberations of the developers of the model to know whether once we have a Release 3 the numbers reflected on Wood Deposition Exhibit 1 will change yet again?

A Well, I'm not sure what you mean by deliberations. I'm sure they are discussing how to incorporate changes that might be requested by their clients. I don't know what those changes are other than generally I know them to be to add additional features and

to add -- and/or to add additional unbundled network elements, but the respective client companies have no reason to tell me what their future plans are with regard to unbundled elements, so what they have communicated to Hatfield I have no idea.

Q Have I correctly inferred from your comments that you are not participating in feedback with respect to the development of Release 3 as you did in the feedback with respect to the development of Release 2?

A Not quite. There have been no formal feedback sessions on Release 2, and I haven't been asked to provide that kind of feedback. Obviously as we go through this process, if I can identify ways that will make this model easier to use, more accessible, more suited for its intended purpose, which is to allow public scrutiny of a cost process, something heretofore unprecedented, I will certainly provide that feedback if they ask for it; but there haven't been any such sessions, so -- well, that's it. I mean there haven't been any requests for feedback.

Q Feedback from you?

A That's right.

Q Do you know what additional features the developers of the model have under consideration currently?

A No, again, that's between the developers of the model and their clients. I have no idea.

Q What is the Hatfield model intended to do?

A I'm sorry, this version or this release?

Q Yes.

A It is intended to do two things. It is to provide a forward-looking economic cost of unbundled network elements. This version also, this release also for the first time confines -- combines that capability with the capability of performing a cost of basic local service calculation to be used to estimate universal service funding requirements.

Q And would that be the second thing that the Release 2 version is supposed to do?

A That's right. And to be clear, an early release of the model was based purely on the universal service calculation. Version 2.2, Release 1, only performed the unbundled network calculation. Release 2 for the first time combines both capabilities.

Q Have you formed an opinion as to whether the Hatfield model Version 2.2, Release 2 actually does what it is intended to do?

A Yes, I have.

Q And what is that opinion?

A I believe that it does so within a very reasonable bound of accuracy, certainly with the level of verifiability that is, again, unprecedented.

Q When you say its level of verifiability is unprecedented, do you mean it is unprecedentedly high or unprecedentedly low?

A The verifiability is unprecedentedly high. The access to the model, the model itself, the documentation to the model, the inputs to the model, that level of access is far beyond anything that has ever been provided by the incumbent local companies. And I say that with some certainty having looked at quite a few cost studies.

Q But since you have not undertaken an analysis of GTE's cost study in this Florida proceeding, I take it then you have no opinion as to whether the verifiability of the Hatfield model for Florida exceeds or is less than the verifiability of GTE's cost study?

A No, I do have an opinion on that, and unless GTE has provided an electronic usable format of its cost models, including full documentation and including a complete list of inputs to that model, then the answer is by definition, no, it has not provided the same level of accessibility.

Q So then are you now offering an opinion to the Florida Commission with respect to the reliability of GTE Florida's cost study?

A I am offering the opinion that it is certainly more reliable -- It is certainly -- Let me start the

sentence over.

The ability to assess the reliability of a cost model is a function of the access to that model, that model being the electronic code; that model being the documentation; that model being the inputs and assumptions and an explanation of those inputs and assumptions. To agree as a general statement that any model provides a higher level of disclosure of any of those essential elements than another model does, the degree of verifiability is enhanced and is higher.

Q Are you offering an opinion to the Florida Commission then with respect to the relative degrees of verifiability of the Hatfield model as applied to Florida on the one hand and the GTE cost studies for Florida on the other?

A With regard to what I just described to you, yes, absolutely.

Q And what is that opinion?

A The opinion is -- The one I just gave you. If GTE presents anything short of full disclosure of the model, full disclosure of the documentation, full disclosure of the inputs and full disclosure of the inputs of those, the ability of this Commission or its staff to analyze and determine the verifiability of that model is diminished. It is less than what is being offered by

Hatfield.

Q But if GTE were to provide the level of disclosure you describe, then I take it you would not quarrel with the reliability of the GTE cost study?

A Well, I would not quarrel with the verifiability of the GTE cost study. If GTE were to make an equivalent disclosure without restriction, which is what has been done here, an equivalent level of disclosure, then I would tell you that the ability of the Commission staff and other parties to verify the models would be the same in those cases. That's not an opinion on the reliability. You can't assess reliability until you can assess verifiability.

Q What can you tell us about the structure of the Hatfield model?

A The Hatfield model is a series of Excel workbooks. It consists of six or seven different distinct modules, which I describe in my testimony, which are described in detail in the documentation. Those models collect inputs. They process those inputs to determine investments, and then they convert those investments through a set of developed factors into expenses, essentially the same process that any cost model would follow.

Q Approximately how many pages of documentation

does the model have? And just so the record is clear, while you're looking, when I say the model now, I'm talking about Release 2.

A That's right. 41 pages of verbal description, in addition to five pages of a summary of changes between Releases 1 and 2, so that is 46, in addition to five pages of instructions on how to use the graphical user interface, which gets us to 51, and then an additional seven pages, I believe, that's right, of an extensive list of inputs, which I guess gets us to 58.

Q How many inputs does the model accommodate?

A I believe there are in excess of three hundred. I haven't counted them. I guess we could do so from these seven pages. Quite a few.

Q You called it extensive earlier. You consider it an extensive list?

A I'm sorry, what did I refer to as extensive?

Q I think you said seven pages of an extensive list.

A Well, I believe it's beyond extensive; I believe it's complete.

Q It's several hundred, is it not?

A That's right.

Q Do you know how many cells the Hatfield has?

A Oh, I have no idea. Thousands.

Q Would it be more than a million?
A Oh, I don't know.
Q Could it be?
A I don't know.
Q Do you know how many equations the model completes when it is run?
A No, I have no idea. Again, part of that is going to be a function of, as we discussed my previous developed model at BellSouth, how we defined calculation. It's possible to say that every cell has a corresponding calculation so that there would be as many calculations as cells, but a very large number.
Q Have you yourself run Release 2 of the Hatfield model?
A Yes, I have.
Q How long does that take?
A It has been -- It depends on the size of the state because obviously the census block group data will vary by size. It can take, to run the investment pieces, close to an hour probably, give or take.
Q Did you run it for Florida?
A I have responsibility to ensure that the runs for Florida utilize the correct inputs and assumptions and are conducted correctly, but employees of Deloitte-Touche Consulting Group are the folks who actually press go, if

you will.

Q Do you know how long it took to run it for Florida?

A No, I don't.

Q What did you do to assure yourself of the accuracy of the inputs for the Florida run of the Hatfield model?

A Well, I discussed with the Deloitte-Touche representative the default inputs and any -- and discussed with her any reason or necessity to change default inputs, and my recollection is that we found no reason to change the defaults for GTE Florida.

Q So by the default inputs, that would be the extensive list of inputs that you described as being seven pages in the documentation?

A That's right. Of course the census data, the household counts, the geographic data, all of that would be Florida specific and specific to GTE Florida's operating territory. What I am describing here are the user-defined inputs to the model.

Q So the CBG inputs for Florida would be Florida specific and GTE specific?

A Yes, they are.

Q What percentage of the inputs are default inputs? Is it one hundred percent?

wouldn't want to have buried cable. They are also based on the experience of subject-matter experts who have outside plant experience. In fact, I believe the individual responsible for developing these inputs has in excess of 25 years outside plant experience, engineering experience.

Q And who would that be?

A That's John Donovan.

Q Does Mr. Donovan have any experience in GTE's service territory in Florida?

A I don't believe he does.

Q You mentioned that there were assumptions based on geography. Does the default assumption reflected in the Hatfield model run for GTE Florida take into account the topography of GTE's service area in Florida?

A There are adjustments that are made to reflect that topography. For example --

Q But were they made with respect to Wood Deposition Exhibit 1?

A They would be made automatically by the model as those types of areas came into play, and without tracking through spread sheet by spread sheet, I can't tell you in which CBGs they took place. The model is constructed to automatically look for difficult routing scenarios, in other words, areas in which the routing of the cable and the normal structure that would be used and the normal

length of that facility might be different, for example, rocky terrain, surface bedrock, that sort of thing; and it adds on the length of the facility in order to route around those types of obstructions but it would do that automatically. That wouldn't be a user input to make that type of adjustment.

Q So you're telling us that the CBG data on which the model makes its assumptions about distribution of plant actually take into account the physical geography and topography of GTE's service area in Florida?

A Yes.

Q What is the basis of your statement with respect to that?

A Well, the data that is loaded in in the input model is on a CBG by CBG basis, U.S. Geological Survey data that indicates a number of characteristics. I can give you -- I have rattled off a few. I think it gives you depth to bedrock, and it gives you surface texture, it gives you soil types. Obviously it's easier to trench through some types of soil than others. It's easier to place poles in some types of soil than others. I believe water table data is incorporated as well, also the topography in what are described in the geological survey data as bouldery situations or steep topography situations. The model actually routes the facility around that area,

but yes, those are included on a CBG by CBG basis for GTE Florida's territory.

Q Do those Florida specific CBG assumptions take into account the local ordinances with respect to overhead or underground plant in GTE's service area in Florida?

A Not specifically, no. Again, these assumptions will vary by density zone. In other words, the model does not assume the same mixture of underground buried in overhead plant in a high density area as it would in a low density area, and part of that is to reflect the difficulty or ease of placing plant in typical ordinances with regard to overhead plant in downtown areas, for example. But that's done on a more aggregated basis; that is not specific to GTE Florida.

Q So that's a function then of assumptions that the model makes with respect to population density and has no relationship to actual ordinances in GTE Florida's service area?

A Well, I suspect it has some relationship, and I suspect it tracks reasonably well; but, no, it does not base specifically on ordinances. That would be, to do that type of task nationally, it would be probably an insurmountable job.

Q What is a fill factor?

A A fill factor is a general term for a number of

different types of assumptions. All of them are related to the fact that different types of telephone plant are not designed to, and do not in practice operate at one hundred percent capacity.

Q What if anything does the model assume with respect to fill factors?

A The fill factors, again, are disaggregated by type of plant, by type of facility used. In other words, there are different assumptions for fiber and copper feeder, for example, and they are also different for each type of facility within each density zone.

The fill factors which are listed in the list of inputs are in my mind somewhat conservative assumptions of what is called engineering fill or administrative fill. In other words, that is, that number represents a couple of different things. It's a number that accounts -- you want to operate the network at or below that figure in order to accommodate unexpected short-term growth or short-term growth in general, traffic peaks, the need for reliability, that sort of thing.

Q What are the default fill factors that the model assumes for GTE Florida?

A That is in the documentation in a couple of places. Let's see, on page 17 of the distribution -- of the documentation are the fills by density zone for feeder

and for distribution.

Q Do you have any idea how they relate to GTE Florida's actual fill factors?

A Actually for, at least for feeder the answer is yes, although my recollection is that the study that I'm pulling this understanding from may have been proprietary; I don't recall. Without divulging a potential proprietary number, I will say that the last number that I saw for feeder fill in the GTE cost study was higher than any of the assumed feeder fills or the objective feeder fills that are used in Hatfield.

Q Who developed the default fill factors in the Hatfield model?

A These were developed through a process of using the outside plant -- well, let me give you a better answer than that. The outside plant experts certainly played a role. There is also some documentation that establishes very generally the ball park figure that people work from. Bell System practice, AT&T 916, 250, 250, Section 3, Issue 2, describes fill relief factors of 85 percent. And I believe it does so for feeder and interoffice because the facilities are often very similar. I would note that none of the objective fill factors or the maximum objective fill factors that are used here in the model are 85 percent; 80 is the highest. That is for feeder.

For distribution fill, I believe the starting point was Telecommunications Transmission Engineering, third edition, BellCore, 1990 is the cite that I have here, and I believe that is right. Then there were some adjustments to that fill from BCM-1 to BCM Plus, which is what the Hatfield model uses. It's my understanding that the model developers of BCM-2 have made similar adjustments.

Q And as you are responding to my question, you are just reading from the documentation of the model?

A I'm reading from the document and from a document that has been provided to -- or is about to be provided to staff as a late-filed deposition exhibit in the BellSouth document. It's my understanding you have requested a copy of everything that has been presented in that deposition, so it's something that is on the way to you; and it's simply a description of the input values.

Q Can you just tell me what the title of that document is so that whenever --

A Sure. Hatfield model Version 2.2.2, input summary.

Q What is the date of that?

A I'm not sure it's dated. It has just been released in the past few days. It's not dated. It is current, however.

MR. POWELL: Would you mark that as Wood 2, please?

(SO MARKED)

Q Mr. Wood, I'm handing you what the reporter has marked as Wood Deposition Exhibit 2, and I'll ask you to describe that for the record, please.

A Yes, this is a list of descriptions of the inputs that are listed in attachment C to the documentation and provides -- there is a column labeled Support Material. It provides, to the extent that this information here is based on public sources, and of course the objective of the model is to base all the inputs on the best available public source, it describes either a specific document from which the input was taken or derived, or it describes some discussion or description of how the input was devised or derived. I think that's probably the two categories here. There were also some attachments here from the MEANS data base, M-E-A-N-S, that provides some backup material to the construction assumptions, the construction cost assumptions.

Q I note reading across the table at the upper right-hand corner of the first page of Wood Deposition Exhibit 2 it says attachment RAM-3. Would I be correctly deducting that Wood Deposition 2 is a copy of an attachment to Mr. Mercer's testimony in some other jurisdiction?

A Yes, you would.

Q When do you believe Wood Deposition 2 first appeared?

A It has been under development for sometime at the insistence, quite frankly, of myself and other witnesses, but it only was released in its final form and what we believe is its correct form within the past few days. My guess, and it's purely a guess, is Friday of last week was the first day that this was available. It may have been actually over the weekend.

Q So as recently as three or four days ago?

A Yes.

Q Who generated Wood 2?

A This was developed by the employees of Hatfield Associates, Inc. under the direction of the developers of the model.

Q And those people would be --

A The list that we discussed before.

Q Mercer, Donovan?

A Chandler, yes, those folks.

Q You said that it was developed, at least in part, at the insistence of yourself and others, correct?

A That's right. Just purely because the purpose here is to provide an open accessible model that is verifiable, and we felt it would be helpful to have all of

this data together in one place.

Q When did you first communicate your insistence that Wood 2 be developed?

A Well, request is probably the right verb. Within the past two or three weeks. They were fairly responsive in putting this together.

Q To whom did you make the request?

A To individuals at Hatfield Associates. Probably directly to Dick Chandler, but I don't recall exactly who I talked to. It was not the first time he had received the request.

Q Who else, insofar as you're aware, requested the development of Wood 2?

A Well, I think that would probably be the same list as the list that we discussed before, people who are sponsoring Hatfield results.

Q Is there anything else that you have requested of the developers of the Hatfield model that they have not -- that they currently are working on?

A No.

Q Is there anything that you have requested of the developers of the Hatfield model that has been denied to you?

A No.

Q Are you aware of any other such requests to the

developers of the Hatfield model having been made by other experts other than yourself that are currently underway?

A No, other --

Q Other than what is shown --

A Other than what has actually been produced, no, I'm not.

Q And by what has actually been produced, you are referring to Wood 2?

A That's right.

Q Let's talk a little bit about the cost of structure. What default costs does the Hatfield model assign to the cost of structure?

A Well, there are two types of costs, and we can find them in here if you would like. There are costs associated with the actual poles or conduit itself as far as the physical facility, and then there are costs associated with placing that facility.

Q And what is the basis, if you're aware of it, for the default costs that the Hatfield model applies to --

A I believe they are a combination of two sources. They are -- I mean for things like PVC conduit, it's fairly easy to go to vendors and get a representative sample. I think that type of activity combined with the experience of the subject-matter experts and outside plant who have acquired this type of facility over the years,

both of those things combined go into these estimates.

Q Can you point me to a page or pages in Wood 2 that identifies the source of the inputs for cost of structure?

A Sure. For example, on page 17 of 31, there is a pole investment of 450 dollars which represents a 35-foot, class 4, treated, southern pine pole.

Q And does it identify the source of that cost?

A No, although with that level of detail, it certainly would be a fairly straightforward process to go to a vendor and verify the 450 dollars. To be clear, 40 percent is assumed to be the material cost; 60 percent is assumed to be the installation cost of the 450.

Q Do you know what the basis of the 450 is?

A Well, again, as I described to you before, it's a combination of the type of information that is readily available from vendors of these structures and combined with the experience of the outside plant engineers that were involved.

Q But you don't know one way or the other, do you, whether the developers talked to any vendors to get that 450-dollar number?

A I don't know who they talked to.

Q In fact, you don't know if they talked to anybody, do you?

A No. I was not involved in that process, no.
Q And how do you suppose they allocated the material and labor components of that 450 dollars?
A I expect probably by subject-matter experts. If you had an individual with 25 years experience at putting poles in the ground, they probably have a pretty good feel for how much is the pole and how much is the installation.
Q But this individual never put a pole in the ground in Florida, did he?
A I suspect that is true.
Q You don't know way one or the other actually, do you?
A Actually, I'm fairly certain that Mr. Donovan, who is the individual that would have had this type of input, has not placed poles in Florida.
Q So Mr. Donovan wouldn't know what a pole cost in Florida or what the cost of labor in Florida would be, would he?
A I would expect he'd have a good idea, yes.
Q How would he know that?
A 25 years experience.
Q In New England, right?
A That's right.
Q What does the Hatfield model assume the cost of

capital to be?

A The cost of capital assumption is a weighted average of 10.01, which is based on a cost of debt of seven -- a very simple capital structure composed of only debt at the cost of debt at 7.7 percent, a cost of equity of 11.9 percent, and a mix of 55 percent equity, 45 percent debt.

Q So the 10.01 number you gave is the weighted average between the debt and the equity allocation?

A That's right.

Q And if I understand your testimony correctly, the Hatfield model default cost of capital is 10.01 percent?

A That's right.

Q And where in the model is that reflected? I'm sorry, where in Wood Deposition Exhibit 2 is that reflected?

A Page 1.

Q May I see that?

A Certainly.

(DOCUMENT TENDERED TO MR. POWELL)

Q Do you know who assigned 45 percent to debt and 55 percent to equity?

A Yes.

Q Who was that?

A The FCC. That's the last approved capital

structure from the FCC.

Q Would you expect the cost of capital to change in a competitive environment?

A I would expect the cost of capital would change in any environment.

Q Would you expect it to change in a competitive environment?

A Well, yes, just as it would change in any other environment. The capital markets are variable.

Q How would you expect the cost of capital for GTE to change in the competitive environment that we are moving into?

A Well, that's really a couple of different questions. That's --

Q Well, let's start with the first question. In the brave new world of telecommunications, would you expect GTE's cost of capital to change from what it is today?

A For those operations associated with competitive retail services, very possibly. For those operations associated with monopoly functions, including the wholesale sale of unbundled network functions, no, I wouldn't expect it to change.

Q Let's talk about GTE's aggregate cost of capital. Would you expect GTE's aggregate cost of capital in the years ahead to change from what the aggregate cost

of capital for the company has been up until now?

A Well, I certainly expect it to change. To be clear, to be absolutely clear, it will be -- the aggregate cost of capital as I think you referred to it will be the sum of all the costs of capital of all the individual projects that the firm undertakes, which is a composite -- which reflects the risk associated with each of those projects. You can calculate cost of capital using the capital asset pricing model based on what is called the project data that reflects the risk, inherent risk in the specific activity that you are studying. Obviously the aggregation of all those is the total firm. What is used here is a study of unbundled network functions, which is not a competitive enterprise, so the project data for unbundled network functions or for wholesale operations in general would not reflect the risk associated with competition for retail services, or would not properly reflect it.

Q As a general proposition in an unregulated environment, would you agree or disagree that the cost of capital is a function of risk?

A For each individual activity of the firm, yes.

Q And would you agree that as the risk goes up so too does the cost of capital?

A Yes, and again, you would properly look at that

on an activity by activity basis.

Q And would you agree that the cost of capital for companies operating in an unregulated environment is generally higher than the cost of capital for companies operating in a regulated environment?

A Sometimes, sometimes not.

Q In what instances?

A Well, the market --

Q Can you give me an example in which the cost of capital for a company in an unregulated environment would not be higher than the cost of capital for a company in a regulated environment?

A Well, I'll have to think about specific examples.

Q Well, now is your chance.

A Well, it may take longer than we have. As a general statement, though, it is certainly possible that the risk associated with operating in that market may or may not be a function of regulation or nonregulation. There are some, I'm sure, and we could find them, unregulated companies that don't face very much business risk in the aggregate. So I disagree with your statement that you can make in some blanket sense that riskiness is inherently a function of regulation/nonregulation; it's more than that.

Q Focusing on the telecommunications industry,

would you perceive that the risk for the companies that are going to be competing with one another in the days and years ahead is greater than or less than the competitive risk they face right now?

A For some activities, it will be higher. For some activities, it will not.

Q In the aggregate, for each of those companies, would you think their risk is going to be greater or lesser than it is today?

A Well, by definition mathematically, if in the aggregate means the total of all the relevant activity risks and some activity risks increase while others do not, you'll get a higher aggregate risk.

Q So then should not the cost of capital go up correspondingly?

A For the firm in the aggregate, yes. For any given specific activity, no, you can't say that. You have to look at the activity.

Q Does the Hatfield model make any allowance for joint and common costs?

A The answer I suspect is yes, but we'll need to define what you mean by joint and common because those have very precise definitions in economic literature. They have certainly less precise definition in common usage and perhaps less precise definitions as used in the FCC First

Report and Order.

Q Well, how would you define them?

A Well, in an economic sense they are -- joint costs are literally costs that are caused by a combination of cost objects but not caused by or avoidable if any one of those cost objects is eliminated.

Joint cost is a specific case; common cost is a general case but essentially the same concept. If the firm is operating as a combination of cost objects and there are costs that are identified that are not avoidable if some number or mixture of those cost objects is eliminated, then you would have what is called a common cost in economic terms.

Q Does the Hatfield model allow for joint costs as you defined them?

A For economic joint costs, yes, it does. And let me just -- well, let me describe to you what it includes. It includes all of the costs first that are incremental to each unbundled network element, so those would be of course in the purest sense direct costs. It also includes costs that are associated with investments or expenses that are shared by some numbering or all of those unbundled network elements. That is -- Whether or not those costs meet the strict economic definition of joint costs, they certainly meet the typical usage of the term joint or shared costs.

And if you look at the illustrative examples in the FCC First Report and Order, it appears that they are using this term in a more common usage and includes those costs.

It also includes costs that are typically referred to as wholesale costs -- I'm sorry, as overhead costs, which may or may not meet a strict economic definition of common costs but are nevertheless costs that are caused by offering all these services or all these elements collectively. It includes those as well.

Q How does the Hatfield model take these costs into account, these joint costs?

A The joint costs are actually built in directly, for example, costs of a conduit that is shared among two elements. Feeder and interoffice transport, for example, is a fairly typical example. The cost of the conduit is prorated depending on how much of the capacity of the conduit is displaced to each of the network elements, so while it might not be included if you were just studying each element, it is included here.

Q Is there a default markup factor that is added on to the incremental cost of each element in the Hatfield model?

A For joint costs, no. Those are included directly on an investment by investment basis and the expense by expense basis.

Q Can you generalize though as to the proportion of each cost figure that is attributable to each cost?

A No, you can't because they may be attributed based on different cost causation factors, depending on what the driver would be. It may be on a line by line basis; it may be on physical space in a conduit. There are a number of drivers that affect how joint costs are included.

Q Who made those decisions?

A The model developers.

Q Based on what?

A Based on standard design practices, based on --

Q Mr. Donovan's experience?

A -- simple arithmetic. I don't want to discount Mr. Donovan's experience because I think it is certainly part of it, but I don't think you have to get to that level if you are filling up a conduit with fiber, some of which are associated with feeder, some of which are associated with interoffice. It's not hard to apportion that capacity and that conduit between the two elements, that doesn't require Mr. Donovan; that is a pretty straightforward exercise.

Q Do you know whether the Hatfield model has any default cost for drop wire?

A Yes, I believe it does.

Q Can you locate that in any of the documentation or in Wood Deposition Exhibit 2?

A It will take me a minute in Wood 2 because I'm not that familiar with it because it's brand new, but it's in here.

(WITNESS REVIEWED DOCUMENTS)

A Page 21 of 31.

Q You are at page 21 of --

A Of 31, that's right.

Q Of Wood Deposition Exhibit 2?

A That's right.

Q And are you looking in the middle of the page, drop investment per line?

A Yes.

Q And the default cost is indicated to be 40 dollars?

A That's right, 10 dollars material and 30 dollars labor.

Q Do you know who developed that default cost?

A Yes, that actually comes from a New Hampshire cost study prepared by NYNEX which was released publicly. It's 1993 level costs.

Q What are you looking at for that information?

A I'm sorry, I'm looking at the documentation to the model, Page 31.

Q And that's --

A It's not part of Wood 2.

Q What is it a part of?

A I'm not the one who can say this, but if we go off the record for a minute, we can probably figure it out.

Q Let's do that.

(DISCUSSION OFF THE RECORD)

Q Mr. Wood, you've told us that the drop line investment of the default cost of 40 dollars is based on a New Hampshire cost study for NYNEX?

A That's right. Well, specifically New England Telephone, yes.

Q Dated when?

A 1993.

Q And you're deriving that information from an attachment to your rebuttal testimony in this case?

A That's right. And to be precise, April 3rd, 1993 is the date of that study.

Q And the document you are referring to is attachment what to your rebuttal testimony?

A I'm looking to see if counsel flips to his cover page so that I can read his exhibit number, I'm sorry co-counsel.

MR. MELSON: Co-counsel doesn't have a copy of

your rebuttal testimony.

Q I think we can find it. It's Page 31 of an attachment to your rebuttal testimony?

A Yes.

Q It's part of the documentation for Release 2?

A Yes, it's a document entitled Model Description in Hatfield's Model, Version 2.2, Release 2, and it's dated September 4th, 1996 on the cover page.

MR. MELSON: And it is the only attachment to Mr. Wood's rebuttal testimony.

Q What is the basis for the division between material and labor as reflected on page 21 of Wood Deposition 2 for the drop investment?

A I expect that is either directly from the New York Tel. study or based on the experience of the subject-matter experts, and I quite honestly don't know whether it was broken out in the New England Telephone study or not.

Q So you can't tell from the documents made available to you what the basis for that division is?

A Well, it's one of those two things; but that's right, I don't know whether it was broken out in the source documentation or whether it was broken out by subject-matter expert.

Q Do you know how long that line is that Hatfield

says costs 40 dollars?

A I expect it's a composite from the New England Telephone study, but I don't know what the average is.

Q So you can't tell me what the length of that line would be?

A The assumed average length, no.

Q And you can't tell me whether the assumption of 25 percent for material and 75 percent for labor bears any relationship to the relative allocation of the cost of material and labor in GTE's service area in Florida, can you?

A No, I would need access to GTE's proprietary study to be able to tell you that.

Q What is a CBG?

A It's a census block group. It's a collection of census blocks.

Q And how are CBGs used in the Hatfield model?

A The CBGs that subtend to a given wire center serve as the point of modeling for feeder and distribution plant. There of course then -- as we have discussed before, there is also U.S. Geological Survey data that is broken out on a CBG by CBG basis that is also incorporated for structure and structure placement cost.

Q Does the CBG, do the CBG assumptions in the Hatfield model make any assumptions regarding the number of

residences per CBG?

A The number of households per CBG is actually included in the census bureau data, so there is no requirement to make an assumption on households.

Q So is it your testimony then that the Hatfield model as applied to GTE Florida's service area takes into account the actual number of households in the CBGs included in GTE's service area in Florida?

A Yes.

Q You're quite sure of that?

A The number of households?

Q Yes.

A Yes, that's what the data represents. That comes straight from the census bureau. That is not adjusted at all.

Q And would it also then be your testimony that if the model takes into account actual census block -- census data, it not only accurately counts the number of households in the GTE service area in Florida, it also takes into account their distribution within the census wire group?

A No, there is no assumption that the distribution is being captured for -- Well, no. The answer to your question is no.

Q So then what assumption is made with respect to

the distribution of households within a census block group?

A It depends on the density of that census block group. A uniform distribution is assumed across the CBG for all but the two lowest densities. Of course that type of assumption would increase the cost that is modeled. For the two lowest density zones, an observation was made that BCM-1 and the practice in BCM-1 of assuming equal distribution across the CBG and the low density zones was not accurate. In fact, in most rural areas, population tends to be particularly lumpy either in terms of towns or along roadways, so an adjustment is made in the two lowest density zones to reflect the fact that it is very unlikely that households where lines in the aggregate of other types would be uniformly distributed throughout the CBG.

Q If the model is making assumptions about the distribution of residences within the CBG, does that then mean that the model is assuming loop lengths based on the assumption about distribution?

A Well, the model is modeling loop lengths. That is what models do. The objective here, to be clear, this is not a model that designs networks; this is a model that calculates investment. If you take the equal distribution across CBG assumption and use it to model investment, you will very likely get a higher answer than if you assumed lumpy distribution.

Q But the model then is assuming loop lengths, cable sizes, number of cables based on the assumed uniform distribution of households within the CBG?

A For the four highest density zones, that's correct. For the two lowest density zones, that's not correct.

Q So if then the actual distribution of households within those four highest density zones is different than what the model assumes, then the model outputs will be inaccurate?

A They will be too high, that's right.

Q Why do you say they will be too high?

A Well, there is no other, if you look at a cost maximizing solution to serving people, it's to not lump them together at all but to assume uniform distribution. That by definition requires you to cover the most geographic territory for a given number of locations. To the extent that there is any movement away from that in distribution of those households, then you move toward a lower cost solution because you take advantage of the fact that these people are grouped together. So in the four highest density zones, we have captured what the maximum cost would be, the worse case scenario, if you will. Anything other than that has got to be a better case, a lower cost case scenario.

Q Has release of the Hatfield model Version 2.2 ever been externally validated?

A As far as I'm concerned, it's being validated in every one of these proceedings, but it depends on what you mean by externally validated.

Q What does the term externally validated mean to you?

A Well, that means being reviewed and evaluated. I understand that Doctor Duncan has a different use of the term.

Q But insofar as you're concerned, you think Release 2 has been externally validated?

A I think the process that we are undertaking here and in all the other states that we have named -- well, in all the other states in which the model has been filed to date and on an ongoing basis is an external validation process. The only evaluation, external evaluation that has been completed is the one that I cite in my testimony, and that's the one in which the Washington Commission found the U.S. West cost studies unreliable and the Hatfield model reliable for calculating loop costs.

Q Does the term "linear homogeneity" mean anything to you?

A Yes, it does.

Q What does it mean?

A I'm going to do this in English rather than in mathematical notation in part because I think it's clearer, in part because I don't want to do that to the court reporter. If a cost function is in fact compliant with this concept, if one were to -- then it already reflects, as it should, the optimal mix of inputs. If one were to inflate consistently all of the input prices and rerun the model, it would not alter the mix of inputs in the optimal mix, and you would see, at least in a theoretical basis, a corresponding percentage increase in output.

Q Do I understand you to mean then that a model such as the Hatfield model should withstand the test of linear homogeneity?

A As an ideal, certainly. When you see the test applied and perfectly complied with is when it is purely in a theoretical academic setting, when you actually start with a cost function and then try to build. You could then, I suppose, try to build a model around that. That is not quite the way things work in the real world, but I would expect it to be close.

Q So then, for example, when you were designing what we referred to earlier as the BellSouth cost model, you wanted that model to be consistent with principles of linear homogeneity?

A I certainly would have preferred it to be.

Because of the methodology in place by BellSouth that I was not able to alter, it was -- I'm fairly certain that it did not meet that condition, although I did not perform the test.

Q But for a model that you want to have confidence in, that is something that you would want the model to exhibit, correct?

A Yes, but again, to be clear, do I expect a perfect outcome outside of an academic or theoretical setting? No, I don't expect a perfect one. But yes, I expect the model to comply fairly closely. And as I understand Doctor Duncan's analysis, if we account for the multiplier that we know existed in BCM-1 that doesn't exist in Hatfield's, what we see is that his data indicates that generally the Hatfield model does comply with that condition. I felt relatively reassured by his analysis.

Q How would you define economic depreciation?

A Economic -- well, I guess by economic depreciation we are distinguishing that somehow from accounting depreciation. Economic depreciation would be based on the expected useful life independently from an accounting assumption about how the investment was originally booked, for example, or in a regulation setting, the allowed life or the allowed permitted depreciable life for the asset.

Q Do you understand the Telecommunications Act and/or the FCC's First Report and Order to require the use of economic depreciation rather than accounting depreciation?

A Certainly the First Report and Order and the discussion on depreciation indicates two things. One is that something akin to what we are describing here as economic depreciation would be the correct component of a TSLRIC of unbundled elements or what the FCC calls a TELRIC. It also indicates that it sees no reason why those economic lives won't change for unbundled elements under the facilities -- underlying those unbundled elements because it doesn't see these as being competitive elements, and I think they are right. And it also indicates, I guess there is a third thing, and that is, that the burden of proof on these costs rests squarely on the incumbent local exchange companies.

Q Does the Hatfield model apply principles of economic depreciation or principles of accounting depreciation?

A By default, actually one in the guise of the other. I believe the numbers are reflective of economic depreciation. The numbers that are currently being used were adopted by the Maryland Commission I believe in Docket 8715, but I'm not certain about that. They were certainly

adopted in the context of an awareness of changes in the industry. They were certainly adopted in the context of Bell Atlantic Maryland's testimony on degree of competition it faced in the expected life, economic life of different types of assets. So they were adopted in that environment, and they have been incorporated here.

Q But in your opinion are those numbers more consistent with principles of economic depreciation or more consistent with principles of accounting depreciation?

A I think they are consistent with principles of economic depreciation. They happened to have been adopted in a regulatory proceeding, so in that sense, they are both; but only because of the manner of their adoption are they both.

MR. POWELL: Should we take a break?

WITNESS WOOD: Sure.

MR. POWELL: Mr. Wood, I have no more questions. Thank you, sir.

EXAMINATION

BY MS. CANZANO:

Q Hello, Mr. Wood, I do have some questions.

A Oh, good.

Q On page 15 of your direct testimony on lines 7 through 9 you note that the BCM-2 incorporates many but not all of the modifications that the Hatfield model made to

BCM-1; is that correct?

A That's right, and I've got two versions of direct that I think are a page different, but I recall the reference; and, yes, that's right.

Q Can you tell me specifically which modifications that the Hatfield model Version 2.2, Release 2, made to BCM-1, and have they also been made to BCM-2?

A I can tell you to the best of my knowledge because the access to BCM-2 has been limited to date. In other words, it's not been made as public as Hatfield. I believe that the signaling investment calculations in Hatfield are not present, certainly not to the same degree in BCM-2. I believe that the adjustments to the high density and low density distribution assumptions, in other words, the adjustment to decrease the amount of distribution plant in low density areas and increase it in high density areas was also made in BCM-2; but what I have heard of the description was made in a, I guess what I character as a somewhat less sophisticated manner.

Q And what do you mean by that?

A Well, I mean they've kind of assumed a rather gross adjustment where Hatfield actually looks, subdivides that, the low density zones into specific areas and actually designs plant to a more disaggregated portion of the CBG in order to capture the lumpiness in the

population. And I think BCM-2 is simply using a multiplier.

There are changes in BCM-2 to their switching assumptions, but I believe that what they have actually done is bring the BCM-1 switching assumptions in line to what Hatfield has currently. The switching curves lay down very closely. The best answer I can give you is that if you look at attachment A to the documentation, it gives you a complete list of all of the changes that were made to -- and when I say --

Q Attachment A, what are you referring to exactly?

A I'm referring to this document, and I'm referring to the appendix, I think it's A-1 through A-5. And what they give you is a detailed list of what changed between Version 1 and Version 2 in Hatfield, which is -- included in that is what was changed from BCM-1 to what Hatfield calls BCM Plus. What I have given you are the changes in assumption. The other changes in Hatfield in BCM Plus are, moves away from fixed values toward user definable values; and it's my understanding that BCM-2 has not made all of these variables user definable.

Q But that information doesn't specifically state the modifications that the Hatfield 2.2.2 made to BCM-1 and if they've also been made to BCM-2, not BCM Plus?

A Well, yeah, when I say BCM Plus I'm talking

about -- I'm using that with Hatfield one and the same because Hatfield relies on BCM Plus, so we are talking about changes from BCM-1 to BCM Plus versus changes from BCM-1 to BCM-2. And to my knowledge they are the signaling calculation, the sophistication of the adjustment to the low density CBGs. And then if you look in attachment A, it will indicate a number of variables that have been made user definable in BCM Plus that were fixed in BCM-1; and it's my understanding that BCM-2 similarly leaves those fixed. In other words, BCM Plus and Hatfield now let the user go in and change that value. It has a default, but that value can be changed plus or minus. BCM-2 doesn't allow a user to go in and make that type of changes; those assumptions are still fixed in that model.

Q For each of the modifications that have been made to BCM-1, could you tell me how they were done in the Hatfield 2.2.2 and how are they done in the BCM-2?

A I can tell you how they were done in Hatfield. I can tell you, quite frankly, less about how they were done in BCM-2 because I haven't had access to this type of documentation and to the model itself for BCM-2. For whatever reason the two remaining sponsors of BCM-2, U.S. West and Sprint Local, have decided to hold the model a little closer than the original version was held.

So again, the attachment A is intended to be, at

least to some detail, and I can explain any of these that you have questions about, changes from BCM-1 to BCM Plus. Which ones literally are included or not included in BCM-2, I can only tell you the two investment changes I know about and the fact that BCM-2 keeps these inputs as fixed and doesn't allow them to be varied; that's all I know.

Q Are there any changes to the BCM-1 that have been made in the BCM-2 but not in the Hatfield 2.2.2.

A There may very well have been, but I'm not aware of them if there are.

Q Next please turn to page 18 of your direct testimony.

A Okay, just for clarification, are you working from the AT&T direct or the MCI direct?

Q The AT&T.

A Okay. I'm sorry, page 18?

Q I'm checking. No, it is the AT&T version. At lines 15 through 18, referring to the wire center module, you state the module uses a total number of access lines, the location of wire centers and network traffic data to determine required switching, trunking and signalling investments.

A Yes.

Q Could you explain to me exactly what traffic data is used to determine switching investments and how this

data effects the amount of switched investments?

A Yes, there are busy-hour traffic assumptions that are described in the attachment C to the documentation that are used to size -- Two things size the switch. The processor or the usage portion of the switch is sized by busy-hour demand. The line capacity of the switch is sized by the number of lines, or I guess the more accurate way to say it is that the exhaust of the switch is determined by either line or processor, and the busy-hour usage is determined whether you have processor exhaust.

Q Am I correct that the Hatfield 2.2.2 model has three input values for switching?

A The investment per line curve that is used is based on three data points, that's right. Two come from the McGraw-Hill publication, and one comes from direct conversation with the switch manufacturers. And again, that is based on the best publicly available data that the developers have been able to acquire.

Q Can you explain to me how the model differentiates between end-office switches and tandem switches?

A Yes. Well, sometimes they are considered to be one and the same. Very often there is not a clear class 4, class 5 distinction; the same switch will actually be partitioned. In part --

Q What do you mean by class 4 or 5?

A I'm sorry, in the old AT&T, Bell System network hierarchy, the end-office locations were called class five switches; and then the switches that those class five offices homed in on were class 4, and then they homed in on class 3s up until the ultimate class 1. Class 4s are sometimes called tandems; class 5s are called end offices. Very often, though, one switch will be partitioned so that part of that switch is serving as an end-office switch and part of it is serving as a tandem switch. So the switching, the cost calculation itself is not particularly different. The portion of the switch that is being used for end-office functions and the portion that is being used for tandem functions is broken out, and there is also some accommodation of that effect so that other investments are not over accounted. For example, the model makes sure that because some switches are used for both, you don't assume a separate building for the tandem switch and the end-office switch when in fact they are one and the same switch. So there are that type of adjustments, but I'm not sure what else you are asking specifically.

Q Do your inputs into the model make the distinction between end-office switches and tandem switches?

A For usage I believe the answer is no. For the

non-traffic sensitive component, obviously there will be lines associated with an end-office switch and interoffice trunks associated with tandem switch, and there are -- and I'm looking at page 28 --

Q Is that a yes or a no for the second category?

A Well, there is a distinction because the termination on the switch is different; it's a separate facility. On page 28 of the documentation there is a discussion that maybe is a little bit helpful. There is tandem switch common equipment that is being scaled by the total number of tandem trunks, and the model actually computes the total number of tandem trunks based on the total traffic volume and the number of assumed calls that are inter versus intraoffice calls that actually would be routed through a tandem. So there is an estimate of the traffic volume between the end-office and tandem switch. Based on those traffic assumptions, it computes the number of tandem trunks that would be required. So the non-traffic sensitive portion of that tandem switch is a function of those trunks, whereas, on an end-office switch, the non-traffic sensitive portion is a function of the lines terminating on the switch.

Q Please turn to your Exhibit DJW-2 attached to your testimony for AT&T, page 2.

A Yes.

Q Please explain the purpose of the entry labeled "Forward-looking network operations factor."

A For network operations costs, there is an anticipation that moving forward into a more competitive environment the level of those costs is going to be decreased. In other words, there is an expectation in the industry, including among the incumbent LECs, that the efficiency will increase and the total amount of network operation costs will decrease. The factor of point 7 indicates that forward-looking network operation costs are assumed to be 70 percent of existing or historic reported in ARMIS network operations costs.

Q And how is this factor used in this model?

A Network operations expenses are scaled to be -- the conversion of embedded network operations expenses to forward-looking is done by scaling them back by 30 percent or assuming that forward-looking they will be 70 percent. That number comes from a couple of sources. There is a 30-percent assumption by New England Telephone in the public study that is available there. Pacific Bell has also indicated on the record that it actually expects costs to decline by 55 percent, so in other words, according to the Pacific Bell engineer, he expects the appropriate factor here to be .45 rather than .47. So this may very well be a conservative figure, but it's converting embedded

costs to forward-looking costs.

Q Are there any other documents or studies that support this 70-percent claim of end-office switching as usage related?

A No, it's a general expectation. It's the New England Telephone study, and it's the Pacific Bell testimony. I think the Pacific Bell testimony is actually in a footnote to the documentation.

Q Please explain the purpose of end-office traffic sensitive fraction.

A I'm sorry, where --

Q It's also on that page 2 of 17.

A In order to divide the total investment in an end-office switch into the traffic sensitive and non-traffic sensitive components because we do not have the proprietary underlying data, it was necessary to look at illustrative examples and determine what the typical mix of traffic sensitive to non-traffic sensitive investment would be on a given total. And this fraction, the .7 indicates that of the total end-office switching investment 70 percent is traffic sensitive and 30 percent is non-traffic sensitive, the non-traffic sensitive being associated with the line cards and ports; the usage components being the processor-related equipment.

Q And then referring to this hand -- this new Depo

Exhibit Number 1 in this GTE case, which is, replaces Exhibit DJW-3 that you handed out earlier.

A Yes.

Q Is this fraction that we have been talking about the end-office traffic sensitive fraction used to split the investment in end-office switching between the port versus usage rate element?

A Yes.

Q How is it?

A Well, it is based on, of the total investment, 70 percent of the total investment representing traffic sensitive or usage component and 30 percent representing the non-traffic sensitive or a port component. And here, to be clear, port here indicates line port as opposed to a trunk port.

Q Do you have a copy of AT&T's responses to staff's first set of interrogatories that were produced yesterday to the PSC?

A I don't, but I'm hopeful that my counsel might have one to share, but he's shaking his head, so maybe I better borrow yours.

Q In response to Staff Interrogatory Item Number 1, letter F.

A Yes.

Q Could you read your response outloud for

everybody?

A "Mr. Wood has presented testimony that utilizes Hatfield model calculations of universal service funding requirements for the North Carolina Public Service Commission in Docket Number P55, Sub Y13 (phonetics) in the matter of the application of BellSouth Telecommunications, Inc. for an election of pricing regulation, Docket Numbers P7, Sub 825 and P10, Sub 479 --" those were consolidated, by the way -- "in the matter of petition of Carolina Telephone and Telegraph and Central Telephone Company for approval of a price regulation plan pursuant to General Statute 62 -- 133.5 and Docket P19, Sub 277 in the matter of the application of GTE South, Incorporated for an election of price regulation. Mr. Wood has filed testimony that utilizes Hatfield model calculations of the cost of unbundled network elements in Section 252 arbitrations before the Colorado, District of Columbia, Florida, Maryland, Nebraska, North Carolina, Oregon and Tennessee commissions."

Q And did you produce -- When did you produce the Hatfield model calculations for those dockets?

A Well, for the universal service dockets, all of those took place early this year. All the Hatfield runs were done the first quarter of this year, but I'm not sure exactly when. It was with the earlier version of the

model, but I only did universal service calculations.

Q Did you do those on behalf of AT&T?

A No, these were calculated on -- my testimony there was on behalf of MCI only in those proceedings.

Q And what about the 252 proceedings?

A The model runs were done as the testimony was filed, all of course within the last few weeks because we didn't start filing the testimony until August. Jointly in Colorado, DC; jointly Florida GTE; to date only on behalf of MCI Florida, BellSouth; jointly in Maryland; only on behalf of AT&T in Nebraska; only -- well, no, I take that back. In North Carolina it's now on behalf of both, on behalf of both companies in Oregon, and on behalf of both companies in Tennessee.

Q And which version of the Hatfield model in the 252?

A In the 252, all of them are Version 2.2, Release 2. There were one or two of the other states that had filing deadlines that caused the same issue to come up as happened here as far as the final version being released. I believe we updated results exactly the way we have done it here in North Carolina and Colorado.

Q And what is the status of all of those dockets?

A They are all pending for the 252s. For the first three, orders have been issued in the North Carolina

dockets.

Q When were the orders issued in those dockets? Can we ask for a late-filed?

A Yeah, that's fine. I have seen the orders. I honestly don't recall, probably June and July. They were on staggered schedules, so I expect they came out somewhere in the second quarter, but I'm not sure exactly when.

Q Okay. Late-filed Number 3, we'll ask for the orders regarding POD -- I mean regarding staff interrogatory 1F?

A Right, and the orders will apply to the North Carolina proceedings, of course, and we don't have them yet for the 252s.

Q In response to Staff's Production of Documents Number 3, we had asked you to provide a copy of the Hatfield model Version 2.2, Release 2 that contains the state specific inputs used to generate your Exhibits DJW-3 and 4, and we asked you to identify the sources of all state-specific inputs, and your response to that was they are attached to your testimony in this docket. Could you point us to that?

A Actually, and I'm not sure that is an accurate statement. They are attached to the extent that what we are referring to is the documentation is attached.

Q And by the documentation, what do you mean by

that?

A I mean the --

Q That study?

A Yeah, the September 4th document, which will include the list of inputs. And again, by note of clarification, we reviewed the default inputs and determined that those were appropriate or represented the best available data at that time, so that's what we ran with. The inputs that make the run of course specific to GTE Florida are related to the census data.

Q What we are interested in, though, is having you identify the sources for all of the state specific inputs.

A If I understand this correctly, what you need is a copy of the model that is going to have all the workpapers in it that reflect the GTE information.

Q Yes.

A We'll follow up on that and get that to you. That won't be difficult.

Q Okay. We'll ask for a Late-filed Deposition Exhibit Number 4, workpapers for -- workpapers and model for Hatfield 2.2.2.

A I understand what you're asking for; I think that is fine.

I

Q. Okay. Mr. Wood, would you please explain the Hatfield Model, Version 2.2, Release 2?

A. Yes, the new version of the model is a forward-looking economic cost model. It differs from Version 2.2.1 in a couple of respects. It includes -- and in fact, there is a list in my testimony of the primary changes, the most significant of which it includes both a universal service calculation and an unbundled network element cost calculation. So that both of those types of results are available within the model from the same type of run, and that's true for the first time.

Q. Have you provided the Commission with a copy of this model?

A. As I understand it, we have provided a copy of the model. There is also documentation that has very recently become available, and we have that to provide as well. And that is the document entitled Model Description of Hatfield Model, Version 2.2, Release 2, dated September 4th, 1996. I would add that it's dated September 4th because that's the

last date that changes were made. It hasn't actually been available until some time a little after that. In fact the copy that I'm using, I received this Tuesday. So it's definitely hot off the press, if you will.

Q. Mr. Wood, have you provided the computer disk to run the model to the Commission Staff?

A. It's my understanding that we have, yes.

MR. MELSON: Monica, it's actually a computer CD, and we provided that to Mr. Long in connection with a universal service issue. It was not strictly in the context of this docket, although I understand the Staff now has a copy of it. And I understand it takes quite a computer to run.

THE WITNESS: It's my understanding it takes 128 meg of RAM, and that's the real system constraint that people run into. It's a very -- two of the modules are very, very large Excel spread sheets. And of course the way Excel works, it loads the entire work book of sheets into memory at one time, and that causes the memory problem on some machines. It certainly causes it on mine.

MS. BARONE: You've provided me with a copy of the Hatfield Model, Version 2.2.2, Release 2. I will have the court reporter attach that to your deposition as Exhibit 3.

(Exhibit No. 3 marked for identification.)

MS. BARONE: Also, with respect to the diskette, or the CD that you mentioned earlier, can you provide a copy for us for purposes of this docket?

THE WITNESS: Certainly. That's no problem.

MR. MELSON: Yes.

THE WITNESS: I better start a list.

MR. MELSON: You want to designate that as a late-filed deposition exhibit?

MS. BARONE: Yes, let's do that. Let's entitle that Late-filed Deposition Exhibit Hatfield Model, Version 2.2, Release 2, CD, and that will be Exhibit No. 4.

(Late-filed Exhibit No. 4 identified.)

BY MS. BARONE:

Q. Mr. Wood, we'll turn to Page 4 of your direct testimony. Did you participate in the development of any of the Hatfield Models that you've described in your testimony?

A. I have not had responsibility for developing the model. My participation in development has been this: I've had a number of discussions with the folks out at Hatfield that are primarily responsible for development, and prior to the release of Version 2, 2.2.2 as we've been calling it, I did discuss with them a number of issues that I had and a number of recommendations for incorporation into the new

version. And they did incorporate my recommendations as I suggested to them.

There were some recommendations with regard to user friendliness of the model, specifically, and there's now a graphical user interface, or GUI, I think it's affectionately called, that's been applied to the front end of the model now and is on the CD-ROM, and it makes, I'd call it a huge difference, in the user friendliness of the model. It's now a system in which you can actually just go into a screen and point and click and change any of the input variables that you would like to change and rerun the model.

And if you look -- I believe it's Attachment B to the Hatfield Model documentation that I provided you today, there is a short explanation of the user interface and some pictures of what the screen looks like. And it's a case of actually going in, typing in the state, typing in the -- first clicking on the module that you would like to change your variable in, and then you will get a screen that actually lists the variables. I think it's -- well, Page B-5 is actually an example of that, where it will give you literally a dialog box on which you can go in directly, click on and change any of those values. Then it's a simple matter of clicking okay at that point, going back to the original screen and clicking on go. So it's much easier,

administratively, to run the model than it was.

The only other primary recommendation that I had that was incorporated was that there are costs associated with maintaining the accounts of interconnecting carriers, that the incumbent LEC will incur. It's not as expensive, I don't think, as maintaining retail accounts, but at the same time it's certainly not zero. There is a cost there. And those costs have been explicitly included in this version of the model. They weren't included in Version 1.

So to that extent, I've had some influence in the development of the model, but I don't want to hold myself out as a primary developer, because there are people who are much more technically adept than I am at creating computer models that were responsible for that.

Q. Have you used the Hatfield Model before to perform analysis for unbundled elements and universal service requirements?

A. Before this proceeding, yes. I've run it a number of times. I've also used the model -- I've testified on the results of the model for the universal service results in other proceedings, and I've, of course, filed testimony in a number of similar state 252 arbitrations based on results of the model for unbundled elements.

Q. Are all those listed in your testimony?

A. What's attached to my testimony are places where

I've actually testified that have come to hearing. I can give you a list of other states where I'm filing testimony, but those won't be reflected in that attachment.

Q. Can you identify the documents which mention or discuss your analysis in other proceedings regarding the HM model?

A. Well, it would be the testimony in those proceedings, and again I can give you a list and that would be fine. It's literally going to be a list of testimony. Much of the arbitration testimony is going to be very similar to what you have here. The universal service testimony is, I guess consistent but slightly different, because the focus of the question to be answered was slightly different. But if you're interested in that, I would be happy for you to have a copy.

Q. Yes, if you would provide that as a late-filed exhibit.

MR. MELSON: Let me be clear what you want in the late-filed. It's a list of the other states in which he has presented --

MS. BARONE: Testimony regarding --

MR. MELSON: -- substantially similar testimony on the 252 items?

MS. BARONE: Yes.

MR. MELSON: And then a list of states in which

he's provided testimony about the model in the universal service context as well?

MS. BARONE: Yes, please.

THE WITNESS: And the remaining question is then, do you -- I think the universal service list is going to consist of one state, although three different proceedings within the same state, if you want to -- and the question, do you want a copy of the testimony now, or do you want to look at those and see if it's something you want to ask for later?

MS. BARONE: I would like the list and then we can follow up and find out.

THE WITNESS: Sure. Okay.

(Late-filed Exhibit No. 5 identified.)

BY MS. BARONE:

Q. In your testimony in those proceedings, do you have documentation of the calculations that you ran, or did you run calculations those proceedings?

A. I guess the most accurate way to tell you is -- which is also true here -- is that I oversaw the running of the model that was used to produce those results. I didn't -- I wasn't actually the person who clicked on go, if you will, for those, but the -- as far as work papers, it's really -- the best representation is probably the new document that I've provided you today as far as the

description of the model in some detail. And to be clear, to describe what else is attached, there are two additional attachments described, besides the user interface, that might be helpful to you.

Attachment A to that documentation is a list of changes between Version 1 and Version 2 of 2.2 that will tell you the specifics, that are slightly different. And some of this is incorporation of new data and some of it is incorporation of new features.

Q. When you provide that list, could you also identify whether you've used -- which version you have used, if it's different?

A. Certainly. The short answer is it was Version 2.2. nothing, I guess, the original version, which was the universal service version.

Q. I understand you have Release 1 and Release 2.

A. Right. And actually, the universal service testimony predates Release 1 of the model that you had, because Release 1 only provided unbundled element costs and didn't, at that time, provide universal service costs.

Well, let me back up so that we don't get lost. There was originally a universal service version of the model. That was why it was originally created. A subsequent version, which we're calling 2.2.1, or Version 1, created unbundled element costs. Now in Version 2, for the

first time, we have the capability of actually running universal service calculations and unbundled element costs in the same model.

Q. Are all three based on TSLRIC?

A. Yes, yes. So what you'll see in the universal service testimony, which is three cases from North Carolina that I provide you on that list, is from the original version of -- the universal service version of the model. All of the current 252 arbitration testimony is based on -- either directly on Version 2, or if it was filed before Version 2 was available, that testimony has now been supplemented with Version 2 testimony. So it's this same version of the model that you have that's being used throughout the country for the arbitrations.

Q. You mean Version 2.2, Release 2?

A. That's right.

Q. You mentioned earlier that you didn't actually perform the calculations or run the model in this proceeding. Who did do that?

A. AT&T has retained Deloitte Touche Consultants, who have responsibility of the systems programming. I think they had some responsibility for the user interface, and they have representatives in each region that are actually making the model runs. They are the people who are actually clicking on go. My involvement has been to review all of

the inputs that go into the model as defaults, and if there are any changes in the runs that they're making to any of the default values, then I would obviously have approval, if you will, over any changes that they make.

Q. So they weren't run under your direct supervision?

A. Well, I directly approved what went in, they clicked on go, and then I directly reviewed what came out.

Q. My question is you weren't there --

A. I didn't stand and look over their shoulder, but I certainly intended to directly supervise the process.

Q. Would you then specifically enumerate all the actions you took to verify the information in the model?

A. Sure. My model verification actually -- let me describe how this tends to work. The final attachment to the documentation is a list of model inputs, and it's a fairly extensive list. I think it goes on for about seven pages of inputs.

What drives the model are two things: The input assumptions, of course, and then how the model actually processes the information. My review has been of the model generally, as it's being used throughout the country, talking extensively with the developers of the model, with the outside experts that they relied on to obtain their information, looking at the sources of information, the published sources. And you'll see there in the

documentation there are references to some FCC documents, some Bellcore documents and some outside publications. And I have gone through that verification process with them through a series of meetings this year.

What comes out of that is a comfort level with the model as a process and a comfort level with the list of input values that are set as defaults in the model, that then can be changed, but are not necessarily changed.

What I then look at on a state-by-state basis is, if any of those inputs are going to be changed from the default levels, then I would have input specifically into whether those changes should be made and whether they are made. So my review of the model has been -- because it's based on that same level of data and it's default input driven, except for specific changes, my review has been of the model and its default inputs generally, and then as the state proceedings come up one at a time, of the state-specific runs themselves.

Q. So you don't have a specific procedure that you go through to verify --

A. Well, it would be redundant at this point. I had -- I hesitate to call it painful -- I'll at least call it extensive procedure that I went through the first time around on the model processes, how it calculates the algorithms themselves, and that extensive list of probably

300 inputs that are user definable.

Once that review has been made, if only one or two of those inputs are going to be changed for a state, then the state-by-state review, really, is of one or two inputs. You don't really have to go back and duplicate that whole review process again. If you want kind of an ongoing mechanism, that's the one that I'm following.

Q. Were the calculations based upon data supplied by BellSouth or by publicly available information?

A. All of the information -- in fact it's kind of a defining principle of the Hatfield Model, has been to base it all on publicly available information. There are -- as I said, there are FCC publications cited. There's a McGraw Hill publication on switching costs that's an annual report that comes out. There are some Bellcore technical references. There have also been, quite frankly, reliance on some individuals who were experts in the field. An individual who was an outside plant engineer at NYNEX for -- I want to say -- more or less 20 years, maybe a year or two one way or the other -- has been working extensively on this version of the model and has put some of his direct expertise in on the outside plant placement costs, for example. So there are those types of sources, but all are public.

The idea behind the model is that the data

themselves and the entire model process is an open book. It's not the typical black box model that we get from the RBOCs. You know, in my experience it's been tough to get the models from them. It's been tough to get the list of inputs or the documentation or the clear description of the process. The idea here is to be the exact opposite of that experience. We want the model to be open, the inputs to be public, everything to be objectively verifiable.

Q. Yes. In relation to what you just stated, on Page 3 of your testimony you discuss the two constant sources of frustration.

A. Yes.

Q. The second one you state, "The lack of independent and objective cost data to be used as a benchmark for the evaluation of LEC provided data." Where do you think you could get this independent and objective cost data?

A. Well, I hope that in some senses what we've created here. The frustration that I'm referring to is that as I review cost studies performed by the different operating companies -- and of course they're under proprietary treatment, and I can't divulge, obviously, from one region to another what I've seen in previous regions. And occasionally you run into a cost study performed by a particular company that is well out of line with experience in other regions. It just doesn't smell right. Something

is -- I mean, there are some regional, geographic characteristics. But this is far out of the bounds of anything you would expect.

And of course I can't really say this is out of bounds because I can't really divulge everything I've seen before. There's no public benchmark by which to evaluate the reasonableness of the some of the LEC-provided studies. So hopefully what this represents, and what I've -- you know, as a cost analyst what I'm glad to see is purely public information that can be put forth, that can then be used as a benchmark to compare the proprietary studies to, or the results of those studies to.

Q. Mr. Wood, are there any other cost models that you think reflect the FCC's criteria that you discuss in your testimony?

A. This is the only one that I've seen to date that reflects all of those criteria.

Q. When was the latest version released, did you say?

A. I believe version -- Release 2 -- I want to say August 28th is when the actual model was released. The documentation lagged a few days, of course to incorporate the latest changes. I will confirm that, but I believe August 28th is the right date for when this -- the final version of the software itself was released.

Q. And that final version was to reflect changes in

the FCC's order?

A. Well, no, the final version was actually to incorporate the changes that are listed in Attachment A to the documentation. But the basic principles that were laid out in the FCC order -- that it be a forward-looking economic study, based on forward-looking long run costs, all of the criteria that I list in my testimony are really principles with which the Hatfield Model complied.

So from a principles and methodology standpoint, there wasn't -- there weren't changes to be made after the FCC order came out. This was a model that complied with those principles before we -- in this case before we knew what the principles were, per se. So there weren't any changes that were made in response to the FCC order.

Q. I'll go back to my other question. Then are there other cost models that are similar to this version that you are aware of?

A. Again, none that I've seen. The development of the benchmark cost model, in its second version, which is now only being sponsored by US West and Sprint, includes some of the modifications and some of the improvements in Version 2. Well, let me put it this way: All of the improvements in the new benchmark cost model are already reflected in Hatfield, but not all of the improvements in Hatfield were reflected in the improvement to the benchmark

cost model. So I think they're behind in the development a little bit. So I don't think they're ready.

The only other model that I've seen that is this type of going-forward, so-called proxy model, was produced by PacBell, and it is based on an entirely different process than a pure bottoms up process. And the use of existing circuit data indicates that it -- at least on the basis that I've seen -- and it's proprietary, unfortunately, so you can't look at it directly, but at least what I've seen about it indicates that it would violate the FCC's newly stated principles of not including embedded cost. So in that regard, really, this is the only model that I've seen that reflects those FCC principles.

Q. Does the Hatfield Model documentation describe the specific computations performed in the model?

A. In does in quite a bit of detail. Obviously if you -- since we just have gotten this document to provide it to you, if there are specific questions that you have beyond this level of detail, we'll be happy to respond to those. But I think it's going to get you quite a bit further than the testimony did as far as the details of how the calculations are made.

Q. We might come back to that later.

Let's look at Page 5 of your direct testimony where you discuss that inputs can be set by users of the

Hatfield Model.

A. Yes.

Q. Can you describe and identify all of those, all the inputs that can be set by users?

A. I believe -- if it's not the complete list, it's very close to the complete list that's in Attachment C to the documentation document.

Q. Can you describe those for us?

A. Sure. There are several categories. There are, of course, the -- well, let's see, how do I break these up into meaningful categories? There are the acquisition costs, if you will, of the investments, the purchase price of cable, the purchase price of switching on a per line basis, transport facilities, all the nuts and bolts that go into making up the network, the acquisition costs, the costs associated with what we refer to as EF&I -- engineered, furnished and installed -- putting the engineering and putting those in place.

There are costs associated with what are called structure -- the poles, conduit, manholes, that sort of thing -- that are needed to actually place these facilities, and costs associated with putting the facilities in ground, actually putting the cable on to poles, putting the poles into the ground, installing a prefabricated manhole, those types of costs. There are traffic assumptions which come

from Bellcore documents with regard to busy hour usage characteristics. There are specific facility utilization assumptions, what are called fill factors in the industry. You don't put a network in place assuming that you're going to use it at 100 percent capacity. You use it as a lower percentage, in order to accommodate some growth, some network administration functions, that sort of thing.

Q. Are they all listed in your --

A. I think they are. Like I said, I think Attachment C is very close to a complete list. The only other large item are the census data and the geologic -- geographical data, and geological data, I guess. There are the lines by -- the households by census group, total number of business lines that are used to calculate the line size of the network that's being used, and then there is some census data regarding the terrain that's being used: Is it rocky? What's the depth of the bedrock? The depth of the water table? Is it mountains versus plains, that sort of thing. All of that is included as user definable inputs.

There's not much that you can't go in and directly change as far as assumptions. And of course with the new user interface, it's actually a pretty direct process to go in and do that. When you click on the different screens, what -- I don't know if this has a module reference. It doesn't. All of these inputs -- yes, it does. On

Attachment C at the top of the page you'll see -- like on C-1, BCM-PLUS loop module inputs. On the user interface, you'll actually be able to click on loop module and choose that module, and then within that you will get a screen, a dialog box, that includes all of these inputs and all of the values, and you can actually click on each one and change them. And you can do that module by module. And that's the way they're organized in this attachment. So that's a pretty straightforward process at this point.

Q. Mr. Wood, on Page C-7, regarding your expense module input, there's a section here, looks like plant lives?

A. Yes.

Q. Beginning at economic life, 50 years maximum?

A. Right.

Q. Where did you get this information from?

A. These are the last approved FCC depreciation lives. They are by plant category rather than by USOA account, and I, quite frankly, would like to have seen them both ways in the documentation, but that didn't get incorporated this time.

Q. I'm sorry, you said they were grouped by category?

A. By plant category. For example, loop distribution will actually include investments that are -- that will fall

into more than one USOA account. And those are weighted into this -- essentially a composite depreciation factor, because that's the way the expenses are applied in the model. But they are -- they're last FCC approved, which, as I understand the FCC order, they said last FCC approved, or last state approved could be used.

Q. So you've grouped together certain USOA accounts?

A. That's right. These are -- the categories have been grouped according to the output of the model. If you look here -- the column here actually is a list of all the network elements, the cost of which is reported by the model. So actually the lives have been -- are a composite for each network element, rather than by USOA account, but they come from USOA approved lives by the FCC.

Q. Can you identify all inputs that cannot be entered by users of the model?

A. I will verify -- I think the answer is there aren't any nonuser-definable inputs, but I will verify that that's in fact the case.

Q. Because I thought earlier you stated that there were a couple -- only a couple.

A. I'll find out whether I'm misspeaking now or misspoke then. If there are any that can't be, there aren't many, and I'll confirm that with the Hatfield people with regard to this version.

Q. Yes. If you would provide a late-filed exhibit with a list.

A. Sure.

Q. And I would also like you to describe -- in addition to the list, describe the difference --

A. Sure.

Q. -- between why you can't input this versus why you can't input all the other categories.

A. Sure. I understand. There have certainly been changes made between Version 1 and this one to increase user-definable inputs. And the objective was to include everything. As far as I know that objective was met. But I hesitate -- this is all so recently completed that I hesitate to tell you definitively that there's nothing that you can't change. But certainly the intention here is a model that's public, that's open, and that if you want to determine the sensitivity of the output to a change in any of the inputs, that you would be able to do that. I think they accomplished it, but I'll make sure of that.

MR. MELSON: Monica, that would be late-filed Exhibit No. --

MS. BARONE: Five?

MR. MELSON: I have 5 as a list of state Hatfield testimonies, states in which he had presented testimony.

MS. BARONE: So this would be 6. And that would be a list of inputs that users cannot insert into the model.

(Late-filed Exhibit No. 6 identified.)

THE WITNESS: That's right. Like I said, I think all the inputs not only are changeable, but actually will come up on the screen for you module by module, but I'll verify that's true.

BY MS. BARONE:

Q. Mr. Wood, were these the inputs on Page C-7 that we were discussing earlier, the ones that you used in the Florida model?

A. Yes.

Q. Do you know if these inputs are consistent with the state-approved depreciation lives?

A. I did not have, when the model was run, the latest approved lives for Florida. As I understand the FCC order, it said as a starting point use either the FCC or the last state approved. The model certainly could accommodate state approved. And one thing I've looked for as I've done the state filings -- really two things, the last state authorized cost of money, weighted average cost of capital, and the last state authorized depreciation lives. I didn't have those at my disposal, but it certainly could be rerun and certainly would be consistent with the FCC order to

include state-specific data on both of those categories. So there's no reason that it hasn't been, other than I didn't have the data available.

Q. Mr. Wood, would you provide Late-filed Exhibit 7 that would reflect state depreciation lives?

A. I will happily agree to that subject to counsel telling me that he knows where to go get them, because I don't.

MR. MELSON: Let's stay on the record. What can Staff give us that has those latest approved state depreciation lives so that Mr. Wood can make sure he's got the right thing as he has the model run performed?

MS. BARONE: Off the record, please.

MR. MELSON: Okay.

(Discussion off the record)

MS. BARONE: Mr. Wood, Staff will provide the information you need to perform the calculations based on state-approved depreciation lives.

THE WITNESS: Okay.

MS. BARONE: And that will be Exhibit 7.

(Late-filed Exhibit No. 7 identified.)

BY MS. BARONE:

Q. Mr. Wood, does the model explain how the expense model inputs are calculated?

A. In some detail it does. I guess the quick overview is that since we're dealing with -- all with publicly available data, and I guess it's really best available public data, some of these are -- come from ARMIS reporting, which of course is not inherently forward-looking; it's inherently embedded. And we're not using the historical expenses exactly. What we're using is the historical relationships between expenses and investment, if we have no better source of public data.

Where there are cost studies that have been made public in other parts of the country and we have forward-looking data specifically to be used, that's what's been used, but that's also noted in the documentation, which source has been used.

Q. What has been used here in Florida?

A. Depending on the expense, it will either be the historic expense-to-investment ratio for the account, or for the type of expense, or it will be something -- like there is some specific public information with regard to the maintenance expenses associated with digital switching that has been used, I believe in the New England Telephone cost study. That's incorporated into the model as the default to be used for those expenses.

There are -- I can look in the documentation. There's another exception, I think, where we did actually

have some publicly available forward-looking data, and we want to use that wherever we can, obviously. But in the absence of that, we have to go back to the ARMIS data.

Q. Mr. Wood, we would like to go through each of these items, and if you could tell me -- perhaps it would be better to file a late-filed exhibit on this.

A. Sure.

Q. If you would, describe how you calculated each of these items and where you obtained the information to perform those calculations.

A. And to be clear, this is Page C-7?

Q. C-7 beginning with debt fraction under expense module inputs. If you'll do that for each category -- each item listed there.

MR. MELSON: Down through the switch line circuit offset?

MS. BARONE: And also the structure fraction assigned to telephone.

THE WITNESS: Sure.

MS. BARONE: I believe we're at Exhibit 8.

(Late-filed Exhibit No. 8 identified.)

MS. BARONE: Expense Module Inputs.

THE WITNESS: Again, I believe most of these are described in the documentation, but I'll make sure of that and reference the pages. And if there's one

that's not, I'll write that up in separately, if that's okay.

MS. BARONE: That will be fine.

BY MS. BARONE:

Q. Next few questions will be based on your testimony on Page 8. Mr. Wood, would you please identify the costs reflected in the study that are incremental to more than one network element of the LEC's wholesale operations generally?

A. I can give you some examples. There is, for example, conduit that is used, obviously by facilities, for more than one element. Often feeder cables and interoffice facility cables will use the same piece of conduit. Those costs -- that's an investment that is incremental to more than one network element. I think it's a separate discussion as to whether it's -- as to whether that shared investment is actually a shared cost or a direct cost, but at any rate, it is an investment that's shared, it's a facility that's shared.

There are also some expenses. For example, the cost of maintaining accounts with interconnecting carriers, that I described before, that was added to this version of the model, are costs that are shared among all the network elements collectively. All of those costs have been included -- the objective here is to create essentially what's called a standalone cost. If the -- if BellSouth

were to be in -- well, if they were to be two things: First in the business of providing wholesale elements; and second, an efficient forward-looking company, providing those elements with an efficient forward-looking network. All of their costs of their wholesale operations of doing so are included in the output from the Hatfield Model. That's the conceptual objective.

Q. Then to the extent that they're not clearly specified in the Hatfield Model, how does the model factor in those costs?

A. Well, I can give you an example for conduit, which I think is -- while it's certainly a shared facility and a shared investment, it may in fact be a direct cost, because each of the -- the facilities associated with each of the unbundled elements is in fact displacing part of the space in that conduit and therefore bringing nearer the time that that conduit will have to be replaced, which of course is what we're doing in a forward-looking study, we're replacing existing capacity.

I've also heard a discussion, which I think is fairly compelling, that if you think of it as an unbundled conduit company and a element company as being separate entities, the conduit company would rent space in that conduit through the providers of the unbundled element facilities. And in that sense there would be a direct rent

that would be an element-specific cost. So I think while it's a shared facility, the cost of that facility may be a direct cost of each one of the elements. So it's included directly in those element costs.

If you look at the documentation too, there's discussion on central office costs and how a number of those -- space in the building, power, land costs, rights of way, those sorts of things, are, of course, incremental to all of the elements collectively, but are included in each of the element costs, or a portion of those is included, again consistent with the FCC order that those costs be included.

Q. Is it possible that you might have embedded and forward-looking costs involved in the network element, both?

A. The answer is no, with the following exception, and that's the exception that the FCC provided in its order, and that is, it said that this should be a forward-looking network except to assume existing central office locations within the LEC network, which of course precludes an optimization of the number of switching nodes that you would have. If you look at the cost of switching versus the cost of transport over time, it's probably true that if you were to truly start from scratch today, a true scorched earth approach, as its called, you would have fewer switches and longer transport segments.

So to the extent that the switching nodes in those locations are an embedded characteristic of the network, that gets carried forward into Hatfield. And the FCC is pretty clear that that's the exception that should be carried forward; that you should assume a forward-looking efficient network except existing central office locations should be maintained. So that's the only exception to the forward-looking nature of the model. It's what's called a scorched node approach.

Q. Would you please identify the costs reflected in this study filed in this proceeding that are forward-looking variable support costs?

A. Yes, let me -- actually, let me go to a documentation that I provided you. Here it is.

Q. They are used to provide multiple services.

A. Yes, they are used to provide, actually, all of the services. And there are -- on Page 35 is the -- well, actually carrying over from 34 there is the descriptions of the different expense accounts that are used. And I believe there is a specific discussion on Page 37 of network related expenses, and then on Page 38 of the variable support factor, and the general support accounts.

There is a reference -- if you want to go to specific ARMIS accounts, there is a reference in the FCC order that actually sends you to -- and I can look this up

for you. I don't recall the footnote number, but it actually references you to a portion of the order that lists the USOA accounts that the FCC was describing when it refers to its reasonable share of -- it doesn't say shared, what does it say? Joint -- I'm sorry, joint and common costs. When if refers to that phrase, there's actually a note that you can go to that tells you exactly which accounts, and that's what we're including here in terms of expenses.

Those are costs that we've always called overhead, and the FCC calls them common. They're not really what an economist would call common. Economists call common costs that don't change regardless of the size of the firm or the mix of the products.

When you look really closely at the expense data that's available and you look at the accounting literature, what's called activity-based costing in accounting, what you find out is that there really aren't a lot of those costs out there that are a big lump. You hear examples given, like "the president's desk." Well, my company is very small. It's two people. BellSouth is very large. It's -- well, at one time was 110,000 people. I guess it's smaller than that now. Mr. Clendinen's desk is probably larger and more expensive than mine is. So to say his desk is a fixed cost doesn't really reflect the fact that the size of his desk and the cost of his desk is a function of how big his

company is. And you look at a lot of those costs, and it's very similar. The size of the human resources department is not a fixed lump out there. It is, in fact, something that varies with the size of the company.

And the attempt here is to recognize that a lot of what we have called overhead, and just set aside, you know, as accountants, as GNA, is in fact something that varies with the size of the company. And therefore when you look at the cost of an element, to the extent that that element is adding to the size of the company and the size of the output, it directly causes some portion of those costs.

So this factor includes the forward-looking costs -- our best estimate of the forward-looking costs that are in that category, what we've usually called overhead, that an efficient company would incur going forward, a telecommunications company would incur going forward.

When you look at it that way and actually run the regression analysis on the data, what you find is what's left over, the Y intercept of the regression, if you will, is actually -- I guess the technical term is not statistically significant from zero. In other words, you find that there really isn't a very big fixed piece at all; it really is variable with the size of the firm. So we've treated those as variable costs, and I think appropriately

so. But they're what we've always called overhead, and what the FCC, if you look at the language in the order and look at the examples it gives, it's what it refers to as common, although it probably wouldn't meet an economist's definition of common.

Q. Regarding these variable support costs, how does the model factor in the costs that are not clearly specified? In terms of the forward-looking variable costs, and to the extent they're not clearly specified in the Hatfield Model, how does the -- please describe how the model factors in the costs?

A. Well, I'm not sure what you mean, other than what we've talked about. There are costs that are clearly associated with an individual element, and those are -- that's what's done first. Then there are costs that are clearly associated with -- whether we want to call it the increment of all the elements, or wholesale operations, or carrier-to-carrier operations, costs that collectively would be incurred by BellSouth to sell these unbundled network functions. And those are included on a per function basis.

And then the third category is, again, what the FCC calls, quote, unquote, "joint and common," which if you look at -- if you take the terminology out and look at the examples they've given and what they describe, it's those costs that an efficient firm would incur that -- regarding

what we call overhead. They also give a list of what's not to be included in their definition of reasonable share of joint and common. And it's things like embedded costs, retail costs, universal service, truing up to revenue requirement, opportunity costs, those sorts of things, and those are specifically not included here.

Q. You refer to efficient telephone company. Does the FCC give guidance as to what an efficient telephone company is?

A. Well, it certainly gives guidance in terms of only including forward-looking costs. In other words, it's not -- these studies, TELRIC studies generally should not be based on costs as they are being incurred today, but costs going forward. And they refer to them as forward-looking economic costs, and they also make reference to an efficient firm going forward as a definition. But they don't provide us much more guidance than that.

Q. I believe in your testimony you discuss that the Hatfield Model is based on what an efficient telephone company's costs would be. How did you derive what an efficient telephone company is?

A. Well, I guess we'll do it category by category. It's a bottoms up approach. So we start with, really, the network investments associated with each element. And the Hatfield Model uses, based on population data, where people

live, and census bloc groups, and other line information, to determine where business lines are, pay telephone lines, special access lines, in order to get the total increment of demand, as the FCC describes it, for loop plant.

From that, it creates that network to serve that base of people and that line demand using the technology that's being -- that's currently available, but the forward-looking technology. It's what's being put in place today for the future. And there are technical references that give design characteristics that Bellcore puts out. We've also, quite frankly, relied on the outside plant engineer from NYNEX that's been hired by Hatfield to assist them -- well, I should say formerly of NYNEX. So that type of data.

The forward-looking efficient piece is, this is the investment -- this is not embedded investment. This is not an embedded configuration. This is what a company would build if it were to go out and build loops to serve all those lines, that total line demand today.

And then, in addition to the pure investment and investment-related expenses, there are network operations expenses, there are -- in this section, I guess Page 34 through 38 or so -- that describes the different types of expenses, what expenses are expected to be incurred on a forward-looking basis. And again, sometimes we have direct

forward-looking public data, sometimes we've had to use an ARMIS-reported expense-to-investment ratio, which I guess, quite frankly, if you believe what BellSouth has told us about its new incentives to become more efficient, probably overstates those expenses to some degree.

There is one adjustment to the network operations expense. It adjusts it downward from historic levels by 30 percent, based on some expectations that those expenses will decrease, and based on some publicly available data from Pacific Telephone that it expects its networks operations expense to actually decrease by 55 percent over its study period. So we're actually a little more conservative than PacTel, but there is built in that increase in efficiency.

And then I guess the final category are these variable support type costs. And it includes -- the regression analysis is based on a telecommunications company that has been operating and a competitor that was previously regulated but now finds itself operating in competitive markets, and has for the past few years, and that's AT&T. And that -- the magnitude of the variable support is based on how -- the percentage of those types of variable support costs as they exist in AT&T's cost structure. They're probably not perfectly efficient yet, but they've at least been on this competition path for a few years, having

started at roughly the same place that the RBOCs started. So that's our best forward-looking estimate of what that level of expenses should be.

Q. On Page 9 of your direct testimony, at Lines 12 through 14, you state that the model develops investments using the most efficient currently available technologies for the provision of looped facilities, switching, interoffice transport and signaling?

A. Yes.

Q. What technologies were used in the model?

A. For -- well I guess let's break them up. For loop facilities, there is, I guess -- well, starting at the house, there's a network interface device that's included. And that's a pretty basic piece of equipment that probably won't change much in the future. So that's as it's being deployed today.

We consider the fact that an increasing number of people are getting second lines. So the capability in the drop cable, which is a copper cable, from the network interface device, or the NID, up to the terminal, which is where distribution plant begins, accommodates a second line in the drop. But that's a copper facility. The distribution facilities are copper facilities of various sizes, depending on the size of the census bloc group that's being served and depending on the density of lines.

Obviously in a very high density situation you would have a much larger cable. But there are tables in the documentation that will show you for each line density area which size cables are being assumed. But those are all copper.

For the feeder portion of the plant, depending on the feeder length, it is either going to be a copper cable or a fiber system with integrated digital loop carrier. And obviously there's an economic crossover point that has been getting shorter over the years, if you look at cost studies historically. So it's actually economic for shorter and shorter feeder spans to go ahead with a fiber optic cable and loop carrier systems. And we're forward-looking integrated loop carriers being deployed, so that's what's assumed for feeder.

The default in the model is 9 kilofeet. Over 9 kilofeet is assumed to go to a fiber system. There are actually two fiber systems in the model. One is more efficient for high density areas and one is a little more efficient for low density. So to give -- to include in the cost study the benefit of the better efficiency and the better arrangement, depending on the geographic area, it will choose one or the other of those fiber systems for feeder.

I left out a piece. There's a serving area

interface between feeder and distribution. That's either simply a cross-connect, if it's copper on both sides, which is a pretty low tech device, or it's got some fiber termination capabilities in it consistent with the system that's being assumed, the fiber system for the feeder.

In switching, it is assumed to be digital switching. There are published -- annual published reports of the cost of switching investment on a per line basis for different sizes of switches. That data is used, along with some FCC data, on average line counts per switch for the Bell Companies, in order to produce a dollar per line for different switch sizes, because the economics of the switch change, depending on the size -- the line count of the central office. So it's forward-looking digital switching in that regard. Interoffice is fiber at OC3.

Q. Just a moment. What type of switching are you referring to?

A. I believe that this switching report actually includes the mix of brands that are being purchased. So there would be some -- well, I guess it's now Nortel, some -- I guess it's now Lucent, and whatever else is being purchased, Strongberg, Carlson, Seimens, those are incorporated because it's a melded number. It's a McGraw Hill report, and we're using '95 data in this last version of the model, and it gives per line investments.

Some validation of that process has come out of the BCM development process. Early on, MCI, NYNEX, US West and Sprint were codevelopers of BCM, what's called BCM1. The first version of that model was developed by all four. Since that time, MCI and NYNEX have dropped out of that. BCM2 has been made available, but it's only being sponsored by US West and Sprint at this point. So it's purely a LEC model. When I say Sprint, I'm talking about Sprint local operations, Sprint United/Centel, versus Sprint the long distance company. So it's purely a LEC model.

The switching data, if you look at -- let me find the right graph for you in the documentation, because I think it's helpful. Oh, here it is, on Page 26 of the body of the documentation. You'll see the switching investment curve. And what it shows is that it's, on a per line basis, much less expensive to put in place an 80,000 line switch, for example, than a 2700 line switch, which is the data point down on the left-hand side.

In the original BCM, the curve for switching costs per line was actually shaped about like this, but was above this line. In other words they were reporting a higher investment per line. When you look at this curve now in the BCM2 model, which is purely a LEC model, the curve is not only shaped the same, but when you plot it out, it lays down almost exactly on top of this line. So this model's

development of switching costs and the best efforts of US West and Sprint, local operations, the LEC -- the competing LEC version of the switching piece, actually reports almost identical results for switching.

So I -- we feel pretty good about that in terms of validation, and the model developers are feeling pretty good that the BCM guys -- since there's a little rivalry -- are finally catching up with them a little bit. But that's the estimate and the source of the estimate for forward-looking switching.

Q. Mr. Wood, since BellSouth only has Nortel and 5Es, is there anyway to break out BellSouth switches?

A. Not the way the data is presented, because it's presented, I believe -- because there are obviously some concerns that each of the individual companies don't want their switching costs compared to another Company's switching costs to be publicly available, nor do the switching manufacturers want that kind data to be available, what McGraw Hill publishes is a national number, and it includes the full mix. I don't think that the way the data is presented permits a breakout by switch type.

Q. Does the McGraw Hill report list the switch types used?

A. I believe it does. I don't have a copy of the '95 report with me, but if you would like to make it request

number whatever the number is, I'll get you one of those.

MS. BARONE: Yes, if you would provide the McGraw Hill Report and that will be Exhibit 9.

(Late-filed Exhibit No. 9 identified.)

THE WITNESS: My suspicion is that it doesn't make a significant difference because US West does not use the full range of switch manufacturers either, and yet in BCM that they're sponsoring, they feel pretty comfortable with this curve as it sits. So my suspicion is they've looked at that data and found that it didn't make a significant difference, or if it did, it moved in other than a direction they would have liked to have seen it, in other words it would have moved downward. So for that reason I suspect it doesn't make much difference, but we'll get the list.

MS. BARONE: Thank you.

BY MS. BARONE:

Q. Mr. Wood, did you discuss interoffice transport and signaling in your response?

A. If I didn't, I will. Interoffice transport is assumed to be fiber, forward-looking, and it's run at the OC3 level. I said OC3. Actually the answer may be OC12. Let me verify that. There are also calculations for the size of the fiber, depending on the traffic data between the office location. So that's incorporated. But let me make

certain that I'm telling you the right transmission speed.

Yeah. On Page 28 -- starts on Page 27, carries over on to 28, there's a section that describes transport calculations. And it's SONET at OC12. As I understand the previous Commission order on depreciation, BellSouth was given some accelerated depreciation to get SONET in place. So I think that's probably representative of their network. But it includes -- the facility itself, the multiplexing, the regenerators, the facilities, the conduit, poles, that sort of thing, the structure, manholes, placement, splicing, optical, patch panels and pigtail are all in there.

And signaling is just based -- and that description starts right here. It's the investment associated with the STPs, the SCPs, the A links, B links and D links that we may need to do that, again based on best available forward-looking facilities. And I think you will have some investment assumptions on each of these things on the actual physical units themselves in the Attachment C.

Q. Since you mentioned Attachment C, do you want to turn there for a moment?

A. I'm sorry, which page are you on?

Q. C-2. Mr. Wood -- C-2 through C-6.

A. Yes.

Q. Is this Florida -- are all these calculations Florida-specific?

A. No. There is --

Q. Are any of them Florida specific?

A. The raw inputs themselves may not be. What will make them Florida-specific, of course, is that the line counts, the residential business special access pay phone line counts, will drive a lot of these calculations that these inputs are involved in. Also, the terrain, and geographic -- the density, the line counts and then the terrain, the depth of water table, depth of bedrock, how hilly the terrain is, that sort of thing are all state-specific, and actually are beyond state-specific, they're census bloc group specific. They're very disaggregated.

Q. You said line counts, terrain, and what was the third item?

A. The density of both -- the population density makes a significant difference in the cost of providing the plant. So while I will look and make sure, I don't think much of this data is -- the inputs, the raw inputs themselves that are described here, are Florida-specific, per se. Obviously the ones I described to you are. And these inputs will be in the calculations with those, and that's what drives the state-specific nature of the cost. In other words, the cost of buying a certain -- of a 3600 pair copper cable probably doesn't change, whether you're in

Florida or North Dakota. That sort of thing won't be state-specific.

Q. Then what were the other inputs based upon, if it's not Florida-specific?

A. Well, obviously, you know, purchase prices are essentially what they are. The capability of the equipment to handle certain capacities doesn't really change, isn't really geographic-specific. To the extent that -- well, let's see.

Q. Would you use that information in any model throughout the country?

A. That's right. A lot of these inputs, you know -- for example, purchase prices are not going to change. They're the default inputs that don't change. The fact that for a certain line density area you would configure your network in a certain way using types of investments doesn't really change. What does change is the characteristic of the area.

In other words, for a low density area with long loops, for example, you know, given those type of line characteristics you would use and the geography characteristics, it might dictate that you use fiber feeder using one of the multiplexing technologies, the loop carrier technologies, a certain size of distribution cable, and loops of a certain length. That's something that -- that

technical solution to those characteristics doesn't really change. And the fact that -- whether you would put, based on the terrain that you've got to traverse, whether you use conduit or poles or trenches, that technical solution doesn't really change.

What drives the state-specific nature of the model is that it looks at, on a very disaggregated level, what the line counts look like to serve an area, how sparsely populated or densely populated it is, whether you're running through an area where the water table is essentially at ground level, where you can't bury things, where you can't place poles, the fact that if you've got mountains and swamps, if you will, you have to route around them. Those kind of things are state-specific and are considered by the model. So that's what drives the state-specific nature of the model.

Q. Mr. Wood, I need to ask you for another late-filed exhibit. This will be 10. Can you provide us with the same information you provided us on C-7, which is how did you calculate -- arrive at the calculations and what was the -- what data was it based upon?

A. Okay, and which ones are you referring to?

Q. We're referring to C-2 through C-6.

A. Oh, throughout, okay.

MR. MELSON: You're looking for the -- what is

the data source --

MS. BARONE: Yes.

MR. MELSON: -- for the numbers?

MS. BARONE: Right, and how you arrived at the calculation, how you calculated it.

THE WITNESS: Sure. Sure. Much of this will be in the documentation, but we'll certainly undertake the task of pulling it together.

MS. BARONE: We'll call this Wire Center Investments Module Inputs --

THE WITNESS: It actually goes beyond, I think, that header. Just a moment.

MR. MELSON: Could I suggest maybe we add it to Exhibit 8 and just call it --

MS. BARONE: Investment Inputs?

MR. MELSON: -- Per Model Inputs?

THE WITNESS: The only thing we've actually left off the list is Page C-1, which is the fill assumptions. And everything else, C-2 through C-7, is now included.

MS. BARONE: Just a moment I want to ask you one more question.

BY MS. BARONE:

Q. C-1, is this -- are these relative to the Hatfield Model, the BCM-PLUS loop module inputs? Or is that a

separate --

A. No, these are assumptions that are used in this model, yes. BCM-PLUS is the refined version of BCM1 that is being used. It's the investment calculator piece of the model that's still being incorporated, with some minor changes from the original BCM1. So these pages also --

MS. BARONE: That we need to include. Let's name Exhibit 8 Model Inputs, and that's C-1 through C-7.

(Recess from 11:25 a.m. until 11:35 a.m.)

BY MS. BARONE:

Q. The next few questions will relate to your direct testimony on Page 11.

A. Yes.

Q. Could you please identify the similar generic models that you reference?

A. The FCC actually references three in this paragraph. It references Hatfield. It references the Benchmark Cost Model, or in this case it will be BCM2 that's the US West/Sprint version. And it references the PacTel model, which goes by an acronym that I cannot recall at the moment, but it actually -- it actually lists all three in this paragraph, and states that it's in the process of reviewing them. And I believe they've suggested that they're going to adopt a model, or they intend, after completing their evaluation, to adopt a model in the

spring. And they seem to be looking at those three specifically.

Q. Have any analyses been performed by or for AT&T that compare the results of the Hatfield Version 2.2 to the results generated using these models?

A. Nothing -- well, let me -- with regard to whether you're asking whether it's to AT&T or to MCI specifically --

Q. I'm sorry, MCI.

A. I can tell you definitively that I haven't seen such an analysis. I don't believe any sort of formal analysis has been done for the companies, but I can't answer for either company specifically. I would like to think that if it had been done, I would have seen it. So I don't think there is one.

Q. My next couple of questions will refer to testimony on Page 13 where you discuss the Washington Utilities and Transportation Commission's decision.

A. Yes.

Q. Which version of the Hatfield Model did the Commission --

A. That was what we're calling 2.2, Version 1, because it was the only version that was available. And while it was the -- not the unbundled elements version, but the universal service version, they looked at it specifically for loop cost calculations, which would have

don't think they set rates based on that type process. But I do have the order.

Q. That's okay.

A. It's a long one, but you're welcome to it.

Q. Are you aware of any state commissions that have rejected the Hatfield Model, either Version 2.2 --

A. No, no. I guess that means we're one for one.

Q. Earlier you discussed BCM-PLUS, I believe. Can you clarify for me the relationship between BCM-PLUS and the module? Is BCM used as a source of inputs, or is it a separate module of the Hatfield Version 2.2?

A. It is a -- well, let me be absolutely clear. The module -- there's a BCM-PLUS input data file which incorporates the CBG data, the geographic characteristics type data. And while that's not literally an input from BCM, it's an input to BCM. But that module of the Hatfield Model was based on the Benchmark Cost Model. In other words, that module functions roughly the same way, asks for the same inputs and produces the same output.

The data and loop modules that are used in Hatfield and are described in the documentation are based on, again, BCM modules. The data module, based on all the characteristics that have been provided to it, actually calculates the loop lengths and the subloop lengths. In other words, to serve an area with these characteristics,

what would the length of feeder be, what would the lengths of various distribution components be.

And then the BCM-PLUS loop module actually builds out, if you will, based on those types of lengths and the other characteristics, the actual facilities that would be placed. In other words, fiber or copper feeder, distribution cables of a certain size, those type of investments are explicitly identified. So that what comes out, then, of the loop module, of Hatfield, which is based on the BCM calculations, is an investment for each of the components of the loop, and for the other -- well, for the components of the loop for the feeder and distribution facilities. The structure factors are actually added later in the convergence model and the drop in network interface device are also actually in the conversions model because they were not present in BCM and had to be added in the Hatfield Model. But the other components of the loop are included there and would be outputs. So the data module actually does the lengths. The loop module populates those lengths with actual facilities.

Q. Did you say you used the BCM to develop the 1995 element of households by CBG?

A. No, that's Census Bureau data. Actually, the original BCM used 1990 census data since that was the last official census. The Census Bureau provides data that will

allow you to update 1990 to 1995, and what's reflected here is the 1995 update.

Q. I'll be asking you questions that are based on your testimony at Page 16, Lines 10 through 15. What is the database that you're referring to?

A. I'm sorry? Oh, what has been identified is a source, and I will have to --

Q. Yes, I would like to know the source.

A. -- confirm the actual source. What is available now that wasn't available before is the number of businesses per CBG. I suspect this is also a Census Bureau document, but I'll confirm that. And that allows a more direct calculation of -- since CBG data is households, and we want to go beyond residence to business lines -- having the total businesses and business employees is actually what's reported here -- allows a more direct calculation of the number of business lines. But I will make sure that the Bureau of the Census is the ultimate source of that.

Q. Yes, that will be Late-filed Exhibit 10.

MR. MELSON: Can we go off the record just a minute?

(Late-filed Exhibit No. 10 identified.)

(Discussion off the record)

MS. BARONE: Go back on the record. The title of that exhibit will be Database Reflecting the Number of

Employees Per CBG That Is Not Identified at the Time BCM1 or Earlier Versions of the HM Were Written.

THE WITNESS: And understand, this model development process, because of the desire to use public information, has been an ongoing process of searching for publicly available data that's applicable here, and sometimes it's a case of going with what we have and getting feedback from people and finding out that they know about a better data source. And the incorporation of that database is an example of that between Versions 1 and 2. Again, it's an ongoing process, to get the best publicly available data.

MR. MELSON: Let me ask a clarifying question on that last late-filed. Do you want a reference to the source of the database, or do you want a copy of the database?

MS. BARONE: I have another question that might help determine the answer to your question.

MR. MELSON: Okay.

BY MS. BARONE:

Q. Can you explain how information from the database was used to account for multiline residence, business, special access and pay phone lines?

A. Sure.

a telephone. But some households have more than one. So if you look at the relationship, you account for both of those at the same time.

Business employees can -- are -- let me go to the page in the documentation because I don't want to tell you the wrong thing. On Page 13, we've got on a broader -- on a broader basis, and I believe it's statewide, the total residential business lines and the data at that level. So to compute -- I'll just read this line off. "To compute residential lines within each CBG" -- which is at a level we don't have -- "the module multiplies the household count, the total number of households per CBG, by the ratio of the total reported residential lines to total households." In other words, you get a relationship between total lines and total households, which depending on the area might be slightly more or slightly less than one, because you're accounting for less than 100 percent penetration and some multiple line residences at the same time. But that's being done essentially in the same factoring process.

For business lines, it's the number of business employees in each CBG, multiplied times the ratio of total business lines to total employees. So what we're doing is we're taking fairly aggregated data with regard to the total number of residence and business lines, and we're disaggregating that down to the CBG level based on the

number of households and the number of business employees. And it's just a ratio process. And obviously since we're having to duplicate as best we can data that isn't available to us -- this is probably not a perfect process for every CBG -- the ratio won't be the same between households and total lines, but we think it should be fairly representative and is really the only mechanism available to take statewide data and take it down to a CBG level data.

Q. Did you use any information besides the information from the database?

A. Well, there is the -- there are two sources here for -- there is the total line count data. Then there is the households per CBG data, which is one source of census data, one use of census data. And then there's the total employees by CBG. And the model, then, does -- the special access lines and the pay phone lines are also based on per employee ratios because, generally, you would expect employee concentrations and special access line concentrations to roughly coincide. Companies with large numbers of employees are also more likely to use special access. And we're placing pay phone locations and lines by the employee count data per CBG as well, simply because that's the best data available for those lines.

Q. Would you please explain how the Hatfield Model adjusts the amount of distribution cable according to

density group? I believe you testified about this on Pages -- let's see --

A. There is a reference to adjustments made between Version 1 and Version 2, to the amount of distribution cable. Is that the --

MR. MELSON: Where are you now?

THE WITNESS: I'm looking over on Page 16 where we start looking at the difference between Version 1 and Version 2. And I think there is a --

BY MS. BARONE:

Q. Yes, that's correct.

A. I'm sorry, so --

Q. The question was: Can you explain how the Hatfield Model adjusts the amount of distribution cable according to density group?

A. Yeah. There were two changes, and again, the original calculations came from BCM1. So these are adjustments made to the BCM investment assumptions. It's my understanding that US West and Sprint have made similar adjustments going from BCM1 to BCM2. So they in fact saw the same problems and have made similar corrections, if not the same corrections. And that is the -- in the highest density range there was an understatement of cable because -- I believe the answer is -- because of some of the routing assumptions, that the routing was assumed to be

slightly more direct than rectilinear, if you will. other words -- I don't know how I'm going to convey the court reporter -- well, if it's rectilinear -- i can draw it with an Etch-A-Sketch, it's rectilinear. direct routes you can't. I'm going to use that agai

The other problem is that if you look out lowest density -- and this is more of a problem, qui frankly, in some of the very, very low density weste states than it is in a state like Florida. But what found is that CBGs, because they try to capture a mi number of households, could, out in a western state, desert state, be literally hundreds of square miles. the model assumes, for distribution cable, that the are going to households and businesses that are even distributed throughout the CBG, which overstates -- a small, densely populated CBG -- overstates slightl because if people and locations are lumpy, it's a lit cheaper to serve them. If we're talking hundreds of miles, it's a lot cheaper to serve them.

And when you look out at a lot of those act areas, you see that people aren't uniformly distribut throughout the desert, but they actually live in smal or long roadways or junctions between roadways. So v looked more carefully at how actual population center mapped to the topography and to the infrastructure wi

distribution.

But one thing that's apparently been a source of confusion in the model is when we talk about, as part of the numerical and geometric calculation, extending feeder at 90 degree angles and subfeeder at 90 degree angles from that, and distribution cables from a serving area interface at a specific point in a CBG, this is part of an exercise to try to get the total length right, and the total mix of feeder and distribution correct. It's not to suggest that we believe for a given central office that feeder actually does or should proceed due north in a given location, and then due east in a given location. So the routing assumption is part of the numerical calculation. It's not necessarily the assumption of how the network would literally be built. It's an exercise to determine the correct total investment. But those are in the model. And those are described in the documentation.

Q. Mr. Wood, would you please explain how the Hatfield Model computes structure costs?

A. I'll tell you the difference between Version 1 and Version 2. The --

Q. First, I have another question. Are you -- is Version -- is there a big difference between Version 1 and Version 2 and -- that's okay. Strike that. Go ahead.

A. I think it's the most direct way to explain it. I

wasn't avoiding your question.

Q. I understand. I was just trying to understand what was used in this model. But that's okay. That will help me.

A. Well, structure factors in the Version 1 of the model came from the way they were treated in BCM, which was as a numerical factor of the facility investment. In other words, in order to put a distribution cable of a certain size in place, there was a factor applied to it. What's now actually done is we're looking at the specific facilities involved and the specific data we've got on the terrain -- rocky, lots of boulders lying around, shallow bedrock, big mountains, high water table -- all those things that would affect the type of structure that you would use and what it would cost to put it into place.

And Version 2 of the model actually calculates that directly and independently of the investment in the facility itself. So that if you -- in the old version of the model, if you changed the assumption about the investment of the facility, it automatically changed the cost -- the calculated cost of the structure in placing the facility, in placing the structure, and that's not a good assumption. It's an easy way to build a model, but it's not a good assumption.

So one of the improvements over BCM, and one of

the improvements from going from Version 1 based on BCM going to Version 2, is that it looks at each facility and where it's going to be placed and what we know about the geographic area in which it's going to be placed, and calculates costs directly. We know it costs more to put poles or manholes in place in difficult terrain. We know you have to route cables farther. So we look at specifically -- it's done as directly as possible based on the characteristics we know about.

Q. At Page 18, Lines 1 through 4, you talk about dial equipment minutes and call statistics.

A. Yes.

Q. Can you tell us the documents that you based this information on?

A. Sure. It is in the documentation. I'll give you the specific one. Looking at -- there are two sources. Looking at Page 24 of the documentation is where the discussion begins, and it carries over, really on through 25 and 26. But the Bellcore document, the Bellcore technical reference, LATA switching systems, generic requirements, Section 17, traffic capacity and environment, which a lot of people still have lying around, is the source of a number of the assumptions. There is also -- let me make sure. That's right, for the -- that's the source. The Bellcore document is the source for the busy hour capacity numbers that you

see and the call duration and holding times and those sorts of things that you see.

There's also an FCC document that's used for the average switch line sizes. So that's the other capacity characteristics of the switch. You're looking at -- there's two ways to exhaust the switch. One is with the number of lines and one is with the processor usage. These are the two documents where we get to the assumptions about usage to make sure that we put in a switch that's of a sufficient size that it can handle some growth and won't exhaust for either reason. And the usage characteristics come from Bellcore; the line characteristics come from the FCC publication.

Q. How was the data derived from these documents used when you estimated the network traffic?

A. Well, there's a couple of ways that it's used. First of all, you have to size your switch according -- you have to size your switch according to lines and processor capacity. So -- and we have a limit on processor capacity that if it's -- if that percentage of capacity is reached, the Hatfield Model automatically adds an additional switch. So you get a trigger to get a second switch from either using up more than the percentage of lines available, or more than the percentage of processor capacity. And it will actually, in any location, size two equally sized switches

to allow for the most growth. So that's used that way. It's also used to size interoffice facilities correctly. If you have certain traffic patterns between offices, between central offices and tandem, direct 55 routing, all of that is incorporated in the sizing of the interoffice facilities.

Q. What was the percentage used in the -- for switching in the model?

A. I'm sorry, what do you mean by percentage?

Q. The percentage of utilization that you referred to earlier.

A. I think we only allow 80 percent line utilization. I believe we allow slightly higher processor utilization, although I have not seen anyone suggest that a switch will actually exhaust its processor. Really, when you exhaust a switch, really it's because you've exhausted your line ports, and that's an 80 percent factor, but I believe it's -- it's in the Attachment C, to confirm those.

Q. While we're looking for that, what is a processor -- what is the processor you're referring to?

A. That's the computer part of the switch that actually does the call routing. On Page C-2, there is -- there are three inputs here that will affect what you're describing. The first is the switch maximum line size of 100,000 lines. That's the absolute top limit. If anything above that is dictated, after adjusting for the fill factors

that we're using, the model splits and actually puts two switches in that central office. But for line fill after 80 percent, the model adds an additional switch; for processor capacity, up to 90 percent. But beyond that, the model will add an additional switch. But again I've never seen anyone seriously suggest that switch processors actually exhaust. It's really line ports that you run out of and you need to -- that will drive the replacement of a switch.

Q. What is processor utilization? I think you referred to that earlier.

A. That's the 90 percent assumption here. You don't want your processor working at 100 percent, obviously, because you'll have some unacceptable performance results. We assume if, in order to accommodate the usage, it has to go up to 90 percent or greater, then another switch is added.

Q. On Page 18 of your testimony you discuss carrier-to-carrier expenses, would you please explain what you mean by that?

A. Sure. In order to -- for BellSouth to sell unbundled network functions to any new entrant which is to purchase them, there are going to be some transaction costs. They will have an account team of some size, presumably. They will have some order processing costs. They will essentially do all the things that they do now in

order to sell access to interexchange carriers. In other words, we will expect them to have some warm, friendly people to reach on the phone. We'll expect some order processing capability. Probably don't expect much marketing or that type of expense. You don't expect the type of account team expense that you would have to sell retail services, obviously, because these are monopoly elements, otherwise we wouldn't all be here all trying to buy them.

So what was actually used were the reported expenses in ARMIS for the transaction costs that are currently incurred by BellSouth today, or the RBOCs today, here BellSouth specifically, to actually service the IXC accounts on a per-line basis. And we assume that since they're doing pretty much the same thing when they sell unbundled elements as when they service access, that the cost to them per line is going to be approximately the same thing, and that's been added in on a per line basis, based on those expenses.

Q. Did you use ARMIS to estimate future carrier-to-carrier expenses?

A. We used the only data we had, which is ARMIS, and of course it's embedded, but our -- while we would obviously like to think that they're going to find a way to reduce those expenses, we actually used the full embedded reported amount as a proxy. So we -- in that regard, with all the

ARMIS data, we may have overstated costs slightly, but the objective here is to be ensured that we don't understate costs in any way. And if we're going to err, we would like -- we would like to be perfectly right, but if we're going to err, we're going to err on the high side.

Q. Did you use anything other than ARMIS to estimate the future carrier-to-carrier expenses?

A. No, that comes directly from the ARMIS account, where they report their -- the expenses of their dealings with the IXCs at this point.

Q. On Page 20 you discuss equivalent line capacity. Would you please indicate the equivalent line capacity for fiber cable assumed in the Hatfield Model, Version 2, Release 2?

A. I'm sorry, let me catch up with you. What page are we on?

Q. Page 20 at Lines 2 through 3. Do you need me to repeat the question?

A. No, I can't tell you the actual numbers. I know that the evaluation was made of what was in BCM1, and it was found that they were underutilizing -- the assumptions in BCM1 were underutilizing the fiber. And this is an adjustment that I believe our outside plant specialist, who came on board during the production of Version 2, identified and thought should be adjusted. But specifically what the

old line capacity assumption was and what the new one is, I would have to ask them to tell you for sure, but I would be glad to do that.

Q. Yes, that would be Late-filed Exhibit 12 entitled the Equivalent Line Capacity For Fiber Cable Assumed in the Hatfield Model, Version 2.2, Release 2.

(Late-filed Exhibit No. 12 identified.)

BY MS. BARONE:

Q. So you're not going to be able to indicate the equivalent line capacity for fiber cable assumed in the BCM1 either?

A. As far as the specific number, no, I'll have to find that out. I mention it in the testimony only because our expert told us that the number was wrong and should be adjusted. I have to take the advice of the technical expert.

Q. Would you please include that in Exhibit 12?

A. Sure. I'll give you the -- I think I can give you both assumptions and therefore you can see the difference.

Q. On Page 20, at Lines 22 through 24, you discuss specific wire center module elements. Would you please identify those that you consider germane to basic local service?

A. Well, we are defining basic local service in terms of the universal service element of the model -- which I

think is what you're looking for, to sum up -- as access to the single party, single line, access to the first point of switching in the network, local usage on that network, white page listing, access to 911 and that type of service, and access to an operator services capability. So we look at -- obviously then when we match components, if you're going to have access, then there are the loop components that would be involved. The usage is a usage cost for switching. We have a total operator services number that is statewide, but that's a total capability number. You could express it on a per line basis, but it hasn't been done so in the output. I think -- I think those are the pieces.

Q. Can you identify those that are not germane to basic local service?

A. As far as specific -- would there be any specific network elements that wouldn't be part -- wouldn't be used in order to provide -- I guess I haven't thought about it that way because we're talking about -- we're defining local service in terms of the function that's provided rather than the underlying piece of the network. So I'm not sure there would be any specific pieces that ought to be excluded. But obviously your utilization of those pieces will change depending on whether you're making a local call or a toll call, for example.

Signaling comes to mind as something that would be

used differently. The interoffice transport piece would be used differently, if used at all. It's possible, I guess, for a local call, that it would be an intraswitch call, so you wouldn't have any transport. So that would be an example of a scenario where you wouldn't have that facility. But certainly there could be a local call served by more than one end office that would include some transport.

So I hesitate to say that we can say here's a facility that for certain would never be used. But you wouldn't want to include the cost of that facility as it's used to provide toll service or access service, for example. So you have to look at functions as you build up a definition of basic local exchange service, because the facility -- the specific facilities used are going to really provide those particular functions. And I'm not saying this very artfully, but if you look at actually what you're providing in any given location, the mix of facilities that are used might be slightly different depending on the configuration of the network. So you have to look at it on that basis.

Q. Does the Hatfield Model take in consideration this variation that you're discussing?

A. Yes, it does. There is -- again, back in Attachment C, there are a number of assumptions that come

from the Bellcore technical reference document that we referred to before that have assumptions regarding intraoffice versus interoffice local calls, the percentage of time that tandem switching is used, the percentage of time that an operator has to personally come on line for an operator service versus an automated type response. All those assumptions are listed and come into play. As you try to go from functions to elements, you have to kind of flow through those call routing characteristics and call duration type characteristics in order to do those calculations.

And that's why, quite frankly, the universal service capability in the model and the unbundled element capability in the model, while they're driven off the same investments, were really added at different times and then combined in this version because they're really making fundamentally different types of calculations.

Q. Has the universal service element changed since the first time you conducted that and when you combined it with the unbundled elements?

A. In terms of what it does, I don't think it has. The processing itself has not changed, obviously, as it draws on the same investment input information from the previous modules that the unbundled element calculation does. So that to the extent that the underlying investment has changed slightly and the mechanism of calculating that

investment has changed, then it will flow through to universal service. But as far as how we take -- how the model draws on investment in facilities and calculates a universal service cost, I don't believe that process has changed.

Q. Just the input has changed?

A. Right. And that would have changed the same for universal service and for unbundled elements.

Q. Mr. Wood, are all the assumptions listed in this documentation for Attachments C-1 through C-7, are they -- do you have all the assumptions relating to these?

A. I think the answer is yes. I will tell you that we are currently working on an exhaustive input sheet that certainly includes all of them. I believe it's going to end up being -- and it's derived from a different source. So we'll have to put these down side by side to see if everything is here.

Q. What source?

A. What it actually is is an intermediate spreadsheet, an active spreadsheet in the model, that if you go into the user interface and make your changes, that's where the model writes the changes to. And then as you get to the calculation portions of the other modules, that's the spreadsheet that they actually functionally go to to extract that information to carry it forward. So it's kind of --

it's an intermediate resting place for data, if you will, within the spreadsheets of the model. And it's not pretty, and it's got some redundancy on there, because some things get written to different places.

And we're currently looking at whether -- we want to match up to this and make sure that everything is on here. If it is, then obviously this attachment is all inclusive. If there's something missing, we're looking at either adding it to here or cleaning up that input sheet to some degree so that it can be provided. I'm not sure which way we're going to go yet, because I don't know the answer to laying them side by side, but that's something that's -- a shorter answer would have been, yes, I believe everything is in Attachment C, but I can't confirm it for you yet.

Q. Mr. Wood, could you provide -- when you provide the exhibit that we discussed earlier, I believe it's Exhibit 8 --

A. If there's anything missing, I will add it to that list.

Q. -- if you could provide the assumptions relative to the items listed in C-1 through C-7 to that, I would appreciate that.

A. I think we can do all that at one time.

Q. Okay. Page 22, Lines 11 through 14.

A. Yes.

Q. We're going to come back to that.

Have any analyses been performed by or for MCI that compare the results of running the same data through Hatfield Model, Version 2.2, Release 1, versus through Hatfield Model, Version 2.2, Release 2?

A. Not that I'm aware of. I have not seen that type of analysis, and I've never heard anyone articulate why they would want to do that. So the answer is no.

Q. On Page 23, you discuss cable costs. Would you please indicate how cable costs were treated in the Hatfield Model, 2.2, Release 2? -- Oh, I'm sorry, Release 1.

A. I'm sorry, which --

Q. We're at Page 23, Lines 8 through 9.

A. Oh, sure. There was a -- there was not an inclusion in Version 1 because there was not an inclusion in BCM Version 1 of the EF&I, basically, of cable costs versus the raw purchase price of cable. What Version 2 does is to EF&I that investment instead of just using the plain purchase price.

Q. I would like to ask you a question about local number portability. Could you explain how and why the estimated costs of local number portability were included in the model?

A. They were included because of a reference in the FCC order that requested it. The calculation is as

follows -- of course since no local permanent number portability solutions have been fully developed, we're all somewhat in the dark on how exactly that will be finally adopted. AT&T has proposed a database solution, which seems to be the -- at least in the opinion of AT&T and MCI -- the most likely and best candidate for a permanent solution. An internal AT&T study of the costs of implementing their database solution indicates that the costs are -- the cost that's reported here, I believe it's a -- it rounds to 25 cents. I think it's actually out to a couple decimal places, not exactly, but it rounds to 25 cents per line per month to implement that solution, based on their study. So it's the full long term database solution. This is not intended to be the cost of an interim solution.

Q. Is that LRN?

A. That's right.

Q. Is the 25 cents that you mentioned earlier included in universal service?

A. I don't believe -- I don't know. I hate to answer that, but that's my honest answer. I don't know -- it is not on -- if you look at the first page of the documentation, there's a list of what is included in universal service in terms of functions. I don't believe that that cost is included in the number -- the local number portability cost is included in the universal service

calculation. But I quite honestly have never -- I've never thought to ask. I will add that to my list, if you would like.

Q. If you'll just be able to respond to that at the hearing, keep you from having to file another exhibit.

A. I don't mind.

Q. I just want to clarify one thing. Earlier when we were talking about the Exhibits C-1 through C-7?

A. Yes.

Q. Did you say that none of that information was Florida-specific?

A. I'll have to look to be sure. I don't know that it is. I don't know that any of it is, but we may find one if you would like to -- or we can add to the request for No. 8 to identify any of it that might be.

Q. Yes.

A. What I'm thinking of is if there are specific -- if there are line counts on here, obviously they are state-specific, but I don't know if they print out on this version or not.

Q. Yes, if you would include that in Exhibit 7.

A. Sure.

MR. MELSON: Exhibit 8.

MS. BARONE: I mean 8.

THE WITNESS: Yes.

BY MS. BARONE:

Q. I would like to take a look at your Exhibit DJW-2, Pages 13 through 26. Now that I've had to turn there, I don't have any questions for you. (Pause)

We're almost finished. Okay, on Page 5 of your direct testimony, you state that the model uses sound economic costing principles. Would you please explain what they are?

A. Sure. They're very similar to the list that I've then described that the FCC adopted. But they are certainly that you would look at -- it would be a long run study, to the extent that long run means that all inputs are avoidable, that you wouldn't have sunk costs, that's consistent with the FCC, that it would be based on forward-looking, currently available technologies. In other words, you would want to use the forward-looking most efficient technology, but you wouldn't want to be use something that can't be purchased in the marketplace yet because you wouldn't have a price for it.

So we've got digital switching; we don't have photonic switching, for example. You would want to use only forward-looking investments. You certainly wouldn't want to base it on embedded plant assumptions. And in that sense you wouldn't want to base it on the actual embedded investments. You wouldn't want to base it on an embedded

level of expenses associated with those investments. And you certainly wouldn't want some trueup factor to increase your forward-looking costs, to the extent that they're lower than your existing costs. You wouldn't want to be factoring those up to embedded levels, if you will.

I think those are probably the bulk of the principles. If I missed one, obviously -- you could have specific principles within those forward-looking categories, depreciation, cost of money assumptions.

Q. Would you elaborate a little bit more on forward-looking costs, what you mean by that?

A. Well, it's the costs that -- what's relevant is the cost -- the most economic way of providing the capability that needs to be provided if you were investing today looking forward. In other words, in competitive markets, you have a market price and it's driven by how well and how efficiently all the competitors can produce the product. If a new technology comes on board that allows you to do it more efficiently, someone is going to adopt that. Absent some collusion, someone is going to adopt that. So your forward-looking costs, whether you've identified the technology or not, you should be doing your pricing decisions based on a cost assuming you do have that technology. And if you want to stay in business, you'll have to write your plan off and adopt the new technology.

So it's the forward -- it's the most efficient way to provide the capability that needs to be provided, starting today going forward. If you do your pricing on your embedded plant, you're making an economic mistake.

Q. On Page 8 of your testimony, beginning at Line 19, you state that the term "long run" refers to a period long enough so that all of the firm's costs become variable or avoidable. Can you explain what this period would be?

A. Well, you can't really say, well, it's going to be three years, or it's going to be five years. Obviously you're going to have different expected lives for different types of facilities. But what you will want to avoid doing is saying, well, I've got a given sized switch in place and I'm going to base my increment as if I have that switch in place going forward, rather than assuming that the period is long enough that that switch is also avoidable but it's not sunk and wouldn't be included in your cost study. But in fact what you're studying is the replacement of the capacity, not the historical cost of the capacity.

Q. On Page 15, Line 9, you state that the model is based upon engineering standards and methods applicable to the local exchange network. Can you explain what standards and methods were used in the model?

A. There are technical references from Bellcore on numerous topics relating to how outside plant is placed, how

it's sized, how traffic demand assumptions are incorporated into the proper sizing of investments. That's something -- it's the type of documents that outside plant engineers rely on, whether they be working for an incumbent LEC or a new entrant, or in this case working for the folks out at Hatfield who are trying to model those characteristics into the model correctly. So there are standard industry practices, and we've -- the point here is that we've conformed to those. We aren't going out suggesting that we have a new way to size outside plant for example. We're using the standard engineering assumptions that have been around for a while.

Q. Can you provide a list of the standard engineering standards and methods that you used in the model?

A. Sure.

Q. That would be Exhibit 13.

(Late-filed Exhibit No. 13 identified.)

BY MS. BARONE:

Q. Okay, we're going to turn to Page 15, Line 15, where you state that the model is adaptable to any LEC or geographical area. Can the model be used to establish the deaveraged zones required by the FCC?

A. Well, actually, let me catch up with you. Actually, what it says, I was afraid when you read that that I had said it that way. It's actually adaptable to any LEC

or geographic area provided that the appropriate state-specific and company-specific information is available. For, obviously, some of the smaller companies who don't do the same type of reporting that the tier ones do, we're not going to be able to apply the models to those areas. Small independents do not provide -- file the same information annually with the FCC, for example. So we would have a hard time applying it to those areas.

Now, I'm sorry, you had a follow-up -- second half of that question.

Q. First, are there any areas that you could apply that to?

A. Anywhere where the data is available. And that's really going to be -- for the tier ones, I don't think it's a problem, because they have the same filing requirements. When you get to the smaller independents, there become gaps in the publicly available data that we haven't been able to fill.

Q. I'm not sure I got this question out or whether you answered it, but can the model be used to establish the deaveraged zones?

A. That's what -- that's the other piece of the question I couldn't remember. We believe we have matching prices. The model is based on density zones. And one -- it's certainly -- and I can't give you a legal

interpretation of the FCC order, but it may be reasonable to interpret the order as being some number of density zones. I think, realistically, for billing purposes, there will need to be a matching of those with central office locations. That process is underway and is being conducted. As far as -- I've heard lots of different proposals for deaveraging rates. I've heard lots of different interpretations of the FCC order. I can tell you we're working on that one. If it's not possible to apply another one, it's a data matching problem. We have CBG-specific data. And to the extent that you can match CBGs with the item that you're disaggregating to, whether it be wire center or something else, to the extent you've got the ability to match those, then we can do it. If you have something for which we have no means of matching it with CBGs, then it's a problem to apply this data directly.

Q. So you haven't developed deaveraged zones at this point?

A. Only to the extent that the density zones reflect one interpretation of that. There are pricing proposals being put forth by both companies, and I can't -- you'll really have to ask the pricing witness what the pricing proposal is going to be. This is just the raw data behind that proposal. I'm probably the wrong witness, really, to answer that.

MS. BARONE: That's all I have. Phil, are you there?

MR. CARVER: Yeah, I'm there. Can we take another brief break before I begin?

THE WITNESS: Actually, Mr. Carver, I was just going to say, as much as I'm looking forward to talking to you, I could use one as well.

MR. CARVER: Five minutes, or you want to take ten?

(Recess from 12:45 until 12:50 p.m.)

EXAMINATION

BY MR. CARVER:

Q. Mr. Wood, I just have a few questions, mostly follow-ups on things I didn't understand. So I'm going to kind of skip around a little bit.

Let me ask you, first of all, could you explain again the approach that you referred to as the scorched node approach?

A. Sure. Under a scorched earth approach, of course we'd start with nothing in place and design a pure, forward-looking efficient network. A scorched node approach is actually scorched earth minus one, and the minus one is the location of existing wire centers and switching locations. So the scorched node approach builds a forward-looking, efficient network, subject to the constraint that

switching locations are currently at your wire center locations.

Q. And the scorched node is the one that the FCC prescribed?

A. That's right.

Q. Does the Hatfield Model follow the scorched node?

A. Yes, it does.

Q. And you've described it earlier as being bottoms up. Could you explain again -- well, let me ask it this way. When you're doing your analysis, how do you accommodate where the existing wire centers are?

A. Well, when you look at the -- well, I guess starting from the wire center, and then mapping to -- the distance of the feeder cable to each census bloc group, to each serving area interface, which then serves each census bloc group, obviously the length of the feeder is going to be determined by the central office location.

The interoffice facilities will obviously be affected by switching locations.

Q. Okay, so when you're doing your analysis, you don't sort of like hypothetically place the central office wherever it's best?

A. No.

Q. You go with where it actually is?

A. That's right.

Q. So you would have to have actual central office locations for a specific area in order to do the study?

A. That's right. And that comes from the LERG.

Q. What's the LERG again?

A. It's the -- capital L-E-R-G. (Pause) Local exchange routing guide. I was drawing a blank on that.

Q. Does the Hatfield Model replicate the cost of an incumbent provider?

A. No.

Q. Does it replicate the cost of the new entrant?

A. No.

Q. Is there anybody out there in the real world whose actual costs are going to line up with the Hatfield Model costs?

A. Today, no. In the future, I don't know.

Q. Would it be fair to say, then, that the Hatfield Model really doesn't measure actual costs, but more what -- if you accept all of the assumptions, what costs should be?

A. That's actually two questions. Does it measure actual cost? No. It measures -- the way I would phrase it is what the forward-looking economic costs of providing those elements would be, forward-looking economic being the FCC's term, and the correct one.

Q. Okay, so basically if you just took the wire centers where they are now, and then redid everything, and

so that the entire network would be as efficient as possible, then that's going to line up with the Hatfield Model?

A. Well, efficient as possible subject to engineering constraints. Obviously we're not assuming that facilities are going to be utilized at 100 percent utilization. We're in fact using engineering, Phil, much as your Company does, in order to size those facilities. But other than that, I believe the answer to your question, as I understood it, is yes.

Q. In your testimony there was some discussion of a 10 percent markup for shared costs?

A. Yes.

Q. First of all, let me ask you, what does that 10 percent markup include?

A. It's not shared costs; it's variable overhead costs. And it's the costs that are beyond directly attributable incremental costs that would nevertheless be incurred by an efficient carrier, an efficient telecommunications company going forward, in order to run its business, and in this case in order to run its wholesale operation. So specifically, it does not include retail costs, embedded costs, universal service costs or opportunity costs, again, per the FCC.

Q. And how did you arrive at the 10 percent figure?

Or I shouldn't say you. I should say, did the Hatfield study come up with that?

A. That's right. The 10 percent is based on a -- on two analyses, the first is a regression of the RBOC expense data that indicates that essentially all of the costs that that we are talking about here are variable with respect to the size of the firm, in other words that there's not a fixed component, what an economist would call common cost, as opposed to what the FCC describes as common costs.

The second is a regression analysis of the same expenses for AT&T as a proxy for an efficient telecommunications provider that had at some time in the past been an inefficient telecommunications provider. And the 10 percent is a result of that regression.

Q. So basically it's, I guess, a value judgment that if there is more than 10 percent of costs that fall into this category, then the provider is inefficient?

A. All cost analysis is value judgments, but yes, the most reasonable proxy we believe we have for an efficient carrier is the operations of AT&T, and that's what we used.

Q. And AT&T's are 10 percent?

A. That's correct.

Q. Could you just tell me briefly, if it's possible -- may be a complicated question -- but what the difference is between BCM1 and BCM-PLUS?

A. BCM-PLUS is a relabeling of BCM1. It includes a lot of the enhancements that we've been talking about today in terms of slight changes in the way investments are assumed in terms of, for example, the amount of distribution cable. It includes slight changes in the number of elements that are there. For instance, BCM1 does not include a network interface device or a drop wire, or a terminal, which is the connecting point between the two. So there are some missing elements. But essentially, BCM-PLUS is the relabeling of BCM1 as it's used as a module in Hatfield.

Q. Okay, but other than what you just told me about, are there any other differences, or is it simply a relabeling?

A. I hesitate to call it simply a relabeling. I believe all the differences are included in the document that we've all been looking at that you don't have, which is the full set of documentation. There's an Attachment A to that documentation that describes in quite a bit of detail the changes, module by module, in the model, and that would include everything, I think, that you're looking for.

Q. And what is that document?

A. Have we labeled it?

MR. MELSON: Deposition Exhibit 3. It's the model description, Hatfield Model, Version 2.2, Release 2. Phil, I can, in advance of your getting a

transcript of the deposition, I can send that to you somewhere if you'll tell me where you're going to be.

MR. CARVER: You can send it to my office in Miami.

MR. MELSON: Thanks.

BY MR. CARVER:

Q. What are the differences in BCM1 and BCM2?

A. I'm not an expert on BCM2 because MCI was not part of the development. It's purely a US West and Sprint local product, but my understanding is that they've made some of the same changes that I've been describing today that were incorporated into Hatfield. The distribution investment change, I believe they made some variation on that. We also talked about they have changed their switching per line investment assumptions to assumptions that match Hatfield. I suspect that there are others that they have made, but I am not aware of what they are. There is no open set of documentation and inputs for BCM2 as exists for Hatfield. So it's hard to lay them down side by side and see what's really in BCM2.

Q. Do you know enough about BCM2 to offer an opinion about its validity?

A. I am studying it, but I couldn't offer you an opinion at this point.

Q. Do you anticipate you'll be able to by the time of

the hearing?

A. My hesitation to saying yes is that the documentation of the model is limited, so it depends on, actually, what US West and Sprint are willing to provide that would offer some insight into BCM2. So I don't know how well they're going to publicly document it. If they publicly document it, I certainly will be able to. If they won't tell me, I can't.

Q. Do you know why MCI declined to sponsor BCM2?

A. I was not involved in that process. My understanding there were some differences of opinion on how the development of the model should progress, but I wasn't involved, so I don't really have much to tell you about what they were.

Q. Do you know who at MCI would have that information?

A. I don't know who was on that team.

Q. The latest version of the Hatfield study, do you believe that it complies with the FCC requirement for a TELRIC study?

A. Yes.

Q. And it was done before the August, whatever it was, 8th or 9th, order from the FCC?

A. Version 2 was not released until after that order, but it was certainly well under development prior to the

order.

Q. Did you tweak it at all in response to the order?

A. No.

Q. This question is probably not going to start out very clear because it was just something you were saying that kind of stuck in my head, and I need an explanation. At some point you were talking about cost of the some sort, and you said that as a default you had utilized historical data. Does that ring a bell?

A. Yes.

Q. Could you explain to me the context of that?

A. Some of the expense assumptions that are used are based on BellSouth's reported ARMIS data. I know we're using 4304 and 4308 reports. While that is not -- the data as reported is certainly not forward-looking, we've taken the relationships between expenses and investments as the best proxy for forward-looking expenses we have, if we have no better information. Where we've identified publicly available, forward-looking expense data, that it's not -- that is not under proprietary cover, but it in fact is public, we have used that instead.

Q. Okay, how frequently have you used this historical data as a default?

A. Well, it is the default unless something else is there. So it's there -- the majority of the expenses are

based on the ARMIS reporting.

Q. Okay, so -- and this is the Florida-specific study that you've done?

A. Well, that's all runs of the model, including the Florida-specific run.

Q. So the majority would be based on the historical data?

A. That's right. It's the best public data we have.

Q. Okay. Now, I'm just trying to understand. For purposes of your analysis, do you accept that data or do you do something to it to make it larger or smaller, or whatever, so that it will be, in your judgment, forward-looking?

A. Actually, the answer to your question as you posed it is no. We don't accept it; we use it as the best available public data. That's not a suggestion that it is true and correct, only that it's the closest thing that's available. As new sources of public data are identified, they are placed into the model. And that was done for specifically some switching maintenance costs between Version 1 and Version 2. The only exception to that rule, to the verbatim from ARMIS rule, is the 30 percent adjustment to network operations expense.

Q. Okay, so you don't necessarily accept it, but you use it without changing it until you come up with something

better?

A. With the exception of network operations.

Q. Giving you that exception, I'm talking about the other stuff.

A. Yes.

Q. Let's talk a little bit about the 30 percent adjustment. How is that 30 percent figure arrived at?

A. It's based on two things. It's based on the -- well, it's based on three things, based on the engineering judgment of the folks involved in putting the model together. It's based on claims made by Bell Operating Companies, including BellSouth, in hearings in which they are seeking to change the form of regulation, that they believe new forms of regulation, certainly the ones that they're proposing, will result in expense reductions and incentives for expense reductions, and it's based on testimony from a PacBell witness filed within the last couple of months that suggests that PacBell's projection is that they'll actually reduce those expenses by 55 percent. In the connection of PacBell's 55 percent, the 30 percent is a rather conservative number.

Q. How did you get from 55 to 30?

A. That's just the best judgment of the engineers involved.

Q. So you take that 30 percent and you would apply it

in every study you do, without looking at the specifics of the particular LEC or the particular area served?

A. I don't think that particular adjustment has been changed from one LEC to another.

Q. And for this 30 percent, there's not a proxy, is there, as there is with the 10 percent?

A. Well, I'm not sure what you mean by proxy.

Q. Well, with the 10 percent that -- you were telling me before the 10 percent markup, I think you basically said that was AT&T's. And what I'm asking is, for the 30 percent, is there a real world example out there that says, yeah, it will come out 30 percent as a result of increased efficiency, or for whatever other reasons?

A. Well, there's no regression analysis which is the source of the 10 percent. The only real world, I guess, as you're referring to it, example, is the 55 percent from PacTel.

Q. At some point in your testimony, I think during deposition, actually, you made some references to the Hatfield Model as sort of the best that could be done given the fact that you're using publicly available data.

A. Well, those weren't quite my words, but I think generally that's right.

Q. Assuming that there was a study utilizing actual data, and assuming that it was the TELRIC study, and

assuming that it was forward-looking, in your opinion would it be more appropriate to use those actual costs or to use the theoretical costs that come out of something like a Hatfield study?

A. Well, I'm not sure how to answer your question, because a forward-looking study isn't going to be based on actual costs. If it's a forward-looking economic study, it's going to be based on forward-looking projections. So there's no such thing as an actual cost of a forward-looking network.

Q. So in effect, then, every cost study is going to be somewhat hypothetical?

A. That's right, in that it will not represent the existing structure and the existing costs.

Q. I'm trying to get a handle on how this works. If you have -- if you look at a particular wire center, you accept the fact that the wire center is there, and you say, okay, I'm going to disregard everything else except this wire center, and I'm going to decide how to -- what was the acronym? CG whatever? The one that was based on census data?

A. CBG.

Q. I'm going to serve this particular CBG. How do you go about defining that in general terms?

A. There is, again, a description of the geometry

exercise with this document that's being provided to you that describes how the facility lengths are calculated. Then, in order to provide service -- provide facilities of that given length, there are assumptions made with regard to what the forward-looking economic investments would be, whether it be fiber or copper feeder, and the size and nature of distribution facilities.

Q. That will all be in Exhibit 3 also?

A. I believe it will.

Q. Okay.

MR. CARVER: Okay, that's all I've got. Thank you.

MR. MELSON: Monica, Staff have anything else?

MS. BARONE: I don't have anything further.

MR. MELSON: I've got nothing.

Q Mr. Wood, it is correct that you have not had responsibility for developing the Hatfield Model; isn't it?

A That's correct; I'm not a developer of the model.

Q Now the Hatfield Model is a computer model; is that correct?

A That's right.

Q And the way it works generically is that someone enters input data into the computer, the computer processes the data according to a set of instructions and then generates output; correct?

A That's correct.

Q Now, just as an aside, in order to run this program,

if I understand correctly, you can do it at home if you've got 133 megahertz Pentium computer with 128Meg of RAM; is that correct?

A That's my understanding of the requirements, yes, but you can certainly run certain modules of the model with less hardware requirements. In fact, that's what I do in my office. But to run the full model, it requires 128Meg.

Q Well, and I don't understand what the relationship is between AT&T and MCI here, but when you and I talked last week I thought we concluded that the Deloitte-Touche consulting group was actually the folks who were running the model. Did I get that wrong?

A Well, only to the extent that we need to clarify what running the model is. I certainly have the responsibility for making sure that those folks don't change any data that they shouldn't change, that the inputs are what they should be for any run of the model and that they've gone through that process correctly. They are, the Deloitte-Touche representatives are certainly the folks who are actually sitting at the graphical interface with the mouse and clicking on go in order to run the model. So, with that clarification, they are the folks doing that.

Q Okay. But nobody should think that you're sitting at home or in your office with your computer running this thing; should they?

A No. Again, I'm not the one with the responsibility to actually click on go.

CHAIRMAN CLARK: Mr. Wood, as I understand, your answer is that, no, you haven't reviewed and verified all of them, but you have looked at the overall process and you feel confident that it is an appropriate model for developing the costing?

WITNESS WOOD: That is a fair statement.

CHAIRMAN CLARK: Is that okay, Mr. Lackey?

MR. LACKEY: That's a perfectly acceptable answer, Madam Chairman.

CHAIRMAN CLARK: Thank you.

MR. LACKEY: I wish he'd given it instead of you. Can I have my transcript.

BY MR. LACKEY (Continuing):

Q Now let's talk about what the model does. The Hatfield Model employs a methodology that would estimate the cost that would be incurred by an efficient firm to provide the network functions and basic exchange services that are considered by the Hatfield Model; is that correct?

A Yes, sir; that's correct.

Q Okay. And the model uses the least cost technology; is that correct?

A It uses the least cost forward-looking technology that is currently available in the marketplace; that's correct.

Q All right. And this is what's known as a scorched node model; is that correct?

A That's right. It includes your existing switching locations but it builds up a network from that point.

Q Okay. So it uses the existing wire centers but it doesn't use any of the transmission facilities that are out there currently; is that correct?

A It doesn't assume the existence of those transmission facilities; that's right.

Q Okay. Now as we talked about earlier, it's a computer model, so obviously there are inputs; is that correct?

A Yes, sir; that's correct.

Q And if I understand your Exhibit DJW-4 is the model description of the Hatfield Model Version 2.2, Release 2; is

that correct?

A Yes, sir; that's right.

Q And if I remember correctly Appendix C is a seven-page list of the inputs to the model; is that correct?

A You do remember correctly and, yes, Appendix C is that list.

Q Okay. Now is Appendix C to your DJW-4 what's known as the default inputs to the model?

A Yes, that's right.

Q Okay. Now these are the inputs that Hatfield sends out with the model; is that correct?

A Well, yes, they are the inputs that are included on the CD-ROM as it's distributed; that's right.

Q Okay. And, for instance, if we look at page C-7, which are the expense module inputs, we find things like the operating state income and local income tax factor. Do you see that? It's six lines down.

A Yes. Yes, I do.

Q Okay. Can you explain to the Commission where that input into the model came from?

A Yes. The developers of the model looked at both federal, state and local taxes as they typically occurred throughout the country and created their best estimate of factors that would represent that portion of that tax burden, so that all of those expenses would be included.

Q Okay. So that factor is based on some look across the nation at the various components you just described?

A That's right.

Q It's not Florida specific, in other words?

A It's not Florida specific.

Q All right. And on that same page, down at the bottom there, economic lives; do you see that?

A Yes.

Q Now, if I recall correctly, those are the economic lives that were determined in a Bell Atlantic Maryland proceeding; is that correct?

A That's right. They are the most recent authorized depreciation lives by state commission that were found available on the public record.

Q And on that same page in the upper right hand corner there's a structure fraction assigned to telephone; do you see that?

A Yes, I do.

Q If I understand that default input, that assumes that the telephone company will only pay for one third of I guess it's the conduit and the telephone poles and that sort of thing; is that correct?

A Well, it's the conduit and the poles and specifically what it recognizes is that those facilities in that structure are used by more than one utility, electric utilities, cable

companies, perhaps competitive access providers, those sorts of folks, and share the expense of that structure.

Q So, the answer to my question is, yes, it assumes that the telephone company only pays one third of those?

A That's right. This is based on the assumption that three utilities will use that structure.

Q Okay. And since it's forward-looking assumption, there is no concrete evidence, no pun intended, that anybody can look at to see whether, for instance, that holds true today?

A Well, we wouldn't look at whether it would hold true today. In a forward-looking study, we'd look at whether it would logically take place in the future. So by definition, with any forward-looking study, you wouldn't be able to look at today for concrete evidence one way or the other.

Q Okay. So this default input assumes that in the future the telephone company will only pay for a third?

A That's right, and that either reflects the current situation or a cost saving measure that could be implemented; that's right.

Q All right. Now in addition to the inputs, these inputs that we've been talking about, the model makes the results state specific by operating off of census block groups; is that correct?

A Well, in one respect that's how it becomes state

specific, yes. There's population density information from the Census Bureau that's included.

Q Okay. That reminds me I missed something I wanted to ask you. On page C-5 of that exhibit, there are the input assumptions for the drop wire, the network interface device and the splicer, terminal splicer; isn't there?

A Yes, those are on page 5.

Q Okay. And what those three things cover is the little gray box on the side of the house, the drop wire to the telephone pole or whatever it happens to be, and the splice at the telephone pole; is that correct?

A That's exactly right.

Q And it assumes $40 of investment for the drop wire?

A That's right, on average.

Q Okay. How long is the on average drop wire then that's assumed by that $40 figure?

A The $40 investment comes from the best publicly available data that we have, which is the New Hampshire study. I do not know offhand the average drop length assumed, but I can find that out for you.

Q That New Hampshire study you're talking about, that's an incremental cost study that was done in 1993?

A I believe it's dated April 3rd, 1993; that's right.

Q And another input that you need, this thing not only does loops and cables, but it also looks at central offices and

what you need in terms of switches there as well; correct?

A That's right.

Q And you have to have traffic data and that sort of thing to make switch decisions; correct?

A That's correct. You'll need traffic data and line count information.

Q Okay. And if I understood correctly, the source for the traffic data was a 1989, or at least one of the sources, was a 1989 Bellcore document?

A That's not quite right. The source of the call characteristic information is the Bellcore document that I think you're referring to. The specific traffic data is as BellSouth reports it ARMIS.

Q Can you turn to page 24 of your Exhibit DJW-4; I may just misunderstand here. Are you there?

A Yes, I am.

Q You see the paragraph C, traffic assumptions?

A Yes.

Q The first sentence says "Many of the calculations in the wire center model rely on traffic assumptions suggested in Bellcore documents;" correct?

A That's right.

Q And that footnote identifies a Bellcore document, the one that was issued in March of 1989; right?

A That's right. And that refers to the -- As you

continue reading in that paragraph, there are call attempt per busy hour and holding time assumptions that do come from that document. When you refer to switching traffic, I was thinking in terms more of dial equipment minutes, for example, and that comes directly from BellSouth's, what BellSouth reports.

Q Now another source of information for these inputs was a fellow named John Donovan; is that correct?

A That's right. He is the subject matter experts that was relied upon for many of the outside plant calculations.

Q And by relied upon, you mean the folks at Hatfield Associates consulted with him?

A That's right.

Q And if I understand what Dr. Mercer has said, though there are no written reports or other documents that Mr. Donovan has given Hatfield Associates to substantiate the factors that he has advised them on; is that correct?

A I really wouldn't have any way to know that one way or the other in terms of the relationship between Mr. Donovan and Hatfield. I can certainly tell you that as a cost analyst at BellSouth, I regularly consulted subject matter experts and we didn't bother to do it in writing. We actually sat down over a desk and worked these things out, much I suspect the same way that Hatfield worked with Mr. Donovan, but I have no idea whether they have written reports or not.

Q Okay. In any event you've never seen any written

reports or anything to help verify any of the input that Mr. Donovan gave Hatfield Associates; is that correct?

A That's right. Again, I don't know whether they worked this verbally or in written form.

Q Now during your deposition, the Staff asked you -- I'm sorry. I have one question before I ask that. At the time you did your Exhibit DJW-3, which I believe contains the current results for Florida --

A Yes.

Q -- did you change any of the default assumptions in the Hatfield Model?

A I'm sorry. Before, you mean in the process of creating the revised exhibit or -- I'm sorry. I just misunderstood your question.

Q Yes. I want to know whether the revised exhibit, which has generated the numbers that have been introduced into this record, were generated using the defaults that came with the Hatfield Model or did you change any of the user changeable inputs to make them Florida specific?

A I think there's two questions. The difference in the original exhibit and the revised exhibit reflects purely a change in a calculation. It doesn't reflect any change in any inputs. In order to create both of these, the model was run using the default inputs. It was not necessary to make any changes.

Now subsequent to that, at the request of Staff, we have made a run using Florida specific depreciation lives and I believe the results of that run, one of the late-filed deposition exhibits that is here, I would note that it really didn't make much difference.

Q All right. I'm going to get to that for a minute. I wasn't asking for why you had a revision. All I want to confirm, and I think you have now, is that when you ran the study that we're looking at here as your DJW-3, you simply used a default input, you didn't alter any of them to make them Florida specific; correct?

A That's right.

Q Okay. Now the Staff did ask you to run it, we talked earlier that the depreciation lives, economic lives were taken from a Bell Atlantic Maryland study. The Staff did ask you to run this again using Florida specific or latest Florida approved depreciation rates; didn't they?

A That's right.

Q And if I understand correctly, that late-filed exhibit is contained in the Staff Exhibit DJW-6. Have you looked at that exhibit yet?

A Yes, I have.

MR. LACKEY: Okay. And if I understand correctly, the results begin on page 69 of that exhibit. I don't want to mark this because it will get out of order with some exhibits I'm

going to use, if I can, Madam Chairman, if we could just leave it for the Staff.

CHAIRMAN CLARK: Okay.

BY MR. LACKEY (Continuing):

Q Have you got that exhibit in front of you, Mr. Wood?

A Yes, sir. Page 69, as they're numbered, is a discussion of how the last approved depreciation lives were incorporated into the model and then 70 through 72 are the results of that process.

Q All right. And if I understand correctly, for instance, the overall state number went from $11.89 to $12.13 by changing the depreciation rates; is that correct?

A Well, yes, but the total loop costs per month went from $11.89 to $12.13.

Q Okay. And the total loop costs in every density zone went up as a result of using the Florida specific depreciation rates; didn't it?

A I think the answer is yes but not by much.

Q Okay. Well, and density zone, the first density zone, 0 to 5 lines per square miles it went from $82.80 to $86.12; didn't it?

A That's right, which is about a -- if I do the math in my head -- a 3 or 4% change. And I think that's probably the largest one.

Q Okay. Now we were starting to talk about census block

groups and I want to move on to that. The Hatfield Model uses census block groups in its analysis; is that correct?

A Yes, that's right.

Q And census block groups are geographic areas with varying numbers of households in them; correct?

A That's right.

Q And the census blocks are of varying square mileage; is that correct?

A That's also correct.

Q All right. Now as I understand it, the model uses the census block groups to calculate what kind of distribution cable it needs, how big the cable is and how long the cables are; is that correct?

A Almost. It calculates the length of cable required and it calculates the configuration based on the density; that's right.

MR. LACKEY: Okay. Now I want to hand you a few exhibits to see if we can illustrate this, some of which you have seen before and some of which you haven't.

If I could get Mr. Carver to bring you and your counsel a copy of this document.

Madam Chairman, I would like to have this document, which is labeled "Hypothetical CBG No. 120379701004" marked with the next exhibit number, if I could, please.

CHAIRMAN CLARK: It will be marked as Exhibit 32.

(Exhibit No. 32 marked for identification.)

BY MR. LACKEY (Continuing):

Q Now, Mr. Wood, you'll agree, won't you, that the document that I have handed you, this hypothetical census block group, it's not implausible that that could actually reflect what a census block group would look like; is it?

A It's not implausible. It would be a little unusual to have this kind of elongated shape, but it's certainly a possible shape.

Q Okay. All right. You think it's -- All right. That's fine. Okay.

Now I want to hand you another exhibit. And actually I want to ask you a question as Mr. Carver brings it down to you.

Can you tell us all what shape the Hatfield Model turns this census block group, this hypothetical census block group into?

A I'm not sure it turns it into anything. The Hatfield Model, as the benchmark cost model before it, uses a square census block group configuration for calculating the total investment required.

MR. LACKEY: Madam Chairman, could I have the document that Mr. Carver just handed out marked as the next exhibit number, which I believe will be 33.

CHAIRMAN CLARK: Yes. That's correct. But I can't

tell -- I mean, they have the same title; don't they?

MR. LACKEY: No. The second one, unless Mr. Carver made a serious error, should have a square on it and it should have the same hypothetical CBG No. on it, but it has "Hatfield Projection" written underneath.

CHAIRMAN CLARK: Okay.

(Exhibit No. 33 marked for identification.)

BY MR. LACKEY (Continuing):

Q Now, Mr. Wood, Exhibit 32, with Hypothetical CBG 120379701004, has an area of 25 square miles and a density of 4 lines per square mile; is that correct?

A That's correct. I'm sorry, Mr. Lackey, the first page you gave me is No. 32 or the second page is No. 32?

Q The first one, the one that looks like the State of California laid on its side, is Exhibit 32.

A Okay. I thought it was a whale.

Q That's okay, too. Exhibit 33 represents the way the Hatfield Model treats it. It treats it as if it were a square, five miles on a side; is that correct?

A Well, I don't know if the word "treats it" is the right one. It certainly calculates feeder and distribution lengths based on a square configuration; that's right.

Q And, indeed, if I understand the model correctly, if you will look at Exhibit 33, you will see a little square, a little rectangle, 1.25 miles from the bottom of it; do you see

that?

A Yes, I do.

Q Now that's called the serving area interface in the Hatfield Model; isn't it?

A That's right.

Q And it's located in the Hatfield Model for each census block group one quarter of the way from each one edge to the center of the square; is that correct?

A That's right.

MR. LACKEY: All right. Now let me hand you the next exhibit.

Madam Chairman, this one -- Why don't I wait until it gets out there and then we'll number it.

(Exhibit No. 34 marked for identification.)

BY MR. LACKEY (Continuing):

Q Now the Hatfield Model, if I understand it correctly, Mr. Wood, assumes that the households and then the lines are equally distributed throughout the square that is created or that was reflected on Exhibit 33; is that correct?

A For the medium and high density CBGs, that's right; for the low density CBGs, that's not right.

Q Okay. Let's see if we can short circuit this part of it. Mr. Wood, I have another set of four exhibits just like the ones I just gave you.

A Yes.

Q That have the same square mileage and a density of 11 miles, 11 lines per square mile. That would move it up into the medium; wouldn't it?

A I believe so.

Q So rather than hand them out and mark them, can you and I just agree that the ones we've given you would fairly represent the distribution of the households if it were a medium size CBG?

A I think we can for this discussion. I would point out that I think we need to go to 200 lines rather than 11 per square mile, but assuming we move it into that density range, that's fine; this is correct.

Q All right. Now so Exhibit 34, which is, again, just the hypothetical CBG but now has squares in it and little houses in it, represents how the households are assumed to be distributed in the census block group; is that correct?

A Yes, sir; that's right, which is why as we discussed before I believe the Hatfield Model overstates the relevant costs.

Q Okay. Now, if I understand -- and now we're at the important point -- the Hatfield Model determines the length of the distribution cable that's used in the square by taking five-eighths of one side of the square? In other words, in this case it would multiply five-eighths times five miles to get the distribution cable length; is that correct?

A That's right. Now, there will be a different number of distribution cables depending on the density of the zone, but there will be some number of equal length distribution cables at that length.

Q That's what I'm going to.

A Yes, sir.

Q So with this census block group, the Hatfield Model would tell you that you would get a certain number of distribution cables each 3.125 miles long; is that correct?

A Accept your math; I believe it's right.

Q Now the point you were just making has to do with density. Let's look at your exhibit DJW-4, and I think it's on page 19. Are you there?

A Yes, I am.

Q Okay. Now that chart in the middle of that page tells you for each density the number of cables that the model allows for this census block group; is that correct?

A That's right.

Q And, for instance, in the group I had, which was 0 to 5, you'd only get two distribution cables, each of 3.125 miles in length; correct?

A That's right.

Q And if there were a density of 5 to 200, you'd get 4 cables of the same length, 3.125?

A That's right.

Q And if you were 600 to 850 lines per square mile, you'd still get 4 cables of the same length; right?

A That's right.

Q And then you jump up to six cables of the same length when you go to the next density group; right?

A That's right.

Q But all the cables are the same length; is that correct?

A That's right. That's a modeling assumption. Again, we're not designing the specific network as you would deploy it. We are modeling the total amount of investment that would be required to do so.

Q Okay. But when your model runs, it treats it, it gives you the amount of cable based on what we've just talked about; right? It tells you how many feet of cable you need and you calculate the price based on that; correct?

A Well, it gives you how many feet of cable you need; that's right.

Q And that's an input into figuring out what the price of the distribution system would be; isn't it?

A That's correct.

MR. LACKEY: Okay. Now I'm going to hand out one more exhibit to you, I would like to have marked with the next number, which is Exhibit 35, I believe, Madam Chairman.

CHAIRMAN CLARK: Yes. Let's make it clear that

Exhibit 35 is also Hypothetical CBG 120379701004, the Hatfield projection with houses.

MR. LACKEY: Yes.

(Exhibit No. 35 marked for identification.)

MR. LACKEY: Now what I've given you --

CHAIRMAN CLARK: And what is 35; would you describe it?

MR. LACKEY: Yes. 35 is the same California on its side or a whale, as Mr. Wood said, except I put the mileage on it this time that shows how long it is on average and how wide it is on average.

BY MR. LACKEY (Continuing):

Q Do you see that Mr. Wood?

A I can see the length. I can't really read the -- Is it 2.3 is the width numbers?

Q It's 2.3 miles wide on average and it's 10.9 miles long on average; right? Does that seem to be --

A Yes, I agree with you, sir.

Q Okay. Now the Hatfield Model assumes that these cables all run from the common point, the serving area interfaces; is that correct?

A That's right.

Q So the most length you can get is 6.2 miles; is that correct?

A That's right.

Q So, is there any point in the census block group that's on Exhibit 35, is there any point in that census block group where you can actually reach with 6.2 miles all of the CBG that is on average 10.9 miles long?

A I assume if you've drawn this as you intended to, the answer is no, that there won't be.

Q Okay. So if this were a census block group, the Hatfield Model would tell you that you needed 2, 4, 6 or 8 distribution cables, each 3.125 miles long, and since they all run out of the serving area interface, that means the most spread you could get is 6.2 miles, which means you couldn't reach either end of the CBG with that cable; could you?

A From, on this particular CBG, you're absolutely correct; no dispute about that at all.

MR. LACKEY: Okay. Now I'm going to hand you another exhibit, which is I guess Exhibit 36.

CHAIRMAN CLARK: Would you give it a title, Mr. Lackey?

MR. LACKEY: This, the first page has the label "Block Group 120110703.012."

(Exhibit No. 36 marked for identification.)

BY MR. LACKEY (Continuing):

Q Now, Mr. Wood, have you examined the census block groups in Florida?

A I've seen them out there. There are hundreds. So,

no, I guess this goes back to our early discussion: No, I have not reviewed each one in detail.

Q Would you accept, if I represented it to be the case, subject to check, that the eight pages of Wood's Cross Examine Exhibit 36 represents 8 census block groups in Florida?

A Subject to check, certainly.

Q Okay. So when you said in response to my Exhibit 32 that it looked like a bit of an odd shape, page 1 of Exhibit 36 looks like a big 1; doesn't it?

A I'll accept your characterization, yes.

Q Well, look at No. 2, 2 has some of the characteristics -- that's Page 2 of that exhibit -- has some of the characteristics of my Exhibit 32; doesn't it?

A Certainly.

Q How about page 3?

A Yes.

Q And, by the way, when your model calculates the distribution in each of these census block groups, it turns each one of them into a square and takes five-eighths of the side of the square in determining the length of the distribution cable; right?

A That's right. And part of that five-eighths calculation is intended to represent two things: One is that there are census block groups, as you found eight out of some number of hundreds, that appear to be relatively elongated. To

the extent that there are census block groups that are not elongated but, in fact, are what we'd call some rough circular or cloud shape, which is also a very typical configuration, in fact, much more typical than these, you're going to find that that five-eighths overstates the amount of distribution cable required.

So, certainly the model developers when they developed the five-eighths did so with full awareness that CBGs are shaped differently and for, we could certainly pick and choose the odd birds of the lot and find a few, a handful among hundreds, where there is going to be a slight overstatement and where there is going to be a slight understatement; no dispute about that.

Q So we're falling back on the old in the end it's all right on the average; is that correct?

A Oh, no, sir; I don't think we're falling back on anything. I think we're looking at a modeling process that for the absolute vast majority of these very discrete geographic units is extremely accurate. For a few outliers on each end of the scale, it will be less accurate. I don't think there is any falling back at all in those terms.

Q Page 5 looks like my Exhibit 32 as well; doesn't it?

A I'm sorry.

Q Page 5.

A I've lost track. I will certainly agree with you,

Mr. Lackey, that you have found however many examples there are that are elongated in shape.

Q And, ever more importantly, you don't know whether I found all of them because you haven't examined them; have you?

A Yes, sir; I have examined them. No, I can't tell you for however many hundred there are that these show up or don't show up. I don't think you'd mislead me. If you tell me these are in Florida, I believe you.

Q Okay. And we can agree, can't we, just based on the little demonstration of a while ago that for each of the ones I've given you, these eight, the Hatfield Model is going to give you a distribution run, cable run, that isn't going to be long enough to cover the census block; won't it?

A As you found these, yes, just as there would be some census block groups where the distribution cable would be overstated.

MR. LACKEY: That's all I have, Madam Chairman.

CHAIRMAN CLARK: Staff.

CROSS EXAMINATION

BY MS. BARONE:

Q Good afternoon, Mr. Wood. Do you have exhibits previously identified as DJW-5 and DJW-6 before you?

A Yes, I do.

Q DJW-5 is your deposition transcript. DJW-6 are several late-filed exhibits. Do you have any changes or

corrections to make to those exhibits?

A No, I do not.

Q And are they true and correct to the best of your knowledge and belief?

A I believe they are, with DJW-5, my recollection is that there are a couple of nonsubstantive typographical errors but they don't change the intent. So, yeah, I don't have any changes.

MS. BARONE: Thank you. Madame Chairman, Staff requests that these exhibits be marked as Composite Exhibit No. 37.

CHAIRMAN CLARK: They will be -- DJW-5 and 6, Staff exhibits, will be marked as Composite Exhibit 37.

MS. BARONE: Thank you.

(Composite Exhibit No. 37 marked for identification.)

BY MS. BARONE (Continuing):

Q Mr. Wood, I'd like you to turn to Exhibit DJW-2, which is attached to your Direct Testimony, specifically page 26.

A Yes.

Q In the left-hand column there's an entry entitled "Forward-Looking Network Operations Factor." And it reflects a value of .700. Would you please explain to me what this factor represents and how it is used in the Hatfield Model?

A Yes, of course. The objective, of course, of the developers of the model have been to include forward-looking

expenses including network operations. Where forward-looking data is available, that's been used. Where it's not available, it's been necessary to rely on historical data ARMIS and then to use that as a basis for projecting forward.

There are a number of public sources around the country that have indicated that the expectation on behalf of the incumbent companies that network operations expenses specifically will decline over time. In New Hampshire, the estimate was that they would decline by about 30%. The testimony of Pacific Bell was that they would decline by over 50%. In order to be somewhat conservative, the 30% figure is used here.

So the .7 is multiplied times existing network operations expense to reflect the expectation that in the future those expenses will decline over time, again, by the more conservative choice among the available options of 30%.

Q Aren't most expense factors in the model based on ratios of historic expenses to the investments to which they are associated?

A Most of them are, yes.

Q What was the primary source you used to arrive at the expense factors that were used in the model?

A Well, there are a number. Of course, as I described, BellSouth's ARMIS reporting was a major source because it simply represents the best available public data, and that

being the underlying principle of the model that was the source of last resort, if you will. There were other -- Where forward-looking factors were available, they were used. For example, for digital switching expense on going forward, there was publicly available data that was not historic and that was used.

Q Was that the 1995 ARMIS report?

A Yes, I believe it was.

Q Isn't it true that by using the default value for the forward-looking network operations factor, it is assumed that network operations expenses will be reduced by 30% from the historic levels?

A That's right, and, again, if Pacific Bell is right, the real number is more like 55 or 56%. So this is fairly conservative.

Q Mr. Wood, Staff is now handing you an excerpt from part 32 of the Code of Federal Regulations. It's more commonly referred to as the Uniform Systems of Accounts.

A Yes.

Q Looking at that document, could you tell me specifically what expense account items are included in network operations expense?

A The short answer is that it's probably sub-account 65-30, but it may in fact include 65-32. And I don't want to mislead you. So I would have to verify that answer.

Q Would you agree that it includes 65-31, power expense?

A It may very well do so.

Q Do you know whether it includes 65-32, network administration expense?

A Well, that's what I was just saying. I've seen this on a composite basis. Let me see. Let me look very quickly at a note and make sure that I don't have a better answer for you.

It certainly includes 65-30, network operations. And it also includes an account which may not be on here, which is network support.

Q Mr. Wood, I believe --

A Let me confirm that for you before I give you the wrong answer.

Q I believe if you'll look at the first paragraph under 32.65-30, network operations expenses, that it enumerates the accounts.

A Oh, I'm sorry. I'm sorry. You are correct. What I have seen consolidated is 65-30 and it includes the following sub-accounts. So, yes, it's accurate to say that 65-30 is the correct account to look at.

Q Thank you. And you earlier stated that one of the items included is account 65-31; isn't that true?

A I expect that that's right, yes.

Q Would you please read for me the description of what is booked to account 65-31?

A Sure. "This account shall include the cost of electrical power used to operate the telecommunications network."

Q Sir, by applying the .700 forward-looking network operations factor, isn't it true that the effect is to assume that power expense will be reduced by 30% relative to the 1995 levels?

A Not exactly. The 30% refers to all of these accounts in the aggregate, to everything that's represented in 65-30. I suspect that they're not counting on, either NYNEX or Pacific Bell, the two companies that have made a public statement, are not relying on this particular power account to represent the bulk of the reductions. I think they're probably looking at a little more efficient operations in general. So I suspect that this sub-account is not the source of the reduction but that other sub-accounts are.

Q Would that also be true for the testing expense?

I was going to ask you isn't it also true that it's assumed that the testing expense will be reduced by 30% relative to 1995 model?

A Well, yeah, and, again, it's not assumed that this is a 30% across the board for each sub-account in order to get 30% of the account. I can certainly see there are some reasons why testing expense would be expected to decrease over time, which makes it a little different than power. So I expect that part

of the expected decrease would come from testing.

Q Do you know what the impact of using this forward-looking network operations factor is on the model's computed total loop costs?

A I have not run the model with the different assumptions to see the difference, but it would certainly be possible to do that.

Q Would you accept, subject to check, that using the .700 factor reduces total loop costs by 94 cents?

A If that's a model or a run that Staff has made, I'll accept your representation. Again, we're trying to get forward-looking costs as accurately as we can.

My suspicion is the correct interpretation is that on a forward-looking basis this is accurate. What you see is in that 94 -- Represented in that 94 cents is the overstatement of costs from Hatfield that result from the fact that embedded ARMIS data has been used in many cases.

So to the extent that existing expenses are higher than forward-looking expenses, there's an overstatement currently in the model and that's probably what that 94 cents represents.

Q I'd like to turn back to page 2 of your Exhibit DJW-2.

A Yes.

Q There are some numbers under the title "Structure of Fraction Assigned to Telephone." Would you please describe

what these are and how they're used in the model.

MR. MELSON: What page are you on?

MS. BARONE: That is Page 2 of 26 of DJW-2.

A Yes. These are, with regard to as I discussed with Mr. Lackey, with regard to poles, conduit and trenches, the so-called structure associated with placing plant. The realization that there are cost savings to be had going forward with consolidation of different utility facilities on a given structure; putting an electrical and a telephone wire on the same pole, for example.

It's not unusual today, even in an environment where there really haven't been strong incentives, for utilities to find ways to coordinate their efforts and save costs. Going forward in a new environment where greater incentives might expect to exist, I think we're going to see more of it. So this represents a sharing of poles, conduit and trenches with two other utilities, electric and cable, for example.

BY MS. BARONE (Continuing):

Q Isn't it true that the model run for BellSouth assumed there would be buried cable?

A There would be some buried cable, that's right. Depending on which part of the network you're looking in, it will be a different amount.

Q But it was assumed in the model; is that correct? It was an assumption?

A I think only for distribution, but, yes, there is certainly some buried cable involved.

Q What do you mean only for distribution?

A Well, I think with, if you look at the different network components, for feeder I believe it's all either on a pole or in a conduit. It's only when you get to distribution cables after that serving area interface where you have a case where some of them might be what's called buried as opposed to underground, which means that there is no conduit, they're actually just plowed directly into the ground.

Q Now isn't it true that to install buried cable, a LEC incurs costs associated with trenching?

A Yes, absolutely.

Q Now according to the Hatfield documentation you've submitted, on page 3 of DJW-4, the model assumes trenching costs to be $45 per foot; is that correct?

A I believe that's right. That sounds right. I'm sorry, I missed your page reference, though.

Q That is your Exhibit DJW-4, at Appendix C, on page 3, if you would like to take a look at that.

A Oh, sure. I'm sorry. C-4?

Q C-3.

A That's the problem.

Q I believe it's in the bottom right-hand corner.

A Yes, that comes from the Means Database, which is a

national publication of construction costs.

Q So by using a structure sharing factor of .33, would you agree that only $15 per foot for trenching is attributable to telephone service?

A That's right.

Q Now, however, the LEC presumably spent $45 per foot for trenching?

A Well, collectively the local exchange company, the power company and the cable company could spend $45 per foot. The idea here, of course, is that if each goes out and does so individually, that's less efficient and higher costs than if they consolidate their efforts. I think you're less likely to see this, frankly, on the distribution piece that we're talking about. It's a quite common practice regarding poles and conduit.

Q In your opinion, would it be normal procedure for a LEC to seek out other service providers to share the costs of trenching before they install buried cable?

A Historically, in a rate of return environment, probably not because having looked, I haven't seen a lot of incentives to seek out cost-saving measures. If we believe what BellSouth told us as they moved to a price cap environment and what they tell us about competition and the new incentives that creates for them, then, yes, I would definitely expect them to be seeking out cost-saving ways and this is certainly

one of them.

Q Is that MCI's current practice?

A I don't know MCI's current practice. I apologize. I believe -- I know they share rights-of-way quite frequently, but I don't know with regard specifically to trenching. I'm sure they also -- I know for a fact that they share poles and conduit as well, but I don't know specifically for trenching, if that's your question, but certainly for the other structure they do share.

Q Do you know what percent of BellSouth's conduits are shared by other kinds of service providers?

A Today, I don't know. Again, we need to look at what's been done today and the new incentives going forward because I think going forward we may see a very different practice.

Q And do you know what percent of BellSouth's telephone poles are shared by other kinds of providers?

A I don't know.

Q Would you accept subject to check that using the .33 factor reduces total loop costs by $3.37 per month or 28%?

A Again, if that's a run of the model that staff has made, I'll accept your results.

Q Sir, when a telephone company installs copper cable, is the kind of cable that could be suspended on telephone poles identical to the kind of cable that would be buried in the ground?

A No, the buried cable includes a different sheath to protect it from the elements.

Q Is the price of cable that could be suspended on poles identical to the price of cable that could be buried in the ground?

A It's going to differ slightly. The primary determinate is going to be the size of the cable and the number of pairs, the diameter, if you will, but there may be also cost differences.

Q Do you know whether the Hatfield Model assumes that the materials price of aerial cable differs from that of underground cable?

A I think the answer is that there is not a different materials price but that both types of materials have been incorporated in the materials prices that you see. And I'm not sure. I'm looking at the information we provided recently, and I'm not sure how to refer to this document. It's the sources of the input data that we provided and, specifically, pages 29 through 31 give you cable costs per foot and it is broken out by aerial and underground and there are different cost amounts, I believe. It's certainly broken out that way.

Again, the primary determinate being cable size, but there's a different list here depending on whether it's underground, aerial or buried.

MR. MELSON: Chairman Clark, I need to ask a

clarifying question that I had intended to save until later.

On Exhibit 37, DJW-6, it indicates Late-Filed Exhibit No. 8 not provided, too voluminous. My question is whether that is intended to be part of the exhibit or whether it was intended to be excluded from the exhibit?

MS. BARONE: It's intended to be part of the exhibit, but since it was so large we didn't include it in the packet. So it will be in the record.

MR. MELSON: In that case, the witness' last reference to page numbers of a document that he didn't know how to refer to would be to this Late-Filed Exhibit 8, which is in fact part of Exhibit 37.

CHAIRMAN CLARK: Thank you, Mr. Melson.

MS. BARONE: Thank you; I was going to ask the same question.

WITNESS WOOD: Yes, I'm sorry. I wasn't sure how to refer to that, but that's what I was looking at.

BY MS. BARONE (Continuing):

Q Mr. Wood, would you please turn to page 7 of your Direct Testimony at lines 2 through 6?

A Yes.

Q You state, "In contrast to the difficulty often experienced when attempting to evaluate ILEC cost studies in the underlying models, a review of the Hatfield Model can be direct and straightforward. Complete and detailed

documentation of the model is available, including descriptions of both the model algorithms and the inputs and assumptions used."

The documentation that you're referring to, is that the Hatfield Model?

A Well, it's a combination of several things. And, quite honestly, we have provided them to you as we have them because these things have been under development, but it is the document entitled "Hatfield Model Documentation," which you have, "Model Description," I'm sorry. And I don't have the correct exhibit number.

MR. MELSON: It's Exhibit 31.

WITNESS WOOD: It also includes the document that we were just referring to I think in that category. And it also really involves the process. What I'm describing here is the fact that because the Hatfield Model is set up in Excel spreadsheets, you can actually use the tracing function to step your way through each of the calculations and it will track you cell by cell exactly how this thing works. And all of those things collectively are what I'm describing here as far as the publicly available material that allows the model to be reviewed.

BY MS. BARONE (Continuing):

Q So by -- You use the term "algorithm." Do you mean "formula"? Is it the same as formulas?

A Well, I think in this context we can use them the same, yes. You can step through the spreadsheets and see the formula that's in each cell and as you work through those formulas you get what would be the algorithm, which is how the model calculates certain things. So, again, it's open in that regard in contrast to BellSouth's cost models, for example, which we don't have the opportunity to evaluate electronically.

Q Mr. Wood, earlier you were discussing the algorithm that's found in the documentation of the Hatfield Model. Can you show me specifically where in the --

CHAIRMAN CLARK: Monica, I'm sorry, I just turned off the mike. It's back on.

COMMISSIONER GARCIA: Just don't say the secret word again, all right, and that won't happen.

Q (By Ms. Barone) Can you specifically show me in the Hatfield Model documentation where I can find a description of all the model's algorithms?

A Well, you won't to find the formulas, if that's what you mean, without stepping through the

actual spreadsheet. The verbal description of the calculations is the document that we've been referring to here as Hatfield Model, Model Description.

Q Can you go through that for me and identify where those formulas are?

A Well, that's what I'm saying. To get to the formulas you're going to need to look at the spreadsheet and work through that. That's why we've provided the spreadsheet, and in a form where you can actually walk through it.

Q So are you saying that they're not really in the -- they are not in the documentation and that you would actually have to go to the model?

A Well, you're right. Certainly if we were going to print up some paper documentation that included every formula, it would be unwieldy. So this is a verbal description of the calculation process. But if you actually want to step through specific calculation by specific calculation, you can do that in the spreadsheet. But there are over a million cells, as I understand it, and thousands of calculations. So to print it would kill lots of trees.

Q So just to clarify, then, the descriptions are not in the documentation and that you would actually have to go to the model; is that correct?

A The formulas aren't, that's right.

Q Would you agree that the Hatfield Model is complex?

A All cost models are complex to some degree. Certainly the intent is to make it no more complex than necessary to be accurate. But it is -- inherently, there's some complexity here. There's lots of data to be used.

Q Mr. Wood, let's pick up again, for a minute, Exhibits 32, 33, 34, 35, that Mr. Lackey used.

A Yes, sir.

Q I believe you indicated that the square census block group assumption shown on Exhibit 33 was not used in the two lowest density areas; is that correct?

A Well, specifically, when you look at the distributions on Exhibit No. 34, that assumption does not hold true for the lowest density zones because what you find is that out in the country people live on long roads and in towns, and at crossroads rather than being distributed across the countryside. That was a recognized shortcoming in the first version of the benchmark cost model. It was corrected in the version that's used here today. It's also been corrected by US West and Sprint, as I understand it, in their update

of the benchmark cost model. So it was a commonly understood problem and it's been addressed.

Q If we wanted these exhibits to accurately reflect the minimum density to which this equal distribution assumption applied, what number would we have to change that four lines per square mile to?

A Well, we would need to go up to 200 lines per square mile, as I indicated to Mr. Lackey, in order to carry this equal distribution assumption forward.

Q Turn to Exhibit 35, if you would. Would you expect that a census block group with a density of 200 lines per square mile or more would typically have the type of population distribution with population centers at two diverse ends of the census block group?

A No. As I indicated to Mr. Lackey, he has chosen here an extremely unusual example. It does, in fact, demonstrate one possible example in which distribution investment would be slightly understated. It is -- there are at least an equal number of possibilities where the distribution investment would be overstated slightly. But this diagram certainly is designed to prove his point, but it would be an extremely unusual occurrence of population.

Q Staff asked you several questions about the -- affecting the model of using 70 percent factor rather

than 100 percent. And in another place they asked you a question about using a different factor for a different item. If you had those types of questions about a cost study that BellSouth submitted, would you be able to answer them?

A No. And that's -- as I described in my summary, I don't want to get lost in this process here. The fact that I'm having detailed conversation with Staff or with Bell indicates that we're dealing in an unprecedented, uncharted territory here. We could not look at the BellSouth cost models and have that same type conversation with regards to what the inputs are. Staff has run some sensitivity analysis on these inputs, and that's exactly why we provided them with the model, was to allow them to do it, to make it possible. BellSouth had that same opportunity. We do not have that equivalent opportunity, nor does the Staff with the BellSouth cost models.

EXHIBIT NO. _____

DOCKET NO: 961230-TP

WITNESS: DON J. WOOD

PARTY: MCI

DESCRIPTION:

MCI'S RESPONSE TO STAFF'S 1ST SET OF INTERROGATORIES (NOS. 1-13).

MCI'S SUPPLEMENTAL RESPONSE TO STAFF'S 1ST SET OF INTERROGATORIES (NOS. 4B, 4C, 5B, 5C, 6B, 6C, 8B, 9B, 11B, AND 13A).

PROFFERING PARTY: STAFF

FLORIDA PUBLIC SERVICE COMMISSION
DOCKET NO. 961230-TP EXHIBIT NO 14 I.D. # DJW-5
COMPANY/ WITNESS: STAFF
DATE: 12/18/96

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In Re: Petition by MCI Telecommunications Corporation for arbitration with United Telephone Company of Florida and Central Telephone Company of Florida concerning interconnection rates, terms, and conditions, pursuant to the Federal Telecommunications Act of 1996.	)	Docket No. 961230-TP Served: December 3, 1996

MCI'S RESPONSE TO STAFF'S FIRST SET OF INTERROGATORIES (NOS. 1-13)

MCI Telecommunications Corporation and MCImetro Access Transmission Services, Inc. (collectively, MCI) hereby respond to Staff's First Set of Interrogatories (Nos. 1-13). The answers to these interrogatories were provided by:

Don J. Wood
914 Stream Valley Trail
Alpharetta, GA 30202

RESPONSES

1. (a) Did Mr. Wood participate in the development of any of the Hatfield models, including but not limited to Hatfield Version 2.2 Release 2?

ANSWER: Mr. Wood has not had direct responsibility for development of any version of the Hatfield Model. During the development of Version 2.2, Release 2, Mr. Wood provided feedback and suggestions to the model developers which were incorporated in the latest release of the model.

(b) If the response to (a) is affirmative, please identify the Hatfield models of which Mr. Wood participated in the development.

ANSWER: Not applicable.

(c) If the response to (a) is affirmative, for each of the Hatfield models please identify the specific timeframes during which Mr. Wood participated in their development.

ANSWER: Not applicable.

(d) If the response to (a) is affirmative, for each of the Hatfield models please identify the specific aspects or modules on which Mr. Wood worked.

ANSWER: Not applicable.

(e) If the response to (a) is negative, has Mr. Wood previously used any of the Hatfield models to perform analyses for unbundled elements or universal service requirements?

ANSWER: Yes.

(f) If the response to (e) is affirmative, please identify all documents which mention, discuss, or contain the analyses performed by Mr. Wood using any of the Hatfield models. Where appropriate, please identify: in which proceedings such analyses were filed; on whose behalf they were filed; whether an order has been issued, and if so, when it was issued; and the nature of the proceeding.

ANSWER: Mr. Wood has presented testimony that utilizes Hatfield Model calculations of universal service funding requirements before the North Carolina Public Service Commission in Docket No. P-55, Sub 1013; In the Matter of Application of BellSouth Telecommunications, Inc. for, and Election of, Price Regulation; Docket Nos. P-7, Sub 825 and P-10, Sub 479; In the Matter of Petition of Carolina Telephone and Telegraph and Central Telephone Company for Approval of a Price Regulation Plan Pursuant to G.S. 62-133.5; and Docket No. P-19, Sub 277: In the Matter of Application of GTE South Incorporated for and Election of Price Regulation.

Mr. Wood has presented testimony that utilizes Hatfield Model calculations of the cost of unbundled network elements in Section 252 arbitrations before the Colorado, District of Columbia, Florida, Kentucky, Maryland, Nebraska, North Carolina, Oregon and Tennessee commissions.

(g) If the response to (a) is negative, has Mr. Wood performed any independent studies or analyses to validate Hatfield Version 2.2 Release 2?

ANSWER: While Mr. Wood has not conducted a formal analysis, he has participated in ongoing reviews of the accuracy and validity of the inputs and calculations of the Hatfield Model, including proposed enhancements.

(h) If the response to (g) is affirmative, please identify all independent studies and analyses performed by Mr. Wood to validate Hatfield Version 2.2 Release 2.

ANSWER: Not applicable.

(i) If the response to (g) is negative, please identify all efforts undertaken by Mr. Wood, including but not limited to meetings with the actual designers of the Hatfield Version 2.2 Release 2, which lead to his conclusions as to the appropriateness of the model.

ANSWER: Mr. Wood had several face-to-face meetings and numerous telephone conversations with the model developers regarding the model. In addition, Mr. Wood had conducted a detailed review of software documentation and model inputs.

2. (a) Did Mr. Wood run the Hatfield Version 2.2 Release 2 model to derive the results shown on his Exhibits DJW-2 and DJW-3.

ANSWER: No.

(b) If the response to (a) is negative, was the Hatfield Version 2.2 Release 2 model run that supports Mr. Wood's Exhibits DJW-2 and DJW-3 performed under Mr. Wood's direct supervision?

ANSWER: Yes. Mr. Wood has direct responsibility for assuring that the Hatfield Model is run using the correct inputs and in a manner which produces accurate and reliable results.

(c) If the response to (b) is affirmative, please identify who actually ran the model for Mr. Wood, and when the model run was performed.

ANSWER: Sonny Dozier. October 28, 1996.

(d) If the response to (b) is affirmative, was Mr. Wood present when the model was run?

ANSWER: No.

(e) If the response to (a) is negative, please enumerate all steps taken by Mr. Wood to verify the accuracy of the results of the model run.

ANSWER: Mr. Wood reviewed the model as described in Interrogatory 1(i) above; he reviewed all inputs and assumptions used for specific model run; and he conferred with Mr. Dozier regarding the model run.

(f) If the response to (d) is negative, please identify who ran the model for Mr. Wood, and when the model run was performed.

ANSWER: See Interrogatory 2(c).

3. (a) Please identify and describe all inputs to the Hatfield Version 2.2 Release 2 that can be set by users of the model.

ANSWER: See Exhibit DJW-2 and Appendix C to Exhibit DJW-4.

(b) Please identify all inputs to the Hatfield Version 2.2 Release 2 that cannot be set by users of the Model.

ANSWER: All inputs to the Hatfield Model are user definable and can be set by users of the Model, with the exception of USGS and Census Bureau data which there is no valid reason for a user to change.

4. For purposes of the following request, please refer to Mr. Wood's direct testimony, page 9, lines 18-25 - page 10, lines 1-2.

(a) Please identify the "similar generic models" to which reference is made.

ANSWER: The "similar generic models" referred to by the FCC are BCM2 (sponsored by U.S. West and Sprint) and the CPM (sponsored by Pacific Telesis)

(b) Have any analyses been performed by or for MCI that compare the results of the Hatfield Version 2.2 Release 2 model to the results generated using these "similar generic models"?

ANSWER: Mr. Wood has not performed any such analyses. MCI is attempting to determine whether such analyses have been performed by other personnel within MCI, and will provide any such information which exists on a supplemental basis.

(c) If the response to (b) is affirmative, please identify all analyses performed by or for MCI that compare the results of the Hatfield Version 2.2 Release 2 model to the results generated using these "similar generic models"?

ANSWER: See response to (b).

(d) To the extent not indicated in response to (a), is the Benchmark Cost Model (BCM) one of the "similar generic models"?

ANSWER: Yes.

(e) If the response to (d) is affirmative, please identify any and all aspects of the BCM that are not based on publicly available data.

ANSWER: Mr. Wood has not identified the aspects of BCM that are not based on publicly available data. MCI is attempting to determine whether such an analysis has been performed by other personnel within MCI, and will provide any such information which exists on a supplemental basis.

(f) If the response to (d) is affirmative, please identify any and all aspects of the BCM that are not available for scrutiny by commissions and interested parties.

ANSWER: See response to (e).

5. (a) Please identify all fills factors that were used in the model run that supports Exhibits DJW-2 and DJW-3.

ANSWER: The Hatfield Model calculates effective fill factors individually for each distribution and feeder route. The following table shows the maximum engineered level of plant utilization used as model inputs. The effective fill factors achieved by the Hatfield Model will be lower than the engineered fill factors because the model requires that the next larger available cable size be installed to accommodate the engineered fill.

Density Zone	Feeder Fill	Distribution Fill
0.5	.65	.5
5-200	.75	.55
200-650	.8	.6
650-850	.8	.65
850-2550	.8	.7

>2550	.8	.75

(b) Please describe specifically how the model uses feeder fill factors to size feeder facilities (i.e., describe the specific sizing algorithm used).

ANSWER: This information is still being gathered and will be provided supplementally as soon as it is available.

(c) Please describe specifically how the model uses distribution fill factors to size distribution facilities (i.e., describe the specific sizing algorithm used.)

ANSWER: This information is still being gathered and will be provided supplementally as soon as it is available.

6. For purposes of the following request, please refer to Mr. Wood's direct testimony, page 12, lines 3-12.

(a) Please identify the version of the Hatfield model to which the WUTC is referring.

ANSWER: Hatfield Model 2.2 release 1

(b) Have any state commissions rejected or otherwise declined to adopt the use of the Hatfield model?

ANSWER: This information is still being gathered and will be provided supplementally as soon as it is available.

(c) If the response to (b) is affirmative, please identify all state commissions that have rejected or declined to adopt the use of the Hatfield model.

ANSWER: See response to (b).

7. For purposes of the following request, please refer to Mr. Wood's direct testimony, page 14, lines 11-15.

(a) Please identify the source of the database referred to herein.

ANSWER: The 1995 business employee by CBG estimates were derived by demographic consultants, CACI Marketing Systems of Arlington, VA. These data are based on Dun and Bradstreet databases.

(b) Please explain how information from this database was used to account for multi-line residence, business, special access, and payphone lines.

ANSWER: The line converter module computes business lines in each CBG by multiplying the number of business employees in each CBG by the ratio of total reported business lines to total employees in the study area. Special access and public line calculations also are based on business employee counts because both services are closely associated with businesses. Multi-line residence figures are based on household estimates (see Answer to Interrogatory No. 9), not business employee data.

(c) To the extent that data in addition to those from the database were used, please identify the source(s), including but not limited to any document(s), from which such data was obtained.

ANSWER: See Responses to (a) and (b) above.

8. For purposes of the following request, please refer to Mr. Wood's direct testimony, page 14, lines 17-20.

(a) Please explain how the Hatfield model 2.2.2 adjusts the amount of distribution cable according to density group.

ANSWER: *Distribution Distance* - BCM-PLUS uses geometric relationships to calculate distribution distances. The distribution distance is the average

distance between a customer premises and the SAI. The module calculates the average distribution distance within a CBG to equal 0.625 times the length of one side of the CBG. (See Attachment 1.)

(b) To the extent not indicated in response to (a), please identify or otherwise specify the actual algorithm(s) used in the model that adjust the amount of distribution cable by density group, and identify each term in the algorithm(s).

ANSWER: This information is still being gathered and will be provided supplementally as soon as it is available.

9. For purpose of the following request, please refer to Mr. Wood's direct testimony, page 14, lines 20-23.

(a) Please explain in detail how the Hatfield model 2.2.2 computes structure costs.

ANSWER: The module adds structure investment to the loop cable investments produced by the Loop Module based directly on the number of sheath miles of cable to be installed. The previous version of the Hatfield Model relied on BCM estimates of loop structure components which were calculated by applying cable multipliers to loop cable investment. The cable multipliers produced estimates of structure that varied directly with cable investment. In some cases, the structure estimates per unit length were unacceptably low. The multiplier approach also improperly made structure investment a function of cable materials price discounts.

In Release 2, the Convergence Module includes user-defined inputs of conduit investment, pole investment and spacing, manhole investment and spacing, trenching and direct burial investment, and breakdowns of aerial, buried, and underground cable. Although the Loop Module cable investment inputs include values for aerial and underground cable, where buried cable is required the Convergence Module adds an incremental amount per foot to represent the increased investment in armoring that is characteristic of cable intended to

be directly buried. The default assumptions, which vary by density range, appear in Appendix C. There are separate sets of default inputs for distribution, copper feeder and fiber feeder facilities. *[The HM2.2.2 Convergence Module still performs certain loop-related calculations. These were originally included in this module to correct deficiencies in the initial BCM loop calculations. HAI has chosen to keep these additional calculations in the Convergence Module even after the incorporation of BCM-PLUS into HM2.2.2]*

Structure investment (i.e., poles, conduit, trenches, and manholes) generally are shared among utilities, typically LECs, CATV operators, electric utilities, and others, including competitive access providers (CAPs) and IXCs. To the extent that several utilities may place cables in common trenches, conduits or on common poles, it is appropriate to share the costs of these structure items among them. Because the Convergence Module reports investments in different structure separately to the Expense Module, the user may select the fraction of each type of distribution and feeder structure investment that should be assigned to local telephone service.

The Convergence Module produces investments in the following categories for each of the six density ranges:

- Distribution (aerial, buried, and underground copper cable and associated structure)
- Concentration (DLC remote terminal and associated investment in power, site preparation, and housing)
- Feeder (aerial, buried and underground fiber and copper feeder cable and associated structure)
- Switching (end office and tandem switching investment)
- Wire center (end office and tandem wire center investment)
- Operator services (operator tandem switching, tandem wire center, trunks and operator positions)
- Transport (common and dedicated)
- STPs
- SCPs
- Signaling links
- NID, drop, terminal and splice, and SAI

In addition, the Convergence Module output sheet summarizes line and trunk counts, and passes other parameters, such as tandem routing fractions and DEMs, to the Expense Module. Line counts include residential, business, special access and public access lines, and the module also reports households in each density range.

(b) To the extent not indicated in response to (a), please identify or otherwise specify the actual algorithm(s) used in the model that compute structure costs, and identify each term in the algorithm(s).

ANSWER: This information is still being gathered and will be provided supplementally as soon as it is available.

10. For purposes of the following request, please refer to Mr. Wood's direct testimony, page 15, lines 4-5.

(a) Please identify all modifications that have been made to the Hatfield Model 2.2.2., that have also been made to the BCM2.

ANSWER: Modifications have been made to both models to adjust the amount of distribution cable in the highest and lowest density ranges and to include costs associated with network elements that were not included in BCM1.

(b) With respect to those modifications identified in response to (a), do both models make the modifications in an identical manner?

ANSWER: No.

(c) If the response to (b) is negative, please identify which modifications were handled differently by the two models, and describe how each model performed each such modifications.

ANSWER: Mr. Wood is not familiar with the details of how the modifications were made to BCM2.

11. For purposes of the following request, please refer to Mr. Wood's direct testimony, page 15, lines 20-23.

(a) Please identify the source(s), including but not limited to any document(s), from which dial equipment minutes and call attempt statistics were obtained.

ANSWER: ARMIS 4308, filed by Local Exchange Companies.

(b) Please explain how the data identified in (a) were used to estimate network traffic, and identify or otherwise specify the actual algorithm(s) used in the model that use these data to size switching, signaling and interoffice facilities, and identify each term in the algorithm(s).

ANSWER: This information is still being gathered and will be provided supplementally as soon as it is available.

12. For purposes of the following request, please refer to Mr. Wood's direct testimony, page 18, lines 15-19.

(a) Please identify the source(s), including but not limited to any document(s), from which switch investment estimates were derived.

ANSWER: Switch investment estimates were derived from data provided by switch manufacturers and from a publicly available annual study of the central office equipment market published by McGraw Hill.

(b) Please identify the vintage of Table 2.10 of the FCC's Statistics of Communications Common Carriers that was used (i.e., as of what date), and identify which values from this table were used.

ANSWER: This information is still being gathered and will be provided supplementally as soon as it is available.

13. For purposes of the following request, please refer to Mr. Wood's Exhibit DJW-2.

(a) Please identify the source for each of these inputs.

ANSWER: This information is still being gathered and will be provided supplementally as soon as it is available.

(b) Are all the inputs shown on these pages specific to United/Centel's Florida operations?

ANSWER: No.

(c) If the response to (b) is negative, are any of the inputs shown on these pages specific to United/Centel's Florida operations.

ANSWER: Yes.

(d) If the response to (c) is affirmative, please identify which of these inputs are specific to United/Centel's Florida operations.

ANSWER: The information on call attempts, dial equipment minutes and line counts is specific to United/Centel's Florida operations.

(e) Are all of the inputs shown on these pages Florida-specific?

ANSWER: No, with the exception of the United/Centel specific information identified in (d), none of these inputs are Florida-specific. However, Mr. Wood has reviewed these inputs to ensure that they are appropriate for use in Florida.

(f) If the response to (e) is negative, please identify which of these inputs are Florida-Specific.

ANSWER: See response to (e).

* * * * *

RESPECTFULLY SUBMITTED this 3rd day of December, 1996.

HOPPING GREEN SAMS & SMITH, P.A.

By: _____
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ATTORNEYS FOR MCI

#8a

SAI Placement & Average Distribution Cable Length: The *Hatfield Model* assumes that the SAI is placed one quarter of the way into the *Census Block Group*. This creates a condition wherein the total average distance to a household within the *CBG* is equal to 5/8 (0.625) times the length of one side of the square *CBG*. One side of the *CBG* is equal to the square root of the area of the *CBG* (see Figure 1)

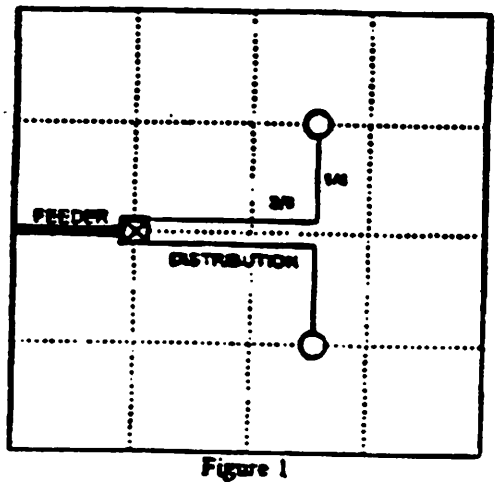


Figure 1

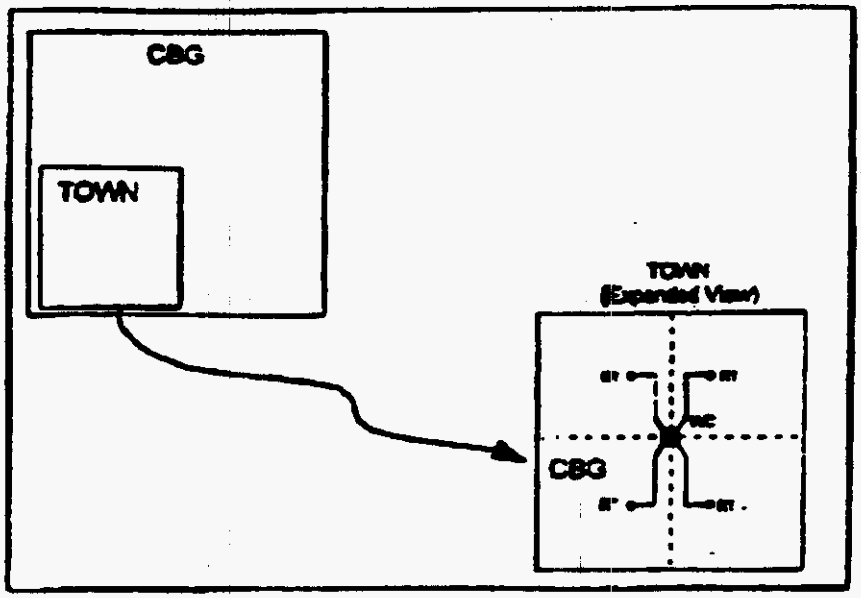
The *Hatfield Model* emulates *Distribution Cable* by assuming that there are several *Distribution Cables*, all of which are at a length equivalent to the average distance to household length (0.625 times the square root of the *CBG* area). The model allows user input of an average number of such cables by *CBG Density* classification. The default values are between 2 and 8 *Equivalent Distribution Cables*, as follows:

Number of Equivalent Copper Distribution Cables by Census Block Group Density Category Default Values	
CBG Density (HH/sq.mi.)	# of Distribution Cables
0 - 5	2
5 - 200	4
200 - 650	4
650 - 850	4
850 - 2,550	6
> 2,550	8

Larger numbers of average *Equivalent Distribution Cables* in higher density *CBGs* reflect the fact that households will tend to be more uniformly distributed across a densely populated *CBG* than they will in less dense *CBGs*. Also, plot sizes will be smaller.

Lower numbers of average *Equivalent Distribution Cables* in lower density *CBGs* reflect the fact that households will tend to either be located along a few roads, and/or will be clustered rather than uniformly distributed.

Calculation of Distribution Cable Length in the Lowest Density CBGs:



Treat each town as consisting of four "CBG's", each of which is a quadrant of the town with an edge $\frac{1}{2}$ that of the entire town. Each such "CBG" is served by four distribution cables of length .625 times the side of the quadrant (i.e., town density is high enough so it falls in other than the lowest density). There is a wire center at the middle of town.

Note the side of a "CBG" or quadrant is $\frac{1}{2}$ the side of the town.

Let:

A_t = Area of one town

S_t = Side of one town = $\sqrt{A_t}$

A_c = Area of entire CBG (i.e., the original CBG)

S_c = Side of CBG = $\sqrt{A_c}$

n = Total number of towns

Then: the amount of distribution cable, D, is

$$D = \underset{\text{\# towns}}{n} \times \underset{\text{\# "CBG's"}}{4} \times \underset{\substack{\text{\# Cables} \\ \text{per "CBG"}}}{4} \times \underset{\substack{\text{Length of} \\ \text{one "CBG"}}}{\frac{5}{8}} \times \underset{\substack{\text{Edge of one} \\ \text{one "CBG"}}}{\frac{S_t}{2}}$$

$$= 5 \times n \times S_t$$

Now: $n A_s = \frac{A_s}{m}$ where m is the ratio of the line density of a town to the line density of the entire (original) CBG

Therefore: $D = 5 \times n \times \sqrt{\frac{A_s}{mn}} = 5\sqrt{\frac{n}{m}}\, S_c$

The Hatfield Model deals with S_c, and the number of distribution legs L that serve the entire CBG. It assumes the amount of distribution cable required is $\frac{5}{8} \times L \times S_c$

Therefore: $\frac{5}{8} \times L \times S_c = 5\sqrt{\frac{n}{m}}\, S_c$, or $\sqrt{n}$

What is a reasonable assumption for m ?

Overall line density is 0 - 5 lines / mi.^{2}, or 2.5 lines / mi.^{2}

Case 1: assume town density is 100 lines / mi.^{2} (middle of next higher density zone)

$$m = \frac{100}{2.5} = 40$$

Case 2: assume 1 acre lots

$$\frac{HH}{mi^2} = \frac{(5280)^2}{40{,}000} = 700$$

$$\frac{lines}{mi^2} = 1.25 \times \frac{HH}{mi^2} = 875$$

$$m = \frac{875}{2.5} = 350$$

Therefore: $L = \frac{8}{\sqrt{40}}\, n = 1.26\sqrt{n}$ if $m = 40$

$L = \frac{8}{\sqrt{350}}\, n = .43\sqrt{n}$ if $m = 350$

To be conservatively high, assume first case $L = 2$ for $n = 2$ or 3.

Therefore, use two cables.

Note, however, that we are really conservatively high when it comes to cable size. Using $L = 2$, the Hatfield Model will size the cable to support $\frac{1}{2}$ of the lines in the CBG. In reality, each cable should be sized to support only $\frac{1}{16n}$ of the population. If you assume a 400 *HH* CBG, 1.2 lines / *HH*, each cable @ 50% fill, cables will be sized for $\frac{400 \times 1.2}{5 \times 2} = 400$ lines, rather than $\frac{400 \times 1.2}{5 \times 16 \times 3} = 20$ lines.

This should definitely be corrected in the model.

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In Re: Petition by MCI Telecommunications Corporation for arbitration with United Telephone Company of Florida and Central Telephone Company of Florida concerning interconnection rates, terms, and conditions, pursuant to the Federal Telecommunications Act of 1996.	)	Docket No. 961230-TP Served: December 9, 1996

MCI'S SUPPLEMENTAL RESPONSE TO STAFF'S FIRST SET OF INTERROGATORIES

MCI Telecommunications Corporation and MCImetro Access Transmission Services, Inc. (collectively, MCI) hereby provide a supplemental response to Items 4b, 4c, 5b, 5c, 6b, 6c, 8b, 9b, 11b, and 13a of Staff's First Set of Interrogatories. The answers to these interrogatories were provided by:

Don J. Wood
914 Stream Valley Trail
Alpharetta, GA 30202

RESPONSES

4. For purposes of the following request, please refer to Mr. Wood's direct testimony, page 9, lines 18-25 - page 10, lines 1-2.

   (b) Have any analyses been performed by or for MCI that compare the results of the Hatfield Version 2.2 Release 2 model to the results generated using these "similar generic models"?

   ANSWER: Yes.

   (c) If the response to (b) is affirmative, please identify all analyses performed by or for MCI that compare the results of the Hatfield Version 2.2 Release 2 model to the results generated using these "similar generic models"?

ANSWER: A presentation entitled "Hatfield Model v.2.2.2 & BCM2" contains a comparison of the two models. A copy is attached.

5. (b) Please describe specifically how the model uses feeder fill factors to size feeder facilities (i.e. describe the specific sizing algorithm used).

ANSWER: Feeder fill factors are used in sizing copper feeder facilities only. The copper feeder cable is selected such that the percentage of the cables maximum capacity used is equal to or less than, but never greater than, the input fill factor for the given density zone. The model divides the total lines served by each segment of copper feeder by the appropriate fractional fill factor for that density zone. Because copper cable is manufactured only in discrete sizes, the model selects the nearest discrete cable size large enough to accommodate the line count as adjusted by the fill factor. This process can be followed in the "Main Logic" sheet of the BCMLOOPD.xls (Loop Module) columns W and X for feeder and Z and AA for subfeeder. In addition, the main feeder tapers as the total main feeder capacity required becomes smaller as subfeeders branch off. This can be observed by comparing the values of the rows in the "Main Logic" sheet which are served by the same feeder facility.

(c) Please describe specifically how the model uses distribution fill factors to size distribution facilities (i.e., describe the specific sizing algorithm used.)

ANSWER: The distribution cable is selected such that the percentage of the cables maximum capacity used is equal to or less than, but never greater than the input fill factor for the given density zone. The model divides the total lines served by each segment of copper distribution by the appropriate fractional fill factor for that density zone. Because copper cable is manufactured only in discrete sizes, the model selects the nearest discrete cable size large enough to accommodate the line count as adjusted by the fill factor. This process can be followed in the "Main

Logic" sheet of the BCMLOOPD.xls (Loop Module) columns AC and AD.

6. For purposes of the following request, please refer to Mr. Wood's direct testimony, page 12, lines 3-12.

(b) Have any state commissions rejected or otherwise declined to adopt the use of the Hatfield model?

ANSWER: Yes.

(c) If the response to (b) is affirmative, please identify all state commissions that have rejected or declined to adopt the use of the Hatfield model.

ANSWER: Florida has declined to use the Hatfield Model. However, the Hatfield Model has been accepted by state commissions in Iowa, Minnesota, New Jersey, Nebraska, and Washington.

8. For purposes of the following request, please refer to Mr. Wood's direct testimony, page 14, lines 17-20.

(b) To the extent not indicated in response to (a), please identify or otherwise specify the actual algorithm(s) used in the model that adjust the amount of distribution cable by density group, and identify each term in the algorithm(s).

ANSWER: The model computes varying numbers of distribution cables according to density range to accommodate different population distributions in high and low density zones. See the "Main Logic" sheet of the Loop Module columns AC and AD.

In addition, distribution distances are increased by 20% in the presence of rocky terrain to accommodate routing of facilities around difficult placement conditions.

9. For purpose of the following request, please refer to Mr. Wood's direct testimony, page 14, lines 20-23.

(b) To the extent not indicated in response to (a), please identify or otherwise specify the actual algorithm(s) used in the model that compute structure costs, and identify each term in the algorithm(s).

ANSWER: The computation for structure costs as described in (a) is performed and identified in the Convergence Module. The Convergence Module combines the output of the Wire Center module with that of the Loop Module and investment in SAIs, buried underground and aerial placement, terminals and splices, drop wires, NIDs, and structure components including poles, conduit and manholes to produce investment for all plant categories by density range.

11. For purposes of the following request, please refer to Mr. Wood's direct testimony, page 15, lines 20-23.

(b) Please explain how the data identified in (a) were used to estimate network traffic, and identify or otherwise specify the actual algorithm(s) used in the model that use these data to size switching, signaling and interoffice facilities, and identify each term in the algorithm(s).

ANSWER: The computation for switching, signaling and interoffice facilities as described in (a) using DEMs and call attempts data is performed and identified in the Wire Center module. The Wire Center module computes investment in wire centers, switching (including end offices, tandems, and operator tandems), signaling, and interoffice transmission facilities.

13. For purposes of the following request, please refer to Mr. Wood's Exhibit DJW-2.

(a) Please identify the source for each of these inputs.

ANSWER: See the document labelled "Attachment RAM-3", a copy of which is attached.

* * *

RESPECTFULLY SUBMITTED this 9th day of December, 1996.

HOPPING GREEN SAMS & SMITH, P.A.

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ATTORNEYS FOR MCI

HATFIELD MODEL V.2.2.2 - INPUT SUMMARY ATTACHMENT RAM-3

Input Name	Default	Support Material
Cost of Capital Factors		
Depreciation Lives		
Loop Distribution	20	The model determines the appropriat depreciable lives for each network element based on the approved life span for each element. The depreciable lives used as default values are taken from Bell Atlantic - Maryland Commission prescribed live
Loop Feeder	20	
Loop Concentrator	10	
Wire Center	37	
End Office Switching	14.3	
Tandem Switching	14.3	
Transport Facilities	19	
Operator Systems	8	
STP	14	
SCP	14	
Links	19	
Public Telephones	9	
General Support	7	
Cost of Capital		
Debt Percent	45.00%	Default values represent reasonable estimates of the debt/equity ra he cost of debt and the cost of equity tha result in an after-tax nominal cost of capital of 10.01% - - consistent with preliminary results of cost of capital studies.
Cost of Debt	7.70%	
Cost of Equity	11.90%	
Equity Percent	55.00%	
Overall Cost of Capital	10.01%	

HATFIELD MODEL V.2.2.2 - INPUT SUMMARY ATTACHMENT RAM

Input Name	Default	Support Material
Miscellaneous Expense Factors		
Variable Overhead Factor	10.00%	The 10% factor is designed to capture the corporate operations expenses th vary with levels of demand. The fact is based on a regression analysis of the Tier 1 LEC's ARMIS G&A ("overhead") expenses and all other costs. Those costs are then adjusted to include efficiencies resulting from operation in a competitive environment.
Federal Income Tax Rate	40.00%	Default factor designed to reflect a combined Federal and state effective income tax rate.
Other Taxes Factor	5.00%	Default factor to reflect Franchise Fee and ad valorem taxes
Operating State and Local Income Tax Factor	1.00%	Not presently used by the model
Billing/Bill Inquiry per line per month	$1.22	Derived from 1993 New Hampsh. Incremental Cost Study, Manchester, NH, April 3, 1993.
Directory Listing per line per month	$0.15	Determined during discussions betwee Hatfield, AT&T, and MCI.

Input Name	Default	Support Material
Miscellaneous Expense Factors (contd.)		
Forward-Looking Network Operations Factor	70.00%	Forward looking adjustment based on the 1993 New Hampshire Incremental Cost Study, Manchester, NH, April 3, 1993.
Central Office Switching Expense Factor	2.69%	Forward looking adjustment based on the 1993 New Hampshire Incremental Cost Study, Manchester, NH, April 3, 1993.
End Office Traffic-Sensitive Fraction	70.00%	Based on review and modification of estimate produced by Pacific Bell.
per-line Monthly LNP Cost	$0.25	Developed and provided by AT&T.
alternative circuit equipment factor	0.0153	Forward looking adjustment based on the 1993 New Hampshire Incremental Cost Study, Manchester, NH, April 3, 1993.
Carrier-carrier customer service per line per year	$1.56	Based on representative amounts pull from ARMIS.
NID expense per line per year	$3.00	Based on representative amounts pull from ARMIS.
Switch line circuit offset per DLC line	$35.00	Assumption of cost of POTS interface digital switch. HAI estimate of investment for battery, over voltage, ringing, supervision, codec and hybrid functions.

HATFIELD MODEL V.2.2.2 - INPUT SUMMARY ATTACHMENT RAM-3

Input Name	Default	Support Material
Fill Factors		
Cable		
Feeder		
0-5	0.65	The Feeder Fill default values in the BCM1 model were reviewed and accepted by Telecom Visions, Inc. based on knowledge of the Bell System Practice, AT&T 916-250-250 Section 3, Issue 2 published in 1951 which discusses the generally-accepted fill relief factor of 85%. For the higher density zones, the model fi factors were reduced by 5% to accour for forward looking technology and the technical longevity of copper. The model fill factors for lower density zones were further reduced to re the industry standard practice of building in spare capacity for smaller wire sizes rather than incurring the cost of upgrading capacity due to future demand. This is not inconsistent with the fill assumption generally employed for distribution cable. The fill factors reflect fill actually experienced in the cable as distinguished from fill measured when terminated at the MDF (as represente in Exhibit 1 hereto) . The distinction is in the definition of fill factor. The model employs the expected fill factor for network technical development as opposed to technical fill at relief (whic requires that the network be reinforced with costly upgrades).
5-200	0.75	
200-650	0.80	
650-850	0.80	
850-2550	0.80	
2550+	0.80	

Input Name	Default	Support Material
Fill Factors (contd.)		
Cable		
Distribution		
0-5	0.50	The Distribution default values in the BCM1 model were reviewed and modified by Telecom Visions, Inc. based on knowledge of generally-accepted Distribution fill standards. The most generally accepted guideli is that "[D]istribution plant is designe to meet the ultimate requirement for area...Distribution network design requires more distribution pairs than feeder pairs so distribution cables ar more numerous, but smaller in cross section, than feeder cables" [Telecommunications Transmission Engineering, 3rd Ed., Bellcore, 1990.
5-200	0.55	
200-650	0.60	
650-850	0.65	
850-2550	0.70	
2550+	0.75	In addition, the normal specul ratio is two pairs per living unit. Therefore, it is unreasonable to desig distribution cable for less than 50% fi The BCM1 model called for a fixed value of 75% spare for the lowest density zone (25% expected fill). Tha was deemed to be far too low. The BCM1 model factor for the highest density zone were deemed acceptabl and left unchanged. BCM2 uses higher fill factors than BCM1, and are only slightly below the Hatfield model assumption.

HATFIELD MODEL V.2.2.2 - INPUT SUMMARY ATTACHMENT RAM-2

Input Name	Default	Support Material
EO Switching Parameters		
Busy hour call attempts, residential	1.3	Bell Communications Research, LATA Switching Systems Requirements, Section 17: Traffic Capacity and Environment, T12-TSX-000517, Issue March 1980
Busy hour call attempts, business	3.5	Bell Communications Research, LATA Switching Systems Requirements, Section 17: Traffic Capacity and Environment, T12-TSX-000517, Issue March 1980
Switch Maximum Line Size	100,000	Assumption based on industry comm knowledge.
Switch Maximum Line Fill	0.80	Assumption based on industry comm knowledge.
Switch Maximum Processor Occupancy	0.90	Assumption based on industry comm knowledge.
Processor Feature Loading Multiplier	1.00	No loading multiplier used. Defa 1.0, has no effect on the model.
Switch Installation Multiplier	1.10	Determined during discussions betwe Hatfield, AT&T, and MCI.
Switch Parameters Switch real-time limit, BHCA 1 - 1,000 1,000 - 10,000 10,000 - 40,000 40,000+	 10,000 50,000 200,000 600,000	HAI assumptions.
Switch traffic limit, BHCCS 1 - 1,000 1,000 - 10,000 10,000 - 40,000 40,000+	 10,000 50,000 500,000 1,000,000	HAI assumptions.

Input Name	Default	Support Material
EO Switching Parameters (contd.)		
Switch cost points	*lines*	
Low line size	2,782	Average BOC and independent swit
Mid line size	11,200	line sizes derived from data publishe
High line size	80,000	in the FCC's Statistics of Communications Common Carriers plus information on larger switches obtained from switch manufacturers.
	cost/line	
Low line size	$220.00	Based on publicly available study of t
Mid line size	$86.00	central office equipment market
High line size	$59.00	published annually by McGraw Hill pl information on larger switches obtain from switch manufacturers.
Residential Holding Time Multiplier	1.00	Item included for potential future use.
Business Holding Time Multiplier	1.00	Item included for potential future use.
Busy Hour fraction of daily usage	0.10	Estimate of busy hour fraction ily usage based on materials produced b AT&T.
Annual to daily usage reduction factor	270.00	Estimate of number of business days year.

HATFIELD MODEL V.2.2.2 - INPUT SUMMARY ATTACHMENT RAM-3

Input Name	Default	Support Material
Interoffice and Tandem Parameters		
Operator Traffic Fraction	0.02	HAI estimate based on knowledge of industry practice.
Total Interoffice Traffic Fraction	0.65	HAI estimate based on knowledge of industry practice.
Direct-Routed Fraction of Local Interoffice	0.98	From information filed by LEC's in response to FCC in Docket 80-246.
Maximum Trunk Occupancy, CCS	27.5	AT&T Capacity Cost Study.
Trunk Termination Investment, per end	$100	AT&T Capacity Cost Study.
Average Direct Route Distance, miles	10	HAI assumption.
Average Trunk Usage Fraction	0.3	AT&T Capacity Cost Study.
Toll traffic inputs		
Tandem-routed % of total intraLATA traffic	0.2	Determined during discussions between Hatfield, AT&T, and MCI.
Average direct intraLATA route distance, mi.	25	
Tandem-routed % of total interLATA traffic	0.2	
Average direct access route distance, mi.	15	
Tandem Switching parameters		
real time limit, BHCA	1,500,000	HAI assumption.
port limit, trunks	120,000	AT&T Capacity Cost Study.
common equipment investment	$1,000,000	AT&T Capacity Cost Study.
maximum trunk fill	0.8	Estimated to be the same as End Offic
maximum real time occupancy	0.9	Estimated to be the same as End Offic
common equipment intercept factor	0.25	Scaling of tandem loop investment account for joint usage based on HAI experience.

HATFIELD MODEL V.2.2.2 - INPUT SUMMARY ATTACHMENT RAM-3

Input Name		Default	Support Material
Wire Center Parameters			
Lot size, multiplier of switch room size		2	Assumes that land area needed is sufficient to accommodate building plus parking requirements.
Tandem/EO wire center common factor		0.40	Based on AT&T analysis.
Power and frame investment		*sum of power & frame*	
	0	$10,000	HAI assumption.
	1,000	$20,000	
	5,000	$40,000	
	25,000	$100,000	
	50,000	$500,000	
Switch Room size table		*floor area required*	
	0	500	HAI assumption.
	1,000	1,000	
	5,000	2,000	
	25,000	5,000	
	50,000	10,000	
Construction costs, per sq. ft.		*construction/$/sq. ft.*	
	0	$75	HAI assumption.
	1,000	$85	
	5,000	$100	
	25,000	$125	
	50,000	$150	
Land price, per sq. ft.		*price/sq. ft.*	
	0	$5.00	HAI assumption.
	1,000	$7.50	
	5,000	$10.00	
	25,000	$15.00	
	50,000	$20.00	

Input Name	Default	Support Material
Distribution Structure Inputs		
Aerial Fraction		The three structure categories of Aerial, Buried and Underground, are assumed to reflect an equal distribution between Aerial and Buried structure in all but the two highest density zones, based on experience of Telecom Visions, Inc. The highest density zone employs a larger factor for aerial structure to reflect the increased difficulty of placing cable in the earth that arises from a higher incidence of obstacles as density increases. The use of underground structure in higher density zones allows for the placement of cable in conduit. This accounts for the increased likelihood of having to trench through pavement in areas of more intensive use, the need to have a protected path to allow for replacement of cable, and to minimize future in these locations.
0-5	0.5	
5-200	0.5	
200-650	0.5	
650-850	0.5	
850-2550	0.4	
2550+	0.65	
Buried Fraction		
0-5	0.5	
5-200	0.5	
200-650	0.5	
650-850	0.5	
850-2550	0.5	
2550+	0.05	
Underground Fraction		
0-5	0	
5-200	0	
200-650	0	
650-850	0	
850-2550	0.1	
2550+	0.3	

Input Name	Default	Support Material
Distribution Structure Inputs (contd.)		
Buried Installation/foot		Trenching and plowing of cable are much less expensive methods of creating paths for the placing of cable underground than is trenching for cable in conduit, which generally involves penetrating pavement and restoring pavement as well as earth excavation and backfill. The cost per foot of buried installation varies by density class based on anticipated incidence of features/obstructions as density increases (pipe jacking under obstructions such as roads and driveways, for example). The trenching figures for buried installation represent reasonable estimates for continuous common earth trenching. Published estimates that support the default values for buried installation costs are included in Exhibit 2 hereto.
0-5	$2.00	
5-200	$2.00	
200-650	$2.00	
650-850	$3.00	
850-2550	$3.00	
2550+	$20.00	

Input Name	Default	Support Material
Distribution Structure Inputs (contd.)		
Conduit Installation/foot		Trenching for cable in conduit is a more expensive method of creating paths for the placing of cable underground than is trenching and plowing of cable. Cable in conduit generally involves penetrating pavement and restoring pavement a well as earth excavation and backfil The cost per foot of underground installation varies by density class based on the anticipated incidence features/obstructions as density increases. The trenching figures for cond. installation represent reasonable estimates for continuous common earth trenching.
0-5	$25.00	
5-200	$25.00	
200-650	$25.00	
650-850	$25.00	
850-2550	$45.00	
2550+	$70.00	

Input Name	Default	Support Material
Distribution Structure Inputs (contd.)		
Pole spacing, feet	150	Pole spacing is based on field experience of 35 poles per mile.
Pole investment	$450	The default value represents a conservative installed cost for a 35' Class 4, treated southern pine pole. cost is split approximately 40/60 mate to labor and assumes installation by h production machinery such as power auger trucks.
Conduit investment per foot	$1.00	The default value represents a conservative material cost per foot of duct for 4" PVC.
Manhole investment, per manhole	$3,000	The default value represents the installed cost of a prefabricated concr manhole per industry pricing. Exhibit provides a representative estimate of typical manhole.
Buried cable armoring multiplier	1.1	The armoring multiplier is bas on field experience for DEPIC filled ASF sheath cable for all buried cable. A multiplier (rather than an additional cost per foot) is appropriate, since armoring cost is a function of cable circumference, which is a function of number of pairs, which is directly correlated with cost.

HATFIELD MODEL V.2.2.2 - INPUT SUMMARY

ATTACHMENT RAM-

Input Name	Default	Support Material
Copper Feeder Structure Inputs		
Aerial Fraction		The three structure categories of Aerial, Buried and Underground, are assumed to reflect an equal distribution in the lowest three dens zones between Aerial and Buried structure (except for a small percentage of feeder that will exit the wire center underground and that portion that exits the underground to the SAI). The higher proportion of undergrou in the higher density zones reflects fact that feeder cable is generally r in conduit in high density areas previously discussed. This assumption is generally consistent with the assumption in BCM.
0-5	0.5	
5-200	0.5	
200-650	0.5	
650-850	0.4	
850-2550	0.1	
2550+	0.05	
Buried Fraction		
0-5	0.45	
5-200	0.45	
200-650	0.45	
650-850	0.4	
850-2550	0.1	
2550+	0.05	
Underground Fraction		
0-5	0.05	
5-200	0.05	
200-650	0.05	
650-850	0.2	
850-2550	0.8	
2550+	0.9	

Input Name	Default	Support Material
Copper Feeder Structure Inputs (contd.)		
Buried Installation/foot		Trenching and plowing of cable are less expensive methods of creating paths for the placing of cable underground than is trenching for cable in conduit which generally involves penetrating pavement and restoring pavement as well as earth excavation and backfill. The cost per foot of buried installation varies by density class based on anticipated higher incidence of features/obstructions as density increases. For higher density areas. this includes items such as pipe jacking under obstructions such as roads and driveways. The trenching figures for buried installation represent reasonable estimates for continuous common earth trenching. Published estimates that support the default values for buried installation costs are included as Exhibit 2.
0-5	$2.00	
5-200	$2.00	
200-650	$2.00	
650-850	$3.00	
850-2550	$3.00	
2550+	$25.00	

Input Name	Default	Support Material
Copper Feeder Structure Inputs (contd.)		
Conduit Installation/foot		Trenching for cable in conduit is a more expensive method of creating paths for the placing of cable underground than is trenching and plowing of cable, which generally involves penetrating pavement and restoring pavement as well as earth excavation and backfill. The cost per foot of underground installation varies by density class based on anticipated higher incidence of features/obstructions as density increases. The trenching figures for conduit installation represent reasonable estimates for continuous common earth trenching.
0-5	$25.00	
5-200	$25.00	
200-650	$25.00	
650-850	$25.00	
850-2550	$45.00	
2550+	$75.00	
Manhole Spacing, ft.		Manhole spacing is driven by the distance required between manholes to provide for splicing of the longest length of the largest diameter cable which is DCTZ 4,200 pair of 26 gauge cable 3.35 inches in diameter and 913 feet long off a 420 reel per Bellcore System Practice 626-101-005. The higher density zones reflect reduced distances between manholes to provide transition points for changing types of sheaths and increased number of branch points.
0-5	800	
5-200	800	
200-650	800	
650-850	800	
850-2550	600	
2550+	400	

Input Name	Default	Support Material
Copper Feeder Structure Inputs (contd.)		
Pole spacing, feet	150	Pole spacing is based on field experience of 35 poles per mile.
Pole investment	$450	The default value represents a conservative installed cost for a 35' Class 4, treated southern pine pole. T cost is split approximately 40/60 mater to labor and assumes installation by hi production machinery such as power auger trucks.
Conduit investment per foot	$1.00	The default value represents a conservative material cost per foot of duct for 4" PVC.
Manhole investment, per manhole	$3,000	The default value represents the installed cost of a prefabricated concre manhole, per industry pricing. Exhibit provides a representative estimate of a typical manhole.
Buried cable armoring multiplier	1.1	The armoring multiplier is based on field experience for DEPIC filled ASP sheath cable for all buried cable. A multiplier (rather than an additional cost per foot) is appropriate, since armoring cost is a function of cable circumference, which is a function of number of pairs, which is directly correlated with cost.

HATFIELD MODEL V.2.2.2 - INPUT SUMMARY ATTACHMENT RAM-3

Input Name	Default	Support Material
Fiber Feeder Structure Inputs		
Aerial Fraction		The proportion of the three structure categories of Aerial, Buried and Underground reflect the desired practice of burying fiber to provide added protection from physical exposure to potential damage. Aerial installation of fiber is more difficult to place because of the small diameter o the fiber and the tendency of the fiber to coil. Self-supporting fiber cable is generally not available and the difference in the coefficient of expansion between fiber and the supporting steel strand further complicates aerial structure. The higher proportion of undergr in the higher density zones reflects the fact that feeder cable is generally run in conduit in high density areas as previously discussed. This assumption is generally consistent wit the assumption in BCM.
0-5	0.35	
5-200	0.35	
200-650	0.35	
650-850	0.2	
850-2550	0.1	
2550+	0.05	
Buried Fraction		
0-5	0.6	
5-200	0.6	
200-650	0.6	
650-850	0.6	
850-2550	0.1	
2550+	0.05	
Underground Fraction		
0-5	0.05	
5-200	0.05	
200-650	0.05	
650-850	0.2	
850-2550	0.8	
2550+	0.9	

Input Name	Default	Support Material
Fiber Feeder Structure Inputs (contd.)		
Buried Installation/foot		Trenching and plowing of cable are less expensive methods of creating paths for the placing of cable underground than is trenching for cable in conduit which generally involves penetrating pavement and restoring pavement as well as earth excavation and backfill. The cost per foot of buried installation varies by density class based on the anticipated higher incidence of features/obstructions as density increases. The trenching figures for buried installation represent reasonable estimates for continuous commo. earth trenching.
0-5	$2.00	
5-200	$2.00	
200-650	$2.00	
650-850	$3.00	
850-2550	$3.00	
2550+	$20.00	

Input Name	Default	Support Material
Conduit Installation/foot		Trenching for cable in conduit is a more expensive method of creating paths for the placing of cable underground than is trenching and plowing of cable which generally involves penetrating pavement and restoring pavement as well as earth excavation and backfill. The cost per foot of underground installation varies by density class based on the anticipated higher incidence of features/obstructions as density increases. The trenching figures for conduit installation represent reasonable estimates for continuous comm earth trenching.
0-5	$25.00	
5-200	$25.00	
200-650	$25.00	
650-850	$25.00	
850-2550	$45.00	
2550+	$70.00	

Input Name	Default	Support Material
Fiber Feeder Structure Inputs (contd.)		
Manhole Spacing, ft. 0-5 5-200 200-650 650-850 850-2550 2550+	 2,000 2,000 2,000 2,000 2,000 2,000	Unlike copper, the manhole spacing fiber is based on the practice of coil spare fiber within manholes to facilit repair in the event the cable is cut nc function of the cable reel lengths.
Buried cable armoring per foot, fiber	$0.20	The armoring estimate for fiber does vary with size, given that the outside diameter of fiber cable is constant regardless of strand count.
Misc. Loop Investment Inputs		
Drop investment per line	$40.00	The Drop investment per line inc des $10 for material and $30 for lat inc assumes 2-pair per drop.
NID investment per line	$30.00	The NID investment per line includes $15 for material and $15 for labor.
Terminal and splice per line	$35.00	Assumes terminal serves an average 4 houses totaling $140 split 50/50 lab and materials or $35 per house.
Average lines per business location	4	HAI estimated the default based on review of statistical abstracts and represents an average of large, medi and small business.
Feeder structure fraction shared w/ interoffice	0.25	75% of interoffice facilities have their own structure, leaving assuming 25% interoffice structure would already be built for feeder.

Input Name	Default	Support Material
Misc. Loop Investment Inputs		
Distribution structure % assigned to telephone aerial buried underground	 0.33 0.33 0.33	Distribution of Structure % assigned Telecommunications, CATV, and Power.
Feeder structure % assigned to telephone aerial buried underground	 0.33 0.33 0.33	Distribution of Structure % assigned to Telecommunications, CATV, and Power.
SAI Investment, installed *Distribution cable size* 0 100 200 [illegible] [illegible] 900 1200 1800 2400 3000 3600	 *copper feeder* $500.00 $700.00 $900.00 $1,100.00 $1,300.00 $1,500.00 $1,700.00 $1,900.00 $2,100.00 $2,300.00 $2,500.00	The SAI technology has been espoused in engineering principles since the 1970s. It is an integral part of the way one would design a network using today's forward lo[illegible] technology, as opposed to direct, connecting a subscriber with a Centra Office. Different values are shown depending on distribution cable size. Values were determined during work group sessions and based upon industry knowledge.

HATFIELD MODEL V.2.2.2 - INPUT SUMMARY ATTACHMENT RAM-3

Input Name	Default	Support Material
Misc. Loop Investment Inputs		
Distribution cable size	*fiber feeder*	The SAI technology has been espoused in engineering principles since the 1970s. It is an integral part of the way one would design a network using today's forward looking technology looking forward as opposed to directly connecting a subscriber with a Central Office. Different values are shown depending on distribution cable size. Values were determined during work group sessions and base upon industry knowledge. The Fiber feeder values include [illegible] housing and account for the $2,[illegible] difference between copper and fiber and reflect the costs for a concrete pad and cabinet.
0	$2,500.00	
100	$2,700.00	
200	$2,900.00	
400	$3,100.00	
600	$3,300.00	
900	$3,500.00	
1200	$3,700.00	
1800	$3,900.00	
2400	$4,100.00	
3000	$4,300.00	
3600	$4,500.00	
Digital Loop Carrier Inputs		
SLC (TR-303) site, housing, and power per remote terminal	$3,000.00	Site, housing and power per remote terminal must be added to the investment in the SAI set-up costs. The default value is intended to include the amount for common cards associated with establishing 672 line bays in the remote terminal. Exhibit 4 illustrates the various components involved in the Digital Loop Carrier.
maximum lines	672	Assumption based on common industry knowledge.

Input Name	Default	Support Material
Digital Loop Carrier Inputs (contd.)		
remote terminal fill factor	0.9	The 90% utilization for Integrated Digital Loop Carrier is based on 90% utilization of individual line cards. Whereas the reinforcement of copper cable might take a 9 month cable placement and construction job, fiber/DLC is reinforced by dispatching a technician with additional line cards Since the preponderance of investment in fiber/DLC is not in the inexpensive fiber cable, but in the portable electronics, there is no reasc why a telecommunications carrier cannot operate with at least 90% line card utilization.
common equipment investment	$42,000.00	The default value provides for a f optic multiplexer, sized for OC-3, or 155Mb/s, which can support a maximu of 84 DS-1s that can serve 2,016 POT lines on 4 fibers
channel unit investment per line	$75.00	HAI assumption.
DS-0s per fiber	2,016	Assumption based on common industr knowledge.
Fibers per remote terminal	4	Assumption based on common industr knowledge.
AFC site, housing, and power per remote terminal maximum lines remote terminal fill factor common equipment investment channel unit investment per line DS-0s per fiber Fibers per remote terminal	 $2,500.00 100 0.9 $10,000.00 $150.00 2,016 4	Based on publicly available pricing and specifications from AFC.
Fiber feeder distance threshold, ft. (feeder length)	9,000	Industry standard of 9,000 includes onl distance for Feeder not entire loop, supported by past field experienc

HATFIELD MODEL V.2.2.2 - INPUT SUMMARY ATTACHMENT RAM-2

Input Name	Default	Support Material
Signaling Parameters		
STP Link Capacity	720	AT&T Capacity Cost Study.
STP Maximum Fill	0.8	
STP Investment, per pair, fully equipped	$5,000,000	
STP common equipment investment, per pair	$1,000,000	
Link Termination, both ends	$900	
Signaling Link Bit Rate	56,000	
Link Occupancy	0.4	
C Link Cross-Section	24	
ISUP messages per interoffice BHCA	6	
ISUP message length, bytes	25	
TCAP messages per transaction	2	
TCAP message length, bytes	100	
Fraction of BHCA requiring TCAP	0.1	
SCP investment per transaction per second	$20,000	
Miscellaneous Inputs		
Operator position parameters		
Investment per position	$3,500.00	Typical price for high-end PC.
Maximum utilization per position, CCS	27	Based on 27.5 maximum utilization figure.
Operator intervention factor	10	HAI estimate.
Operator position remote distance, mi.	0	Model option not used.
Other		
DS0/DS1 crossover	24	Assumption based on industry common knowledge.
DS1/DS3 crossover	28	Assumption based on industry common knowledge.
Public Telephone investment per station	$1,200.00	Derived from 1993 New Hampshire Incremental Cost Study, Manchester, NH, April 3, 1993.

HATFIELD MODEL V.2.2.2 - INPUT SUMMARY ATTACHMENT RAM-3

Input Name	Default	Support Material
Transport Investment		
Terminal Investment		
Number of Fibers	24	Typical Fiber cross section.
FOT capacity, DS-3s	12	HAI assumption.
FOT fill	0.8	HAI assumption.
FOT, installed	$43,000.00	Assumes $36,000 for OC-12, plus $7,000 for installation.
Pigtails	$60.00	Physical fiber termination of fiber pat cord.
Panel	$1,000.00	Estimated cost of non-electronic phy fiber patch panel.
EF&I, per hour	$55.00	Determined during discussions betw Hatfield, AT&T, and MCI.
EF&I units	32	Determined during discussions betw Hatfield, AT&T, and MCI.
Medium Investment		
Fraction of structure assigned to telephone	0.33	Determined during discussions b Hatfield, AT&T, and MCI.
Fraction of structure shared with feeder	0.25	Determined during discussions betw Hatfield, AT&T, and MCI.
Distance, mi.	41	Assumption to ensure regenerator wi 40 mile spacing.
Regenerator spacing, mi.	40.00	Based on field experience of maximu distance before fiber regeneration necessary.
Regenerator investment, installed	$15,000.00	Indication of equipment price receive during Supercom '96

Input Name	Default	Support Material
Transport Investment (contd.)		
Medium Investment		
Fiber Cable investment per foot	$2.00	Based on assumed 24 fiber cable. U cost is slightly higher than feeder fibe cost to account for additional testing splice remakes to assure fiber will ha low loss associated with long distanc
Placement	$2.00	Same value as for fiber feeder.
Splice Spacing, ft.	20,000	Estimate based on fact that 34,000 fc pulls are routinely done today.
Splice Cost	$15.00	HAI assumption.
Trenching per foot	$45.00	Composite of various terrains traversed by buried and undergroun structures.
Resurfacing per foot	$10.00	
Conduit per foot	$4.00	Default value provides for an additio maintenance duct and concrete reinforcement where deemed necessary for additional protection o the interoffice cable.
Number of tubes	2	
Manhole investment	$5,000.00	Based on investment in fiberglass pu boxes.
Manhole spacing	1,000.00	Based on a need to provide for spare cable storage to permit pulling of spa cable to repair breaks.
Buried installation per foot	$5.00	Assumes longer cable pulls and conc reinforcements where necessary for additional protection.
Pole investment	450	The default value represents a conservative installed cost for a 35' Class 4, treated southern pine pole. cost is split approximately 40/60 mate to labor and assumes installation by h production machinery such as power auger trucks.
Pole spacing	150	Pole spacing is based on field experience of 35 poles per mile.
Underground percent	35.00%	Assume that majority of transport fibe will be underground. protected from the elements.
Buried percent	50.00%	
Aerial percent	15.00%	

HATFIELD MODEL V.2.2.2 - INPUT SUMMARY

ATTACHMENT RAM-

Input Name	Default	Support Material
Call Attempts & DEMs		
Call Attempts		
Local	12,905,339,000.00	Defaults as reported to the FCC by Bell Atlantic.
IntraLata Intrastate	1,740,592,000.00	
InterLata Intrastate	730,966,000.00	
InterLata Interstate	2,465,210,000.00	
Call Completion Fraction	0.7	Determined during discussions betwe Hatfield, AT&T, and MCI.
DEMs		
Local	58,966,425.53	Defaults as reported to FCC by BA.
Intrastate	20,116,918.86	
Interstate	22,217,653.02	
Local bus/res DEMs	1.1	Determined during discussions betwe Hatfield, AT&T, and MCI.
Intrastate bus/res DEMs	2	Determined during discussions betwe Hatfield, AT&T, and MCI.
Interstate bus/res DEMs	3	Determined during discussions betwe Hatfield, AT&T, and MCI.
Line Counts		
Residential	3,593,524.00	Defaults from ARMIS data.
Business	1,765,525.00	
Special Access	358,392.00	
Public	73,282.00	

Input Name	Default	Support Material
Cable Costs		
Feeder		
Underground		
Cable Size	Cost UG	
4200	74.25	Material value of copper is approximately 40% of the total installed cost, engineering represents 15% and the remaining 45% is attributed to installation and splicing o cable. Values determined from work group sessions and industry knowledge including past field experience. Additional support illustrating the linear relationship of cost per foot of copper cable to cable size (number of pairs) is depicted in Exhibit 5.
3600	63.75	
3000	53.25	
2400	42.75	
1800	32.25	
1200	21.75	
900	16.5	
600	11.25	
400	7.75	
200	4.25	
100	2.5	
Aerial		
Cable Size	Cost Aerial	
4200	74.25	
3600	63.75	
3000	53.25	
2400	42.75	
1800	32.25	
1200	21.75	
900	16.5	
600	11.25	
400	7.75	
200	4.25	
100	2.5	

HATFIELD MODEL V.2.2.2 - INPUT SUMMARY

ATTACHMENT RAM-

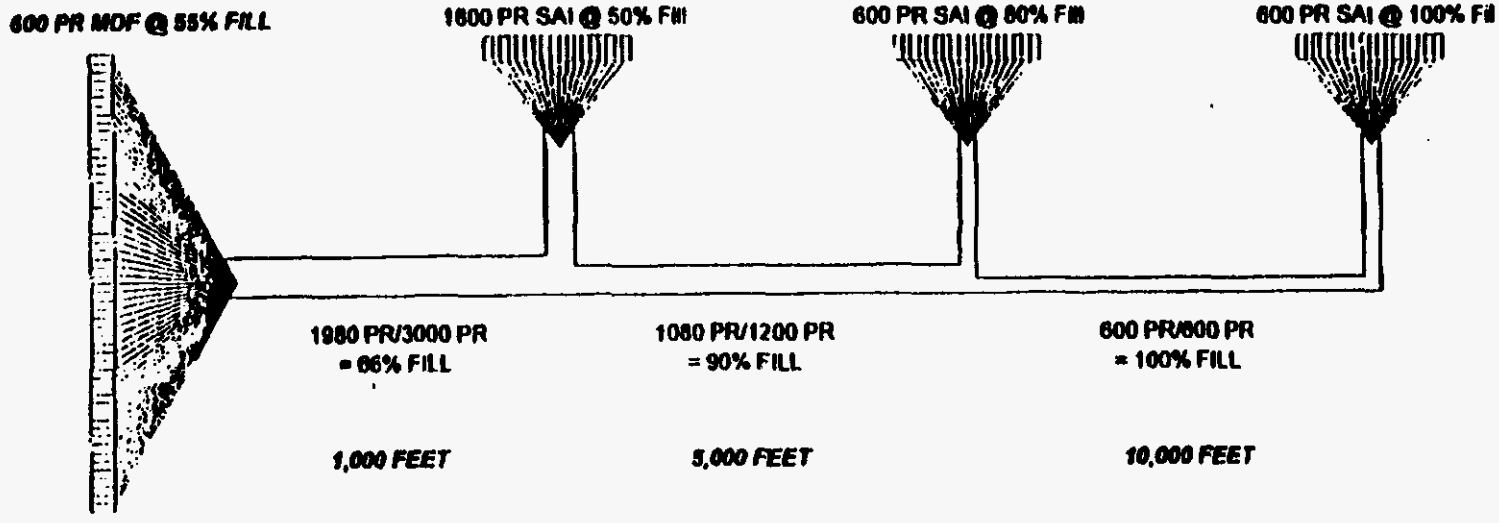
Input Name	Default	Support Material
Cable Costs (contd.)		
Distribution		
Underground		
Cable Size	Cost UG	
3600	63.75	Material value of copper is approximately 40% of the total installed cost, engineering represent 15% and the remaining 45% is attributed to installation and splicing cable. Values determined from work group sessions and industry knowledge including past field experience. Additional support illustrating the linear relationship of cost per foot of copper cable to cable size (number of pairs) is depicted in Exhibit 5.
3000	53.25	
2400	42.75	
1800	32.25	
1200	21.75	
900	16.5	
600	11.25	
400	7.75	
200	4.25	
100	2.5	
50	1.625	
25	1.19	
Aerial		
Cable Size	Cost Aerial	
3600	63.75	
3000	53.25	
2400	42.75	
1800	32.25	
1200	21.75	
900	16.5	
600	11.25	
400	7.75	
200	4.25	
100	2.5	
50	1.625	
25	1.19	

Input Name	Default	Support Material
Cable Costs (contd.)		
Fiber		
Underground		
Cable Size	Cost UG	
216	13.1	Material cost of $.30 per foot plus $.0 per fiber per foot plus $2.00 installation cost per foot. Values determined from workgroup sessions and industry knowledge including pas field experience.
144	9.5	
96	7.1	
72	5.9	
60	5.3	
48	4.7	
36	4.1	
24	3.5	
18	3.2	
12	2.9	
Aerial		
Cable Size	Cost Aerial	
216	13.1	
144	9.5	
96	7.1	
72	5.9	
60	5.3	
48	4.7	
36	4.1	
24	3.5	
18	3.2	
12	2.9	

Exhibit 1 to Attachment RAM-3

Copper Feeder Utilization

COPPER FEEDER UTILIZATION



INVESTMENT UTILIZATION IS ACTUALLY

1,000 FT 3000 PR CABLE @ $53.25	= $ 53,250 @	.66 UTILIZATION	= $	35,145
5,000 FT 1200 PR CABLE @ $21.75	= $108,750 @	.90 UTILIZATION	= $	97,875
10,000 FT 600 PR CABLE @ $11.25	= $112,500 @	1.00 UTILIZATION	= $	112,500
	$ 274,500		$	245,520

EFFECTIVE INVESTMENT UTILIZATION = $245,520/$274,500 = 89.4%

57

Exhibit 1 Page 1 of 1 of Attachment RAM-3

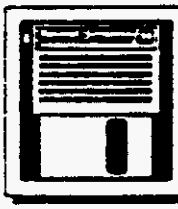
Exhibit 2 to Attachment RAM-3

Trenching Costs

$37.5?

1996 NATIONAL CONSTRUCTION ESTIMATOR

44th Edition



Includes inside the back cover:
A 3½" high density disk with all the cost estimates in the book plus an estimating program for *Windows*™.

Edited by
Martin D. Kiley
and
Marques Allyn

Craftsman Book Company
6058 Corte del Cedro / P.O. Box 6500 / Carlsbad, CA 92018

SiteWork 2

	Craft@Hrs	Unit	Material	Labor	Equipment	T
Crawler-mounted hydraulic backhoe with 1-1/2 CY bucket at $50 per hour. Use $500 as a minimum job charge						
Light soil (83 CY per hour)	S1@.024	CY	--	.83	.60	1
Medium soil (70 CY per hour)	S1@.029	CY	--	1.00	73	1
Heavy or wet soil (57 CY per hour)	S1@.035	CY	--	1.20	.88	2
Loose rock (48 CY per hour)	S1@.042	CY	--	1.44	1.05	2
Blasted rock (43 CY per hour)	S1@.047	CY	--	1.62	1.18	2
Crawler-mounted hydraulic backhoe with 2 CY bucket at $78 per hour. Use $700 as a minimum job charge						
Light soil (97 CY per hour)	S1@.021	CY	--	.72	.82	1
Medium soil (80 CY per hour)	S1@.025	CY	--	.86	.98	1
Heavy or wet soil (65 CY per hour)	S1@.031	CY	--	1.07	1.21	2
Loose rock (55 CY per hour)	S1@.036	CY	--	1.24	1.40	2
Blasted rock (50 CY per hour)	S1@.040	CY	--	1.38	1.56	2
Crawler-mounted hydraulic backhoe with 2-1/2 CY bucket at $95 per hour. Use $750 as a minimum job charge						
Light soil (122 CY per hour)	S1@.016	CY	--	.55	.76	1
Medium soil (100 CY per hour)	S1@.020	CY	--	.69	.95	1
Heavy or wet soil (82 CY per hour)	S1@.024	CY	--	.83	1.14	1
Loose rock (68 CY per hour)	S1@.029	CY	--	1.00	1.38	2
Blasted rock (62 CY per hour)	S1@.032	CY	--	1.10	1.52	2
Chain-boom Ditch Witch digging trench to 12" wide and 5' deep at $18 per hour. Use $400 as a minimum job charge						
Light soil (10 CY per hour)	S1@.200	CY	--	6.88	.80	7
Most soils (8.5 CY per hour)	S1@.235	CY	--	8.08	2.12	10
Heavy soil (7 CY per hour)	S1@.286	CY	--	9.84	2.57	2
Trenchers, chain boom, 55 HP, digging trench to 18" wide and 8' deep at $30 per hour. Use $500 as a minimum job charge						
Light soil (62 CY per hour)	S1@.032	CY	--	1.10	.48	1
Most soils (49 CY per hour)	S1@.041	CY	--	1.41	62	2
Heavy soil (40 CY per hour)	S1@.050	CY	--	1.72	75	2
Trenchers, chain boom, 100 HP, digging trench to 24" wide and 8' deep at $37 per hour. Use $500 as a minimum job charge						
Light soil (155 CY per hour)	S1@.013	CY	--	.45	.24	
Most soils (125 CY per hour)	S1@.016	CY	--	.55	.30	
Heavy soil (100 CY per hour)	S1@.020	CY	--	.69	.37	1
Trim trench bottom to 1/10'						
By hand (200 SF per hour)	CL@.010	SF	--	.30	--	
Backfill trenches from loose material piled adjacent to trench. No compaction included.						
Soil, previously excavated						
By hand (8 CY per hour)	CL@.250	CY	--	7.50	--	7
Wheel loader 55 HP at $18 per hour. Use $400 as a minimum job charge						
Typical soils (50 CY per hour)	S1@.040	CY	--	1.38	.36	1
D-3 crawler dozer at $27 per hour. Use $475 as a minimum job charge						
Typical soils (25 CY per hour)	S1@.080	CY	--	2.75	1.07	3
3/4 CY crawler loader at $17 per hour. Use $450 as a minimum job charge						
Typical soils (33 CY per hr)	S1@.061	CY	--	2.10	.52	2
D-7 crawler dozer at $83 per hour. Use $700 as a minimum job charge						
Typical soils (130 CY per hour)	S1@.015	CY	--	52	63	1
Sand or gravel bedding						
Wheel loader 55 HP at $19 per hour. Use $400 as a minimum job charge						
Typical soils (80 CY per hour)	S1@.025	CY	16.50	86	24	1
Fine grade bedding by hand (22 SY per hr)	CL@.090	SY	--	2.70	--	2
Compaction of soil in trenches in 8" layers. Use $200 as a minimum job charge						
Pneumatic tampers (59 & 20 CY per hour)	CL@.050	CY	--	1.50	23	1
Vibrating rammers (56 & 10 CY per hour)	CL@.100	CY	--	3.00	61	3

Site Work 2

	Craft@Hrs	Unit	Material	Labor	Equipment	Total
Cost of water for compacted earth embankments						
Based on water at $2.00 per 1,000 gallons and 66 gallons per cubic yard of compacted material. Assumes optimum moisture at 10%, natural moisture of 2% and evaporation of 2%. Placed in conjunction with compaction shown above						
Cost per CY of compacted embankment	--	CY	13	--	--	13
Finish shaping. Earth embankment slopes and swales up to 1 in 4 incline.						
Based on using a 10,000 pound grader and a 15 ton self-propelled rubber tired roller, equipment cost is $57 per hour						
(200 SY per hour based on a 3-man crew)	SS@.016	SY	--	.57	.30	.87
Based on using a D-8 tractor, equipment cost is $116 per hour						
(150 SY per hour)	TO@.007	SY	--	.27	.74	1.01
Finish shaping of embankment slopes and swales by hand. SY per hour shown is for 1 man.						
Slopes up to 1 in 4 (16 SY per hour)	CL@.063	SY	--	1.89	--	1.89
Slopes over 1 in 4 (12.5 SY per hour)	CL@.080	SY	--	2.40	--	2.40

Trench Excavation and Backfill. These costs and productivity are based on utility line trenches and continuous footings where the spoil is piled adjacent to the trench. Linear feet (LF), cubic yards (CY), square feet (SF), or square yards (SY) per hour shown are based on a 2-man crew. Increase costs by 10% to 25% when spoil is loaded in trucks. Hauling, shoring, dewatering or unusual conditions are not included.

Excavation, using equipment shown						
Wheel loader 55 HP, with integral backhoe, at $19 per hour. Use $400 as a minimum job charge						
12" wide bucket, for 12" wide trench. Depths 3' to 5'						
Light soil (60 LF per hour)	S1@.033	LF	--	1.14	.31	1.45
Medium soil (55 LF per hour)	S1@.036	LF	--	1.24	.34	1.58
Heavy or wet soil (35 LF per hour)	S1@.057	LF	--	1.96	.54	2.50
18" wide bucket, for 18" wide trench. Depths 3' to 5'						
Light soil (55 LF per hour)	S1@.036	LF	--	1.24	.34	1.58
Medium soil (50 LF per hour)	S1@.040	LF	--	1.38	.38	1.76
Heavy or wet soil (30 LF per hour)	S1@.067	LF	--	2.30	.64	2.94
24" wide bucket, for 24" wide trench. Depths 3' to 5'						
Light soil (50 LF per hour)	S1@.040	LF	--	1.38	.38	1.76
Medium soil (45 LF per hour)	S1@.044	LF	--	1.51	.42	1.93
Heavy or wet soil (25 LF per hour)	S1@.080	LF	--	2.75	.76	3.51
Truck-mounted Gradall with 1 CY bucket at $79.00 per hour. Use $700 as a minimum job charge.						
Light soil (40 CY per hour)	S3@.050	CY	--	1.79	1.98	3.77
Medium soil (34 CY per hour)	S3@.059	CY	--	2.12	2.33	4.45
Heavy or wet soil (27 CY per hour)	S3@.074	CY	--	2.65	2.92	5.57
Loose rock (23 CY per hour)	S3@.087	CY	--	3.12	3.44	6.56
Crawler-mounted hydraulic backhoe with 3/4 CY bucket at $36 per hour. Use $500 as a minimum job charge.						
Light soil (33 CY per hour)	S1@.061	CY	--	2.10	1.10	3.20
Medium soil (27 CY per hour)	S1@.074	CY	--	2.55	1.33	3.88
Heavy or wet soil (22 CY per hour)	S1@.091	CY	--	3.13	1.64	4.77
Loose rock (18 CY per hour)	S1@.112	CY	--	3.85	2.02	5.87
Crawler-mounted hydraulic backhoe with 1 CY bucket at $40 per hour. Use $500 as a minimum job charge.						
Light soil (65 CY per hour)	S1@.031	CY	--	1.07	.62	1.69
Medium soil (53 CY per hour)	S1@.038	CY	--	1.31	.76	2.07
Heavy or wet soil (43 CY per hour)	S1@.047	CY	--	1.62	.94	2.56
Loose rock (37 CY per hour)	S1@.055	CY	--	1.89	1.10	2.99
Blasted rock (34 CY per hour)	S1@.058	CY	--	2.00	1.16	3.16

	Craft@Hrs	Unit	Material	Labor	Equipment	To
Additive costs for bracing on trenches over 12' deep, add to costs on previous page						
Normal bracing, to 15' deep	S5@.050	SF	.39	1.58	.26	2.
One line of bracing, over 15' to 22' deep	S5@.053	SF	.49	1.67	.27	2.
Two lines of bracing, over 22' to 35' deep	S5@.061	SF	.80	1.93	.31	3.
Three lines of bracing, over 35' to 45' deep	S5@.064	SF	.89	2.02	33	3.

Wellpoint Dewatering. Based on header pipe connecting 2" diameter jetted wellpoints 5' on center. Includes head pipe, wellpoints, filter sand, pumps and swing joints. The header pipe length is usually equal to the perimeter of the area excavated.

Typical cost for installation and removal of wellpoint system with wellpoints 14' deep and placed 5' on center along 6 header pipe. Based on equipment rented for 1 month. Use 100 LF as a minimum job charge and add cost for operator as required. Also add (if required) for additional months of rental, fuel for the pumps, a standby pump, wate truck for jetting, *outflow pipe, permits and consultant costs.*

6" header pipe and accessories, system per LF installed, rented 1 month and removed

100 LF system	C5@.535	LF	1.20	17.60	41.50	60.
200 LF system	C5@.535	LF	1.20	17.60	24.80	43.
500 LF system	C5@.535	LF	1.20	17.60	21.50	40.
1,000 LF system	C5@.535	LF	1.20	17.60	18.10	36.
Add for 8" header pipe	C5@.010	LF	.06	.33	1.39	1.
Add for 18' wellpoint depth	C5@.096	LF	.11	3.16	4.50	7.
Add for second month	--	LF	--	--	13.25	
Add for each additional month	--	LF	--	--	7.95	7.
Add for operator, per hour	T0@1.00	Hr	--	38.80	--	38.

Pipe Jacking. Typical costs for jacking .50" thick wall pipe casing under an existing roadway. Costs include leaving casing in place. Add 15% when ground water is present. Add 100% for light rock conditions. Includes jacking pits on both sides. Equipment cost shown is for a 1 CY wheel mounted backhoe at $18.50 per hour plus a 2-ton truck at $11.50 per hour equipped for this type work. Size shown is casing diameter. Use $2,200 as a minimum job charge.

2"	C5@.289	LF	5.00	9.52	2.16	16.6
3"	C5@.351	LF	6.00	11.60	2.63	20.2
4"	C5@.477	LF	8.00	15.70	3.58	27.2
6"	C5@.623	LF	10.50	20.50	4.67	35.6
8"	C5@.847	LF	14.00	27.90	6.35	48.2
10"	C5@1.24	LF	20.50	40.80	9.30	70.6
12"	C5@1.49	LF	24.70	49.10	11.20	85.0
16"	C5@1.78	LF	29.50	58.60	13.40	101.5
17"	C5@2.09	LF	34.00	68.80	15.70	118.5
24"	C5@7.27	LF	120.00	239.00	54.50	413.5
30"	C5@7.88	LF	130.00	259.00	59.10	448.1
36"	C5@8.61	LF	142.00	284.00	64.60	490.6
42"	C5@9.29	LF	153.00	306.00	69.70	528.7
48"	C5@10.2	LF	167.00	336.00	76.50	579.5

Asbestos Cement Pipe (Transite). Class 2400 sewer pipe or Class 3000 storm drain pipe, standard 13' lengths (Certain Teed Products). Installed in an open trench. Costs include couplers, inspection and test and are based on truck load quantities. Equipment cost shown is for a 1 CY wheel mounted backhoe at $18.50 per hour for lifting and placing the pipe. Excavation, bedding material or backfill are not included. Use $4,000 as a minimum job charge.

6" pipe	U1@.077	LF	2.70	2.68	.36	7
8" pipe	U1@.077	LF	4.30	2.68	.36	7.3
10" pipe	U1@.080	LF	6.70	2.78	37	9.8
12" pipe	U1@.083	LF	8.80	2.89	38	12.0
14" pipe	U1@.116	LF	12.00	4.04	54	16.5
16" pipe	U1@.123	LF	14.80	4.28	57	19.8

Means

Residential Cost Data

15th Annual Edition

- Square Foot Costs
- Systems Costs
- Unit Costs

1996

022 200 | Excav./Backfill/Compact.

			Crew	Daily Output	Labor-Hours	Unit	1996 Bare Costs Mat.	Labor	Equip.	Total	Total Incl. O&P	
212	0040	1/2"	B-15	600	.067	C.Y.	15.30	3.8	2.85	18.93	21	212
	0050	3/8"	|	600	.067	|	15.80	3.8	2.85	19.53	21.50	
	0400	Sand, washed, concrete	|	600	.067	|	10	3.8	2.85	13.53	15.30	
	0500	Dust or bank sand	↓	600	.067	↓	3.85	3.8	2.85	7.18	8.30	
222	0010	COMPACTION Steel wheel tandem roller, 5 tons	B-10E	8	1	Hr.		16.95	17.65	34.60	48	222
	0050	Air tamp, 6" lifts, common fill	B-9	250	.160	C.Y.		2.68	.51	2.64	4.20	
	0300	Select fill	"	300	.133	|		1.58	.91	2.39	3.50	
	0350	Vibratory plate, 6" lifts, common fill	A-1	200	.080	|		.89	.30	.79	1.18	
	0700	Select fill	"	216	.037	↓		.86	.28	.74	1.10	
236	0010	EXCAVATING, BULK BANK MEASURE Common earth pits										236
	0020	For loading onto trucks, add								15%	15%	
	0300	Backhoe, hydraulic, crawler mtd., 1 C.Y. cap. = 75 C.Y./hr.	B-12A	600	.013	C.Y.		.24	.92	1.16	1.60	
	0310	Wheel mounted, 1/2 C.Y. cap. = 30 C.Y./hr.	B-12E	240	.033	|		.59	1.38	1.97	2.51	
	1200	Front end loader, track mtd., 1-1/2 C.Y. cap. = 70 C.Y./hr.	B-10N	560	.014	|		.24	.65	.89	1.22	
	1300	Wheel mounted, 3/4 C.Y. cap. = 45 C.Y./hr.	B-10R	360	.022	↓		.38	.65	1.03	1.36	
	8000	For hauling excavated material, see div. 022-266										
250	0010	EXCAVATING, STRUCTURAL Hand, pits to 6' deep, sandy soil	1 Clab	8	1	C.Y.		12.30		12.30	21.50	250
	0100	Heavy soil or clay	|	4	2	|		24.50		24.50	42.50	
	1100	Hand loading trucks from stock pile, sandy soil	|	12	.667	|		8.20		8.20	14.25	
	1300	Heavy soil or clay	↓	8	1	↓		12.30		12.30	21.50	
	1500	For wet or muck hand excavation, add to above				%				50%	50%	
254	0010	EXCAVATING, TRENCH or continuous footing, common earth										254
	0050	1' to 4' deep, 3/8 C.Y. tractor backhoe/trackhoe	B-11C	150	.107	C.Y.		1.56	1.39	2.95	4.18	
	0060	1/2 C.Y. tractor backhoe/trackhoe	B-11M	200	.080	|		1.17	1.43	2.60	3.56	
	0350	4' to 6' deep, 1/2 C.Y. tractor backhoe/trackhoe	"	200	.080	|		1.17	1.43	2.60	3.56	
	0500	5/8 C.Y. hydraulic backhoe	B-12D	250	.032	|		.56	1.58	2.14	2.98	
	0600	1/2 C.Y. hydraulic excavator, truck mounted	B-12J	200	.040	|		.71	3.15	3.86	4.65	
	1400	By hand with pick and shovel to 6' deep, light soil	1 Clab	8	1	|		12.30		12.30	21.50	
	1500	Heavy soil	"	4	2	↓		24.50		24.50	42.50	
258	0010	EXCAVATING, UTILITY TRENCH Common earth										258
	0050	Trenching with chain trencher, 12 H.P., operator walking										
	0100	6" wide trench, 12" deep	B-53	800	.010	L.F.		.12	.11	.23	.33	
	1000	Backfill by hand including compaction, add										
	1050	4" wide trench, 12" deep	A-1	800	.010	L.F.		.12	.08	.20	.28	
262	0010	FILL Screened common material, by dozer, no compaction	B-10B	1,000	.008	C.Y.		.14	.05	.19	1.17	262
	0100	By hand	1 Clab	12	.667	"		8.20		8.20	14.25	
	0300	Grave fill, compacted, under floor slabs, 4" deep	B-37	10,000	.005	S.F.	.11	.06	.01	.18	.25	
	0400	8" deep	|	8,000	.006	|	.16	.07	.02	.25	.32	
	0700	9" deep	|	7,200	.007	|	.25	.08	.02	.37	.46	
	0800	12" deep	|	6,000	.008	↓	.37	.11	.02	.50	.62	
	1000	Alternate pricing method, 4" deep	|	120	.400	C.Y.	7.90	5.30	1.18	14.38	19.15	
	1100	8" deep	|	180	.300	|	7.90	3.99	.88	12.77	16.55	
	1200	9" deep	|	200	.240	|	7.90	3.19	.71	11.80	15	
	1300	12" deep	↓	220	.218	↓	7.90	2.90	.64	11.44	14.40	
266	0010	HAULING Earth 6 C.Y. dump truck, 1/4 mile round trip, 5.0 loads/hr.	B-34A	240	.033	C.Y.		.47	1.46	1.93	2.39	266
	0200	4 mile round trip, 1.8 loads/hr.	"	85	.094	|		1.33	4.12	5.45	6.75	
	0300	12 C.Y. dump truck, 1 mile round trip, 2.7 loads/hr.	B-34B	200	.021	|		.43	1.65	2.08	2.55	
	0500	4 mile round trip, 1.6 loads/hr.	"	120	.033	↓		.75	2.86	3.61	4.42	
274	0010	MOBILIZATION AND DEMOBILIZATION Up to 25 miles										274
	0020	Dozer or loader, 105 H.P.	B-34K	4	2	Ea.		28	197	225	355	
	0300	Shovel, backhoe or dragline, 3/4 C.Y.	|	3.50	2.222	|		31.50	219	250.50	394	
	1200	Tractor shovel or front end loader, 1 C.Y.	↓	4.50	1.778	↓		25	176	201	316	

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Exhibit 3 to Attachment RAM-3

Manhole Cost

Means

Residential Cost Data

15th Annual Edition

- Square Foot Costs
- Systems Costs
- Unit Costs

1996

025 | Paving & Surfacing

025 450 | Surfacing		Crew	Daily Output	Labor-Hours	Unit	1996 Bare Costs Mat.	Labor	Equip.	Total	Total Incl O&P	
450 0320	1000 to 10,000 S.Y.	B-45	3,000	.005	S.Y.	.53	.07	.12	.72	.83	450
0400	Under 1000 S.Y.	B-1	1,050	.023	↓	.53	.30		.83	1.09	

026 | Piped Utilities

026 010 | Piped Utilities		Crew	Daily Output	Labor-Hours	Unit	1996 Bare Costs Mat.	Labor	Equip.	Total	Total Incl O&P	
012 0010	BEDDING For pipe and conduit, not incl. compaction										012
0050	Crushed or screened bank run gravel	B-6	150	.160	C.Y.	12.55	2.18	1.39	16.12	19.05	
0100	Crushed stone 3/4" to 1/2"		150	.160		13	2.18	1.39	16.57	19.35	
0200	Sand, dead or bank	↓	150	.160		3.75	2.18	1.39	7.32	9.40	
0500	Compacting bedding in trench	A-1	90	.089	↓		1.09	.67	1.76	2.64	

026 050 | Manholes & Cleanouts		Crew	Daily Output	Labor-Hours	Unit	Mat.	Labor	Equip.	Total	Total Incl O&P	
054 0010	UTILITY VAULTS Precast concrete, 6" thick										054
0050	5' x 10' x 6' high, I.D.	B-13	2	24	Ea.	1,725	325	257	2,307	2,750	
0350	Hand hole, precast concrete, 1-1/2" thick										
0400	1'-0" x 2'-0" x 1'-9", I.D., light duty	B-1	4	6	Ea.	280	78		358	420	
0450	4'-6" x 3'-2" x 2'-0", O.D., heavy duty	B-6	3	8	"	550	128	48.50	726.50	870	

026 650 | Water Systems		Crew	Daily Output	Labor-Hours	Unit	Mat.	Labor	Equip.	Total	Total Incl O&P	
656 0010	PIPING, WATER DISTRIBUTION SYSTEMS Pipe laid in trench,										
0020	excavation and backfill not included										
1400	Ductile iron, cement lined, class 50 water pipe, 18' lengths										
1410	Mechanical joint, 4" diameter	B-20	144	.167	L.F.	7.55	2.16		9.71	12.10	
2680	Polyvinyl chloride pipe, class 160, S.D.R.-26, 1-1/2" diameter		300	.080		.51	1.04		1.55	2.37	
2700	2" diameter		250	.096		1.13	1.25		2.38	3.41	
2750	2-1/2" diameter		250	.096		1.46	1.25		2.71	3.77	
2800	3" diameter		200	.120		1.85	1.56		3.41	4.74	
2850	4" diameter	↓	200	.120	↓	2.68	1.56		4.24	5.66	

026 700 | Water Wells		Crew	Daily Output	Labor-Hours	Unit	Mat.	Labor	Equip.	Total	Total Incl O&P	
704 0010	WELLS Domestic water, drilled and cased, including casing										704
0100	4" to 6" diameter	B-23	160	.250	V.L.F.	8	3.17	3.86	15.03	18.55	
1500	Pumps, installed in wells to 100' deep, 4" submersible										
1520	3/4 H.P.	Q-1	2.66	6.015	Ea.	380	103		483	550	
1600	1 H.P.	"	2.29	6.987	"	390	119		509	630	

026 850 | Gas Distribution System		Crew	Daily Output	Labor-Hours	Unit	Mat.	Labor	Equip.	Total	Total Incl O&P	
852 0010	GAS SERVICE & DISTRIBUTION Not including excavation										852
0050	or backfill										
0100	Polyethylene, 60 psi, coils, 1/2" diameter, SDR 9.3	B-20	450	.053	L.F.	.31	.69		1	1.54	
0150	1-1/4" diameter, SDR 11	"	400	.060	"	.84	.78		1.62	2.27	
0500	Steel, schedule 40, plain end, tar coated & wrapped										
0550	1" diameter	Q-4	300	.107	L.F.	3.16	1.92	.17	5.25	6.50	
0600	2" diameter		280	.114		3.00	2.06	.19	5.25	7.50	
0680	3" diameter	↓	260	.123	↓	6.95	2.22	.20	9.37	11.55	

SITE WORK 2

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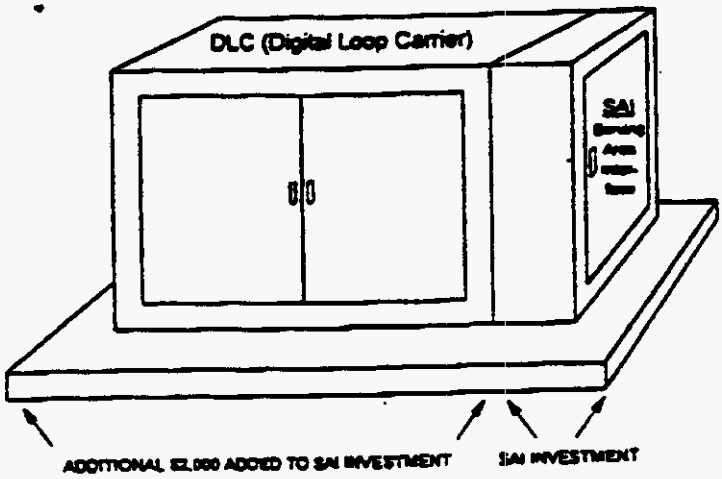
Exhibit 4 to Attachment RAM-3

Digital Loop Carrier Illustration


DLC (Digital Loop Carrier)
SAI
ADDITIONAL $2,000 ADDED TO SAI INVESTMENT
SAI INVESTMENT

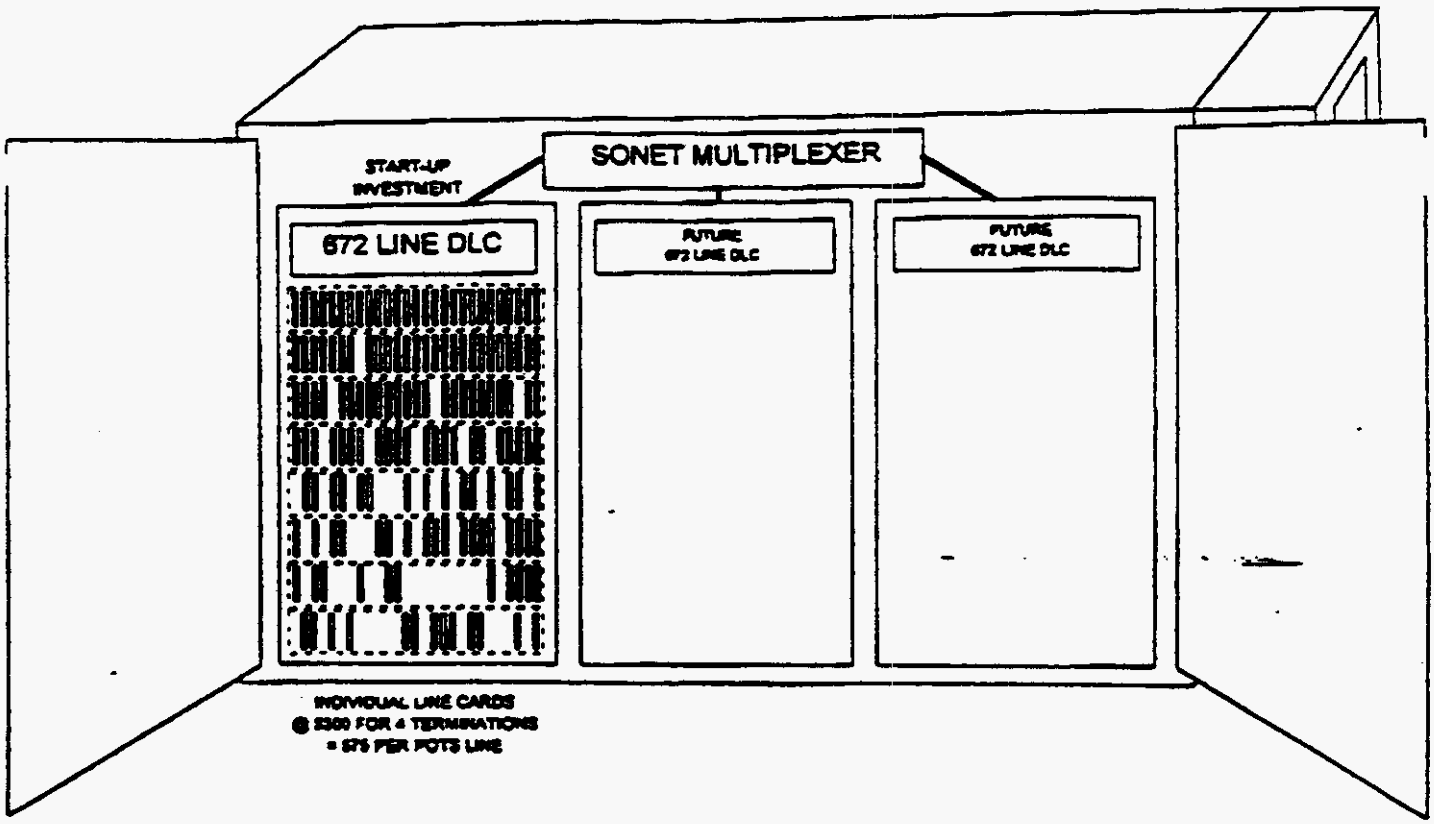

SONET MULTIPLEXER
START-UP INVESTMENT
672 LINE DLC
FUTURE 672 LINE DLC
FUTURE 672 LINE DLC
INDIVIDUAL LINE CARDS
@ $300 FOR 4 TERMINATIONS
= $75 PER POTS LINE

Exhibit 5 to Attachment RAM-3

Copper Cable Price Illustration

Hatfield Model v.2.2.2 & BCM2

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Overview

- Properties of cost models to implement TELRIC costing principles
- Comparison of BCM2 and Hatfield 2.2.2
  - Comparison of engineering principles
  - Comparison of inputs and outputs
  - Comparison of models' operation and format
- Conclusions

Material Prices
Normalized 24 Gauge Copper Cable

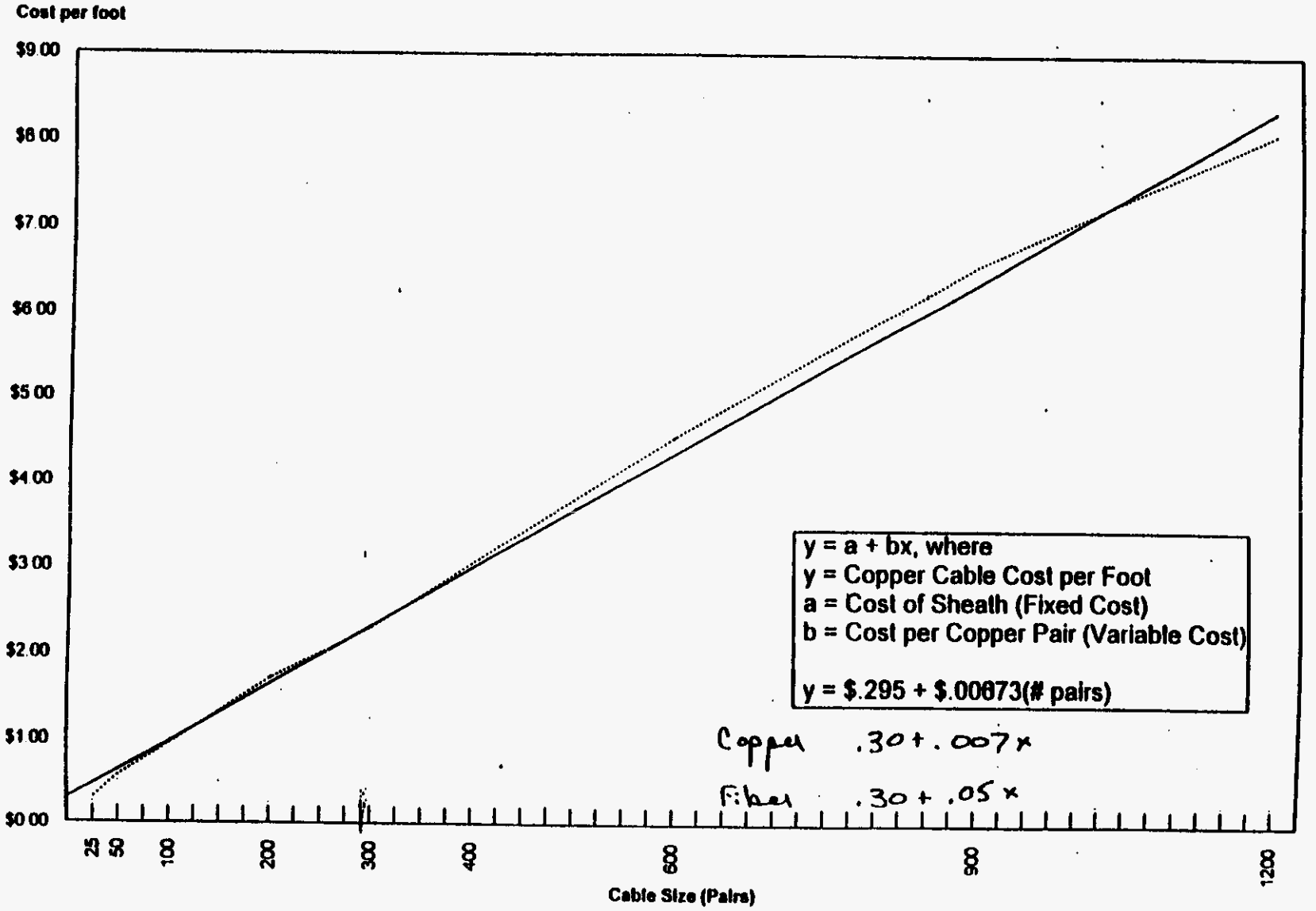

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Exhibit 5 Page 1 of 1 of Attachment RAM-3

TELRIC Principles endorsed by FCC

- Forward-looking technology
- Existing network topology
- Total demand considered
- No embedded cost
- No subsidy cost
- Reasonable allocation of joint & common costs

Forward-looking technology

Hatfield

- Combination of copper and integrated DLC on fiber in loop plant
- Digital end office switching
- Digital tandem switching
- Fiber interoffice transport
- SS7 signaling

BCM2

- Uses copper and non-integrated DLC (not forward-looking)
- Digital end office switching
- Interoffice network not explicitly modeled

Existing network topology

Hatfield

- Uses existing wire center locations
- Uses existing tandem locations
- Uses existing STP locations

BCM2

- Uses existing wire center locations
- Does not model interoffice network
- Does not model signaling system

Total demand considered

Hatfield

- Considers both usage (minutes) and non-usage sensitive (lines) demand for all res and bus narrowband services
  - local
  - intraLATA toll
  - switched and special access
  - public telephone
  - operator services

BCM2

- Considers demand only for res and bus local service
- Considers only demand for lines --demand for usage-sensitive network elements (minutes) not modeled

No embedded cost

Hatfield

- In some cases, embedded expenses are adjusted to forward-looking view (*e.g.*, network operations)
- Incremental cost information used wherever available
- Where not available, expenses developed based on historical relationship between expenses and investment

BCM2

- *All* expenses other than switching, circuit eqpt, cable & wire are embedded per-line expenses
- Some cost categories developed through use of ratios of expense to investment

Reasonable allocation of joint & common

Hatfield

- Shared (general support, plant non-specific) costs assigned to network elements based on proportion of direct costs
- Costs common to all services are captured within the 10% markup

BCM2

- Embedded joint and common costs are assigned on a per-line basis

Calculation methodology

Hatfield

- Calculate loop investment from bottom up
- Compute monthly capital carrying cost by explicit calculation of annual depreciation, return, and tax on return
- Calculate direct plant/state/density zone-specific support expense
- *Repeat* for all network elements
- Add in network support expense
- Add in corporate operations and operating tax expense

BCM2

- Calculate loop investment from bottom up
- Compute *aggregate* monthly carrying cost of depreciation, return, taxes, plant-specific and nonspecific support expenses by multiplying by three *national* ARMIS-generated factors
- Repeat only for switching element
- Add in national $133/year factor to collect costs of *all other elements* and *all other types of expense*

Blackbox factors drive BCM 2

- Five national ARMIS-derived factors drive BCM 2's calculations in every LEC in every state and density zone, and for every network element

0.232761	Factor 1 for cable & Wire Facilities
0.242411	Factor 1 for circuit Facilities
0.257033	Factor 1 for Switching facilities
133.391	Factor 1 for other loading per line served
0.75	Allocation Factor 1 applied to non-plant related expenses

- These factors incorporate all depreciation, return, tax, operational support, etc. expense -- without any algorithm allowing their components to be decompiled and examined
- No state, LEC, or technology variation is permitted

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Comparison of models

- Both models build on BCM1 for design of loop plant, and make comparable modifications to BCM1
  - Separate development of cable and structure costs
  - Variable number of distribution cables
  - Separate development of DLC fixed and per-line costs

Loop - Differences

- BCM2 adjustment for population distribution in rural CBGs is incorrect
  - CBG land area reduced by overlaying road network
  - Reduced area collapsed to a smaller square
  - Result is understatement of length of cable runs
- BCM2 over-engineers distribution plant
  - multiple fiber runs into some CBGs to avoid very long copper loops
  - problem can be solved in more efficient way through use of range extenders

Switching - Differences

- BCM2 considers only line demand on switch
- Hatfield considers actual busy hour traffic (based on res/bus mix) and line demand on switch, and sizes switch appropriately
- BCM2 does not limit size of switch, can lead to understatement of switching cost
- Hatfield places upper limit on switch size, installs second switch in wire center if limit exceeded

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Interoffice - Differences

- BCM2 does not model interoffice network
  - Investments simulated by applying 3% factor to switching investment
  - No modeling of SS7 network, dedicated and common transport, tandem switching, operator systems, switched access and toll traffic
- Hatfield develops interoffice network costs by modeling all traffic between end offices and tandems
  - Transmission plant, SS7 links, STPs, SCPs and operator systems built from the "ground up"
  - Sized to serve actual DEM, call attempt and busy hour loads

Loop Inputs & Outputs - where are the significant differences?

- Fill factors
  - Default values in both models are very similar
- Structure percentages
  - BCM2 uses very little aerial cable - from 10% to 30%
  - Hatfield uses 50% to 65% aerial
- Structure sharing
  - BCM2 assigns all investment in poles, trenches and conduit to telephony
  - In actuality, these structures are shared between telephony, electric transmission, electric distribution, CATV, CAPs, cellular, private networks, etc.
  - Hatfield assigns 1/3 of total structure to telephony

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Fill Factors

Cable Fill Factors - Default Values

	BCM2		H2.2.2	
Density	Feeder	Distribution	Feeder	Distribution
0	0.75	0.40	0.65	0.50
5	0.80	0.45	0.75	0.55
200	0.80	0.55	0.80	0.60
650	0.85	0.65	0.80	0.65
850	0.85	0.75	0.80	0.70
2550	0.85	0.80	0.80	0.75

Structure Percentages

Distribution	H2	BCM2
Aerial Fraction		
0-5	0.5	0.1
5-200	0.5	0.2
200-650	0.5	0.3
650-850	0.5	0.3
850-2550	0.4	0.2
2550+	0.65	0.1
Buried Fraction		
0-5	0.5	0.9
5-200	0.5	0.8
200-650	0.5	0.7
650-850	0.5	0.7
850-2550	0.5	0.7
2550+	0.05	0.6
Underground Fraction		
0-5	0	0
5-200	0	0
200-650	0	0
650-850	0	0
850-2550	0.1	0.1
2550+	0.3	0.3

Copper Feeder	H2	BCM2
Aerial Fraction		
0-5	0.5	0.3
5-200	0.5	0.28
200-650	0.5	0.25
650-850	0.4	0.25
850-2550	0.1	0.2
2550+	0.05	0.1
Buried Fraction		
0-5	0.45	0.65
5-200	0.45	0.68
200-650	0.45	0.7
650-850	0.4	0.55
850-2550	0.1	0
2550+	0.05	0
Underground Fraction		
0-5	0.05	0.05
5-200	0.05	0.05
200-650	0.05	0.05
650-850	0.2	0.2
850-2550	0.8	0.8
2550+	0.9	0.9

Fiber Feeder	H2	BCM2
Aerial Fraction		
0-5	0.35	0.05
5-200	0.35	0.15
200-650	0.35	0.3
650-850	0.2	0.3
850-2550	0.1	0.2
2550+	0.05	0.1
Buried Fraction		
0-5	0.6	0.9
5-200	0.6	0.8
200-650	0.6	0.65
650-850	0.6	0.5
850-2550	0.1	0
2550+	0.05	0
Underground Fraction		
0-5	0.05	0.05
5-200	0.05	0.05
200-650	0.05	0.05
650-850	0.2	0.2
850-2550	0.8	0.8
2550+	0.9	0.9

Operation and Format of Models

- Both models have user-friendly interface, automated operation
- Both models permit specification of large number of inputs (400+ for Hatfield, vs. 200+ for BCM2)
- Both models display and save intermediate calculations and intermediate outputs

Input Comparison

Transport Investment	
Terminal Investment	
Number of Fibers	24
FOT capacity, DS-3s	12
FOT fill	0.8
FOT, installed	$43,000.00
Pigtails	$60.00
Panel	$1,000.00
EF&I, per hour	$55.00
EF&I units	32
Medium Investment	
Fraction of structure assigned to telephone	0.33
Fraction of structure shared with feeder	0.25
Distance, mi.	41
Regenerator spacing, mi	40
Regenerator investment, installed	$15,000.00
Fiber Cable investment per foot	$2.00
Placement	$2.00
Splice Spacing, ft.	20000
Splice Cost	$15.00
Trenching per foot	$45.00
Resurfacing per foot	$10.00
Conduit per foot	$4.00
Number of tubes	2
Manhole investment	$5,000.00
Manhole spacing	1000
Buried installation per foot	$5.00
Pole investment	450
Pole spacing	150
Underground percent	35.00%
Buried percent	50.00%
Aerial percent	0.15

and much more in Hatfield is lumped into a *single* number in BCM2

1.03 times switch investment

Input Comparison - Investments

Wire Center Parameters

Lot size, multiplier of switch room size	2
Tandem/EO wire center common factor	0.4

Power and frame investment	sum of power & frame
0	$10,000
1,000	$20,000
5,000	$40,000
25,000	$100,000
50,000	$500,000

Switch Room size table	floor area required
0	500
1,000	1,000
5,000	2,000
25,000	5,000
50,000	10,000

Construction costs, per sq ft	construction/$/sq ft
0	$75
1,000	$85
5,000	$100
25,000	$125
50,000	$150

Land price, per sq ft	price/sq ft
0	$5.00
1,000	$7.50
5,000	$10.00
25,000	$15.00
50,000	$20.00

lumped in BCM2 into a single number

1.043 times switch investment

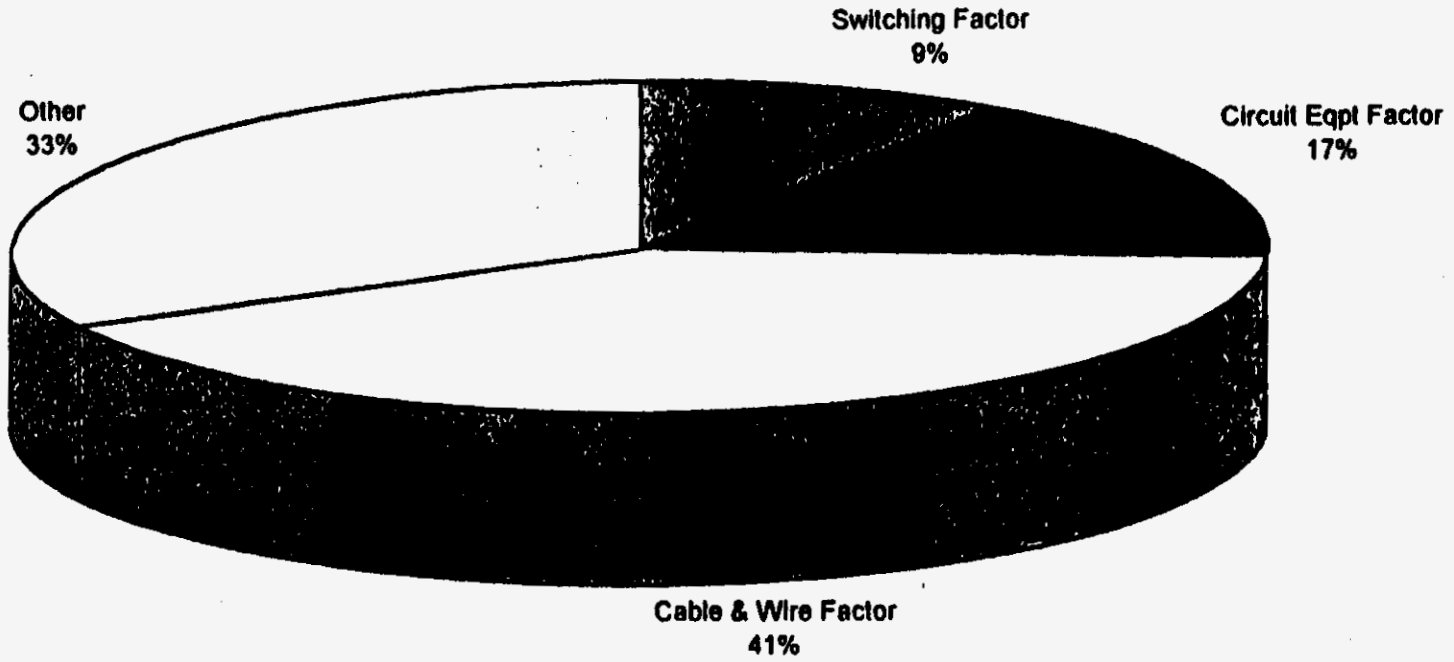
Operation and Format of Models

- BCM2 is less flexible on key input parameters
  - Important variables such as depreciation, return, taxes, customer operations and overhead are lumped together in a single number.
  - None of these expense categories are user-adjustable without extensive off-line calculations
- BCM2 uses nationwide expense data measured across all Tier 1 LECs
- Hatfield uses plant category and expense data that are specific to each study area

BCM2 Expense Development

- BCM2 applies factors to three broad categories of plant; these cover:
  - return
  - Federal, State, & Local Taxes
  - Plant-Specific Expenses
  - Plant Non-specific Expenses
  - Depreciation
- Additional $100/line added to cover local allocation of:
  - customer operations
  - corporate operations
  - other depreciation/amortization
- All expenses lumped into 3 plant factors plus 1 per-line factor

BCM Expense Development

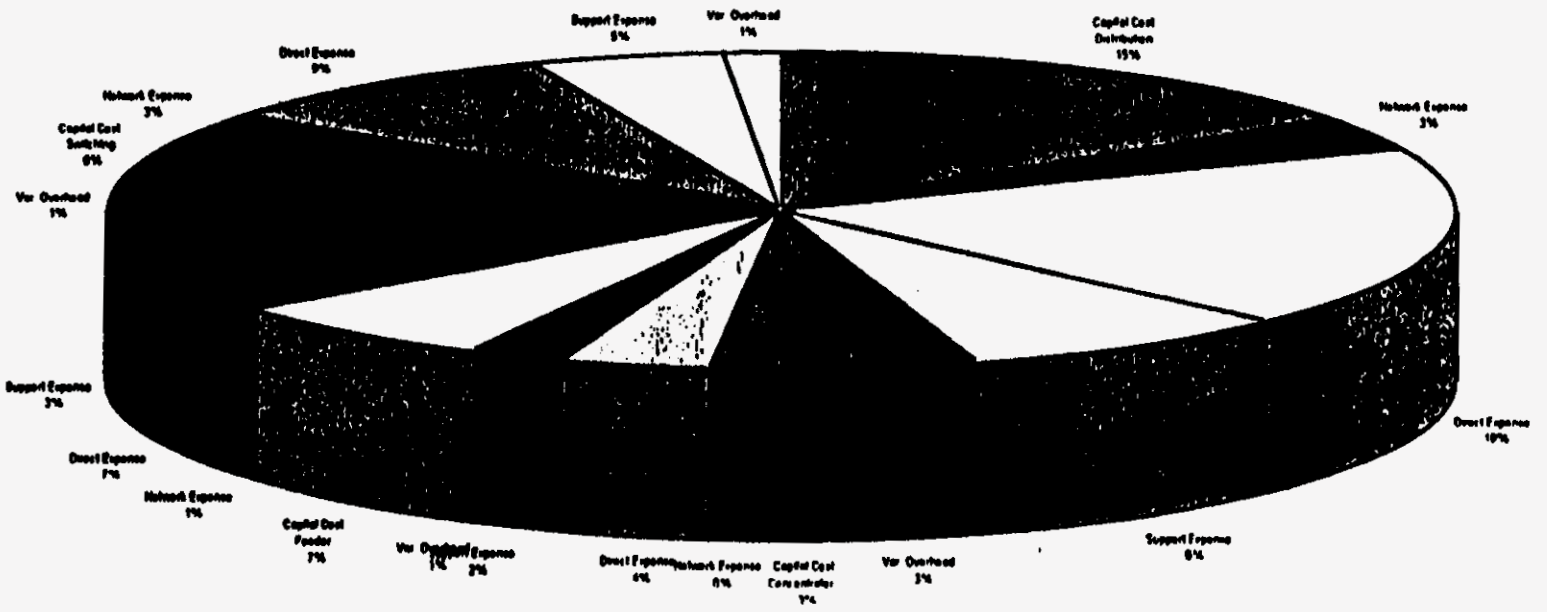


BCM2 breakdown of total expenses

Hatfield Expense Development

- Hatfield Model develops separately for each network element:
  - depreciation expenses
  - return & taxes
  - plant-specific expenses
  - plant non-specific expenses
  - support expenses
  - variable overheads
- *Hundreds* of separate expense items are developed and reported by the model

Hatfield Expense Development



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HM run with BCM2 inputs

- Investment
  - fill factors
  - structure percentages (aerial, buried, underground)
  - no sharing of structure
  - switch line size break points and costs
  - end office traffic-sensitive fraction
  - switch max line size
- Expenses
  - use of BCM2 expense methodology
- Results
  - Hatfield investment 4% higher than BCM
  - Hatfield monthly cost 16% higher than BCM

With similar inputs, Hatfield yields similar results to BCM2 for loop investment

Maryland - Comparison of BCM2 and HM 2.2.2 results

	0-5 lines/sq mi	5-200 lines/sq mi	200-650 lines/sq mi	650-850 lines/sq mi	850-2550 lines/sq mi	>2550 lines/sq mi	Totals
HM 2.2.2 Investments per line							
Loop	$ 3,312.14	$ 1,208.04	$ 615.22	$ 502.62	$ 587.86	$ 701.03	$ 727.79
Switching	$ 182.13	$ 176.69	$ 172.28	$ 168.53	$ 169.78	$ 176.73	$ 174.43
Total	$ 3,494.27	$ 1,384.72	$ 787.50	$ 671.15	$ 757.64	$ 877.76	$ 902.22
BCM2 Investments per line							
Loop	$ 2,437.36	$ 1,454.67	$ 733.00	$ 705.67	$ 622.70	$ 534.30	$ 758.27
Switching	$ 110.59	$ 126.03	$ 111.13	$ 106.85	$ 104.10	$ 101.16	$ 108.09
Total	$ 2,551.27	$ 1,584.49	$ 847.46	$ 815.73	$ 729.92	$ 636.49	$ 869.60

Conclusion

- Comparison of models bolsters confidence in integrity of loop investment modeling process
  - Models are similar in approach to modeling loop investment
  - Hatfield yields similar results to BCM2 given similar inputs
  - BCM2 is too inflexible to accept Hatfield inputs
- Hatfield inputs more accurately reflect engineering practice than BCM2 inputs
  - HM model defaults are supported by documented sources and expert experience
  - However, unlike BCM2, the default values *can be changed*
- For investments beyond loop, for expenses, and for monthly cost development, Hatfield totally outclasses BCM2

Conclusions

- Hatfield Model is superior tool for both universal service and network element costs
  - ***Only*** model to estimate costs for both unbundled network elements and universal service
  - ***Only*** model to accommodate state/technology differences in expenses, ROR, depreciation, taxes, etc.
  - More flexible -- key input variables can easily be adjusted
  - ***Only*** model to fully comply with TELRIC principles
    - » BCM2 uses embedded expenses
    - » BCM2 does not consider total demand

001

EXHIBIT NO. _____

DOCKET NO: 961230-TP

WITNESS: DON J. WOOD

PARTY: MCI

DESCRIPTION:

MCI'S RESPONSE TO STAFF'S 2ND SET OF INTERROGATORIES (NOS. 14-16).

MCI'S RESPONSE TO STAFF'S 2ND REQUEST FOR PRODUCTION OF DOCUMENTS (NOS. 11-15).

[ARMIS DATA PROVIDED IN RESPONSE TO QUESTION 14 IS TO VOLUMINOUS TO COPY]

PROFFERING PARTY: STAFF

I.D. # DJW-6

FLORIDA PUBLIC SERVICE COMMISSION
DOCKET
NO. 961230-TP EXHIBIT NO 15
COMPANY/
WITNESS: STAFF
DATE: 12/18/96

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In Re: Petition by MCI Telecommunications Corporation for arbitration with United Telephone Company of Florida and Central Telephone Company of Florida concerning interconnection rates, terms, and conditions, pursuant to the Federal Telecommunications Act of 1996.	Docket No. 961230-TP Served: December 3, 1996

MCI'S RESPONSE TO STAFF'S SECOND SET OF INTERROGATORIES (NOS. 14-16)

MCI Telecommunications Corporation and MCImetro Access Transmission Services, Inc. (collectively, MCI) hereby respond to Staff's Second Set of Interrogatories (Nos. 14-16). The answers to these interrogatories were provided by:

Greg Darnell
Regional Manager, Competition Policy
MCI Telecommunications Corporation
780 Johnson Ferry Road, Suite 700
Atlanta, GA 30342

RESPONSES

14. For purposes of the following interrogatory, please refer to Mr. Darnell's direct testimony, page 7, lines 16-25.

(a) Are there any LEC retail services which do not need to be made available for resale?

ANSWER: No.

(b) If the response to (a) is affirmative, please identify all such services.

ANSWER: Not applicable.

(c) If the response to (a) is negative, are there any qualifications or restrictions that may be applicable to certain resold services?

ANSWER: Yes.

(d) If the response to (c) is affirmative, please identify any such qualifications or restrictions, and the service(s) to which such qualifications or restrictions may apply.

ANSWER: Lifeline/LinkUp services should only be available to be resold to qualifying Lifeline/LinkUp customers. Grandfathered services should only be available to be resold to the customers purchasing the grandfathered services from Sprint. Promotional offerings of less than 90 days need not be available for resale provided the promotions are not of a recurring nature to the same customer base.

(f) Does "contract services" include customer-specific nontariffed offerings?

ANSWER: Yes. Sprint contract services that are telecommunication services provided to non-telecommunications company are required under the Act to be made available for resale at wholesale discounted prices.

(g) If the response to (e) is affirmative, please indicate which of the following situations would apply and explain your response:

(i) MCI could obtain the same service under the same rates, terms, and conditions as currently offered in a customer-specific LEC contract. MCI could then resell the service thus obtained to any potential customer.

(ii) MCI could obtain the same service under the same rates, terms, and conditions as currently offered in a customer-specific LEC contract. MCI could then resell the service thus obtained to any potential customer, other than the customer with whom the LEC has a contract for the contract service that MCI is reselling.

ANSWER: Neither. MCI should be able to obtain the same service, at a wholesale discount, under the same terms and conditions as currently offered in a customer-specific LEC contract. MCI could then resell the service thus obtained to the same customer at MCI's retail rates.

(h) Please explain how MCI envisions it would participate, at a discount, in an "umbrella" contract.

ANSWER: MCI should be able to purchase any Sprint "umbrella" contract at a wholesale discount and be permitted to attempt to resell the service provided under the umbrella contract to the customer group targeted by Sprint by the contract (colleges, government, etc.) at MCI's retail rates.

(i) To the extent not indicated above, please identify all types of "contract services" for which resale should be allowed.

ANSWER: MCI has not identified any other types of "contract services." However, if there are any, they must be available for resale at wholesale discounted prices unless (a) they are not telecommunications services, or (b) they are provided only to telecommunications carriers.

15. For purposes of the following request, please refer to Mr. Darnell's direct testimony, page 10, lines 19-25.

(a) Should all LEC services available for resale be subject to branding?

ANSWER: Yes, to the extent they are branded today.

(b) If the response to (a) is negative, please identify those services for which branding should not be required.

ANSWER: If a service is not branded today, then Sprint should not be required to brand the service when it is resold. The standard that should be applied is one of parity.

(c) Please define (or otherwise explain) what constitutes having a "resold service branded appropriately."

ANSWER: A resold service being provided by MCI either should be unbranded (if Sprint does not brand the service today) or should be rebranded as "MCI".

(d) Please identify all points of customer contact at which branding should be made available.

ANSWER: Branding should be available for directory assistance, operator service, directory listing, white pages, and any "leave behind" information from service calls. Treatment recordings and intercept recordings should be unbranded. To the extent Sprint uses non-parity dialing for repair and maintenance (i.e. 611 instead of 1-800-NXX-XXXX), 611 should also be unbranded.

(e) If the LEC incurs one-time costs in order to provide branding to a reseller, please indicate which of the following allocations of such costs should apply and explain your response:

(i) The costs should be absorbed by the LEC.

(ii) The costs should be paid for by the reseller.

(iii) The costs should be shared by the LEC and the reseller.

ANSWER: Any administrative costs to unbrand or rebrand should be absorbed by the LEC. Any network costs to reroute traffic caused by rebranding should be paid by the reseller.

(f) If the LEC incurs recurring costs in order to provide branding to a reseller, please indicate which of the following allocations of such costs should apply and explain your response:

(i) The costs should be absorbed by the LEC.

(ii) The costs should be paid for by the reseller.

(iii) The costs should be shared by the LEC and the reseller.

ANSWER: Any administrative costs to unbrand or rebrand should be absorbed by the LEC. Any network costs to reroute traffic caused by rebranding should be paid by the reseller.

16. For purposes of the following request, please refer to Mr. Darnell's direct testimony, page 13, lines 2-8.

(a) Please identify any and all reports, analyses, studies or other documents that mention or discuss the level of expenses that a LEC will incur in providing resold services to ALECs.

ANSWER: FCC's First Report and Order, CC Docket 96-98, August 8, 1996.

(b) Referring to line 4, please quantify or otherwise define "quite small."

ANSWER: "Quite small" means that the incremental costs incurred by the LEC to service the accounts of wholesale customers will be much lower than the costs incurred to service the accounts of retail customers. First, the LEC will be dealing with a small set of customers who are billed on an electronic basis, rather than a large set of customers billed on a paper basis. Second, the incremental cost of adapting existing systems to support wholesale services should be minimal in relation to the cost of developing such systems from the ground up.

(c) Please identify any and all reports, analyses, studies, or other documents that indicate that the existing LEC operational support systems for providing service to IXCs and ESPs are adequate to provide resold services to ALECs.

MCI is not aware of any such documents. Mr. Darnell never said existing LEC operational support systems for providing service to IXCs and ESPs are adequate to provide resold services to ALECs.

(d) Please identify any and all reports, analyses, studies, or other documents that indicate that "[t]he incremental cost of providing these services to resellers of wholesale local exchange service should be minimal."

MCI is not aware of any such documents.

(e) Referring to line 8, please quantify or otherwise define "minimal."

See response to (b).

* * * * *

RESPECTFULLY SUBMITTED this 3rd day of December, 1996.

HOPPING GREEN SAMS & SMITH, P.A.

By: Richard D. Melson

Richard D. Melson
P.O. Box 6526
Tallahassee, FL 32314
(904) 425-2313

and

MCI's Responses to Staff's
2nd Set of Interrogatories
Docket No. 961230-TP

MARTHA MCMILLIN
MCI Telecommunications Corporation
780 Johnson Ferry Road, Suite 700
Atlanta, GA 30342
(404) 843-6375

ATTORNEYS FOR MCI

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In Re: Petition by MCI Telecommunications Corporation for arbitration with United Telephone Company of Florida and Central Telephone Company of Florida concerning interconnection rates, terms, and conditions, pursuant to the Federal Telecommunications Act of 1996.	Docket No. 961230-TP Served: December 3, 1996

MCI'S RESPONSE TO STAFF'S SECOND REQUEST FOR PRODUCTION

MCI Telecommunications Corporation and MCImetro Access Transmission Services, Inc. (collectively, MCI) hereby respond to Staff's Second Request for Production of Documents.

11 Please provide the documents identified in response to Staff's Interrogatory No. 16(a).

RESPONSE: The FCC's First Report and Order is publicly available.

12. Please provide the documents identified in response to Staff's Interrogatory No. 16(c).

RESPONSE: There are no documents responsive to this request.

13. Please provide the documents identified in response to Staff's Interrogatory No. 16(d).

RESPONSE: There are no documents responsive to this request.

14. Please provide copies of the ARMIS reports which were used to generate Exhibit (GD-1).

RESPONSE: Responsive documents are provided herewith.

15. Please provide any and all work papers that underlie and support Exhibit (GD-1), including (if applicable) the spreadsheet file(s).

RESPONSE: Exhibit (GD-1) was reformatted and resubmitted as Exhibit (GD-2). The spreadsheet file used to produce Exhibit (GD-2) is provided herewith.

* * * * *

RESPECTFULLY SUBMITTED this 3rd day of December, 1996.

HOPPING GREEN SAMS & SMITH, P.A.

By: Richard D. Melson

Richard D. Melson
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ATTORNEYS FOR MCI

EXHIBIT NO. _____

DOCKET NO: 961230-TP

WITNESS: DON J. WOOD

PARTY: MCI

DESCRIPTION:

12/13/96 DEPOSITION TRANSCRIPT.

LATE FILED EXHIBIT (NOS. 1-12)

[LATE FILED EXHIBITS HAVE NOT BEEN FILED]

PROFFERING PARTY: STAFF

I.D. # DJW-7

FLORIDA PUBLIC SERVICE COMMISSION
DOCKET
NO. 961230-TP EXHIBIT NO. 16
COMPANY/
WITNESS: STAFF
DATE: 12/18/96

CONDENSED

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

IN RE: Petition by MCI Telecommunications Corporation for arbitration with United Telephone Company of Florida and Central Telephone Company of Florida concerning interconnection rates, terms, and conditions, pursuant to the Federal Telecommunications Act of 1996 : DOCKET NO. 961230-TP

TELEPHONE DEPOSITION OF: DON J. WOOD

TAKEN AT THE INSTANCE OF: SPRINT

DATE: DECEMBER 13, 1996

TIME: COMMENCED: 3:00 P.M.
CONCLUDED: 5:50 P.M.

LOCATION: GERALD L. GUNTER BUILDING
ROOM 390A
2540 SHUMARD OAK BOULEVARD
TALLAHASSEE, FLORIDA

REPORTED BY: NANCY S. METZKE, RPR, CCR
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APPEARANCES:

COCHRAN KEATING, ESQUIRE, Florida Public Service Commission, 2540 Shumard Oak Boulevard, Tallahassee, Florida 32399-0850.

JOHN P. FONS, ESQUIRE, Sprint-United, Sprint-Centel, Ausley & McMullen, Post Office Box 391, Tallahassee, Florida 32302.

RICHARD D. MELSON, ESQUIRE, MCI and MCImetro, Hopping, Green, Sams & Smith, Post Office Box 6526, Tallahassee, Florida 32302.

ALSO PRESENT:

DAVE DOWDS, FPSC Staff.
ROBIN NORTON, FPSC Staff.
ANN SHELFER, FPSC Staff.
GREG FOGLEMAN, FPSC Staff.
BEN POPE, Sprint.
JIM DUNBAR (by phone), Sprint.

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EXHIBITS

EXHIBITS (CONT'D)

PROCEEDINGS

MR. FONS: Appearances. My name is John Fons, representing Sprint. I'm with the law firm of Ausley and McMullen, Post Office Box 391, Tallahassee, Florida, 32302.

MR. MELSON: Richard Melson of the law firm Hopping, Green, Sams and Smith, P.A., Post Office Box 6526, Tallahassee, 32314 on behalf of MCI Telecommunications Corporation and MCImetro Access Transmission Services, Inc.

MR. KEATING: Cochran Keating, appearing on behalf of the PSC staff, 2540 Shumard Oak Boulevard, Tallahassee, Florida, 32399-0850.

MR. FONS: Well, since we can't swear the witness, we just begin.

Whereupon,

DON WOOD

was called as a witness by Sprint and was exanined and testified as follows:

EXAMINAIION

BY MR. FONS:

Q This is John Fons, Mr. Wood. I'm going to be

asking you some questions on behalf of Sprint, and if any of the questions I ask you aren't clear or you don't understand me, would you please stop me so that I can phrase the question in a way that is understandable to you?

A Yes, I will.

Q And if I don't -- if you don't do so, I will assume that you understand the question.

A Very understanding.

Q Would you state your full name and your business address for the record please?

A Yes, my name is Don J. Wood. My business address is 914 Stream, S-t-r-e-a-m, Valley Trail, Alpharetta, A-l-p-h-a-r-e-t-t-a, Georgia, 30202.

Q And what is your business or occupation?

A I'm a regulatory consultant.

Q And you have your own business?

A Yes, I do. I'm a principle in the firm of Wood and Wood.

Q And on whose behalf are you testifying in this proceeding?

A For MCI Telecommunications, Inc.

Q And I believe that you have testified or have filed testimony in a number of arbitration proceedings on behalf of MCI, have you not?

A Yes, sir, that's correct.

Q And is the testimony that you have filed in the current arbitration proceeding of MCI and Sprint conceptually different from the testimony that you filed on behalf of MCI in two other arbitration proceedings in Florida involving BellSouth and General Tel -- GTE of Florida?

A No, it's not.

Q Let me just try to ask you a few questions conceptually about your testimony. Your testimony is to provide the results of a study; is that correct?

A That's right.

Q And the study involved is a study that is known as the Hatfield study?

A Yeah, it's a run of the Hatfield model.

Q Okay. There have been several runs of the Hatfield model, or versions, I should say. Which version of the Hatfield model is involved in this proceeding?

A This is Version 2, Release 2.

Q Did you have any involvement in the creation of the Hatfield model Version 2, 2.2.2 I guess?

A Right. I have not been responsible for model development. I did provide some feedback to the developt of the model over a period of several months as they were developing and preparing Release 2, but it was in terms of clarification of features and feedback. I was not a

developer.
Q Were you involved in any of the development of the assumptions that go into the Hatfield model?
A No, I wasn't.
Q In response to staff's first set of interrogatories, you submitted a supplemental response dated December 9, 1996, and it's c supplemental response to items 4b, 4c, et cetera. And one of the responses included a document that I'm going to be asking you some questions about later on, and it's in response to, I think it's 13, and the question was:

"For purposes of the following request, please refer to Mr. Wood's Exhibit DW-2. Please identify the source for each of these inputs."

And I assume it was the inputs to the Hatfield model that that interrogatory references?
A That was my understanding, yes, sir.
Q And the document that was furnished in response was a document labeled attachment RAM, all in caps, no periods, dash 3. Are you familiar with that?
A Yes, I am.
Q Did you participate in the preparation of this attachment RAM-3?

A No, I did not.
Q And just so for ease of further reference, could we call it RAM-3?
A Sure.
Q Okay. The Hatfield model, the Version 2.2, Release 2, which is I believe what you are using in this proceeding, for what purpose was it designed?
A It actually will provide results in two forms. It will provide cost of unbundled network elements. It will also provide a cost of universal service funding for a given geographic area.
Q Does it provide costs for any other elements?
A I'm sorry, I will have to confess, my call waiting beeps in occasionally, and when it does, it steps over what you're saying, so I only got bits and pieces of that question.
Q And my question was does the Hatfield model Version 2.2, Release 2 provide costs for any other elements in addition to local loop?
A Oh, yes it does. It provides a number of unbundled network elements as are described in DJW-3.
Q Let me just ask you some questions about how the Hatfield model operates, and forgive me if I exhibit ignorance on this, but is the Hatfield model based upon census block groups?

A That's right.
Q And are these census block groups as they exist in nature? Are they of many different shapes?
A Well, I'm not sure they exist in nature. The physical geographic area that they are attempted, that is being attempted to capture here by the census bureau exists. They are all irregularly shaped because they are identified by the census bureau to capture a target number of households, three to four hundred, typically, but are subject to natural boundaries, rivers, roadways, mountains, that sort of thing. So to the extent that there are geographic features, they identify the boundaries, and that causes them almost always to be irregularly shaped.
Q And does the Hatfield model, does it take those irregularly shaped CBGs and shape them into a square?
A Well, for modeling purposes for calculation of links of distribution facilities specifically, it uses a square that is equal in square miles to the actual CBG.
Q And so each one of these squares will be of a different size based upon what the actual square mile distance of the CBG is?
A That's right.
Q And it's my understanding that for loop modeling purposes, that one of the assumptions or one of the criteria of the model is that the feeder facility always

goes one quarter of the distance into the square?
A It goes to a point where the serving area interface, or SAI, is assumed to be, which is a point that is one half the distance from the center of that square to the edge.
Q Okay. I thought you said it was one half of the square?
A It's one half of the distance from the center of the square to one side.
Q Okay. So that --
A If you're approaching at a 90-degree angle or perpendicular to one of the sides, it will be as you stated, one fourth of the way in; but if you're going from any other direction it won't be.
Q Okay. And for modeling purposes, there is then distribution facilities, and these distribution facilities, the length of them is always five eighths of the length of one of the sides?
A No, sir.
Q What is it then?
A It is often five eighths times the length of one of the sides. In difficult cable placement areas, such as difficult rock to deal with or shallow bedrock, it is three fourths times the sides to account for -- to permit extra cable to route around difficult conditions.

Q All right. How are the number of distribution facilities in this squared CBG calculated?
A The number of cables are assumed based on the density of lines within the census block group.
Q And what is the benchmarks for the number of cables based upon density?
A I think I can do this one off the top of my head. For a density of zero to five, it's two cables. For a density of five to two hundred lines per square mile, it's four. For 200 to 650 lines per square mile, it's four. For 650 to 850 lines per square mile, it's four. For 850 to 2550 lines per square mile, it is six. And greater than 2550 lines per square mile it assumes eight distribution cables.
Q Does the model assume that some facilities will be copper and some facilities will be fiber?
A Not for distribution. All of distribution are copper facilities.
Q Regardless of their length?
A That's correct.
Q How about for feeder, are they all copper, or are they all fiber, or is there a test?
A There is a test, and the model currently uses a nine-kilofoot breakpoint, and that's nine thousand feet for the feeder portion, not for the entire loop. Greater than

nine kilofoot distances are assumed to be fiber, and shorter than that are assumed to be copper. That is a user-verifiable input to the model.
Q And what does that mean, that it's user verifiable?
A That means that the user of the model can go in and adjust that value on a graphical input screen and then rerun the model. So the default value is nine kilofeet, but it can be changed to a shorter or longer assumption than that.
Q Do you know whether in the Hatfield model Version 2.2, Release 2 that you are using here in Florida for Sprint, whether or not you adjusted the default value of nine kilofeet?
A Yes, I do know. And no, we did not adjust the value.
Q So all feeder under nine thousand feet will be copper, and all feeder over nine thousand feet will be fiber?
A That's right, and it will be integrated digital loop carrier on fiber.
Q And this integrated digital loop carrier on fiber, that's an optical interface?
A Well, it would include an optical interface in order to make it work, yes.

Q All right. And from that point on, it will be copper regardless of the length?
A That's right.
Q Is the Hatfield model, can it be described as a scorched node approach?
A Yes, it can.
Q Is there any reliance on historical data in the development of the Hatfield model, either in its inputs, its programming or its output?
A Yes, there is.
Q And what particular information is historical?
A Well, it comes in a number of different categories. The location of each, of the central office switches and the tanden switches from the local exchange routing guide, are assumed to be where they are historically and today rather than reconfiguring the network to optimize switching locations. There are expense assumptions that are based -- the model is based on best available public data. Where there is pure forward-looking expense data available on a public basis, those are used. Where there is no publicly available pure forward-looking data, it's then necessary to rely on ARMIS data, which of course is historical. Where there have been reasons identified to make some adjustments, there have been some adjustments made to the ARMIS data to make it appear more

forward-looking than embedded.
Q Which ARMIS data do you rely upon, which reports?
A I don't have a list in front of me. There are -- actually, there are a couple of different kinds. The 43-08 data is used for line counts. For expenses, I can get you a complete list, and I may have it somewhere in front of me, but I don't know offhand what all the accounts are.
Q When you rely upon the ARMIS data, is that jurisdictionally separated, or is it total company?
A It's total.
Q And for all of your costs in the Hatfield model Version 2.2, Release 2, is the data, the cost -- the investment, is that all combined jurisdictionally unseparated data?
A That's right. That's right.
Q What is the source of your forecasted data?
A There are -- well, there are a number of sources. There is an adjustment to network operations expense, the 30-percent reduction to historical level. That is based on the fact that there has been some external validation to reducing that. There is a New Hampshire cr[illegible] study and also some testimony by a Pacific Bell witness, both of which indicate a 30- to over 50-percent anticipated reduction in those costs forward-looking. The model developers took the conservative end and made a 30-percent

reduction.
Q And you're referring to the input data that is found on page 3 of 31 of RAM?
A I think that's right. Let me look that up and make sure.
Q Of RAM-3.
A That's right, it would be the first item listed on page 3 of 31.
Q And you indicated that this was forecasted data for the forward-looking network operations factor?
A I'm not sure if I said it was forecasted. It reflects an expectation that was articulated both in the New Hampshire study that is cited here and in the Pacific Bell testimony that those expenses and the relationship of those expenses to investment is expected to decrease.
Q That is a 1993 New Hampshire study that you're referring to, isn't that correct?
A That's right, and the -- Yes, that's right.
Q Have you seen that 1993 New Hampshire cost study?
A Yes, I have.
Q Do you have a copy of it?
A You have to give me one minute. I think I might.
Q Well, what I'm going to ask for is a late-filed deposition exhibit. I would like to have you to furnish us with the 1993 New Hampshire incremental cost study that is

referenced in attachment RAM-3.
THE WITNESS: I don't think that is a problem, Rick.
MR. MELSON: Okay. If you don't have it there, is there somebody you can locate after the deposition this afternoon to have it sent to us? Because I know you are in hearings next week.
THE WITNESS: Yeah, I'm out essentially all next week, but I have some sources that are time zones west of here, so I think I'll be able to get them this afternoon and have them shipped directly to you.
MR. MELSON: Thank you.
BY MR. FONS:
Q This is not, the information we are talking about, the 1993 New Hampshire incremental cost study is not forecasted information, is it?
A I'm not sure what you mean by forecasted.
Q That it's not relying upon anything historical. Like forecasting the weather, that you are prognosticating what is going to happen at a particular point in time.
A No, I don't think that is the right characterization of either this study or the Pacific Bell testimony.
Q The Pacific Bell study that is referenced --
A Yes.

Q -- you talk about based upon review and modification and estimate produced by Pacific Bell. Can you tell me what the estimate was by Pacific Bell prior to your modification or prior to someone's modification?
A I'm sorry, for -- where are you reading that language?
Q Again, this is on page 3 of 31 of RAM-3. It's the line that is end-office traffic sensitive fraction. Isn't that the Pacific Bell study you referenced?
A Yeah, that's a different variable, and my recollection is that that's just, that's a -- the modification is purely rounding. There was little modification at all, but I can confirm that and tell you what the original Pacific Bell number was if you would like, but that's --
Q Yes, I would like that as a late-filed deposition exhibit.
A That's fine. That's a different 70 percent than the one we were just discussing.
Q Well, then you'll have to tell me where in this RAM-3 the number that you were mentioning. I thought you referenced the New Hampshire and the Pacific Bell.
A That's right. The Pacific Bell estimate is a 56-percent reduction going forward. The New Hampshire estimate was a 30-percent reduction going forward. The New

Hampshire cite is provided here because it was that low end of the range that was actually used to create the 70-percent factor. You don't see a cite to the 56 percent because it wasn't used.
The end-office traffic sensitive fraction that you are looking at two lines down represents the portion of the end-office switch that is traffic sensitive versus the portion that is non-traffic sensitive. And subject to recall, but I believe this is right, there is a Pacific Bell estimate that is within one or two percent either way of that number, and it was, the modification was merely a rounding, but I'll confirm that too if you would like.
Q All right.
MR. MELSON: And that was what we were calling Late-Filed Number 2.
MR. FONS: Yes.
THE WITNESS: That's right.
BY MR. FONS:
Q Could you turn to your Exhibit DJW-2, which is titled "User Inputs?"
A Yes.
Q If I'm reading this correctly, column C has a default amount and column D has the inputs?
A That's right.
Q And can you tell me, can the inputs be different

from the default?
A Yes, they can.
Q In the study for Florida, Sprint Ltd., Centel-United, were any of the inputs in this study different from the default?
A I've got a note here, let's see. Yeah, I think the answer is no, with the following exceptions, and that is, the data for call attempts, dial equipment minutes or DEMs and line counts.
Q And what line would that appear?
A Let me see if I recall on this particular.
Q Would it help you to turn to page 7, lines 462 through 481 or 482 on page 8?
A That's right, from 462 down through 481.
Q And according to the version I have of your DJW-2, the default and the inputs are all the same?
A Yeah, that's right. This has been cleaned up a little bit. At one point when we were running the model for non-Bell operating companies, for GTE and Sprint specifically, those numbers were different, but I believe we've got all that -- that was all cleaned up before this exhibit was created, so they are correct in both columns.
Q What is the source of the default numbers?
A Those are all -- the line counts are ARMIS 43-08. I believe the call attempts and DEMs are reported

to the FCC annually, and this comes from the FCC report.
Q And so all of these numbers in the default on your DJW-2 for call attempts and line counts are Sprint specific Florida?
A Yes.
Q And these are the only data that are Sprint specific Florida?
A On this list there was no reason to change other variables, although they could be changed to reflect Sprint specific Florida operations. Of course there are tens of thousands of other inputs that are not on this list related to population distribution, location of lines and geographic characteristics, which of course, are specific to Sprint's operating territory in Florida.
Q But for all of these other lines where you have the, in column C the default, those are not Florida specific numbers?
A Well, they may very well be relevant to Florida, but they were not changed to make them -- there was no reason to change them to make them Florida specific. They may already have been representative of Sprint's Florida operation.
Q If I were to look at a DJW-2 for some other company in some other state, would the default numbers that appear on DJW-2, except for the ones we just talked about,

be the same?
A I believe they would be, and let me just look and make sure. Yes, with the exception of the line and traffic characteristics. I believe that's right.
Q Okay. Let's turn back to the RAM-3.
A Yes.
Q Page 1 of 31. I don't have -- the RAM-3 doesn't have line numbers that -- it just does not have line numbers, but I assume that the RAM-3 corresponds in its lineup the same as your DJW-2 without the line numbers?
A I think that's true in most cases, yes.
Q So that if I looked at the line number 17 on DJW-2, that would be the same as the first line under depreciation lives on the RAM-3?
A That's right, and I hesitate only to the extent that as I mentioned before, there has been some cleaning up of what has been labeled DJW-2 over time to make it a little more user friendly, and that may -- it may have been changed slightly in format since what we are calling RAM-3 was created; and if so, there may be a slight difference in the format, but they should track -- they should track line by line in order.
Q Okay. Let's go down to the line that says "End-Office Switching," and I assume that default number of 14.3 is years?

A That's right.
Q And is that the -- 14.3, is that the economic life of that switch?
A That's what that variable represents, yes.
Q And your reliance upon 14.3 years is a Bell Atlantic Maryland Commission prescribed life?
A That's right. It was -- I believe it's Case Number 8715. These were the lives that were approved by the Maryland Commission, and I believe they were approved exactly as Bell Atlantic requested them, so these are in that sense the economic lives that Bell Atlantic predicted for each of these types of equipment.
Q And what was the year that that --
A Oh, that concluded in 1996.
Q And are these regulatory lives or economic lives?
A These are intended to be economic lives because they are -- in the context of the proceeding in which they were adopted, Bell Atlantic was moving out from rate of return completely to a pure price caps regime. So if they were accepted for ratemaking purposes, and in that sense you could call them a regulatory life, but they were intended to represent what Bell Atlantic actually requested, they would be set out to represent economic lives.
Q Do you know what the depreciation life of an

end-office switch for Sprint in Florida is?
A As assumed in your cost studies?
Q Yes, sir.
A No, sir.
Q Do you know what MCI's depreciation life is on its switches?
A I'm not sure it has anything that would be equivalent to an end-office switch, but, no, I do not.
Q Do you know what their depreciation life is on their tandem switches?
A No, I don't.
Q They do have equivalent tandem switches, don't they, to Sprint?
A They would be roughly equivalent, yes.
Q Do you know whether -- would you think that MCI's depreciation life on its tandem switches is 14.3 years?
A My guess is that it's not that exactly, but I wouldn't speculate as to whether it's larger or smaller.
Q Do you think it would be less than 14.3 years?
A No, I don't know that. I think we, of course, need to consider the fact that MCI is operating in a different market; and to the extent that that market is more competitive than the local exchange market today and in the forecasted future, then we might very well see a different life, but I don't know what it is.

Q Do you expect to see a different life in the future for Sprint's end offices and tandem switches?
A To the extent that the riskiness of providing that local switching function were to increase, I would expect a different life. I'm not sure there is anything that would indicate that there would be a dramatic change in that risk.
Q Are there other entities placing local switches in Sprint's territory?
A In your territory in Florida, I don't know. Nationally there are some switches, but there are very few of them.
Q What do you mean by very few?
A Well, I have seen maps of switching locations that Bell operating companies have been producing in arbitrations where they showed a map of their serving territory and then switches by other carriers, primarily AT&T and sometimes MCI, but also smaller carriers as well, and they have been in the range of single digits per state certainly.
Q How many switches is MCI placing in Florida?
A I don't know. They have no reason to divulge their plans to me.
Q Do you know whether any AAVs or caps are placing switches in Florida?

A I suspect they are, but again, I just don't know.
Q So you just don't know how many switches are being placed?
A Well, I didn't intend to suggest to you that I knew how many switches, what I intended to suggest was that looking at this data nationally it does not appear that there were a significant number of switches in place today.
Q Are there changes in the engineering of telephone plant that would allow fewer switches and more loops?
A Certainly.
Q So the number of switches isn't important, it's the way the network is established, isn't it?
A Well, to serve a given amount of capacity, that's certainly going -- possibly going forward to serve an area with longer loops or longer transport segments, longer feeder segments and fewer switches, which is why the scorched node assumption in the Hatfield model is one that yields a conservatively high cost figure. If we were to reconfigure with fewer switches going forward, we could certainly generate a lower cost number, and it would be an appropriate econonic cost number. But to go in now as new entrants come into an area to serve an entire area with a small number of switches, there is still a finite amount of capacity that can be served. So, yes, the number of switches being placed by new entrants is very much

relevant.
Q Let's go on to the cost of capital. The source of the overall cost of capital of 10.01 percent, you indicate that -- what is the source of that?
A That comes from a study of actual returns by, I believe, all of the tier one LECs as reported to the FCC and as tracked by the FCC from the 1990 to 1995 time frame.
Q So that is historical data?
A That's right.
Q Do you know what the FCC authorized rate of return is overall?
A It's currently 11.25, and they have indicated a desire to revisit that because of their feeling that it might be expensive.
Q Would you turn to page 6 of 31?
MR. FONS: Hello. Hello.
(NO RESPONSE)
MR. FONS: We're dead.
MR. MELSON: Mr. Dunbar?
MR. DUNBAR: I'm here.
MR. FONS: Don? Don?
(NO RESPONSE)
(WHEREUPON, MR. WOOD RECONNECTED)
BY MR. FONS:
Q Let's go back, please, to 1 of 31 for just a

minute.

MR. NELSON: Now, Don, your lawyer didn't whisper in your ear while you were off the line there, did he?

THE WITNESS: Absolutely not.

MR. FONS: No hand signals either?

THE WITNESS: None that I was aware of.

BY MR. FONS:

Q Is depreciation lives more impacted by technology or competition?

A As you phrase it, I would have to say the answer is competition.

Q And what is the basis for that?

A Well, if you don't have competitive pressures, then depreciation lives are arguably not changed by technology at all because even with the presence of a lower cost technology there is no market pressure to retire assets early or accelerate depreciation lives or retire assets that are not fully depreciated, and I think we've got a long history of that in the industry. Certainly competition will create a dynamic in which some assets may be retired before they are fully depreciated.

Q Let's go now to 6 of 31. This is described as EO, which I assume means end-office switching parameters?

A Yes.

Q And is this sheet and the succeeding sheet

designed to set forth the investment and expense in operating end-office switches?

A Yes. I'm sorry, pages 6 and 7?

Q Yeah.

A Yes.

Q Are there any other pages in this RAM-3 that set forth the expenses and investment in end-office switching?

A I guess these are switch-specific related assumptions. There are other end-office related assumptions, the switching room itself and that sort of thing which is on page 9. And then of course the call attempts and dial equipment minute calculations or values that we discussed that are on page 28 as defaults and which are page 7 of DJW-2 as actual would also be part of that calculation I guess.

Q All right. And I assume that the, under switch parameters that the switch real time limit, that BHCA, is busy hour call attempts?

A Busy hour call attempts, that's right.

Q And the other one is busy hour CCSs?

A That's right, centrum (phonetics) call seconds.

Q Right. Where in this model, these inputs do you take into account software?

A Those are, the software is included on page 7, the switching cost points in terms of costs per line from

the McGraw Hill report.

Q Yeah, let me ask you about those costs per line. Is that cost per line the incremental cost of adding a line card?

A Oh, no, it's not.

Q The 220 dollars cost per line is an embedded cost?

A It is a cost that is reported annually and compiled by McGraw Hill that represents a per line cost of switch acquisition, but it includes both the generic software and also the software required to provide features and functions beyond basic service.

Q Do you have a copy of that study that was used to provide these dollars in the default category in RAM-3?

A I have the title page, and I have my notes on it, but I do not have copying rights to the document itself.

MR. FONS: I would like to have as Late-Filed Deposition Exhibit 3 the McGraw Hill information upon which they rely for these numbers.

MR. NELSON: We can give you the title page and Mr. Wood's notes. MCI does not have copying rights to that document. I understand you can purchase it for something on the order of 10 thousand dollars, and we're not going to purchase it for you.

BY MR. FONS:

Q Well, let me ask you this, is that the total and sole source for these numbers?

A For the, I'm sorry, I flipped to the title pages. For the low and medium -- let's see, I'm sorry. Let me get back to the right page in RAM-3. For what you see here listed on page 7 as low line side and midline side, the answer is yes. For what is listed here as the high line side, it's based on both the McGraw Hill report and information obtained directly from, by the Hatfield Associate folks from switch vendors.

Q Can you supply me as a late-filed deposition exhibit the information that was obtained from switch manufacturers?

A To the extent that they did not restrict that I can. Quite honestly, I don't know the answer because no one has ever asked for it before, but I will certainly provide you what we can provide.

Q And it's your contention that for the low line side that the 220-dollar cost per line includes the software, it includes the hardware, and it's more than the line card?

A That's right. Oh, absolutely it's more than the line card.

Q Do you know how much a line card costs installed?

A It depends on the card. I used to cost those

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out, but it's very different for a basic service card versus say a pay phone card or a private line card.
Q We are talking about cards in a switch.
A Yes, I understand. They will be different. There is a fairly broad range of acquisition costs depending on the card.
Q Can you give me a range?
A I've seen cards -- I would simply be speculating. I can't give you -- I couldn't put a range on it.
Q Let's go back to page 6 of 31, the line that is titled "Switch Maximum Processor Occupancy." Do you see that?
A Yes.
Q And it's 90 percent, is that what I'm reading?
A That's correct.
Q What is the source of that?
A A subject matter expert retained by Hatfield and Associates to provide engineering expertise, in this case on switching.
Q And who was that expert?
A For switching for this particular element, it may have been Mr. Riolo, but I'm not certain.
Q Can you spell that?
A I was afraid you were going to ask. R-i-o-l-o, I

think.
Q Okay.
A It also would have been based on Doctor Mercer's experience and Mr. Chandler's experience as well.
Q And what does that mean, "switched maximum processor occupancy?"
A You would not want the processor of the switch to operate at a higher level than 90 percent. That is one of the means of exhausting the capacity of the switch. The other of course would be on ports, or as we were talking about, line cards. I've done cost studies of quite a few switches. I've yet to see one actually exhaust on processor; they almost always exhaust on lines.
Q That's not the average processor occupancy, is it?
A No, no.
Q This is the maximum?
A That's right.
Q How was that used in the study?
A If the -- based on the call characteristics data that we were describing before, if the switch is going to operate, hit 90 or greater percentage for processor utilization during the busy hour, the model assumes that a second switch will be needed to be put in place in that central office.

Q Do you know whether in the study that you performed for Sprint in Florida, whether there was any instance in which a second switch was added?
A I would have to go back and look at the interim calculations. I don't know offhand. I know there have been several occurrences in the runs of the model that I have sponsored around the country where we added a second switch because of line exhaust.
Q My question is limited solely to Florida.
A And my answer is I would have to look and see. I do not know.
Q Could you please provide that as a late-filed deposition exhibit?
A Sure.
MR. MELSON: Don, before you agree to that one, is that something that Sprint can ascertain from looking at the Hatfield model that they were provided?
THE WITNESS: If they have the software and the input data file for Sprint Florida, and I believe they have both of those, then you could readily ascertain that.
MR. MELSON: Let me ask, do you have a problem providing that?
THE WITNESS: I don't think it will take -- I don't think it will take me or them very long to get

the answer.
MR. MELSON: Okay. We'll identify that then as Late-filed 4, and the question was any instances for Sprint Florida in which Hatfield modeled a second switch.
THE WITNESS: Right.
MR. FONS: Yes.
THE WITNESS: Do you want that due to either form of exhaust or just processor exhaust?
MR. FONS: Just processor exhaust.
THE WITNESS: Okay. I suspect the answer is that there was not. Processor exhaust is extremely unlikely.
BY MR. FONS:
Q Where in these two pages that we were talking about would I find getting-started costs?
A You'll have to tell me what you mean by getting-started cost.
Q Well, the cost of installing the switch, the cost of setting up the switch with the software, the lines.
A Okay, I'm sorry. Yes, that's different than how the term is used when you run SCIS, so I wanted to clarify. If you look down on this same page, you'll see switch installation multiplier, and the value is 1.10, and the total investment is multiplied by that factor for

essentially engineering and installation cost.
Q You suggested that getting-started cost has a different meaning. What meaning does it have?
A When you run SCIS, you have a choice to run what is called SCIS average or SCIS marginal. The getting-started costs in SCIS include the fixed portion of the processor and the non-traffic sensitive portion of the switch so that if you're running what I call SCIS marginals, you are getting only -- you get a lump sum for getting-started costs which includes that fixed investment and then only a marginal investment for usage going forward; whereas if you run SCIS average, it spreads that lump of investment which it refers to as getting-started cost over all of the units of usage.
Q All right. And is any of that reflected in the RAM-3?
A You wouldn't -- in effect what this version of the model does is it calculates -- it reports costs differently. It reports traffic and non-traffic sensitive costs. So in effect you have the equivalent of SCIS average although it is reported a little differently.
Q On page 7 of 31, you have an annual to daily usage reduction factor of 270. Am I to assume that this is your calculation of busy days?
A That's right.

Q How did you come up with 270?
A That's just what bankers use as number of busy days per year, business days per year.
Q Isn't it more likely that the average business days per year is somewhere closer to 250?
A I've never used it that way.
Q Well, let me ask you this, how do you use this 270?
A It's not a primary variable in terms of its impact, so let me think about this for a minute.
Q Do you use it to get a daily expense factor?
A I'm not sure what you mean by a daily expense factor.
Q Well, are you trying to get the expenses connected with EO switching down to a cost per day?
A No, this is a value that is used with the algorithm that sizes the switch for a given office with -- given line counts and traffic characteristics.
Q Then does this 270 include or exclude Mother's Day?
A Actually it would include five working days per week and ten holidays per year, so to the extent you want to include Mother's Day in one of those ten holidays, it would include it.
Q Okay. Are switches constructed to meet the

Mother's Day busy hour?
A Not typically, no.
Q Okay.
A Not that I've seen. I understand that that is the penultimate busy hour, but I've not seen sizing done based on that calculation. It's done on an average busy hour.
Q Let's go back to page 2 of 31.
A Yes.
Q And I'm looking at the variable overhead factor.
A Yes.
Q And over on the right you indicate how that was, the ten percent was developed?
A Yes.
Q Did you develop that factor?
A No, I did not.
Q Do you know who did?
A It was done internally at AT&T as far as the regression analyses that support it. There were a number of individuals involved. I don't know who all of them were.
Q So you can't tell me how many observation or data points were used?
A Well, I'm not sure about that. Let me take a look. Well, there would be a data point for each account

that was looked at for each LEC for the 1988 to '95 time frame, all this coming from 43-02 ARMIS, so we could multiply that out and see how many points we were talking about. And of course the tier one companies for that time period for these accounts yielded the 13-percent factor then based on the AT&T form M (phonetics) data, the 13 percent was calculated.
Q Where does the 13 percent come from?
A That's the one, I'm sorry, that I was just describing. That is the --
Q Is that the number that is produced by the regression analysis?
A That is the number that is produced by one regression analysis, yes.
Q How many regression analyses were done?
A Two.
Q And what does the second one produce?
A The second one produces ten percent. I'm sorry, there were three that were produced ultimately. The ten percent is the third one.
Q What is the second one?
A Six percent.
Q And did that assume linearity?
A Yes, it did.
Q Did it produce an unadjusted number which was

then adjusted?
A No, it didn't.
Q You indicate in the description that those costs are then adjusted to include efficiencies resulting from operation in a competitive environment.
A Right, and that process describes the decision to use the 10-percent value rather than the original 13-percent value.
Q And so this is purely a forecast on your part?
A Well, no, I'm not sure I describe it as a forecast. There was a 13-percent value derived from a regression of historical tier one LEC data. There was a 10 percent based on a comparable regression for AT&T which was the stand-in company for an entity that had operated traditionally in a monopoly rate of return environment but which had faced increasing competition; and then there was the six-percent value which was from comparables in terms of capital intensity, purely competitive industries. So I think it's very reasonable to view the 10 percent as a value that represents a data point on the process from 13 percent to 6 percent.
Q Why doesn't the narrative reflect this second regression analysis that was done of a, quote, competitive environment, close quote?
A I don't know. I didn't prepare -- the disclaimer

on the narrative is that it was done to fill a perceived need. There were a lot of these questions that were being asked. It was done very quickly and as thoroughly as time permitted. Certainly some of these could be described more extensively, and I hope they will be in the next iteration of this thing, but I can't tell you why -- for any given input assumption why the description is not more comprehensive.
Q Can you tell me what companies were involved in the second regression analysis?
A I can find out for you. They were industries.
Q They were industries, not companies?
A Well, they were industries, obviously, that you had to take the data from, companies within each industry, but there were a number of different industries. I know airlines was one of them, but I can -- if you would like to know the industries and the companies, I could certainly get that for you.
Q Please, as a late-filed exhibit.
A Okay.
MR. MELSON: Be Number 5.
Q And this would be companies and/or industries in second regression analysis.
A Got it.
Q Page 9 of 31, the line that says "Power and Frame

Investment."
A I'm sorry, I'm catching up with you, just a second. Yes.
Q And it shows that the support material is an HAI assumption. I assume that HAI is Hatfield and Associates?
A Hatfield and Associates, Inc., that's right. And again, this is a description that was done in haste. I would have personally been much happier if they had listed the individuals because there are quite a few individuals there at Hatfield with extensive experience.
Q Do you know what reserve capacity is required of local exchange companies in Florida on their switches?
A I'm not sure what you mean by reserve capacity.
Q What kind of time the switch must remain in effect after it loses commercial power.
A No, I'm not.
Q Does this power and frame investment take that into account?
A Well, it takes into account backup power certainly. I don't know what the Florida specific number or requirement is, so I can't tell you how that matches up with this capability.
Q The numbers here, the 10 thousand and 20 thousand, is that information that's equipment specific?
A I'm sorry, I need another question. What do you

mean by equipment specific?
Q Is that for generators, or is that for batteries, or is it for both?
A It would be for both.
Q And do you know whether or not this information has come from manufacturers?
A I think over time all of it has come from manufacturers, but it's come through, on its way to this document, a number of individuals who have been involved in engineering, both in switching and in outside plant, for a number of years at Bell companies and at BellCore. But the ultimate source of all of this and of their experience would be the acquisition cost from the vendors certainly.
Q Is any of this information Florida specific?
A I'm not sure how the acquisition cost of a specific piece of equipment would be state specific, so I guess the answer is no.
Q Okay. Let's go back to page 8 of 31.
A Yes.
Q Excuse me, my numbers are hard to read at the botton of the page, and I may have picked up what I thought was an 8 and it's actually another number. Oh, I'm sorry, it's 3, which does look like a washed out 8 on mine.
A It does on mine as well.
Q The very first line up there, the forward-looking

network operations factor.
A Yes.
Q And you show that the source of that is the 1993 New Hampshire incremental cost study.
A Yes.
Q Have I asked for that study?
A Yes, you have.
Q Okay. What is this factor intended to do?
A Well, it's intended to take historic information and convert it to a best estimate of the corresponding forward-looking information.
Q And this best estimate is an estimate that Hatfield has made?
A Well, it's an estimate that Hatfield has made based on best available public data which includes this New Hampshire study. It includes the Pac Bell testimony which we discussed previously.
Q Does this include the -- is this 70 percent directly out of the New Hampshire incremental cost study?
A The New Hampshire study assumed a 30-percent reduction over time. Yes, this is the low end of the range which corresponds to the New Hampshire study.
Q Okay. And is the next number down for central office switching expense factor, is that directly out of the New Hampshire study?

A Yes.
Q And what is that supposed to reflect? In other words, what is the 2.69 calculated against?
A Right, I understand. I don't want to give you a wrong answer, Mr. Fons. I'm going to have to look that one up. No one has asked before. It's not a major factor in the results, in the output of the model, and I'll just have to confirm what it is for you.
Q Do you know whether this includes the cost of amortized software investment?
A No, I don't. That's why I'll have to look for you.
Q I think we've talked about the next number, the 70 percent, the end-office traffic sensitive fraction?
A That's right.
Q And I believe I asked you, but just in case I didn't, it says that it's based upon a review and modification, and I think you indicated that it was close to 70 percent, and this is a rounding?
A That's right. And I think this number, your request number 2 was to clarify for you that in fact that modification is very slight and in terms of rounding and not in terms of substance.
Q Yeah, I don't think I asked you, how is that used in the study?

A The total switching investment and costs are divided using this factor into traffic sensitive and non-traffic sensitive components.
Q And what does that lead to?
A Well, that leads to output in terms of usage for the traffic sensitive portion of the switch, and in terms of the NTS portion, which is the, represents the per line cost.
Q Let's turn to page, I think it's 23 of 31, the botton of that page, digital loop carrier inputs.
A Yes.
Q Let's turn to the next page, which is page 24 of 31, the remote terminal fill factor.
A Yes.
Q Is that -- that's 90 percent; is that correct?
A That's right.
Q And is that the average, or is that the maximum? What does that number reflect?
A That's the level in which we would design or the model would design an additional RT. That's, I guess, an engineering problem. That is where a reinforcement would take place. In that sense I think the answer to your question is it represents a maximum.
Q Okay.
A That's the level of utilization at which

additional investment would be supplied by the model.
Q That's not intended to reflect the average remote terminal?
A No, it isn't.
Q Okay. Let me finish my question. It is not designed to reflect the average remote terminal fill?
A That's right.
Q And is that, that 90 percent, is that for the line cards, or is that for the entire unit?
A Well, it's for the unit in terms of its line card, its card capacity; and these are units that have cards in them, channel cards at each end, and they can exhaust by having no more slots available for cards. And when you reach the 90-percent utilization of card slots, that's essentially saying you would go forward and supply a different frame and a new set of slots in the next increment.
Q And do you know whether in the run for Florida, whether or not there were instances in which you had to put in a second remote terminal because the 90 percent was exceeded?
A I expect that there was. There typically have been, but again, this is -- like the switching, I have not gone through the backup to this run with that in mind in order to see whether it has or not.

Q You show the remote terminal for the digital loop carriers. Is that -- on page 23 of 31, you show an investment of three thousand dollars; is that correct, or is that added to the investment?

A No, the three thousand I believe is all setup costs.

Q Well, look at the support material. It says, "Site, housing and power per remote terminal must be added to the investment in the SAI." That's the setup cost?

A Right.

Q So is this an additional three thousand dollars, or is that the total amount?

A Let me finish reading this description so I don't mislead you. I believe the three thousand includes the common cards, the sites, the housing and the power; so you would then add line card investment to that as needed.

Q And where would we find the line card investment?

A I'm not sure it's stated in this document. There is additional equipment of course on page 24 that includes the optical multiplexer which may or -- depending on who you ask, is part of the RT or not. My response to the previous question assumes that we are talking about two different distinct lumps of investment here. I'm not sure this document lists individual cards to the extent they are not included in the 42 thousand on page 24, and I suspect

that they are not.

Q In that 42 thousand dollars is the investment in equipment at remote terminal?

A Well, you are going to need fiber optic multiplexing on both ends.

Q When you say on both ends, there has got to be something at the remote and something in the switch; isn't that correct?

A That's right.

Q Where would I find the investment in the equipment in the switch?

A Well, it's not in the switch; it's free standing associated with the switch, and that's part of this investment figure, I believe.

Q The 42 thousand dollars?

A That's right.

Q That includes both what would be at the switch and at the remote?

A I believe that's right. The figure just below that -- I'm sorry, they threw me with the description. Channel unit investment per line I believe represents the cards, although that is not the way I would have labeled it.

Q And what is the source of the 75 dollars for a line card?

A The experience of the folks at Hatfield.

Q Have you tested that 75 dollars for reasonableness?

A I have not gone out and requested bids from vendors, no. I'm not sure how else I would do it. I've certainly seen line cards in that part -- that use this way, certainly in that price range, in cost studies that I've done before; but like I said, the cards, the price of a card can vary fairly dramatically.

Q Now let's turn to page 25 of 31 where you are talking about STP link capacity.

A Yes.

Q What is that 720? Is that the capacity of an STP?

A In number of links, that's right.

Q Is that -- how was the 720 chosen? Is that the only size there is of an STP?

A I don't think it is. It's certainly a typical size, and as this support material entry over here on the right indicates, there is a study that was performed by AT&T and supplied to the FCC that includes fairly detailed calculations of signaling costs and capacities.

Q And the next line down, the 0.8, that is 80 percent, and I believe that's the maximum fill. Is this used the same way as the other maximum fills we have talked

about, and that is, that if you go over 80, that a second STP will be put in?

A That's right. Well, it would be a second pair in this case because they come in mated pairs.

Q This is not assuming that each STP is working at 80 percent?

A No, it is not.

Q Is there corresponding central office equipment to this STP?

A As far as stand-alone investment, is that the question?

Q Yeah.

A There is, but I don't -- well, it depends on the configuration, and it depends on the switch; and I'm trying to recall the AT&T study, which I don't have in front of me, because I think all of those investments were contemplated.

Q Where would I find it in the model, the corresponding central office investment?

A Well, it may in fact be in this STP investment per pair fully equipped and the common equipment investment per pair. In fact it may very well be under the common equipment per pair. The breakout of all of that is in the AT&T study, which like I said, I don't have it in front of me right now, but I have looked at it; and having costed

some of this stuff before, I would have noticed if there were investment missing, and I certainly don't recall anything being missing there.

Q Could you please furnish us the AT&T capacity cost study as a late-filed deposition exhibit?

A I personally don't mind.

THE WITNESS: Rick, it's publicly available. It's been filed with the FCC.

MR. MELSON: If you can find a source for it, I don't know any way at this point other than you to track it down.

THE WITNESS: Oh, it's not hard to track down, it's just --

MR. MELSON: Okay. Yeah, let's provide it.

THE WITNESS: Okay, I've probably got it here. In fact I'm sure I've got it here somewhere. Okay, that's number 6?

MR. MELSON: Yeah.

THE WITNESS: Got it.

BY MR. FONS:

Q Let's turn to page 26 of 31.

A Yes.

Q And this is the FDT fill. Do you see that line under terminal investment?

A That's right, fiber optic terminal.

Q Right.

A That's right.

Q Fill, and that's .8?

A That's right.

Q And that's 80 percent?

A That's right.

Q Is that a maximum?

A Yes.

Q Okay. So it's not the average fill?

A That's right.

Q It's the maximum. And if it was reached, then you would kick in another fiber optic terminal?

A That's right. That's the equivalent of an objective fill and a trigger point for reinforcement.

Q Under medium investment, do you see fraction of structure assigned to telephone?

A Yes.

Q .33?

A Yes.

Q What does that mean?

A That means that the assumption is made that on a going-forward basis power telephone cable and other utilities will avail themselves of the opportunity to either continue to share structure or to begin sharing structure and that there will be three companies sharing

the cost of that structure roughly equally.

Q And the structure we are talking about is either conduit or pole or a trench?

A That's right.

Q And then the next line says, "Fraction of Structure Shared With Feeder."

A Yes.

Q Does that mean that it's 25 percent of the 33 percent?

A No, no. No, no. That's a separate non-structure assumption. That assumes that feeder -- Well, let me back up. It's structure related, but the reason the 25 percent is a factor here is that it is assumed that 25 percent of the time feeder cable and transport cable -- and when I say cable, I most often mean fiber optics -- will be sharing structures, so there is an adjustment to structure to account for the fact that 25 percent of the time there will be joint usage of those facilities -- well, of those structures by both transport and feeder facilities.

Q How do you avoid in the model from having the 33 percent multiplied by 25 percent? How do you exclude it? It seems to me that if you have fraction of structure assigned to telephone of 33 percent and then fraction of structure shared with feeder that you only had 33 percent to begin with and now you are saying only 25 percent of

that 33 percent is available for the feeder.

A No, that's not quite right. 33 percent, if we -- That is a separate calculation. Then I guess to be stated in a way that is consistent with the 33, this really wouldn't be 25, it would really be 75. For certain routes there will be both feeder and transport facilities sharing structure only 25 percent of the time. So to the extent that there is a multiplication through, it is only for those links, if you will, and it is a 33 times 75, not a 33 times 25.

Q Is this wrong?

A No, I don't think it's wrong.

Q Well, I still don't understand how it's not 25 percent of 33 percent.

A Okay, I'll try it again.

Q I mean isn't it the same? We have talked about there is three available structures.

A That's right.

Q There is pole, conduit and trench.

A Right.

Q And we are talking about the same structure, whether we are talking about assigned to telephone or shared with feeder, aren't we?

A It's the same structure, yes.

Q But you're saying that only 33 percent of that

structure is assigned to telephone?
A That's right.
Q So I only have a third of that structure to begin with, and now you're saying that a fraction of that structure, which I only have a third, is shared with feeder 25 percent?
A 25 percent of the time, which means the remaining 75 percent of the time it will not be shared and you will have the full amount. So that to the extent that you want to multiply through, it would be in certain locations you could multiply the .33 times a .75, but it would not be appropriate to multiply times a .25.
Q How was this used in the calculation of the model?
A Well, exactly as I described it, I think. It recognizes the fact that some feeder, in certain locations feeder and transport facilities will share structure, and it would be double counting of the structure if you included it in both the feeder and transport calculations.
Q So what we are saying here, the fracture of the structure shared with feeder is the transport?
A Well, let me give you a better description of the .25 than what is listed here and maybe that will help. .25 represents the percentage of the time that feeder and transport facilities will share the same structure and,

therefore, for which it will be double counting to count that structure twice instead of one.
Q We'll go on. The next line you have, "Distance Miles 41." What is that, for transport?
A Right. If you look at the title of the top of the page, this is a transport page.
Q Right, transport investment.
A Right.
Q And you're assuming that in every situation that transport is 41 miles long?
A No, we are assuming that each portion in order to -- before you hit a regenerator and then a next portion will only be 41 miles.
Q Is that 40 miles or is that 40 kilometers?
A It's miles.
Q It's not kilometers?
A That's right.
Q So there will be transport in populated areas that will go 40 miles before they need a regenerator?
A That's right.
Q What is the source of that?
A I expect it's both Doctor Mercer's and Mr. Donovan's outside plant experience.
Q And then the regenerator investment is 15 thousand dollars, and the source of that is indication of

equipment price received during Supercon '96. Can you give us the names of the manufacturers that quoted a 15-thousand-dollar price for a regenerator?
A I can ask.
Q Would you please supply that?
A Sure.
Q You state that that regenerator investment is installed. Is the 15 thousand dollars an amount from the manufacturer for the equipment and the installation?
A I believe that is a quote, represents a quote for the equipment EF&I, yes.
Q And that would come from the manufacturer?
A That's right.
Q Can you provide the name of the manufacturer or manufacturers as a late-filed exhibit? And that is Number 7.
MR. MELSON: All right.
Q Can we go on?
A Yes.
Q Okay. Page 27 of 31, this is, again, transport investment, and we are talking about fiber cable, and you have under splice, spacing feet of 20 thousand feet. Is that approximately four miles?
A That's a little under, yes.
Q And you state, or it's stated at the right that

the estimate is based on the fact that 34-thousand foot pulls are routinely done today?
A Yes.
Q How many feet are there on a reel of fiber?
A It depends on the manufacturer, and it depends on which size reel you order.
Q Assume that it's a 24-fiber cable as you have indicated further up. Can you get 20 thousand feet on a cable, on a reel?
A For a 24-fiber? I believe you can.
Q How big is this reel?
A It's a cable reel. They come pretty big.
Q And what would you do if you came to a place in which you had to jack and bore under the street, how would you pull the cable through in that situation? Don't you have to take it all off of the reel?
A You are going to have to either take it off the reel, or you are going to have to do a cut and splice.
Q Okay. So in a situation in a metropolitan area, a 20-thousand-foot slice spacing is not typical, is it?
A I don't know; it may very well be.
Q Do you know for sure?
A Well, I don't have the outside plant engineering experience. I'm relying on the subject matter experts who do.

Q Let's turn to page 22 of 31.
A Yes.
Q And we are talking here about miscellaneous loop investment inputs.
A Yes.
Q What do you mean by SAI investment installed distribution cable size?
A That's the serving area interface or the feeder distribution interface, the investment on an EF&I basis; and the amount of investment that you need depends on the size of the distribution cable that is being attached.
Q And in all instances I think you've told me that distribution cable in the Hatfield model is copper?
A That's right.
Q Does the model check for distance in the distribution?
A I'm not sure what you mean check for distance.
Q Like you do in the feeder, you check or you test for distance. Maybe I used the wrong word. Does the model test for distance in the distribution?
A Effectively, yes, though not in the same way because when we talk about feeders and we talk about interoffice, we are talking about point-to-point facilities for which we can identify both of the points. For distribution, there is an amount of cable assumed to cover

a geographic area, and while it is a point-to-point-facility, one point is known, and that is the serving area interface, but the other point -- or the location of the other point, the customer premise, is not known specifically. So you can't look at both ends of a given distribution circuit the way you can at both ends of a feeder and transport circuit. But certainly the model developers have looked at their distribution build-out assumptions for CBGs of various sizes and densities to do the same type of checking, but you have to do it in a different way.
Q So a distribution facility could be a hundred feet of copper, or it could be a hundred thousand feet of copper?
A Well, I don't think it would be a hundred thousand feet based on how the model calculates distribution. And again, the model developers have looked carefully at how the build-out is assumed to take place for various sizes and densities on CBGs so you won't have the hundred thousand foot assumption.
Q Is it possible that there are copper distribution facilities modeled by the Hatfield model in Florida that approach 90 thousand feet of copper?
A They would be extremely unusual, and no, I have not noticed any as I've looked at this run.

Q How about those in excess of 50 thousand?
A They would also be unusual.
Q How about 30 thousand?
A That's also unusual.
Q How about over 18 thousand?
A Those you might see.
Q But it is possible that there could be a copper facility exceeding 80 thousand feet in Florida?
A Well --
Q Distribution facility.
A Yes and no. You may have a specific example in which that would be required. What the model is attempting to model here is a total cost calculation; it's not an engineering build-out calculation. So within a cost calculation, to the extent you might find isolated instances of loops that don't meet build-out design criteria, I guess I wouldn't be particularly surprised.
Q Let me ask you, would a copper loop in excess of 80 thousand feet work?
A Not without quite a few load coils, no.
Q Even with load coils would it work?
A Don't know, I've never seen one.
Q What is the -- well, let me ask you this, how many sets of cable prices are included in the model's input table?

A Well, there are --
Q And tell me where it is.
A In the input table or in the document that we have been using?
Q Well, is that different?
A Well, the values should be the different -- Again, the formatting might be slightly different. The values should be the same. You will have cable prices for different size cable for copper distribution. You will have it for fiber and copper feeder. I think all of those are on 29, 30 and 31.
Q That shows the cable sizes. Can you tell me if those cable sizes are all of the same gauge wire?
A I expect there is at least some 24- and 26-gauge assumed.
Q Will the price be different for a 24- and a 26-gauge cable?
A Slightly, yes. All of that should be reflected here in these costs.
Q How do I know that?
A Because these are costs that are -- To the extent that different gauges are required in different circumstances, that would be reflected in the experience of the outside plant subject matter experts who developed these costs.

Q Are these an average cost between 24 and 26?
A These are a cost that is representative of their experience which I would expect includes at least those two gauges of cable, but I haven't discussed with them what additional gauges they might have included.
Q But as far as you know these numbers are average prices for gauges 24 and 26?
A Well, as far as I know, these are reflective of those subject matter experts' experiences, and my personal knowledge is that they have included 24 and 26, and I don't know what they have included beyond that.
Q Do you know whether these prices include any 19-gauge wire pairs?
A No.
Q How about 22?
A No.
Q Is there a maximum distance, or is there a limit on the distance over which a telephone signal can be carried on a pair of copper wires?
A Yes.
Q And does the distance vary by the gauge of the copper?
A Yes.
Q Do you know the distance limitations of 26-gauge copper wire?

A No.
Q Would you accept subject to check that the maximum distance that a 26-gauge wire pair will work is less than 16 thousand feet?
A I'm not sure how I'd check it. The number does not sound unreasonable, but I expect I may get different opinions from different engineers.
Q Well, do you know anything about electrical engineering?
A I used to build power plants.
Q Well, then you know what resistance is, don't you?
A Yes, I do.
Q Okay. And do you know what the ohms resistance is on the loop for the inside wire and the telephone?
A I don't know the value. I used to know, but I've quite frankly forgotten it.
Q Okay. Do you know the maximum distance that a 24-gauge loop will work?
A No.
Q Would you accept subject to check that it's 25 thousand feet?
A Well, same response. I expect -- I'm not sure how exactly I'd check that.
Q And so you won't know about 22- or 19-gauge

either?
A That's right.
Q Would you accept subject to check that the 22-gauge loop is 40 thousand feet and a 19-gauge loop is 82 thousand feet?
A Same response.
Q You don't know though whether or not -- I think you've answered this. The distribution loops, you don't know if they are all 26-gauge cable?
A No, I suspect that they are not all 26-gauge cable. What I can't tell you is what the mix of different gauges would be based on these individuals' experience without asking them.
Q Could you as a late-filed exhibit please provide us with the mix of 24- and 26-gauge cable in your -- first of all, in your cost on page 29 of 31 and your mix of 24- and 26-gauge cable in the modeling for your distribution plant, and I think you've told me that you know they don't use 22 or 19?
A No, sir, I haven't told you that at all.
Q Would you please let us know whether you use any 22- or 19-gauge?
A Okay.
MR. MELSON: So Late-filed Exhibit 8 would essentially be the mix of cable gauges that underlies

the cost values on pages 29, et cetera.
MR. FONS: And the mix in the model distribution.
MR. MELSON: I guess based on his prior answers, I'm not sure that is different.
MR. FONS: No, it may be different because the prices may be modeled -- may be averaged between the two, but whether or not they actually used any 24 or any -- and how much -- Whether they used any 24, 22 and 19 in the actual distribution plant, I can't tell that by the average price.
MR. MELSON: Can we go off the record a minute?
MR. FONS: Sure.
(DISCUSSION OFF THE RECORD)
BY MR. FONS:
Q Does the model in the provision of distribution plant use combinations of 26- and 24-gauge cable?
A I believe it effectively does so by calculating a total distance and populating the investment of that distance with an investment per foot that accommodates more than a single gauge, but it does not explicitly make separate investment assumptions or distribution investment assumptions for different gauges of cable on specific routes.
Q Do you know how many distribution loops in the model are longer than 15 kilofeet?

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A No, I would have no idea.
Q And that can be done, can it not?
A Yes, it would take a while.
Q You can do it as an output? You can poll the model and ask it to generate the number of cables?
A I expect you could do a macro in Excel to manipulate the model outputs that way and come up with the list of loops that that would apply to.
Q Okay.
MR. FONS: Let's go back to the late-filed. Have we settled on -- I'll accept what you suggested.
MR. MELSON: We'll give you the mix of copper gauges supporting those costs.
MR. FONS: And the percentages, weighted those cable gauges in these prices.
MR. MELSON: Right.
MR. FONS: Okay.
BY MR. FONS:
Q Can you do that?
A I think so. And again, that is going to be the experience of some folks, and they are going to give you some approximations on these weights and values, but I think we can do that.
Q Do you know how many total lines the Hatfield model produces for Sprint in Florida?

A Let's see, I can probably find it right here. Yeah, let me get my calculator.
Q Well, would you accept subject to check a million 805 thousand 254?
A It won't take but just a second. Let's see. I'm sorry, what was your --
Q One million 805 thousand 254.
A I got one million 795 thousand and 94.
Q Well, we are off, what?
A We're not off much, 1.8 million.
Q Okay. And would you accept subject to check that there are 178 thousand 920 copper loops in excess of 15 thousand feet?
A I'll have to check it. I'm sorry, let me write this down. Now are you talking about loop links, total loop links in excess of 15 thousand feet or distribution links?
Q No, these are distribution.
A Okay, I'm sorry, what was the number again?
Q 178 thousand 920.
A Greater than 15 kilofeet?
Q Yeah.
A Without looking I can't tell you one way or the other.
Q Would it make a difference if they are

distribution or if they are total copper loop?
A For the 15 kilofoot, yes, absolutely.
Q What difference would it make?
A Well, if we are talking -- in the context of the conversation that we have been having about the capacity to carry a signal of acceptable quality over a given distance on a facility, it's the distance -- that facility starts at the interface of the SAI and ends at the customer pren. So for example, if you had a 15-kilofoot loop, ten thousand feet of which were on integrated loop carrier on fiber and the remaining five thousand feet were on copper, 26-gauge copper, you wouldn't have a quality problem at all. To the extent that you had a loop substantially longer than 15 kilofeet on a copper facility end to end, you would have a different concern about signal quality. I'm not suggesting that a 15-kilofoot copper loop would be unacceptable, what I'm suggesting is that you would have a different concern.
Q And would you agree that if it's over 15 thousand feet that this quality concern is rectified by using load coils and loop extenders?
A Well, let me -- that's three questions. I'm not agreeing that 15 kilofeet is the threshold level for any copper facility where you would then need some additional investment to make quality acceptable. I will certainly agree that load coils and loop extenders are possible ways

of remedying that type of situation if you had, whether it be at 15 kilofeet or 20 or 30.
Q One other way to do it is to increase the gauge -- well, actually decrease the gauge from, say, 26 to 24 or to 22?
A Well, to increase the gauge or decrease the number correspondingly to the gauge, that's right.
Q Okay. Assuming that it's 26-gauge, would you solve your problems on quality on loops over 15 thousand feet by using load coils and loop extenders?
A The answer is possibly, yes, again, subject to my failure to agree that the 15-kilofoot number is the threshold distance.
Q Do you know how many loops are over 18 kilofeet?
A Not without looking.
Q Would you accept subject to check 121 thousand 424?
A Again, I would have to go and look. I've not pulled the model output in this level of aggregation to look at it.
Q And do you know how many load coils are require for each copper loop over 18 thousand kilofeet or 18 thousand feet?
A It would depend on the gauge of wire, and it would depend on how much over 18 kilofeet you were going to

go.
Q Assume 26 gauge.
A I haven't solved that particular engineering problem, and I would certainly probably go to one of the outside plant engineers to solve it.
Q Have you anywhere in the Hatfield model included the investment and expense of load coils and loop extenders?
A I believe the answer is yes.
Q And can you tell me --
A I'm sorry, go ahead.
Q I was going to ask where in the study may we find this?
A That's, I'll have to find out for you.
Q Late-filed exhibit, where in the RAM-3 --
A Well, now where in RAM-3 is a different question than where in the model.
Q Okay. Well, then tell me where in the model and/or RAM-3 we will find the investment and expenses for load coils and loop extenders.
(NO RESPONSE)
Q Are you waiting for me?
A Yes.
Q Let's go on. This is late-filed exhibit?
MR. MELSON: Nine.

Q Let's turn to page 14 of 31 of RAM-3.
A Yes.
Q We are under copper feeder structure inputs.
A Yes.
Q Would you agree that underground refers to facilities in conduit?
A That's right.
Q And could you explain underground fraction, what that means?
A Certainly. For the different -- see, on the left-hand column of this page you will see different density ranges or cells, and for each density range a mixture of the three forms of structure are assumed, so for underground fraction you will see the zero to five density range, and that density range you only have five percent underground, or we expect to see five percent underground facility.
Q And then correspondingly when you get up to 2550?
A You would expect to see 90 percent.
Q The 90 percent?
A That's right.
Q On page 17 of 31, you show a conduit investment per foot. This is the material cost?
A That's right.
Q And that's for a foot of four-inch PVC?

A That's right.
Q And where would I find the installed cost of this conduit?
A Well, you've got different structure installation assumptions. Let's see.
Q Would one place be page --
A 16.
Q All right. Page 16, I'm backing up. All right, and this is for copper feeder.
A That's right, conduit installation per foot, and there will be -- then on page 12 you'll find the corresponding values for distribution, and on page 20 you'll find the corresponding value for fiber feeder.
Q Okay. And it's all the same?
A That's right.
Q Regardless of whether it's copper, whether it's distribution or whether it's feeder?
A Well, it's the same conduit.
Q Okay. On page 22 of 31, you have this statement, "Distribution structure percent assigned to telephone," and I think we've talked about this earlier. This means that a third of the structure, whether it's a conduit or a pole or right of way, the telephone company gets only a third of that?
A That's right.

Q And feeder structure underground, again, that's conduit. Whether it's distribution or feeder underground, we are talking about conduit?
A That's right.
Q Does the Hatfield model engineer more than one duct run per CBG?
A For which facilities?
Q For feeder.
A I think the answer is no. I think there is a feeder -- Well, it depends. There are feeder and sub feeder routes. It depends for a given CBG whether it lies on one, along one of the axes pulling away from the central office and it would be served by the main feeder or whether it is going to be served by a sub feeder leg.
Q Are there situations in which the Hatfield model requires multiple facilities requiring multiple ducts?
A For a given CBG? I'm sorry, I --
Q Yeah, to reach a CBG.
A To reach a CBG there is certainly tapering of feeder distribution -- feeder facilities which will require the conduit associated with the main feeder and any sub feeder. It's the BellCore fir tree arrangement that is assumed, so there would certainly be conduit facilities for the feeder and the sub feeder associated with some CBGs but not for those that lie along the main feeder route.

Q Does the Hatfield model cost out more than one four-inch PVC duct per CBG?
A It depends on the CBG.
Q Can you give me an example of where the Hatfield model in fact costs out more than one duct run?
A In terms of CBG numbers or hypotheticals or --
Q Yeah, the CBG duct run -- I'm sorry, CBGs.
A I would have to go back and look at the model in terms of which specific CBGs are served by main feeder versus sub feeder. That is not something I could even hope to know off the top of my head.
Q Do you know the diameter --
MR. FONS: I'm sorry, could I have that as a late-filed exhibit?
MR. MELSON: You are going to need to tell me again what --
THE WITNESS: Yeah, you are going to need to tell me again too.
MR. FONS: I need the number of CBGs in which the Hatfield model costs out multiple duct runs?
MR. MELSON: Is that something that is doable, Don?
THE WITNESS: I've never tried. Give me a minute to ponder what spread sheet manipulation we might do to severe these out. I think, although I'm not

certain that we can severe out which ones are on the main feeder route and which ones are not, which ones in which there would be sub feeder investment and corresponding conduit, if I understand the question correctly. I'll have to go back and look. No one has ever asked for this type of manipulation before. It is either a fairly straightforward process, or it is an extremely tedious line by line process, and I really don't know until I get the model up and look at it.
MR. MELSON: We will provide -- let's identify that as a late-filed, and we will provide it if it is reasonable.
MR. FONS: Okay.
THE WITNESS: I don't have someone who can count 1.8 million lines of cells to tell you the answer, but if we can do it more directly than that, we can -- we will.
MR. FONS: That will be fine. Just tell us whether you can't if you can't.
THE WITNESS: Okay, let me finish making a note here to make sure that I've got this right.
MR. FONS: Okay.
THE WITNESS: Okay, I'll see what we can do on that.

BY MR. FONS:
Q Do you know the diameter size of a 42-hundred pair, 26-gauge cable?
A Not offhand, no.
Q If subject to check that is 3.8 inches in diameter, how many 42-hundred pair, 26-gauge cables would fit into a third of a four-inch PVC conduit?
A Into a third of a four-inch or into a four-inch?
Q Well, a four-inch.
A One.
Q Into a third of a four-inch conduit?
A Zero.
Q And you would agree that there are loop links in the Hatfield model that require gauges less than 26-gauge in order for the line to operate?
A No, I think I agreed that that is a possibility and that I'll look and see what the lengths are to find out and check with the outside plant subject matter experts to find out, A, what the crossover would be that they have assumed; and B, whether we can look at the model and find out whether we have any loops of that link.
Q As the gauge gets bigger, doesn't the size of the cable increase? So if I had a 42-hundred pair cable with 22-gauge, it would be bigger around than a 42-hundred pair cable with 26-gauge pair?

A The answer to your last question is yes.
Q I believe earlier you indicated that as far as placement of cable is concerned that the Hatfield model does not provide any penalty for situations in which the cable has to be placed in rocky or water situations but instead the Hatfield model extends the length of the cable on the basis that the cable will go around whatever impediment might exist?
A Well, I'm not sure what you mean by penalty, but it assumes that a route around wherever possible, yes.
Q Okay. There is no cost increase for a cable that has to go across land that has water or rocks close to the surface?
A Well, there is a cost increase in terms of the length of the cable required to cover that terrain.
Q If the water table in a CBG is less than three feet from the surface, how can you place a cable and pedestals in the water without additional cost?
A I didn't suggest you could.
Q And in that situation, what does the Hatfield model do to reflect the fact that the cable and the pedestal have to be placed in water?
A I believe the answer is that the model does not carry forward the water table data so that it wouldn't make an adjustment.

Q Do you know what the water table is in the area served by Sprint in Central and Southwestern Florida?
A I expect it varies, but I don't know the specific value for any given location.
Q Do you know what the rock soil conditions are in the area served by Sprint telephone?
A I would expect loose and sandy, but again, I would have to look at the USGS data in order to determine that.
Q But the Hatfield model does not take that into consideration?
A No, sir, that's not right. It does not take water table data into consideration; it does take soil type data into consideration.
Q Have you heard of -- well, and if that's the case, what soil conditions does the Hatfield model take into consideration for the CBGs served by Sprint in Florida?
A Well, I can look at it on a -- I can look at the model that way and the data in the model on a CBG by CBG basis, but I haven't done that.
Q But regardless of what that soil condition is, if there is a requirement -- if there are soil conditions that would prevent the plowing in of the cable, the Hatfield model assumes a longer cable length rather than the cost of

plowing in in rocky soil; is that correct?
A That's right.
Q Isn't it possible that there are CBGs in Florida in which the soil conditions are such that the cable cannot go around the condition?
A It's possible, but it's not -- it's fairly unusual. Well, it's not fairly unusual. It's very unusual in the USGS survey data that I've seen.
Q What do you know about the soil conditions in Florida?
A Just from direct experience.
Q Been on a sandy beach, I suppose?
A Yes, I have.
Q Okay. How about interior from the beaches?
A I'd have to look. I can tell you what my, what I've observed, but really what I need to do is look at the USGS data for your territory, which I can certainly do.
Q Have you ever heard of coquina rock?
A Yes, I have.
Q Okay. Is coquina rock close to the surface?
A Can be.
Q Is coquina rock something you can go around?
A It depends on what area it's in and what area you are serving.
Q Let me ask you a couple of questions. You

indicate in your direct testimony on page 1 beginning at line 16 that you were employed in the local exchange industry by Sprint-United Services, Inc. in its pricing and economic service cost division.
A I see that. That's not the testimony that I transmitted, but I can see how this error happened. I was certainly not employed by Sprint-United Services.
Q Thank God. We couldn't find you.
MR. FONS: I think that's all I have at this time.
MR. MELSON: Does staff have some?
MR. KEATING: I guess we would like to take a short break if we could.
(BRIEF RECESS TAKEN)

EXAMINATION

BY MR. KEATING:
Q Okay. Mr. Wood?
A Yes.
Q My name is Cochran Keating. I'm a staff attorney at the Public Service Commission.
A Yes, good afternoon, Mr. Keating.
Q We just have a few questions mostly to clarify some information. Referring to --
A I'm sorry, I lost you guys.
MR. FONS: That's my fault. I was trying to get

the phone closer to Cochran.
A Okay.
Q We just have a few questions to clarify some of the information that we were provided. If you could look at Exhibit DJW-2 and to a spread sheet of user inputs that we were provided I believe on disk.
A Yes.
Q There is a few places where the information differs in those two spread sheets, and we just wanted to clarify which sets were used in generating your DJW-3 exhibit.
A Okay, I'm getting an echo of everything I say.
Q Is that any better?
A No.
MR. MELSON: You're getting an echo when you talk?
THE WITNESS: Yes, and only when I talk. Yeah, when I talk it's as if I were at a high school football game.
MR. MELSON: If you still have the number, why don't you hang up and dial back in. It may be on the --
THE WITNESS: Let me try that real quick. I'll be right back.
MR. MELSON: Okay.

(BRIEF RECESS)
BY MR. KEATING:
Q Okay. Looking at the user inputs from the spread sheet that was provided and your Exhibit DJW-2 at rows 463 through 466 on page 7 of your exhibit in columns C and D, you show intraLATA, intrastate call attempts to be 209 million 658 thousand 571?
A Yes.
Q Right beneath that you show interLATA intrastate call attempts to be 517 million 640 thousand?
A Yes.
Q And beneath that intraLATA interstate call attempts to be 684 million 810 thousand?
A That's right.
Q Okay. Now on the same cells in the corresponding spread sheet that was provided it showed a different set of values.
A Okay, let me rummage in my paper for a minute because I think I've got a printout that will correspond to that. Okay, I've got the data in a slightly different format but let's see.
Q Okay. Just to make sure that the values that we have here on the spread sheet in row 463 would be 146 million 761 thousand and four sixty -- I'm sorry, that's 464, and 465 would be 362 million 348 thousand?

A Right.
Q And in 466, 479 million 367 thousand?
A That's right, those are the correct values.
Q Okay. Those are the values that were used to generate your Exhibit DJW-3?
A Yes, they were. And I'll apologize, the spread sheet that constitutes DJW-2 is not -- there is a note on the very first page that says that, that indicates to you that the model will report to this spread sheet and populate these values, but this is not a spread sheet that is part of the calculation process in the model. It merely exists in order to provide this type of resource to list inputs. So a value on here, if it's misreported on DJW-2, will not necessarily be problematic in terms of the calculation of the model, the right value would still be there. And it looks like we have a problem when it writes to the cells. When the model itself writes -- it's actually an add on to the model that creates DJW-2, and it looks like that is writing to these cells incorrectly. But the numbers you listed -- I've got the actual input page here where those numbers were pulled from the original source and entered into the model, and the numbers you just read to me correspond to those values which I see are different from the ones on DJW-2.
Q Okay. I guess then that staff would ask for a

late-filed exhibit, a corrected or an amended Exhibit DJW-2.
A Yes, I would be glad to do that, and I will also do a little research into -- this is the first time that has ever happened as far as those values not being correct, and I'll see if I can run down software wise why it happened, but I'll be glad to correct this one and refile it.
MR. KEATING: Could we go off the record a second?
(DISCUSSION OFF THE RECORD)
BY MR. KEATING:
Q Okay. On page 9 of your Exhibit DJW-2 at rows 59 and -- I'm sorry, 595 and 596, columns C and D, there are two sets of values. Those values don't have any corresponding identification or reference to where it's used. Could you identify those values?
A Yeah, it's actually a set of values that Mr. Fons and I were describing is the percentage of the -- .25, is that what you are asking about?
Q Yes.
A It's the percentage of the times that feeder facilities and interoffice facilities will share structure.
Q Okay. That's what I thought from the discussion I overheard with you and Mr. Fons, but staff just wanted to clarify that.

And the row just beneath that, 596, the number 41, is that the distance in miles?
A That's right.
Q Okay.
A I have to take some of the blame here. I caused the people who produced this to rush it out a little bit, and that's why we ran into a couple of these minor problems.
Q Okay. And as part of the late-filed exhibit amending this exhibit, could that be included?
A Oh, of course.
Q The identification?
A Of course.
Q Okay. Looking at Exhibit DJW-2 again, the values for 595, 631 and 667, on page 9, I'm sorry, are also different from the corresponding values in the spread sheet.
A Okay, I'm sorry, which line numbers?
Q 595, 631 and 667.
A Okay, 595 and 631 are the same value. 667 --
Q 667 on the exhibit I believe there is no value.
A Right.
Q On the spread sheet there is a value listed the. of .33.
A Okay. And, I'm sorry, did I understand that for

631 and 595 there was a different value on the spread sheet than in DJW-2?

Q I believe, yeah, that there is a different value in the corresponding row numbers.

A Okay, let me run that down. I suspect the problem is with DJW-2 not with the actual spread sheet, but let me confirm all that for you.

Q Okay. Yeah, again, if there is an error with DJW-2, if that could be taken care of in the late-filed exhibit.

A Yes, absolutely. And again, it's partially my fault. I rushed this to press a little bit.

Q Okay.

MR. KEATING: I'm sorry, could we go off the record again for just a minute?

(DISCUSSION OFF THE RECORD)

BY MR. KEATING:

Q Going back on the record, staff would ask for a late-filed exhibit, I guess it would be Number 12, identification of corrected cells in worksheet Fl_uf_sp.xls?

A That's corrections if necessary, correct?

Q Right. Okay. I won't ask you any more questions about those spread sheets and exhibits. I just have a few general questions if I can find them. I think we'll skip

then anyway.

MR. KEATING: Thanks, that's all the questions staff has.

MR. MELSON: I've got no questions.

MR. FONS: I have no questions.

(WHEREUPON, THE DEPOSITION WAS CONCLUDED)

• • • •

ERRATA SHEET

DOCKET NUMBER 961230-TP
DON WOOD
DECEMBER 13, 1996

STATE OF FLORIDA)
COUNTY OF LEON)

CERTIFICATE OF OATH

I, the undersigned authority, certify that DON J. WOOD personally appeared before me and was duly sworn.

WITNESS my hand and official seal this 14th day of December, 1996.

NANCY S. METZKE
Notary Public - State of

CERTIFICATE OF DEPONENT

This is to certify that I, DON J. WOOD, have read the foregoing transcription of my testimony, Page 1 through 90, given on December 13, 1996 in Docket Number 961230-TP, and find the same to be true and correct, with the exceptions, and/or corrections, if any, as shown on the errata sheet attached hereto.

DON J. WOOD

Sworn to and subscribed before me this _____ day of _____, 19____

NOTARY PUBLIC
State of
My Commission Expires:

REPORTER'S DEPOSITION CERTIFICATE

STATE OF FLORIDA)
COUNTY OF LEON)

I, NANCY S. METZKE, Certified Shorthand Reporter and Registered Professional Reporter, certify that I was authorized to and did stenographically report the deposition of DON J. WOOD; that a review of the transcript was requested; and that the transcript is a true and complete record of my stenographic notes.

I FURTHER CERTIFY that I am not a relative, employee, attorney or counsel of any of the parties, nor am I a relative or employee of any of the parties' attorney or counsel connected with the action, nor am I financially interested in the action.

DATED this 14th day of December, 1996.

NANCY S. METZKE, RPR, CCR

EXHIBIT NO. _____

DOCKET NO: 961230-TP

WITNESS: DON J. WOOD

PARTY: MCI

DESCRIPTION:

MCI'S RESPONSE TO STAFF'S 1ST SET OF REQUEST FOR PRODUCTION OF DOCUMENTS (1-10).

PROFFERING PARTY: STAFF

I.D. # DJW-8

FLORIDA PUBLIC SERVICE COMMISSION
DOCKET NO. 961230-TP EXHIBIT NO. 17
COMPANY/ WITNESS: STAFF
DATE: 12/18/96

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In Re: Petition by MCI Telecommunications Corporation for arbitration with United Telephone Company of Florida and Central Telephone Company of Florida concerning interconnection rates, terms, and conditions, pursuant to the Federal Telecommunications Act of 1996.	Docket No. 961230-TP Served: December 11, 1996

MCI'S RESPONSE TO STAFF'S FIRST REQUEST FOR PRODUCTION

MCI Telecommunications Corporation and MCImetro Access Transmission Services, Inc. (collectively, MCI) hereby respond to Staff's First Request for Production of Documents.

1. Please provide the documents identified in response to Interrogatory No. 1(f).

   RESPONSE: MCI is still attempting to locate copies of these documents.

2. Please provide the documents identified in response to Interrogatory No. 1(h).

   RESPONSE: There are no documents responsive to this request.

3. (a) Please provide a copy of the Hatfield Model Version 2.2 Release 2 and all associated documentation.

   RESPONSE: These materials have previously been furnished. They consist of (1) a CD-ROM and a 3-1/2" diskette furnished to staff and Sprint, (2) the documentation attached as Exhibit DJW-4 to Mr. Wood's testimony, (3) additional information on inputs attached as Exhibit DJW-2 to Mr. Wood's testimony, and (4) a document labelled "Attachment RAM-3" included as an attachment to MCI's Supplemental Response to Interrogatory No. 13.

(b) Please provide a copy of the Hatfield Model Version 2.2 Release 2 that contains the state-specific inputs used to generate Mr. Wood's exhibits. The version of the model requested herein should contain the effects of running the United/Centel Florida template on the various modules. (For example, the Data Module should show the model computations of outside loop plant facilities associated with United/Centel-Florida). Please identify the sources for all inputs used in the model, both state-specific and nonstate-specific.

RESPONSE: Same as Item 3(a).

(c) Please provide a copy of the Hatfield Model Version 2.2 Release 2 that contains the state-specific inputs used to generate Mr. Wood's exhibits, where all formulas are unlocked so that the Excel audit functions will be operational. The version of the model requested herein should contain the effects of running the United/Centel Florida template on the various modules. (For example, the Data Module should show the model computations of outside loop plant facilities associated with United/Centel-Florida). Please identify the sources for all inputs used in the model, both state-specific and nonstate-specific

RESPONSE: No such copy of the model exists.

(d) Please provide hard copy printouts of all input tables to the Hatfield Model Version 2.2 Release 2 run that support or underlie Mr. Wood's exhibits. Please identify the sources for all inputs.

RESPONSE: See documents referred to in Item 3(a).

(e) Please provide copies of all intermediate work papers that generate inputs that are used in the Hatfield Model Version 2.2 Release 2 run that support or underlie Mr. Wood's exhibits. Please identify the sources for all values that appear on such work papers.

RESPONSE: There are no intermediate work papers external to the model. All intermediate calculations internal to the

model can be seen by examining the CD-ROM and diskette provided in response to Item 3(a).

(f) Please provide hard copy printouts of all available output reports to the Hatfield Model Version 2.2 Release 2 run that support or underlie Mr. Wood's exhibits.

RESPONSE: See Exhibit DJW-3 to Mr. Wood's direct testimony.

4. Please provide the documents identified in response to Interrogatory No. 4(c).

RESPONSE: This document was attached to MCI's Supplemental Response Interrogatory No. 4(c).

5. (a) Please provide copies of all ARMIS reports that were used to derive values used in the model.

RESPONSE: These reports are publicly available.

(b) To the extent that intermediary calculations were performed using the ARMIS data to derive inputs to the Hatfield model, please provide all work papers that show how the ARMIS data was used to derive inputs used in the Hatfield model

RESPONSE: There are no documents responsive to this request. Expense to investment ratios were derived directly from the ARMIS data.

6. Referring to page 12 of Mr. Wood's direct testimony, please provide a copy of the WUTC order to which reference is made.

RESPONSE: MCI is still attempting to locate a copy of this document.

7. Please provide the documents identified in response to Interrogatory No. 7(c).

RESPONSE: There are no documents responsive to this request.

8. Please provide the documents identified in response to Interrogatory No. 11(a).

RESPONSE: These documents are publicly available.

9. Please provide the documents identified in response to Interrogatory No. 12 (a).

RESPONSE: The use of this document is restricted by the publisher, McGraw-Hill. MCI does not have copying rights to this document.

10. Please provide a copy of Table 2.10 referred to in Mr. Wood's direct testimony on page 18.

RESPONSE: MCI is still attempting to locate a copy of this document.

* * * * *

RESPECTFULLY SUBMITTED this 11th day of December, 1996.

HOPPING GREEN SAMS & SMITH, P.A.

By: _____
Richard D. Melson
P.O. Box 6526
Tallahassee, FL 32314
(904) 425-2313

and

MARTHA MCMILLIN
MCI Telecommunications Corporation
780 Johnson Ferry Road, Suite 700
Atlanta, GA 30342
(404) 843-6375

ATTORNEYS FOR MCI

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a copy of the foregoing was furnished to the following parties by hand delivery or by UPS Overnight Delivery (*) this 11th day of December, 1996.

Jerry M. Johns (*)
United Telephone Co. of Fla.
Central Telephone Co. of Fla.
555 Lake Border Drive
Apopka, FL 32703

John P. Fons
J. Jeffry Wahlen
Ausley & McMullen
227 S. Calhoun Street
Tallahassee, FL 32301

Martha Carter Brown
Division of Legal Services
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, FL 32399

Attorney

84072.1
COS/961230

LATE-FILED EXHIBITS
TO DEPOSITION OF DON J. WOOD
DOCKET NO. 961230-TP

Exhibit No. 1: (Late-filed) 1993 New Hampshire incremental cost study that is referenced in attachment RAM 3.

Response: The reference in the Input Summary - RAM3 document is incorrect. The network operations factor of 30% is a conservative adjustment to information provided by Pacific Bell in the testimony of R.L. Scholl.

Exhibit No. 2: (Late-filed) Original Pacific Bell end-office traffic sensitive fraction.

Response: The traffic-sensitive fraction of switching investment is based on common industry knowledge. Any adjustments to specific data have consisted solely of rounding to the generally accepted 70/30 ratio of investment.

Exhibit No. 3: (Late-filed) Information obtained from switch manufacturers.

Response: The investment data for larger switches have been obtained by discussions between HAI personnel and contractors and switch vendors. The switch manufacturers have provided this information but have asked not to be cited directly.

Exhibit No. 4: (Late-filed) Any instances for Sprint Florida in which Hatfield modeled a second switch.

Response: No second switches were added to central offices due to processor exhaust in the run of the Hatfield Model for Sprint-United Florida.

Exhibit No. 5: (Late-filed) Companies and/or industries in second regression analysis.

Response: The airline and automotive industries were considered in the study that produced a corporate overhead estimate of 6% revenues.

Exhibit No. 6: (Late-filed) AT&T capacity cost study.

Response: A copy of this report is being obtained and will be provided.

Exhibit No. 7: (Late-filed) Quote from a manufacturer or manufacturers for 15 thousand dollars for equipment and installation.

Response: The assumed investment in regenerators is based on conversations between the Hatfield Model outside plant expert, John Donovan, and vendors. These vendors have asked not to be cited directly.

FLORIDA PUBLIC SERVICE COMMISSION
DOCKET NO. 961230-TP EXHIBIT NO 18
COMPANY/ WITNESS: STAFF
DATE: 12/18/96
DOCUMENT NUMBER-DATE
13726 DEC 26 96
FPSC-RECORDS/REPORTING

LATE-FILED EXHIBITS
TO DEPOSITION OF DON J. WOOD
DOCKET NO. 961230-TP

Exhibit No. 8: (Late-filed) Mix of cable gauges that underlies the cost values on pages 29, et cetera.

Response: The cable prices in the Hatfield Model are based on 24 gauge cable. 26 gauge cable is not included in the cable investment assumptions.

Exhibit No. 9: (Late filed) Where in the model and/or RAM-3 one will find the investment and expenses for load coils and loop extenders.

Response: No investment for load coils or loop extenders are explicitly included in the model. In those areas studied in which long loops are necessary, sufficient investment dollars are nevertheless provided by the model to provide this equipment.

Exhibit No. 10: (Late-filed) Number of CBGs in which the Hatfield model costs out multiple duct runs.

Response: No multiple conduit runs are explicitly assumed in the Hatfield Model. In those areas studied in which large diameter cables are necessary, sufficient investment dollars are nevertheless provided by the model to provide these facilities.

Exhibit No. 11: (Late-filed) Amended Exhibit DJW-2

Response: A corrected version of the User Inputs spreadsheet is attached.

Exhibit No. 12: (Late-filed) Identification of corrected cells in worksheet F1_wf_sp.xls.

Response: No correction is necessary. Mr. Wood and representatives from Deloitte-Touche have confirmed that the working cells in the Model contain the correct values.

ORIGINAL
FILE COPY

Note: Anything in italics in the two columns containing values is a calculated value.
Don't change any of these manually.

12/2/96 11:45
DataM

You may change any of the input values (highlighted in blue) directly in this sheet.
However, if you subsequently use one of the dialogs to set values, any values entered there will override any changes you make manually here.

1	**State**	*Florida*	Workfile	*FALSE*	
2	Company 1	*Sprint-United*	Workfile path	*FALSE*	
3	Company 2	*Centel*	ID Code	HMG0819961400	
4	Company 3				

	Input Name		Default	Inputs	Variable Name	Model Reference	Module	Sheet	Cell Ref
	Cost of Capital Factors								
	Depreciation Lives								
5	Loop Distribution		20	20	DistLife	Expense, Inputs, H37	Expense	Inputs	H37
6	Loop Feeder		20	20	FeedLife	Expense, Inputs, H38	Expense	Inputs	H38
7	Loop Concentrator		10	10	ConcLife	Expense, Inputs, H39	Expense	Inputs	H39
8	Wire Center		37	37	WireLife		Expense	Inputs	H41
9	End Office Switching		14.3	14.3	EOLife	Expense, Inputs, H40	Expense	Inputs	H40
10	Tandem Switching		14.3	14.3	TandLife	Expense, Inputs, H42	Expense	Inputs	H42
11	Transport Facilities		19	19	TransLife	Expense, Inputs, H45	Expense	Inputs	H44
12	Operator Systems		8	8	OpLife	Expense, Inputs, H43	Expense	Inputs	H43
13	STP		14	14	STPLife	Expense, Inputs, H46	Expense	Inputs	H45
14	SCP		14	14	SCPLife	Expense, Inputs, H50	Expense	Inputs	H46
15	Links		19	19	LinkLife	Expense, Inputs, H52	Expense	Inputs	H47
16	Public Telephones		9	9	PubLife	Expense, Inputs, H54	Expense	Inputs	H48
17	General Support		7	7	GenLife	Expense, Inputs, H55	Expense	Inputs	H49
	Cost of Capital								
18	Debt Percent		45.00%	45.00%	DebtP	Expense, Inputs, C34	Expense	Inputs	C34
19	Cost of Debt		7.70%	7.70%	DebtCost	Expense, Inputs, C35	Expense	Inputs	C35
20	Cost of Equity		11.90%	11.90%	EquityCost	Expense, Inputs, C37	Expense	Inputs	C37
21	*Equity Percent*		*55.00%*	*55.00%*		Expense, Inputs, C36			
22	*Overall Cost of Capital*		*10.01%*	*10.01%*		Expense, Inputs, D38			
	Misc Expense Factors								
23	Variable Overhead Factor		10.00%	10.00%	VarOvhd	Expense, Inputs, C42	Expense	Inputs	C42
24	Federal Income Tax Rate		40.00%	40.00%	FITRate	Expense, Inputs, H35	Expense	Inputs	H35
25	Other Taxes Factor		5.00%	5.00%	OtherTax	Expense, Inputs, C43	Expense	Inputs	C43
26	Operating State and Local Income Tax Fa		1.00%	1.00%	StateIT	Expense, Inputs, C44	Expense	Inputs	C44
27	Billing/Bill Inquiry per line per month	$	1.22	$1.22	Billing	Expense, Inputs, C46	Expense	Inputs	C45
28	Directory Listing per line per month	$	0.15	$0.15	Directory	Expense, Inputs, C47	Expense	Inputs	C46
29	Forward-Looking Network Operations Fac		70.00%	70.00%	NetOps		Expense	Inputs	C48
30	Central Office Switching Expense Factor		2.69%	2.69%	COSwitch	Expense, Inputs, C49	Expense	Inputs	C47
31	End Office Traffic-Sensitive Fraction		70.00%	70.00%	EOTraffic		Expense	Inputs	C51
32	per-line Monthly LNP Cost	$	0.25	$0.25	LNP	Expense, Inputs, C51	Expense	Inputs	C52
	alternative CO switching factor		0.0269	0.0269	ACOSF		Expense	Inputs	C49
	alternative circuit equipment factor		0.0153	0.0153	ACEF		Expense	Inputs	C50
	Carrier-carrier customer service per line p	$	1.58	$1.58	CarCar		Expense	Inputs	C58
	NID expense per line per year	$	3.00	$3.00	NIDExp		Expense	Inputs	C59
	Swithc line circuit offset per DLC line	$	35.00	$35.00	CircOffs		Expense	Inputs	C62
	Fill Factors								
	Cable								
	Feeder								
34	0-5		0.65	0.65	Feeder0	Loopmaster, Input, R18	Loopmaster	Input	S18
35	5-200		0.75	0.75	Feeder5	Loopmaster, Input, R19	Loopmaster	Input	S19
36	200-650		0.80	0.80	Feeder200	Loopmaster, Input, R20	Loopmaster	Input	S20
37	650-850		0.80	0.80	Feeder650	Loopmaster, Input, R21	Loopmaster	Input	S21
38	850-2550		0.80	0.80	Feeder850	Loopmaster, Input, R22	Loopmaster	Input	S22
39	2550+		0.80	0.80	Feeder2550	Loopmaster, Input, R23	Loopmaster	Input	S23
	Distribution								
	0-5		0.50	0.50	Dist0	Loopmaster, Input, S18	Loopmaster	Input	T18
	5-200		0.55	0.55	Dist5	Loopmaster, Input, S19	Loopmaster	Input	T19
	200-650		0.60	0.60	Dist200	Loopmaster, Input, S20	Loopmaster	Input	T20
	650-850		0.65	0.65	Dist650	Loopmaster, Input, S21	Loopmaster	Input	T21
	850-2550		0.70	0.70	Dist850	Loopmaster, Input, S22	Loopmaster	Input	T22
	2550+		0.75	0.75	Dist2550	Loopmaster, Input, S23	Loopmaster	Input	T23
	EO Switching Parameters								
	Busy hour call attempts, residential		1.3	1.3	BHCAR	WireCenter, traffic and cost inputs, F20	WireCenter	traffic and cost inputs	F28
	Busy hour call attempts, business		3.5	3.5	BHCAB	WireCenter, traffic and cost inputs, F21	WireCenter	traffic and cost inputs	F29
	Switch Maximum Line Size		100,000	100,000	MaxLines	WireCenter, traffic and cost inputs, C19	WireCenter	traffic and cost inputs	C27
	Switch Maximum Line Fill		0.80	0.8	MaxLineFill	WireCenter, traffic and cost inputs, C21	WireCenter	traffic and cost inputs	C29
	Switch Maximum Processor Occupancy		0.90	0.9	MaxProc	WireCenter, traffic and cost inputs, C22	WireCenter	traffic and cost inputs	C30
	Processor Feature Loading Multiplier		1.00	1	FeatureMult	WireCenter, traffic and cost inputs, C23	WireCenter	traffic and cost inputs	C31
	Switch Installation Multiplier		1.10	1.1	InstallMult	WireCenter, traffic and cost inputs, C25	WireCenter	traffic and cost inputs	C33
	Switch Parameters								
	Switch real-time limit, BHCA								

1 - 1,000	10,000	10,000	BHCA1	WireCenter	traffic and cost inputs	C16
1,000 - 10,000	50,000	50,000	BHCA2	WireCenter	traffic and cost inputs	C17
10,000 - 40,000	200,000	200,000	BHCA3	WireCenter	traffic and cost inputs	C18
40,000+	600,000	600,000	BHCA4	WireCenter	traffic and cost inputs	C19
Switch traffic limit, BHCCS						
1 - 1,000	10,000	10,000	BHCCS1	WireCenter	traffic and cost inputs	C23
1,000 - 10,000	50,000	50,000	BHCCS2	WireCenter	traffic and cost inputs	C24
10,000 - 40,000	500,000	500,000	BHCCS3	WireCenter	traffic and cost inputs	C25
40,000+	1,000,000	1,000,000	BHCCS4	WireCenter	traffic and cost inputs	C26
Switch cost points	*lines*					
Low line size	2,782	2,782	LowSize	WireCenter	traffic and cost inputs	F6
Mid line size	11,200	11,200	MidSize	WireCenter	traffic and cost inputs	G6
High line size	80,000	80,000	HighSize	WireCenter	traffic and cost inputs	H6
	cost/line					
Low line size	$ 220.00	$220.00	LowCost	WireCenter	traffic and cost inputs	F5
Mid line size	$ 86.00	$86.00	MidCost	WireCenter	traffic and cost inputs	G5
High line size	$ 59.00	$59.00	HighCost	WireCenter	traffic and cost inputs	H5
Residential Holding Time Multiplier	1.00	1.00	resHT	WireCenter	traffic and cost inputs	F19
Business Holding Time Multiplier	1.00	1.00	busHT	WireCenter	traffic and cost inputs	F20
Busy Hour fraction of daily usage	0.10	0.10	BHF	WireCenter	traffic and cost inputs	F16
Annual to daily usage reduction factor	270.00	270.00	UsRed	WireCenter	traffic and cost inputs	F17

Interoffice and Tandem Parameters

Operator Traffic Fraction	0.02	0.02	OpFrac	WireCenter, traffic and cost inputs, C31	WireCenter	traffic and cost inputs	C39
Total Interoffice Traffic Fraction	0.65	0.65	InterFrac	WireCenter, traffic and cost inputs, C32	WireCenter	traffic and cost inputs	C40
Direct-Routed Fraction of Local Interoffice	0.98	0.98	DirectFrac	WireCenter, traffic and cost inputs, C35	WireCenter	traffic and cost inputs	C43
Maximum Trunk Occupancy, CCS	27.5	27.5	TrunkCCS	WireCenter, traffic and cost inputs, C38	WireCenter	traffic and cost inputs	C46
Trunk Termination Investment, per end	$ 100	$100	TermInv	WireCenter, traffic and cost inputs, C39	WireCenter	traffic and cost inputs	C47
Average Direct Route Distance, miles	10	10	Miles	WireCenter, traffic and cost inputs, C41	WireCenter	traffic and cost inputs	C48
Average Trunk Usage Fraction	0.3	0.3	TrunkFrac	WireCenter, traffic and cost inputs, C42	WireCenter	traffic and cost inputs	C50
Toll traffic inputs						
Tandem-routed % of total intraLATA traffi	0.2	0.2	tandLATA		WireCenter	traffic and cost inputs	F82
Average direct intraLATA route distance,	25	25	LATAdist		WireCenter	traffic and cost inputs	F83
Tandem-routed % of total interLATA traffi	0.2	0.2	tandAccess		WireCenter	traffic and cost inputs	F85
Average direct access route distance, mi.	15	15	Accessdist		WireCenter	traffic and cost inputs	F86
Tandem Switching parameters						
real time limit, BHCA	1,500,000	1,500,000	tandBHCA		WireCenter	traffic and cost inputs	C53
port limit, trunks	120,000	120,000	portlimit		WireCenter	traffic and cost inputs	C54
common equipment investment	$ 1,000,000	$1,000,000	tandcominv		WireCenter	traffic and cost inputs	C55
maximum trunk fill	0.8	0.8	maxtrunkfill		WireCenter	traffic and cost inputs	C56
maximum real time occupancy	0.9	0.9	tandmaxocc		WireCenter	traffic and cost inputs	C57
common equipment intercept factor	0.25	0.25	tandintercept		WireCenter	traffic and cost inputs	C58

Wire Center Parameters

Lot size, multiplier of switch room size	2	2	LotSize	WireCenter	traffic and cost inputs	C71
Tandem/EO wire center common factor	0.40	0.4	WCcomm	WireCenter	traffic and cost inputs	C73
Power and frame investment	*sum of power & frame*					
0	$ 10,000	$10,000	PF1	WireCenter	traffic and cost inputs	C83
1,000	$ 20,000	$20,000	PF2	WireCenter	traffic and cost inputs	C84
5,000	$ 40,000	$40,000	PF3	WireCenter	traffic and cost inputs	C85
25,000	$ 100,000	$100,000	PF4	WireCenter	traffic and cost inputs	C86
50,000	$ 500,000	$500,000	PF5	WireCenter	traffic and cost inputs	C87
Switch Room size table	*floor area required*					
0	500	500	Room1	WireCenter	traffic and cost inputs	C92
1,000	1000	1,000	Room2	WireCenter	traffic and cost inputs	C93
5,000	2000	2,000	Room3	WireCenter	traffic and cost inputs	C94
25,000	5000	5,000	Room4	WireCenter	traffic and cost inputs	C95
50,000	10000	10,000	Room5	WireCenter	traffic and cost inputs	C96
Construction costs, per sq ft	*construction/$/sq ft*					
0	$ 75	$75	Const1	WireCenter	traffic and cost inputs	C102
1,000	$ 85	$85	Const2	WireCenter	traffic and cost inputs	C103
5,000	$ 100	$100	Const3	WireCenter	traffic and cost inputs	C104
25,000	$ 125	$125	Const4	WireCenter	traffic and cost inputs	C105
50,000	$ 150	$150	Const5	WireCenter	traffic and cost inputs	C106
Land price, per sq ft	*price/sq ft*					
0	$ 5.00	$5.00	Land1	WireCenter	traffic and cost inputs	C111
1,000	$ 7.50	$7.50	Land2	WireCenter	traffic and cost inputs	C112
5,000	$ 10.00	$10.00	Land3	WireCenter	traffic and cost inputs	C113
25,000	$ 15.00	$15.00	Land4	WireCenter	traffic and cost inputs	C114
50,000	$ 20.00	$20.00	Land5	WireCenter	traffic and cost inputs	C115

Distribution Structure Inputs

Aerial Fraction						
0-5	0.5	0.5	distaerial1	Convergence Convergence	Inputs	C46
5-200	0.5	0.5	distaerial2	Convergence Convergence	Inputs	C47
200-650	0.5	0.5	distaerial3	Convergence Convergence	Inputs	C48

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650-850		0.5	0.5	distaerial4	Convergence	Convergence	Inputs	C49
850-2550		0.4	0.4	distaerial5	Convergence	Convergence	Inputs	C50
2550+		0.65	0.65	distaerial6	Convergence	Convergence	Inputs	C51
Buried Fraction								
0-5		0.5	0.5	distbur1	Convergence	Convergence	Inputs	D46
5-200		0.5	0.5	distbur2	Convergence	Convergence	Inputs	D47
200-650		0.5	0.5	distbur3	Convergence	Convergence	Inputs	D48
650-850		0.5	0.5	distbur4	Convergence	Convergence	Inputs	D49
850-2550		0.5	0.5	distbur5	Convergence	Convergence	Inputs	D50
2550+		0.05	0.05	distbur6	Convergence	Convergence	Inputs	D51
Underground Fraction								
0-5		*0*	*0*	*distug1*	Convergence	Calculated	Inputs	E46
5-200		*0*	*0*	*distug2*	Convergence	Calculated	Inputs	E47
200-650		*0*	*0*	*distug3*	Convergence	Calculated	Inputs	E48
650-850		*0*	*0*	*distug4*	Convergence	Calculated	Inputs	E49
850-2550		*0.1*	*0.1*	*distug5*	Convergence	Calculated	Inputs	E50
2550+		*0.3*	*0.3*	*distug6*	Convergence	Calculated	Inputs	E51
Buried Installation/foot								
0-5	$	2.00	$2.00	distburinv1	Convergence	Convergence	Inputs	G46
5-200	$	2.00	$2.00	distburinv2	Convergence	Convergence	Inputs	G47
200-650	$	2.00	$2.00	distburinv3	Convergence	Convergence	Inputs	G48
650-850	$	3.00	$3.00	distburinv4	Convergence	Convergence	Inputs	G49
850-2550	$	3.00	$3.00	distburinv5	Convergence	Convergence	Inputs	G50
2550+	$	20.00	$20.00	distburinv6	Convergence	Convergence	Inputs	G51
Conduit Installation/foot								
0-5	$	25.00	$25.00	distcondinv1	Convergence	Convergence	Inputs	H46
5-200	$	25.00	$25.00	distcondinv2	Convergence	Convergence	Inputs	H47
200-650	$	25.00	$25.00	distcondinv3	Convergence	Convergence	Inputs	H48
650-850	$	25.00	$25.00	distcondinv4	Convergence	Convergence	Inputs	H49
850-2550	$	45.00	$45.00	distcondinv5	Convergence	Convergence	Inputs	H50
2550+	$	70.00	$70.00	distcondinv6	Convergence	Convergence	Inputs	H51
Pole spacing, feet		150	150	distpolespace	Convergence	Convergence	Inputs	C53
Pole investment	$	450	$450	distpoleinv	Convergence	Convergence	Inputs	C54
Conduit investment per foot	$	1.00	$1.00	distcondinv	Convergence	Convergence	Inputs	C55
Manhole investment, per manhole	$	3,000	$3,000	distmanhinv	Convergence	Convergence	Inputs	C56
Buried cable armoring multiplier		1.1	1.1	distarmormult	Convergence	Convergence	Inputs	C57

Copper Feeder Structure Inputs

Aerial Fraction								
0-5		0.5	0.5	cufeedaerial1	Convergence	Convergence	Inputs	C64
5-200		0.5	0.5	cufeedaerial2	Convergence	Convergence	Inputs	C65
200-650		0.5	0.5	cufeedaerial3	Convergence	Convergence	Inputs	C66
650-850		0.4	0.4	cufeedaerial4	Convergence	Convergence	Inputs	C67
850-2550		0.1	0.1	cufeedaerial5	Convergence	Convergence	Inputs	C68
2550+		0.05	0.05	cufeedaerial6	Convergence	Convergence	Inputs	C69
Buried Fraction								
0-5		0.45	0.45	cufeedbur1	Convergence	Convergence	Inputs	D64
5-200		0.45	0.45	cufeedbur2	Convergence	Convergence	Inputs	D65
200-650		0.45	0.45	cufeedbur3	Convergence	Convergence	Inputs	D66
650-850		0.4	0.4	cufeedbur4	Convergence	Convergence	Inputs	D67
850-2550		0.1	0.1	cufeedbur5	Convergence	Convergence	Inputs	D68
2550+		0.05	0.05	cufeedbur6	Convergence	Convergence	Inputs	D69
Underground Fraction								
0-5		*0.05*	*0.05*	*cufeedug1*	Convergence	Calculated	Inputs	E64
5-200		*0.05*	*0.05*	*cufeedug2*	Convergence	Calculated	Inputs	E65
200-650		*0.05*	*0.05*	*cufeedug3*	Convergence	Calculated	Inputs	E66
650-850		*0.2*	*0.2*	*cufeedug4*	Convergence	Calculated	Inputs	E67
850-2550		*0.9*	*0.8*	*cufeedug5*	Convergence	Calculated	Inputs	E68
2550+		*0.9*	*0.9*	*cufeedug6*	Convergence	Calculated	Inputs	E69
Buried Installation/foot								
0-5	$	2.00	$2.00	cufeedburinv1	Convergence	Convergence	Inputs	G64
5-200	$	2.00	$2.00	cufeedburinv2	Convergence	Convergence	Inputs	G65
200-650	$	2.00	$2.00	cufeedburinv3	Convergence	Convergence	Inputs	G66
650-850	$	3.00	$3.00	cufeedburinv4	Convergence	Convergence	Inputs	G67
850-2550	$	3.00	$3.00	cufeedburinv5	Convergence	Convergence	Inputs	G68
2550+	$	25.00	$25.00	cufeedburinv6	Convergence	Convergence	Inputs	G69
Conduit Installation/foot								
0-5	$	25.00	$25.00	cufeedcondinv1	Convergence	Convergence	Inputs	H64
5-200	$	25.00	$25.00	cufeedcondinv2	Convergence	Convergence	Inputs	H65
200-650	$	25.00	$25.00	cufeedcondinv3	Convergence	Convergence	Inputs	H66
650-850	$	25.00	$25.00	cufeedcondinv4	Convergence	Convergence	Inputs	H67
850-2550	$	45.00	$45.00	cufeedcondinv5	Convergence	Convergence	Inputs	H68
2550+	$	75.00	$75.00	cufeedcondinv6	Convergence	Convergence	Inputs	H69
Manhole Spacing, ft.								
0-5		800	800	cufeedman1	Convergence	Convergence	Inputs	F64
5-200		800	800	cufeedman2	Convergence	Convergence	Inputs	F65
200-650		800	800	cufeedman3	Convergence	Convergence	Inputs	F66
650-850		800	800	cufeedman4	Convergence	Convergence	Inputs	F67

850-2550		600	600	cufeedman5	Convergence Convergence	Inputs	F68
2550+		400	400	cufeedman6	Convergence Convergence	Inputs	F69
Pole spacing, feet		150	150	ufeedpolespac	Convergence Convergence	Inputs	C71
Pole investment	$	450	$450	cufeedpoleinv	Convergence Convergence	Inputs	C72
Conduit investment per foot	$	1.00	$1.00	cufeedcondinv	Convergence Convergence	Inputs	C73
Manhole investment, per manhole	$	3,000	$3,000	cufeedmanhinv	Convergence Convergence	Inputs	C74
Buried cable armoring multiplier		1.1	1.1	ufeedarmormul	Convergence Convergence	Inputs	C75

Fiber Feeder Structure Inputs

Aerial Fraction							
0-5		0.35	0.35	fibfeedaerial1	Convergence Convergence	Inputs	C81
5-200		0.35	0.35	fibfeedaerial2	Convergence Convergence	Inputs	C82
200-650		0.35	0.35	fibfeedaerial3	Convergence Convergence	Inputs	C83
650-850		0.2	0.2	fibfeedaerial4	Convergence Convergence	Inputs	C84
850-2550		0.1	0.1	fibfeedaerial5	Convergence Convergence	Inputs	C85
2550+		0.05	0.05	fibfeedaerial6	Convergence Convergence	Inputs	C86
Buried Fraction							
0-5		0.6	0.6	fibfeedbur1	Convergence Convergence	Inputs	D81
5-200		0.6	0.6	fibfeedbur2	Convergence Convergence	Inputs	D82
200-650		0.6	0.6	fibfeedbur3	Convergence Convergence	Inputs	D83
650-850		0.6	0.6	fibfeedbur4	Convergence Convergence	Inputs	D84
850-2550		0.1	0.1	fibfeedbur5	Convergence Convergence	Inputs	D85
2550+		0.05	0.05	fibfeedbur6	Convergence Convergence	Inputs	D86
Underground Fraction							
0-5		*0.05*	*0.05*	*fibfeedug1*	Convergence Calculated	Inputs	E81
5-200		*0.05*	*0.05*	*fibfeedug2*	Convergence Calculated	Inputs	E82
200-650		*0.05*	*0.05*	*fibfeedug3*	Convergence Calculated	Inputs	E83
650-850		*0.2*	*0.2*	*fibfeedug4*	Convergence Calculated	Inputs	E84
850-2550		*0.8*	*0.8*	*fibfeedug5*	Convergence Calculated	Inputs	E85
2550+		*0.9*	*0.9*	*fibfeedug6*	Convergence Calculated	Inputs	E86
Buried Installation/foot							
0-5	$	2.00	$2.00	fibfeedburinv1	Convergence Convergence	Inputs	G81
5-200	$	2.00	$2.00	fibfeedburinv2	Convergence Convergence	Inputs	G82
200-650	$	2.00	$2.00	fibfeedburinv3	Convergence Convergence	Inputs	G83
650-850	$	3.00	$3.00	fibfeedburinv4	Convergence Convergence	Inputs	G84
850-2550	$	3.00	$3.00	fibfeedburinv5	Convergence Convergence	Inputs	G85
2550+	$	20.00	$20.00	fibfeedburinv6	Convergence Convergence	Inputs	G86
Conduit Installation/foot							
0-5	$	25.00	$25.00	fibfeedcondinv1	Convergence Convergence	Inputs	H81
5-200	$	25.00	$25.00	fibfeedcondinv2	Convergence Convergence	Inputs	H82
200-650	$	25.00	$25.00	fibfeedcondinv3	Convergence Convergence	Inputs	H83
650-850	$	25.00	$25.00	fibfeedcondinv4	Convergence Convergence	Inputs	H84
850-2550	$	45.00	$45.00	fibfeedcondinv5	Convergence Convergence	Inputs	H85
2550+	$	70.00	$70.00	fibfeedcondinv6	Convergence Convergence	Inputs	H86
Manhole Spacing, ft.							
0-5		2,000	2,000	fibfeedman1	Convergence Convergence	Inputs	F81
5-200		2,000	2,000	fibfeedman2	Convergence Convergence	Inputs	F82
200-650		2,000	2,000	fibfeedman3	Convergence Convergence	Inputs	F83
650-850		2,000	2,000	fibfeedman4	Convergence Convergence	Inputs	F84
850-2550		2,000	2,000	fibfeedman5	Convergence Convergence	Inputs	F85
2550+		2,000	2,000	fibfeedman6	Convergence Convergence	Inputs	F86
Buried cable armoring per foot, fiber	$	0.20	$0.20	ibfeedarmormul	Convergence Convergence	Inputs	C88

Misc Loop Investment Inputs

Drop investment per line	$	40.00	$40.00	dropinv	Convergence Convergence	Inputs	J3
NID investment per line	$	30.00	$30.00	NIDinv	Convergence Convergence	Inputs	J4
Terminal and splice per line	$	35.00	$35.00	Spliceinv	Convergence Convergence	Inputs	J5
Average lines per business location		4	4	BusLinesLoc	Convergence Convergence	Inputs	J6
Feeder structure fraction shared w/ interol		0.25	0.25	FeedShare	Convergence		
Distribution structure % assigned to telephone							
aerial		0.33	0.33	AirDistTel	Convergence Expense	Inputs	F59
buried		0.33	0.33	BurDistTel	Convergence Expense	Inputs	H59
underground		0.33	0.33	UgDistTel	Convergence Expense	Inputs	G59
Feeder structure % assigned to telephone							
aerial		0.33	0.33	AirFeedTel	Convergence Expense	Inputs	F60
buried		0.33	0.33	BurFeedTel	Convergence Expense	Inputs	H60
underground		0.33	0.33	UgFeedTel	Convergence Expense	Inputs	G60
SAI Investment, installed							
Distribution cable size		*copper feeder*					
0	$	500.00	$500.00	cuSAI1	Convergence Convergence	Inputs	I16
100	$	700.00	$700.00	cuSAI2	Convergence Convergence	Inputs	I17
200	$	900.00	$900.00	cuSAI3	Convergence Convergence	Inputs	I18
400	$	1,100.00	$1,100.00	cuSAI4	Convergence Convergence	Inputs	I19
600	$	1,300.00	$1,300.00	cuSAI5	Convergence Convergence	Inputs	I20
900	$	1,500.00	$1,500.00	cuSAI6	Convergence Convergence	Inputs	I21
1200	$	1,700.00	$1,700.00	cuSAI7	Convergence Convergence	Inputs	I22
1800	$	1,900.00	$1,900.00	cuSAI8	Convergence Convergence	Inputs	I23

2400	$	2,100.00	$2,100.00	cuSAI9	Convergence	Convergence	Inputs	I24
3000	$	2,300.00	$2,300.00	cuSAI10	Convergence	Convergence	Inputs	I25
3600	$	2,500.00	$2,500.00	cuSAI11	Convergence	Convergence	Inputs	I26
Distribution cable size		*fiber feeder*						
0	$	2,500.00	$2,500.00	fibSAI1	Convergence	Convergence	Inputs	J16
100	$	2,700.00	$2,700.00	fibSAI2	Convergence	Convergence	Inputs	J17
200	$	2,900.00	$2,900.00	fibSAI3	Convergence	Convergence	Inputs	J18
400	$	3,100.00	$3,100.00	fibSAI4	Convergence	Convergence	Inputs	J19
600	$	3,300.00	$3,300.00	fibSAI5	Convergence	Convergence	Inputs	J20
900	$	3,500.00	$3,500.00	fibSAI6	Convergence	Convergence	Inputs	J21
1200	$	3,700.00	$3,700.00	fibSAI7	Convergence	Convergence	Inputs	J22
1800	$	3,900.00	$3,900.00	fibSAI8	Convergence	Convergence	Inputs	J23
2400	$	4,100.00	$4,100.00	fibSAI9	Convergence	Convergence	Inputs	J24
3000	$	4,300.00	$4,300.00	fibSAI10	Convergence	Convergence	Inputs	J25
3600	$	4,500.00	$4,500.00	fibSAI11	Convergence	Convergence	Inputs	J26

Digital Loop Carrier Inputs

SLC (TR-303)								
site, housing, and power per remote termi	$	3,000.00	$3,000.00	SLChouse	Convergence	Convergence	Inputs	D26
maximum lines		672	672	SLCmaxlines	Convergence	Convergence	Inputs	D27
remote terminal fill factor		0.9	0.9	SLCfill	Convergence	Convergence	Inputs	D28
common equipment investment	$	42,000.00	$42,000.00	SLCcomm	Convergence	Convergence	Inputs	D29
channel unit investment per line	$	75.00	$75.00	SLCchan	Convergence	Convergence	Inputs	D30
DS-0s per fiber		2,016	$2,016.00			Loopmaster	Input	X19
Fibers per remote terminal		4	$4.00			Loopmaster	Input	Y19
AFC								
site, housing, and power per remote termi	$	2,500.00	$2,500.00	AFChouse	Convergence	Convergence	Inputs	D34
maximum lines		100	100	AFCmaxlines	Convergence	Convergence	Inputs	D35
remote terminal fill factor		0.9	0.9	AFCfill	Convergence	Convergence	Inputs	D36
common equipment investment	$	10,000.00	$10,000.00	AFCcomm	Convergence	Convergence	Inputs	D37
channel unit investment per line	$	150.00	$150.00	AFCchan	Convergence	Convergence	Inputs	D38
DS-0s per fiber		2,016	2,016			Loopmaster	Input	X20
Fibers per remote terminal		4	4			Loopmaster	Input	Y20
Fiber feeder distance threshold, ft. (feeder		9,000	9,000			Loopmaster	Input	W23

Signaling Parameters

STP Link Capacity		720	720	STPcap	WireCenter	WireCenter	traffic and cost inputs	F39
STP Maximum Fill		0.8	0.8	STPfill	WireCenter	WireCenter	traffic and cost inputs	F40
STP Investment, per pair, fully equipped	$	5,000,000.00	$5,000,000.00	STPinv	WireCenter	WireCenter	traffic and cost inputs	F41
STP common equipment investment, per	$	1,000,000.00	$1,000,000.00	STPcomm	WireCenter	WireCenter	traffic and cost inputs	F42
Link Termination, both ends	$	900.00	$900.00	LinkTerm	WireCenter	WireCenter	traffic and cost inputs	F43
Signaling Link Bit Rate		56,000	56000	LinkRate	WireCenter	WireCenter	traffic and cost inputs	F45
Link Occupancy		0.4	0.4	LinkOcc	WireCenter	WireCenter	traffic and cost inputs	F46
C Link Cross-Section		24	24	LinkCross	WireCenter	WireCenter	traffic and cost inputs	F47
ISUP messages per interoffice BHCA		6	6	ISUPmsgs	WireCenter	WireCenter	traffic and cost inputs	F48
ISUP message length, bytes		25	25	ISUPlen	WireCenter	WireCenter	traffic and cost inputs	F49
TCAP messages per transaction		2	2	TCAPmsgs	WireCenter	WireCenter	traffic and cost inputs	F51
TCAP message length, bytes		100	100	TCAPlen	WireCenter	WireCenter	traffic and cost inputs	F52
Fraction of BHCA requiring TCAP		0.1	0.1	TCAPFrac	WireCenter	WireCenter	traffic and cost inputs	F53
SCP investment per transaction per seco	$	20,000.00	$20,000.00	SCPInv	WireCenter	WireCenter	traffic and cost inputs	F54

Misc Inputs

Operator position parameters								
Investment per position	$	3,500.00	$3,500.00	opinv	WireCenter	WireCenter	traffic and cost inputs	C62
Maximum utilization per position, CCS		27	27	opccs	WireCenter	WireCenter	traffic and cost inputs	C63
Operator intervention factor		10	10	opint	WireCenter	WireCenter	traffic and cost inputs	C64
Operator position remote distance, mi.		0	0	opdist	WireCenter	WireCenter	traffic and cost inputs	C65
Other								
DS0/DS1 crossover		24	24	DS0cross	Expense	Expense	Inputs	C60
DS1/DS3 crossover		28	28	DS1cross	Expense	Expense	Inputs	C61
Public Telephone investment per station	$	1,200.00	$1,200.00	PubInv	WireCenter	WireCenter	traffic and cost inputs	F130

Transport Investment

					Wire Center			
Terminal Investment								
Number of Fibers		24	24	termfib		WireCenter	traffic and cost inputs	C142
FOT capacity, DS-3s		12	12	FOTcap		WireCenter	traffic and cost inputs	C143
FOT fill		0.8	0.8	FOTfill		WireCenter	traffic and cost inputs	C144
FOT, installed	$	43,000.00	$43,000.00	FOTinst		WireCenter	traffic and cost inputs	C145
Pigtails	$	60.00	$60.00	pigs		WireCenter	traffic and cost inputs	C146
Panel	$	1,000.00	$1,000.00	panel		WireCenter	traffic and cost inputs	C147
EF&I, per hour	$	55.00	$55.00	efi		WireCenter	traffic and cost inputs	C148
EF&I units		32	32	EFIU		WireCenter	traffic and cost inputs	D148
Medium Investment								
Fraction of structure assigned to telephon		0.33	0.33	telfrac		WireCenter	traffic and cost inputs	C152
Fraction of structure shared with feeder		0.25	0.25	feedfrac		WireCenter	traffic and cost inputs	C153
Distance, mi.		41	41	dist		WireCenter	traffic and cost inputs	C154
Regenerator spacing, mi.		40	40	regensp		WireCenter	traffic and cost inputs	C155
Regenerator investment, installed	$	15,000.00	$15,000.00	regeninv		WireCenter	traffic and cost inputs	C157

Fiber Cable investment per foot	$	2.00	$2.00	fibinv	WireCenter	traffic and cost inputs	C159
Placement	$	2.00	$2.00	fibplace	WireCenter	traffic and cost inputs	C160
Splice Spacing, ft.		20,000	20000	splicesp	WireCenter	traffic and cost inputs	C161
Splice Cost	$	15.00	$15.00	splice	WireCenter	traffic and cost inputs	C162
Trenching per foot	$	45.00	$45.00	trench	WireCenter	traffic and cost inputs	C163
Resurfacing per foot	$	10.00	$10.00	resurf	WireCenter	traffic and cost inputs	C164
Conduit per foot	$	4.00	$4.00	condft	WireCenter	traffic and cost inputs	C165
Number of tubes		2	2	tubes	WireCenter	traffic and cost inputs	C166
Manhole investment	$	5,000.00	$5,000.00	manhinv	WireCenter	traffic and cost inputs	C170
Manhole spacing		1,000	1000	manhsp	WireCenter	traffic and cost inputs	C169
Buried installation per foot	$	5.00	$5.00	burinst	WireCenter	traffic and cost inputs	C173
Pole investment		450	450	poleinv	WireCenter	traffic and cost inputs	C175
Pole spacing		150	150	polesp	WireCenter	traffic and cost inputs	C176
Underground percent		35.00%	35.00%	ugfrac	WireCenter	traffic and cost inputs	C179
Buried percent		50.00%	50.00%	burfrac	WireCenter	traffic and cost inputs	C180
Aerial percent		15.00%	15.00%	airfrac	WireCenter	traffic and cost inputs	C181

Call Attempts & DEMs

wire center

Call Attempts

Local	3759659000	3,759,659,000	CALocal	WireCenter	traffic and cost inputs	F66
IntraLata Intrastate	146761000	146,761,000	CARaRa	WireCenter	traffic and cost inputs	F68
InterLata Intrastate	362348000	362,348,000	CAErRa	WireCenter	traffic and cost inputs	F69
InterLata Interstate	479367000	479,367,000	CaErEr	WireCenter	traffic and cost inputs	F70
Call Completion Fraction	0.7	0.70	CallComp	WireCenter	traffic and cost inputs	F67

DEMs

Local	18,545,325	18,545,325	DEMsLocal	WireCenter	traffic and cost inputs	F71
Intrastate	3,075,939	3,075,939	DEMsIntra	WireCenter	traffic and cost inputs	F72
Interstate	5,204,808	5,204,808	DEMsInter	WireCenter	traffic and cost inputs	F73
Local bus/res DEMs	1.1	1.1	LocalDF	WireCenter	traffic and cost inputs	K78
Intrastate bus/res DEMs	2	2	IntraDF	WireCenter	traffic and cost inputs	K79
Interstate bus/res DEMs	3	3	InterDF	WireCenter	traffic and cost inputs	K80

Line Counts

line converter

Residential	1227659	1,227,659	LCRes	LineConv	Output	V3
Business	472479	472,479	LCBus	LineConv	Output	W3
Special Access	93847	93,847	LCSA	LineConv	Output	X3
Public	11269	11,269	LCPub	LineConv	Output	Y3

Cable Costs

Feeder

Underground

Cable Size	Cost UG					
4200	$74.25	$74.25	FeedUG42	Loopmaster	Input	T64
3600	$63.75	$63.75	FeedUG36	Loopmaster	Input	T65
3000	$53.25	$53.25	FeedUG30	Loopmaster	Input	T66
2400	$42.75	$42.75	FeedUG24	Loopmaster	Input	T67
1800	$32.25	$32.25	FeedUG18	Loopmaster	Input	T68
1200	$21.75	$21.75	FeedUG12	Loopmaster	Input	T69
900	$16.50	$16.50	FeedUG9	Loopmaster	Input	T70
600	$11.25	$11.25	FeedUG6	Loopmaster	Input	T71
400	$7.75	$7.75	FeedUG4	Loopmaster	Input	T72
200	$4.25	$4.25	FeedUG2	Loopmaster	Input	T73
100	$2.50	$2.50	FeedUG1	Loopmaster	Input	T74

Aerial

Cable Size	Cost Aerial					
4200	$74.25	$74.25	FeedA42	Loopmaster	Input	U64
3600	$63.75	$63.75	FeedA36	Loopmaster	Input	U65
3000	$53.25	$53.25	FeedA30	Loopmaster	Input	U66
2400	$42.75	$42.75	FeedA24	Loopmaster	Input	U67
1800	$32.25	$32.25	FeedA18	Loopmaster	Input	U68
1200	$21.75	$21.75	FeedA12	Loopmaster	Input	U69
900	$16.50	$16.50	FeedA9	Loopmaster	Input	U70
600	$11.25	$11.25	FeedA6	Loopmaster	Input	U71
400	$7.75	$7.75	FeedA4	Loopmaster	Input	U72
200	$4.25	$4.25	FeedA2	Loopmaster	Input	U73
100	$2.50	$2.50	FeedA1	Loopmaster	Input	U74

Distribution

Underground

Cable Size	Cost UG					
3600	$63.75	$63.75	DistUG36	Loopmaster	Input	X64
3000	$53.25	$53.25	DistUG30	Loopmaster	Input	X65
2400	$42.75	$42.75	DistUG24	Loopmaster	Input	X66
1800	$32.25	$32.25	DistUG18	Loopmaster	Input	X67
1200	$21.75	$21.75	DistUG12	Loopmaster	Input	X68
900	$16.50	$16.50	DistUG9	Loopmaster	Input	X69
600	$11.25	$11.25	DistUG6	Loopmaster	Input	X70
400	$7.75	$7.75	DistUG4	Loopmaster	Input	X71
200	$4.25	$4.25	DistUG2	Loopmaster	Input	X72
100	$2.50	$2.50	DistUG1	Loopmaster	Input	X73
50	$1.63	$1.63	DistUG5	Loopmaster	Input	X74
25	$1.19	$1.19	DistUG25	Loopmaster	Input	X75

Aerial

Cable Size	Cost Aerial					
3600	$63.75	$63.75	DistA36	Loopmaster	Input	Y64
3000	$53.25	$53.25	DistA30	Loopmaster	Input	Y65

2400	$42.75	$42.75	DistA24	Loopmaster	Input	Y66
1800	$32.25	$32.25	DistA18	Loopmaster	Input	Y67
1200	$21.75	$21.75	DistA12	Loopmaster	Input	Y68
900	$16.50	$16.50	DistA9	Loopmaster	Input	Y69
600	$11.25	$11.25	DistA6	Loopmaster	Input	Y70
400	$7.75	$7.75	DistA4	Loopmaster	Input	Y71
200	$4.25	$4.25	DistA2	Loopmaster	Input	Y72
100	$2.50	$2.50	DistA1	Loopmaster	Input	Y73
50	$1.63	$1.63	DistA5	Loopmaster	Input	Y74
25	$1.19	$1.19	DistA25	Loopmaster	Input	Y75

Fiber

Underground

Cable Size	Cost UG					
216	$13.10	$13.10	FiberUG216	Loopmaster	Input	W47
144	$9.50	$9.50	FiberUG144	Loopmaster	Input	W48
96	$7.10	$7.10	FiberUG96	Loopmaster	Input	W49
72	$5.90	$5.90	FiberUG72	Loopmaster	Input	W50
60	$5.30	$5.30	FiberUG60	Loopmaster	Input	W51
48	$4.70	$4.70	FiberUG48	Loopmaster	Input	W52
36	$4.10	$4.10	FiberUG36	Loopmaster	Input	W53
24	$3.50	$3.50	FiberUG24	Loopmaster	Input	W54
18	$3.20	$3.20	FiberUG18	Loopmaster	Input	W55
12	$2.90	$2.90	FiberUG12	Loopmaster	Input	W56

Aerial

Cable Size	Cost Aerial					
216	$13.10	$13.10	FiberA216	Loopmaster	Input	X47
144	$9.50	$9.50	FiberA144	Loopmaster	Input	X48
96	$7.10	$7.10	FiberA96	Loopmaster	Input	X49
72	$5.90	$5.90	FiberA72	Loopmaster	Input	X50
60	$5.30	$5.30	FiberA60	Loopmaster	Input	X51
48	$4.70	$4.70	FiberA48	Loopmaster	Input	X52
36	$4.10	$4.10	FiberA36	Loopmaster	Input	X53
24	$3.50	$3.50	FiberA24	Loopmaster	Input	X54
18	$3.20	$3.20	FiberA18	Loopmaster	Input	X55
12	$2.90	$2.90	FiberA12	Loopmaster	Input	X56

Fill Factors

Cable

Distribution

0-5	*0.50*	*0.50*	Convergence	inputs	N5
5-200	*0.55*	*0.55*	Convergence	inputs	N6
200-650	*0.60*	*0.60*	Convergence	inputs	N7
650-850	*0.65*	*0.65*	Convergence	inputs	N8
850-2550	*0.70*	*0.70*	Convergence	inputs	N9
2550+	*0.75*	*0.75*	Convergence	inputs	N10

Transport Investment

Local Direct Routes

Wire Center

Terminal Investment

Number of Fibers		24	24	termfib	WireCenter	traffic and cost inputs	C200
FOT capacity, DS-3s		12	12	FOTcap	WireCenter	traffic and cost inputs	C201
FOT fill		0.8	0.8	FOTfill	WireCenter	traffic and cost inputs	C202
FOT, installed	$	43,000.00	$43,000.00	FOTinst	WireCenter	traffic and cost inputs	C203
Pigtails	$	60.00	$60.00	pigs	WireCenter	traffic and cost inputs	C204
Panel	$	1,000.00	$1,000.00	panel	WireCenter	traffic and cost inputs	C205
EF&I, per hour	$	55.00	$55.00	efi	WireCenter	traffic and cost inputs	C206
EF&I units		32	32	EFIU	WireCenter	traffic and cost inputs	D206

Medium Investment

Fraction of structure assigned to telephon		0.33	0.33	telfrac	WireCenter	traffic and cost inputs	C210
Fraction of structure shared with feeder		0.25	0.25	feedfrac			
Regenerator spacing, mi.		40	40	regensp	WireCenter	traffic and cost inputs	C213
Regenerator investment, installed	$	15,000.00	$15,000.00	regeninv	WireCenter	traffic and cost inputs	C215
Fiber Cable investment per foot	$	2.00	$2.00	fibinv	WireCenter	traffic and cost inputs	C217
Placement	$	2.00	$2.00	fibplace	WireCenter	traffic and cost inputs	C218
Splice Spacing, ft.		20,000	20000	splicesp	WireCenter	traffic and cost inputs	C219
Splice Cost	$	15.00	$15.00	splice	WireCenter	traffic and cost inputs	C220
Trenching per foot	$	45.00	$45.00	trench	WireCenter	traffic and cost inputs	C221
Resurfacing per foot	$	10.00	$10.00	resurf	WireCenter	traffic and cost inputs	C222
Conduit per foot	$	4.00	$4.00	condft	WireCenter	traffic and cost inputs	C223
Number of tubes		2	2	tubes	WireCenter	traffic and cost inputs	C224
Manhole investment	$	5,000.00	$5,000.00	manhinv	WireCenter	traffic and cost inputs	C226
Manhole spacing		1,000	1000	manhsp	WireCenter	traffic and cost inputs	C227
Buried installation per foot	$	5.00	$5.00	burinst	WireCenter	traffic and cost inputs	C231
Pole investment		450	450	poleinv	WireCenter	traffic and cost inputs	C233
Pole spacing		150	150	polesp	WireCenter	traffic and cost inputs	C234
Underground percent		35.00%	35.00%	ugfrac			
Buried percent		50.00%	50.00%	burfrac			
Aerial percent		15.00%	15.00%	airfrac			

Transport Investment

intraLATA direct routes

Wire Center

Terminal Investment

Number of Fibers		24	24	termfib	WireCenter	traffic and cost inputs	C259

FOT capacity, DS-3s		12	12	FOTcap	WireCenter	traffic and cost inputs	C260
FOT fill		0.8	0.8	FOTfill	WireCenter	traffic and cost inputs	C261
FOT, installed	$	43,000.00	$43,000.00	FOTinst	WireCenter	traffic and cost inputs	C262
Pigtails	$	60.00	$60.00	pigs	WireCenter	traffic and cost inputs	C263
Panel	$	1,000.00	$1,000.00	panel	WireCenter	traffic and cost inputs	C264
EF&I, per hour	$	55.00	$55.00	efi	WireCenter	traffic and cost inputs	C265
EF&I units		32	32	EFIU	WireCenter	traffic and cost inputs	D265
Medium Investment							
Fraction of structure assigned to telephon		0.33	0.33	telfrac	WireCenter	traffic and cost inputs	C269
Fraction of structure shared with feeder		0.25	0.25	feedfrac			
Regenerator spacing, mi.		40	40	regensp	WireCenter	traffic and cost inputs	C272
Regenerator investment, installed	$	15,000.00	$15,000.00	regeninv	WireCenter	traffic and cost inputs	C274
Fiber Cable investment per foot	$	2.00	$2.00	fibinv	WireCenter	traffic and cost inputs	C276
Placement	$	2.00	$2.00	fibplace	WireCenter	traffic and cost inputs	C277
Splice Spacing, ft.		20,000	20000	splicesp	WireCenter	traffic and cost inputs	C278
Splice Cost	$	15.00	$15.00	splice	WireCenter	traffic and cost inputs	C279
Trenching per foot	$	45.00	$45.00	trench	WireCenter	traffic and cost inputs	C280
Resurfacing per foot	$	10.00	$10.00	resurf	WireCenter	traffic and cost inputs	C281
Conduit per foot	$	4.00	$4.00	condit	WireCenter	traffic and cost inputs	C282
Number of tubes		2	2	tubes	WireCenter	traffic and cost inputs	C283
Manhole investment	$	5,000.00	$5,000.00	manhinv	WireCenter	traffic and cost inputs	C287
Manhole spacing		1,000	1000	manhsp	WireCenter	traffic and cost inputs	C286
Buried installation per foot	$	5.00	$5.00	burinst	WireCenter	traffic and cost inputs	C290
Pole investment		450	450	poleinv	WireCenter	traffic and cost inputs	C292
Pole spacing		150	150	polesp	WireCenter	traffic and cost inputs	C293
Underground percent		35.00%	35.00%	ugfrac			
Buried percent		50.00%	50.00%	burfrac			
Aerial percent		15.00%	15.00%	airfrac			

Transport Investment — Wire Center

Access Direct Routes

Terminal Investment							
Number of Fibers		24	24	termfib	WireCenter	traffic and cost inputs	C318
FOT capacity, DS-3s		12	12	FOTcap	WireCenter	traffic and cost inputs	C319
FOT fill		0.8	0.8	FOTfill	WireCenter	traffic and cost inputs	C320
FOT, installed	$	43,000.00	$43,000.00	FOTinst	WireCenter	traffic and cost inputs	C321
Pigtails	$	60.00	$60.00	pigs	WireCenter	traffic and cost inputs	C322
Panel	$	1,000.00	$1,000.00	panel	WireCenter	traffic and cost inputs	C323
EF&I, per hour	$	55.00	$55.00	efi	WireCenter	traffic and cost inputs	C324
EF&I units		32	32	EFIU	WireCenter	traffic and cost inputs	D324
Medium Investment							
Fraction of structure assigned to telephon		0.33	0.33	telfrac	WireCenter	traffic and cost inputs	C328
Fraction of structure shared with feeder		0.25	0.25	feedfrac			
Regenerator spacing, mi.		40	40	regensp	WireCenter	traffic and cost inputs	C331
Regenerator investment, installed	$	15,000.00	$15,000.00	regeninv	WireCenter	traffic and cost inputs	C333
Fiber Cable investment per foot	$	2.00	$2.00	fibinv	WireCenter	traffic and cost inputs	C335
Placement	$	2.00	$2.00	fibplace	WireCenter	traffic and cost inputs	C336
Splice Spacing, ft.		20,000	20000	splicesp	WireCenter	traffic and cost inputs	C337
Splice Cost	$	15.00	$15.00	splice	WireCenter	traffic and cost inputs	C338
Trenching per foot	$	45.00	$45.00	trench	WireCenter	traffic and cost inputs	C339
Resurfacing per foot	$	10.00	$10.00	resurf	WireCenter	traffic and cost inputs	C340
Conduit per foot	$	4.00	$4.00	condit	WireCenter	traffic and cost inputs	C341
Number of tubes		2	2	tubes	WireCenter	traffic and cost inputs	C342
Manhole investment	$	5,000.00	$5,000.00	manhinv	WireCenter	traffic and cost inputs	C346
Manhole spacing		1,000	1000	manhsp	WireCenter	traffic and cost inputs	C345
Buried installation per foot	$	5.00	$5.00	burinst	WireCenter	traffic and cost inputs	C349
Pole investment		450	450	poleinv	WireCenter	traffic and cost inputs	C351
Pole spacing		150	150	polesp	WireCenter	traffic and cost inputs	C352
Underground percent		35.00%	35.00%	ugfrac			
Buried percent		50.00%	50.00%	burfrac			
Aerial percent		15.00%	15.00%	airfrac			

Exhibit MRH-1

FCC RULES STAYED BY THE COURT

Section 51.501 - 51.515 (Subpart F-Pricing of Unbundled Elements)

51.501	Scope
51.503	General Pricing Standard
51.505	Forward-looking Economic Cost
51.507	General Rate Structure Standard
51.509	Rate Structure Standards For Specific Elements
51.511	Forward-looking Economic Cost Per Unit
51.513	Proxies For Forward-looking Economic Cost
51.515	Application of Access Charges

Section 51.601-51.611 (Subpart G - Resale)

51.601	Scope of Resale Rules
51.603	Resale Obligation of All Local Exchange Carriers
51.605	Additional Obligations of Incumbent Local Exchange Carriers
51.607	Wholesale Pricing Standard
51.609	Determination of Avoided Retail Costs
51.611	Interim Wholesale Rates

FLORIDA PUBLIC SERVICE COMMISSION
DOCKET NO. 961230-TP (Comp.) EXHIBIT NO. 19
COMPANY/WITNESS: Sprint/Hunsucker
DATE: 12-18-96

Sections 51.701-51.717 (Subpart H - Reciprocal Compensation for Transport and Termination of Local Telecommunications Traffic

51.701	Scope of Transport and Termination Pricing Rules
51.703	Reciprocal Compensation Obligation of LECs
51.705	Incumbent LECs' Rates for Termination and Termination
51.707	Default Proxies for Incumbent LECs' Transport and Termination Rates
51.709	Rate Structure for Transport and Termination
51.711	Symmetrical Reciprocal Compensation
51.713	Bill-and-keep Arrangements for Reciprocal Compensation
51.715	Interim Transport and Termination Pricing
51.717	Renegotiation of Existing Non-reciprocal Arrangements

Section 51-809 - Availability of Provisions To Other Telecommunications Carriers Under Section 252(I) of the Act

MCI/SPRINT NEGOTIATIONS
CHRONOLOGY OF EVENTS

1. MCImetro letter to Sprint, dated May 6, 1996, requesting negotiations (received May 10, 1996).

2. MCImetro letter to Sprint, dated May 10, 1996, confirming initial meeting and providing first version of MCI term sheet.

3. Sprint letter to MCImetro, dated May 20, 1996, acknowledging commencement of negotiations. Confirmed meeting to be held in Virginia May 30. Acknowledged receipt of the MCImetro term sheet. Provided Sprint's Essential Elements for the Competitive Checklist and Sprint's comments in FCC 96-98.

4. Meetings held in Kansas City on June 6 and 7 to discuss the MCI term sheet. The primary meeting included Sprint and MCI subject matter experts to discuss the term sheet. A separate meeting was conducted between Sprint's and MCI's cost persons to discuss general approaches to cost studies and methodologies.

5. Sprint letter to MCImetro, dated June 11, 1996, providing Sprint's term sheet.

6. Sprint letter to MCImetro, dated June 25, 1996, providing revised and updated status of the items contained in MCI's term sheet.

7. July 10, 1996, meeting in Vienna, Virginia to further discuss the MCI term sheet. This was the last direct discussion of the term sheet document.

8. Sprint letter to MCI metro, dated August 14, 1996, providing the Sprint contract as it them stood, but without modifications due to the FCC order.

9. September 5: Executive level conference call to discuss where we stood pursuant to negotiations, impacts of the FCC order, and plan for further negotiations.

10. MCI letter to Sprint, dated September 5, 1996, providing the first draft of the MCImetro/ILEC Interconnection Agreement 1996. Received September 6. Requesting our initial comments week of September 16, and face-to-face meeting week of September 23.

RESALE AND INTERCONNECTION AGREEMENT

SEPTEMBER 24, 1996

This Agreement represents the positions of the Sprint operating telephone companies with respect to interconnection. Sprint reserves the right to modify these positions based upon further review of existing orders from or the issuance of additional orders by the Federal Communications Commission.

MASTER NETWORK INTERCONNECTION AND RESALE AGREEMENT

This Agreement is between _____ ("Carrier") and _____("Company") hereinafter collectively, "the Parties", entered into this _____ day of _____, 1996, for the State of _____.

WHEREAS, Carrier desires to provide competitive local exchange service to residential and business end-users, and the Parties wish to establish terms for interconnection for purposes of exchanging local, intraLATA interexchange and interLATA interexchange traffic in accordance with the Telecommunications Act of 1996 ("Act") as well as terms for resale of Company's services;

THEREFORE, the Parties hereby agree as follows:

I. DEFINITIONS

Definitions of the terms used in this Agreement shall have the meanings set forth below.

1. **Access Service Request ("ASR")** - means an industry standard form used by the Parties to add, establish, change or disconnect trunks for the purposes of Interconnection.

2. **Act** - means the Communications Act of 1934, as amended by the Telecommunications Act of 1996, Public Law 104-104 of the 104th United States Congress effective February 8, 1996.

3. **Affiliate** - means any person that (directly or indirectly) owns or controls, is owned or controlled by, or is under common ownership or control with, another person. For purposes of this Paragraph, the term "own" means to own an equity interest (or the equivalent thereof) of more than ten percent (10%). "Person" shall mean any individual, partnership, corporation, company, limited liability company, association, or any other legal entity authorized to transact business in any State.

4. **Bell Communications Research ("Bellcore")** - means an organization owned jointly by the Bell regional holding companies or their successors , that conducts research and/or development projects for its owners, including development of new telecommunications services. Bellcore also provides certain centralized technical and management services for the regional holding companies and also provides generic requirements for the telecommunications industry for products, services and technologies.

5. **Bill and Keep** - means a form of mutual reciprocal compensation for the termination of local traffic whereby LECs and CLECs terminate local exchange traffic originating from end-users served by the networks of other LECs or CLECs without explicit charging among or between said carriers for such traffic exchange.

6. **Central Office Switch, ("Central Office") ("CO")** - means a switching facility within the public switched telecommunications network, including but not limited to:

   End Office Switches which are switches from which end-user Telephone Exchange Services are directly connected and offered.

   Tandem Switches are switches which are used to connect and switch trunk circuits between and among Central Office Switches.

7. **Centralized Message Distribution System ("CMDS")** - means the billing record and clearing house transport system that the Regional Bell Operating Companies ("RBOCs") and other incumbent LECs use to efficiently exchange out collects and in collects as well as Carrier Access Billing System ("CABS") records.

8. **Commercial Mobile Radio Services ("CMRS")** - means a radio communication service between mobile stations or receivers and land stations, or by mobile stations communicating among themselves that is provided for profit and that makes interconnected service available to the public or to such classes of eligible users as to be effectively available to a substantial portion of the public.

9. **Commission** - means any state administrative agency to which the United States Congress or any state legislative body has delegated any authority to supervise or regulate the operations of Local Exchange Carriers pursuant to the Act or state constitution or statute such as a Public Utilities Commission or Public Service Commission..

10. **Competitive Local Exchange Carrier ("CLEC")** - means any company or person authorized to provide local exchange services in competition with an ILEC.

11. **Control Office** - is an exchange carrier center or office designated as its company's single point of contact for the provisioning and maintenance of its portion of interconnection arrangements.

12. **Customer Proprietary Network Information ("CPNI")** - shall have the meaning set forth in 47 USC §222 (f)(1) and FCC regulations.

13. **Electronic Interfaces** means systems providing Company ordering and provisioning, trouble reporting and fault management, performance monitoring, network and traffic management, facility assignment and control functions. Such Electronic Interface shall provide information, operational and timeliness Parity and be provided pursuant to industry standards within twelve months after such standards have been established

14. **FCC** - means Federal Communications Commission.

15. **Incumbent Local Exchange Carrier ("ILEC")** - is any local exchange carrier that was as of February 8, 1996, deemed to be a member of the Exchange Carrier Association as set forth in 47 C.F.R. §69.601(b) of the FCC's regulations.

16. **Integrated Services Digital Network ("ISDN")** - means a switched network service providing end-to-end digital connectivity for the simultaneous transmission of voice and data.

17. **Interconnection** - means the connection of separate pieces of equipment, transmission facilities, etc., within, between or among networks for the transmission and routing of exchange service and exchange access. The architecture of interconnection may include collocation and/or mid-span meet arrangements.

18. **Interexchange Carrier ("IXC")** - means a telecommunications service provider offering interexchange telecommunications services (e.g., inter- and/or intraLATA toll).

19. **Meet-Point Billing** - means an arrangement whereby two local service providers (including an ILEC and a CLEC) jointly provide exchange access to an IXC for purposes of originating or terminating toll services and each such provider receives its share of the tariffed charges.

20. **Most Favored Nations ("MFN")** - shall have the meaning set forth in Section XVI.

21. **Multiple Exchange Carrier Access Billing ("MECAB")** - means the document prepared by the Billing Committee under the auspices of the Ordering and Billing Forum ("OBF"), which functions under the auspices of the Carrier Liaison Committee of the Alliance for Telecommunications Industry Solutions ("ATIS") and is published by Bellcore as Special Report SR-BDS-000983, containing the recommended guidelines for the billing of exchange service access provided by two or more LECs and/or CLECs, or by one ILEC in two or more states within a single LATA.

22. **Multiple Exchange Carriers Ordering and Design Guidelines for Access Services - Industry Support Interface Multiple Exchange Carriers Ordering and Design Guidelines for Access Services - Industry Support Interface ("MECOD")** - means the document developed by the Ordering/Provisioning Committee under the auspices of the OBF, which functions under the auspices of the Carrier Liaison Committee of the ATIS and is published by Bellcore as Special Report SR STS-002643 to establish methods for processing orders for exchange service access which is to be provided by two or more ILECs and/or CLECs.

23. **Numbering Plan Area ("NPA")** - means an area code assigned pursuant to the North America Numbering Plan which is the three digit indicator defined by the "A", "B" and "C" digits of each 10-digit telephone number within the NANP containing 800 possible NXX Codes each. There are two general categories of NPA. "Geographic NPA" is

associated with a defined geographic area, and all telephone numbers bearing such NPA are associated with services provided within that Geographic area. A "Non-Geographic NPA", also known as a "Service Access Code" ("SAC Code") means specialized telecommunications service which may be provided across multiple geographic NPA areas such as 500, Toll Free Service NPAs, 900 and 700.

24. **Parity** - means non-discrimination and equality in status. Parity is applicable to, among other issues, electronic access, information availability, network operational characteristics, and response time and/or installation activity, between functions the Company performs for itself and functions it performs for/or makes available to Carrier.

25. **Physical Collocation** - shall have the meaning set forth 47 C.F.R.§ 51.5.

26. **Rebranding** - occurs when Carrier purchases a wholesale service from Company when the Carrier brand is substituted for the Company brand.

27. **Telecommunications Services** - shall have the meaning set forth in 47 USC §153(6).

28. **Total Element Long Run Incremental Cost ("TELRIC")** - means the incremental costs of an entire product (e.g., all the costs directly caused by providing an interconnection service, a network element, or some other product. TELRIC includes service-specific fixed costs (e.g., costs that do not change with changes in output), volume sensitive costs (those that are caused by changing the volume of output) and a reasonable allocation of forward-looking joint and common costs. In more precise terms, TELRIC is the difference between (1) the total costs of a company that provides the service and a number of other services, and (2) the total cost of that same company if it provided all of its services in the same quantities, but not the service in question.

29. **Trunk-Side** - refers to a Central Office Switch connection that is capable of, and has been programmed to treat the circuit as, connecting to another switching entity or another central office switch. Trunk side connections offer those transmission and signaling features appropriate for the connection of switching entities, and cannot be used for the direct connection of ordinary telephone station sets.

30. **Undefined Terms** - The Parties acknowledge that terms may appear in this Agreement which are not defined and agree that any such terms shall be construed in accordance with their customary usage in the telecommunications industry as of the effective date of this Agreement. Virtual collocation does not include switching equipment.

31. **Virtual Collocation** - shall have the meaning as set forth in 47 C.F.R. § 51.5.

32. **Wholesale Service** - means any regulated Telecommunication Services that Company provides at retail to subscribers who are not telecommunications carriers as set forth in 47 USC §251(c)(4).

33. Wire Center - means a building or space within a building which serves as an aggregation point on a network, where transmission facilities and circuits are connected or switched. Wire center can also denote a building in which one or more Central Offices, used for the provision of exchange services and access services, are located.

II. SCOPE OF THIS AGREEMENT

The services and facilities to be provided to Carrier by Company in satisfaction of this Agreement may be provided pursuant to Company tariffs and then current practices. Should there be a conflict between the terms of this Agreement and any such tariffs or practices, the terms of this Agreement shall control to the extent allowed by law or Commission Order until such time as Company may so modify its tariffs and practices to be in conformance with the terms of this Agreement. Company and Carrier shall use their best efforts to obtain approval of this contract by any regulatory body having jurisdiction over this Agreement and to make any required tariff modifications.

III. RESALE OF LOCAL SERVICES

A. Company shall not place conditions or restrictions on Carrier's resale of wholesale regulated Telecommunications Services, except for restrictions on the resale of residential service to other classifications (e.g., residential service to business customers). Every regulated retail service rate, including promotions over 90-days in length, discounts, and option plans will have a corresponding wholesale rate.

B. Company will make wholesale telecommunications service offerings available for all new regulated services at the same time the retail service becomes available.

C. Company will continue to provide existing databases and signaling support for wholesale services at no additional cost.

D. Company will make any service grandfathered to an end-user or any Individual Case Basis ("ICB") service available to Carrier for resale to that same end-user at the same location(s).

E. Company will provide at a minimum 30-days advance notice to Carrier of changes in or discontinuation of any product or service that is available for resale hereunder.

F. Company will continue to provide Primary Interexchange Carrier ("PIC") processing for those end-users obtaining resold service from Carrier. Company will bill and Carrier will pay any PIC change charges.

G. Company shall allow Carrier customers to retain their current telephone number.

H. Company shall install Carrier customers as quickly as it installs its own end-users and shall provide Parity in quick installation programs such as "warm line" programs.

I. Billing.

1. Company shall be responsible for directly billing the IXC for access related to interexchange calls generated by rebranded customers.

2. Company will be responsible for returning EMI records to IXCs with the Carrier disconnect rejection code along with the Operating Company Number ("OCN") of the associated Automatic Number Identification ("ANI").

3. Company will deliver a monthly statement for wholesale services based upon a mutually agreed upon schedule as follows:

a. Invoices will be provided in a standard carrier access billing format or other agreed upon format;

b. Where local usage charges apply , the local usage at the call detail level in standard EMR/EMI industry format will be exchanged daily or at other mutually agreed upon intervals;

c. The Parties will work cooperatively to exchange information to facilitate the billing of in and out collect and inter and intra region alternately billed messages;

d. Company agrees to provide information on the end-user's selection of special features (e.g., billing method, special language); and

e. Company agrees to provide billing information for casual callers.

J. Compensation.

1. All Company retail Telecommunications Services, pursuant to 47 USC §251(c)(4) shall be available for resale at wholesale prices. Pricing shall be developed based on 47 USC §252(d)(3) where wholesale prices are retail prices less avoided costs, net of any additional costs imposed by wholesale operations. The wholesale rate shall be, until such time as avoided cost studies in compliance with the FCC's avoided cost methodology in FCC Rules 51.607 and 51.609 have been approved, an interim rate as approved by the appropriate state commission within the 17% - 25% discount range. Upon the approval of a permanent rate by a state commission the permanent rate shall apply. If Company has available by contract or otherwise a lower rate, that rate shall be available to Carrier.

2. To the extent Carrier desires to order wholesale Telecommunications Services for resale from Company it is entitled to do so on a non-discriminatory basis under rates, terms, and conditions no less favorable than those currently extended, or which in the future may be extended, by Company to any other carrier offering local exchange and/or toll services, or equivalent elements to any other CLEC on a MFN basis. Company agrees to provide Carrier with information concerning the terms and conditions available to all such Parties upon request. If Company makes any non cost-based volume or term rate available to any other Carrier, such rate shall be available to Carrier without regard to volume, term or other conditions imposed by Company.

IV. PROVISIONING AND INSTALLATION - RESALE

A. Order Processing.

1. The Company will meet Carrier's ordering needs and, if necessary, establish a dedicated CLEC ordering center.

2. All ordering process and systems Company utilizes shall provide Carrier with Parity treatment.

3. Electronic Interfaces for the exchange of ordering information will be adopted and made available using any industry standard order formats and methods that are developed. . Electronic interfaces should be established to provide access to the Company systems. In the absence of industry standards, interim electronic access to Company systems shall be established as indicated on Exhibit 1.

4. Carrier and the Company will adopt an industry standard service order/disconnect order format.

5. Carrier and Company may order Primary Local Carrier ("PLC") and Primary Interexchange Carrier ("PIC") record changes using the same order process and on a unified order.

6. No Letter of Agency ("LOA") signed by the end-user will be required to process a PLC or PIC change ordered by Carrier or Company. Carrier and Company agree that PLC and PIC change orders will be supported with appropriate documentation and verification as required by FCC and Commission rules.

7. Each Party will provide the other, as agent of the end-user customer, at the time of the PLC order, current "As Is" pre-ordering/ordering information relative to the end-user consisting of local features, products, services, elements, combinations, and any customer status qualifying the customer for a special service (e.g., DA exempt, lifeline, etc.) provided by the Party to that end-user.

8. As appropriate, the new PLC shall provide confirmation of installation change activity to the former PLC. Company will provide Electronic Interfaces to Company's customer record information systems and the Parties will establish a mechanism for periodic reconciliation between their system(s) and Carrier's customer records database.

9. Until such time as numbering is administered by a third party, Company shall provide Carrier the ability to obtain telephone numbers on-line from the Company, and to assign these numbers with the Carrier customer on-line. This includes vanity numbers. Reservation and aging of numbers remain the responsibility of the Company. Until such time as Company establishes an on-line Electronic Interface with Carrier which facilitates real-time number assignment, company will provide blocks of numbers, where possible, sufficient to satisfy Carrier's projected numbering resource demand.

10. Company shall provide Carrier the ability to order all available features on its switches (e.g., call blocking of 900 and 976 calls by line or trunk). Additionally, Company shall provide high usage reports, as required by any Commission, so that Carrier may provide any regulatory required high usage reports to its end-users.

11. Company will provide Electronic Interfaces and response for: firm order confirmation, due date availability scheduling, dispatch required or not, identify line option availability by switch office (such as Digital Copper, Copper Analog, ISDN, etc.), Order completion with all service order and time-and-cost-related fees, rejections/errors on service order data element(s), jeopardy against the due date, missed appointments, additional order charges (construction charges), order status, valid street address detail, and electronic notification of the local line options that were provisioned, at the time of order completion, by the Company for all Carrier local customers. This applies to all types of service orders and all elements.

12. Company will provide Carrier the Electronic Interfaces to schedule installation appointments with the customer on-line and access to the Company's schedule availability.

13. The Company will direct customer to Carrier for requests changing their Carrier service.

14. The Company shall process all PIC changes provided by Carrier on behalf of IXCs. If PIC changes are received by Company directly from IXCs, Company shall reject the PIC change back to the IXC with the OCN of Carrier in the appropriate field of the industry standard CARE record.

15. Company shall cooperate with Carrier, before Carrier offers commercial service, in testing all electronic ordering, provisioning, maintenance, billing and other Electronic Interfaces and internal systems to insure accurate and timely installation and billing occurs. Company shall use its best efforts to provide adequate and timely testing and to cure any system defects discovered through such testing.

16. Company shall notify Carrier within one business day of any change in carrier when a carrier submits an order to Company that results in disconnection or reassignment of Company facilities or services (resale or unbundled elements) previously used by Carrier (i.e. disconnection of Carrier's service).

V. NETWORK INTERCONNECTION

A. All interconnection arrangements offered by Company to Carrier shall provide Carrier with network Parity. Carrier shall interconnect with Company's facilities as follows for the purpose of routing or terminating of traffic:

1. In each Company local calling area in which Carrier chooses to offer local exchange service, Carrier may interconnect its network facilities at any one or more technically feasible point(s) of interface within Company's network including: (a) at Company access tandem(s); (b) end office switch(es); or (c) other wire centers (collectively referred to as "POI"). The POIs are the point(s) of physical interconnection as identified in Appendix 1 attached hereto and incorporated herein by reference. As Carrier initiates exchange service operations in additional Company areas, additional POIs in each local calling area will be established by Carrier and Appendix 1 will be amended and updated to reflect the additional POIs, as necessary.

2. Interconnection to a Company end office(s) will provide Carrier access only to the NXX's served by that individual end office(s) to which Carrier interconnects.

3. Interconnection to a Company tandem(s) will provide Carrier local interconnection for local and toll access service purposes to the Company end offices and NXX's which interconnect with that tandem(s) either directly or through other Company facilities for local and toll service purposes, and to other companies which are likewise connected to that tandem(s). Interconnection to a Company tandem for transit purposes will provide Carrier interexchange access to Company, Interexchange Carriers ("IXCs"), CLECs, ILECs, and CMRS providers which are connected to that tandem. Where a Tandem Switch also provides End-Office Switch functions, interconnection to a Company tandem serving that exchange will also provide Carrier access to Company's end offices with the same functionality described in (2) above.

4. Where Carrier requires ancillary services (e.g., Directory Assistance, Operator Assistance, 911/E911), additional or special trunking will be provided as required for interconnection and routing to such ancillary services.

5. If requested by Carrier, Company will, subject to technical feasibility, establish additional POI arrangements including, but not limited to, any of the following interconnection methods:

a. a physical collocation facility maintained by Carrier, or by a third party with whom Carrier has contracted for such purposes, at a Company Wire Center, where such Wire Center has been designated as the POI; or

b. a physical collocation facility maintained by Company, or by a third party with whom Company has contracted for such purposes, at a Carrier Wire Center, where such Wire Center has been designated as the POI.

6. In support of any claim that a requested interconnection at a POI is technically infeasible, Company bears the burden of proof and in support of the same shall undertake and provide to Carrier:

a. a study and analysis to assess the technical feasibility of providing the requested interconnection; and

b. all other relevant information and documents that the Company relied upon in making its conclusion.

7. Upon reasonable notice to Company, Carrier shall be provided access to the proposed POI to properly evaluate the Company's denial of Carrier's request to interconnect. Where Carrier leases collocation space and/or equipment from Company for purposes of interconnection under this Agreement, Carrier shall have MFN rights to lease under non-discriminatory tariff or contract terms from Company equal to the most favorable terms, including rates that Company otherwise makes such facilities available (including to independent companies, its own Affiliates, and/or most favored customers). Company agrees to provide floor space and such other space in its facilities reasonably necessary to accommodate Carrier's terminating, transmission, and concentrating equipment, subject to physical space limitations. Company generally agrees to provide new collocation arrangements no later than 90 days after Carrier's written request. Company shall use its best efforts to meet a 90 day Installation interval. A full explanation of any delays past the 90 day period shall be provided by Company.

8. Company shall interconnect with Carrier facilities at the POIs designated in Appendix 1 as modified and updated from time to time. Company shall interconnect with Carrier under prices, terms and conditions no less favorable, than those available on an element by element basis to other parties. Carrier may adopt any price, term or condition available to another Party on an MFN basis in place of any other price, term or condition otherwise applicable herein.

9. With the exception of those provisions which apply only to ILECs under the Act, the provisions of this Section V. A. shall apply to Company's interconnection to Carrier's network for the purpose of routing all the types of traffic.

B. Where the Parties interconnect, for the purpose of exchanging traffic between networks, the following will apply:

1. The Parties agree to establish trunk groups from the interconnecting facilities such that trunking is available to any switching center designated by either Party, including end offices, tandems, 911 routing switches, and directory assistance/operator service switches. At Carrier's option, one-way or two-way trunking will be available.

2. When traffic is not segregated according to traffic types, the Parties will provide percentage of jurisdictional use factors (e.g., CMRS, local, interstate access) or actual measurement of jurisdictional traffic.

3. The Parties agree to offer and provide to each other B8ZS Extended Superframe Format ("ESF") facilities, where available, capable of voice and data traffic transmission.

4. Where available, Company will provide and implement all defined and industry supported SS7 mandatory parameters as well as procedures in accordance with ANSI standards. To the extent Company provides ANSI optional parameters for its own use, Company shall provide the same to Carrier.

5. In the event SS7 facilities are not available from Company, Carrier may, at its option, obtain multi-frequency signaling.

6. Where available, Company agrees to provide CIP (carrier identification code within Carrier's SS7 call set-up signaling protocol) at no charge.

7. Company shall support intercompany 64 KBPS clear channel where it provides such capability to its end-users.

8. The Parties will cooperate in the exchange of TCAP messages to facilitate full inter-operability of SS7-based features between their networks, including all CLASS features and functions, to the extent each Party offers such features and functions to its own end-users.

VI. PROVISIONING AND INSTALLATION - INTERCONNECTION

A. Order Processing.

1. Either Party is responsible for ordering facilities to terminate traffic to the other Party .

2. When two-way trunking is employed, the Parties will select a mutually agreeable automated ordering process.

3. The parties shall establish appropriate ordering/provisioning codes for each identified service, unbundled element and unbundled element combination.

4. When combinations of unbundled elements are ordered and said elements are currently interconnected and functional, those elements will remain interconnected and functional without an interruption in service.

5. The Company will provide to Carrier copies of all applicable test and turn-up procedures Company normally follows in support of the unbundled elements/combinations/services ordered by Carrier.

6. Within 48 hours of any disconnect, the Company will notify Carrier of the disconnect of any Carrier unbundled element/combination/service.

7. All notices, invoices, and documentation provided on behalf of Carrier to the customer at the customer's premises by the Company's field personnel shall either be branded Carrier at Carrier's expense or non-branded. Company shall not market its services during such calls.

8. Company shall provide the ability for Carrier to mechanize test or, notwithstanding anything to the contrary in this agreement, will test all elements/combinations.

9. Company will provide a system to identify essential Carrier circuits, trunks and elements for expedited restoral purposes.

B. Billing.

1. Company and Carrier agree to conform to MECAB and MECOD guidelines. They will exchange Billing Account Reference and Bill Account Cross Reference information and will coordinate Initial Billing Company/Subsequent Billing Company billing cycles.

a) 2. Exchange access meet point billing arrangements will be made available to Carrier as a CLEC. The Company shall be responsible for provisioning 50% of the interconnection facilities or to the Company wire center boundary, whichever is less. Carrier shall be responsible for provisioning 50% of the interconnection facilities or to the Company wire center boundary whichever is greater.

3. No discrete development charges shall be imposed on Carrier for the establishment of standard meet point billing arrangements.

4. Carrier and the Company agree to implement industry standard CARE records for correct provisioning and billing to IXC.

5. Exchange of Records.

a. The Company and Carrier will exchange the appropriate records to bill exchange access charges to the IXC.

b. The Company agrees to capture inward terminating call records and send them to Carrier in an agreed upon industry standard format (e.g., EMR).

c. Carrier and Company agree to capture EMR records for inward terminating and outward originating calls and send them to Company or Carrier, as appropriate, in daily files via an agreed upon media (e.g., Network Data Mover ("NDM")).

6. Company agrees to exchange test files to support implementation of meet point billing or other access billing prior to live bill production.

7. When Carrier owns the end-office, the Company will not bill the transport interconnection charge ("TIC") (also known as the residual interconnection charge) to either Carrier or the IXC.

VII. NETWORK MAINTENANCE AND MANAGEMENT

A. General Requirements.

1. The Parties will work cooperatively to install and maintain a reliable network. The Parties will exchange appropriate information (e.g., maintenance contact numbers, network information, information required to comply with law enforcement and other security agencies of the government, etc.) to achieve this desired reliability.

2. Each Party shall provide a 24 hour contact number for network traffic management issues to the other's surveillance management center. A fax number must also be provided to facilitate event notifications for planned mass calling events. The Parties shall agree upon appropriate network traffic management control capabilities.

3. Company agrees to work toward having service centers dedicated to CLECs available 7 days a week, 24 hours a day, and in the interim must handle Carrier calls as well as other customer calls in a non-discriminatory manner.

4. Voice response units, similar technologies, intercept solutions or live referrals should be used to refer/transfer calls from customers to the proper carrier for action. Neither Party shall market to end-users during a call when that customer contacts the Party solely as a result of a misdirected call.

5. Carrier will be provided Electronic Interfaces at Parity for read and write access to the Company's maintenance and trouble report systems including the following systems and/or functionality:

a. Trouble reporting/dispatch capability - access must be real-time;
b. Repair status/confirmations; maintenance/ trouble report systems;
c. Planned/Unplanned outage reports; and

d. Mechanized line testing - access must be "real-time".

6. Notice of Network Event. Each Party has the duty to alert the other to any network events that can result or have resulted in service interruption, blocked calls, or negative changes in network performance affecting more than one percent of either Party's circuits in any exchange on a real-time basis.

7. Notice of Network Change. The Parties agree to provide each other reasonable notice of changes including the information necessary for the transmission and routing of services using that local exchange carrier's facilities or networks, as well as other changes that would affect the interoperability of those facilities and networks. Correct LERG data is considered part of this requirement.

8. Company and Carrier shall develop a detailed escalation process to assist in problem resolution.

9. The Parties must work cooperatively to plan and implement coordinated repair procedures for local interconnection trunks and facilities to ensure trouble reports are resolved in a timely and appropriate manner.

10. The Company shall provide Parity repair progress status reports so that Carrier will be able to provide its end-user customers with detailed information and an Estimated Time To Repair ("ETTR"). The Company will close all trouble reports with Carrier. Carrier will close all trouble reports with its end-user.

11. A non-branded, customer-not-at-home card shall be left by Company at the customer's premises when a Carrier customer is not at home for an appointment and Company performs repair or installation services on behalf of Carrier.

12. The Company will ensure that all applicable alarm systems that support Carrier customers are operational and the support databases are accurate. The Company will respond to Carrier customer alarms consistent with how and when they respond to alarms for their own customers.

13. Carrier shall receive prior notification of any scheduled maintenance activity performed by the Company that may be service affecting to Carrier local customers (e.g., cable throws, power tests, etc.).

B. Transfer of Service Announcements.

When an end-user who continues to be located within the local calling area changes from Company to Carrier, or from Carrier to Company, and does not retain its original telephone number, the Party formerly providing service to the end-user will provide a new number announcement on the inactive telephone number upon request, for a

minimum period of 90 days (or some shorter reasonable period when numbers are in short supply), at no charge to the end-user or either Party unless Carrier or Company has a tariff on file to charge end-users. This announcement will provide details on the new number to be dialed to reach this customer.

C. Coordinated Repair Calls.

Carrier and Company will employ the following procedures for handling misdirected repair calls:

1. Carrier and Company will educate their respective customers as to the correct telephone numbers to call in order to access their respective repair bureaus.

2. To the extent the correct provider can be determined, misdirected repair calls will be referred to the proper provider of local exchange service in a courteous manner, at no charge, and the end-user will be provided the correct contact telephone number. In responding to repair calls, neither Party shall make disparaging remarks about the other, nor shall they use these repair calls as the basis for internal referrals or to solicit customers or to market services. Either Party may respond with accurate information in answering customer questions.

3. Carrier and Company will provide their respective repair contact numbers to one another on a reciprocal basis.

4. To the extent Company receives repair or business office contact through N11 dialing, Company will, at the time the next directory for the area is released, switch to a 7-digit or 10-digit number or immediately undertake efforts to route N11 calls by Carrier customer to Carrier repair and business offices on a non-discriminatory basis.

D. Restoration of Service in the Event of Outages.

Company restoration of service in the event of outages due to equipment failures, human error, fire, natural disaster, acts of God, or similar occurrences shall be performed in accordance with the following priorities. First, restoration priority shall be afforded to those network elements and services affecting its own end-users or identified Carrier end-users relative to national security or emergency preparedness capabilities and those affecting public safety, health, and welfare, as those elements and services are identified by the appropriate government agencies. Second, restoration priority shall be afforded between Company and Carrier in general. Third, should Company be providing or performing tandem switching functionality for Carrier, third level priority restoration should be afforded to any trunk. Lastly, all service shall be restored as expeditiously as practicable and in a non-discriminatory manner.

Carrier and Company will agree on a process for circuit and unbundled element provision and restoration whereby certain identified Carrier national security and emergency

preparedness circuits will be afforded expedited restoral treatment and general trunking and interconnection should take priority over any other non-emergency Company network requirement.

E. Service Projections.

Carrier shall make available to Company periodic service projections, as reasonably requested, including busy hour usage for Company's access capacity. Company shall manage its network in order to accommodate the Carrier's projected traffic at the required grade of service. The Parties shall review engineering requirements on a semi-annual basis and establish forecasts for trunk and facilities utilization provided under this Agreement. Trunk growth will be implemented as dictated by engineering requirements.

F. Quality of Service.

1. Company shall provide Carrier Parity in provisioning, repair and maintenance support 7 days a week, 24 hours a day, subject to the provisions herein regarding Electronic Interfaces.

2. Company shall provide Carrier with at least the same intervals and level of service provided by Company to its end-users or another party at any given time to ensure Parity in treatment.

3. Company shall provide Carrier maintenance and repair services on wholesale and/or unbundled facilities in a manner that is timely, consistent and at Parity with service provided to Company end-users and/or other carriers.

4. Interconnection quality of service should be no less than that provided by the Company for its own services.

5. A minimum blocking standard of one percent during the average busy hour shall be maintained on an average basis for all local interconnection facilities.

6. Company shall adhere to competitive intervals for installation of POIs, and the objective in no case should be longer than 30 calendar days, absent extenuating circumstances. In those instances where new collocation arrangements are required, a 90 day installation target applies.

7. Carrier and Company shall negotiate a process to expedite network augmentations and other orders when requested by Carrier.

8. Carrier and Company shall negotiate a mechanism whereby Company will improve performance when it is in breach of Commission imposed or agreed upon quality-of-service standards. Company shall indemnify Carrier for any forfeitures or civil penalties

or other regulator-imposed fines caused by Company failure to meet Commission imposed service standards.

9. Carrier must be at Parity with the Company (or its Affiliates or third parties) in provision of unbundled elements. This must at a minimum include:

   a. Switch features at Parity;
   b. Treatment during overflow/congestion conditions at Parity;
   c. Equipment/interface protection at Parity;
   d. Power redundancy at Parity;
   e. Sufficient spare facilities to ensure provisioning, repair, performance, and availability at Parity; and
   f. Standard interfaces at Parity.

10. Carrier and Company will mutually develop operating statistical process measurements that will be monitored monthly to ensure that a negotiated service quality level is maintained.

G. Information.

1. Order confirmation must be provided within 24 hours of completion to ensure that all necessary translation work is completed on newly installed facilities or augments.

2. Company and Carrier shall agree upon and monitor operational statistical process measurements. Such statistics will be exchanged under an agreed upon schedule.

3. Company and Carrier will periodically exchange technical descriptions and forecasts of their interconnection and traffic requirements in sufficient detail to assure traffic completion to and from all customers within the appropriate calling areas.

4. Company shall provide and update an electronic copy of their switch Network ID Database with complete list of feature/functions by switch, NPA/NXXs, rate centers, etc.

5. Company shall provide a list/description of all services and features with availability down to street address detail, including: Type of Class 5 Switch by CLLI, line features availability by switch office, and service and capacity availability by switching office. Company shall further provide a complete layout of the data elements that will be required to provision all such services and features.

6. Company shall provide detailed descriptions of the criteria and process used for handling facility and power outages on an agreed upon severity and priority basis.

7. The Company shall provide an initial electronic copy and a hard copy of the Service Address Guide ("SAG"), or its equivalent. Updates are expected as changes are made to the SAG.

8. Company shall provide Carrier with engineering change notices it provides its own personnel associated with the Company's network elements and deployment of new technologies to the extent such will impact interoperability of Company's and Carrier's networks.

9. Company shall provide Carrier with its list of emergency numbers (e.g. same digit PSAP numbers, police, fire, etc.). Company will provide Carrier with the same list that Company uses. Company makes no warranties or guarantees with regard to the accuracy, completeness, or currency of said numbers.

VIII. UNBUNDLED NETWORK ELEMENTS

A. General Requirements.

Company will unbundle and separately price and offer the following eight network elements such that Carrier will be able to subscribe to and interconnect to whichever of these unbundled elements Carrier requires for the purpose of providing local telephone service to its end-users, and to combine the Company-provided elements with any facilities and services that Carrier may itself provide, in order to efficiently provide Telecommunications Services to its end-users, pursuant to the following terms:

1. Loops, e.g., two-wire or four-wire facilities from the Carrier's or end-user's premises to the host office in the same exchange, or to the remote switch if there is no host switch in such exchange including cross-connects to either other unbundled elements or Carrier's facilities;

2. Local Switching, e.g., the ability to switch calls from one line to another, or from a line to a trunk including all features and functions, connection to the MDF or trunk cross-connect, and switch card;

3. Tandem Switching, e.g., trunk-to-trunk connections including all features and functions such as recording and customized routing;

4. Interoffice Transmission Facilities, e.g., transmission of Carrier traffic on , either dedicated or common facilities, between Company and/or Carrier offices and/or a location designated by Carrier;

5. Signaling and Call-related Databases, e.g. SS7 signaling links and Signal Transfer Point ("STP") access, call related databases (such as, Line Information Database, Toll Free Calling Database and Number Portability Database), signaling systems, AIN database

access through local switching purchase or SS7 interconnection and access to Service Management Systems;

6. Network Interface Device;

7. Operator Services, e.g. unbundled local operator service with custom routing to facilitate Carrier branding and price quotation where technically feasible;

8. Directory Assistance, e.g. local directory assistance services with custom routing to facilitate Carrier branding where technically feasible and unbundled sale of the database for inclusion in Carrier DA centers; and

9. Operations Support Systems, e.g. including seamless Electronic Interfaces with systems providing Company ordering and provisioning, trouble reporting and fault management, performance monitoring, network and traffic management, facility assignment and control functions Such Electronic Interface shall provide information, operational and timeliness Parity and be provided pursuant to industry standards within twelve months after such standards have been established and notwithstanding anything to contrary elsewhere in this agreement, via reasonable agreed upon interim measures before final industry standards have been implemented. Carrier recognizes Company's right to seek waivers of any FCC mandated electronic interface availability requirements and this agreement is expressly subject to any modification of the availability of electronic interfaces ordered by the FCC. However, if an electronic interface is made available by Company to any Carrier, Company shall make a similar appropriate interface available to Carrier.

Additionally, Company will, upon receipt of a bona fide written request, specifying a desired activation date, further unbundle the elements identified above into sub-elements as follows (for illustrative purposes only and not by way of limitation) in identified local exchange(s). Upon submission of a written request from Carrier for additional sub-element unbundled network elements, Company shall have 45 days from the receipt of the written request to respond, in writing, whether it is technically feasible to provide such unbundled network element on the requested activation date and, if feasible, the price of such element. If Carrier fails to place an order, then Carrier shall pay the actual costs incurred by Company in responding to the request.

Company will upon receipt of the request , unbundle and separately price and offer requested elements such that Carrier will be able to lease whichever of these unbundled elements Carrier requires, and to combine the Company-provided elements with any facilities and services that Carrier may itself provide, in order to efficiently offer telecommunications services to end-users, pursuant to the following terms:

1. Interconnection, when requested, will be achieved at any technically feasible POI on Company's network, including via collocation arrangements.

2. Company shall ensure that unbundled elements, when combined together without the addition of any Carrier facilities, are capable of providing full local service and other functionality available to end-users through retail offerings, provided, however, that Carrier has ordered that appropriate unbundled elements for the provision of "full local service." Company will assist Carrier in identifying elements needed to provide any end-user service desired by Carrier.

3. Loop, switching, or transport when interconnected with Carrier facilities (whether purchased individually or in combinations) shall be delivered to the Carrier collocation arrangement or mid-span meet through appropriate connectors applicable to the unbundled service delivered, through other tariffed or contracted options, or through other technically feasible and economically comparable interconnection arrangements in accordance with agreements between Carrier and Company.

4. To the extent technically feasible, all unbundled element-based features, functions, service attributes, grades-of-service, installation, maintenance and repair intervals which Company provides for its retail service will apply to unbundled elements.

5. Subject to other contractual agreements, Company need not monitor the unbundled loop for maintenance purposes. Carrier may be required to provision a loop testing device either in its central office, Network Control Center, or in its collocation arrangement to test the unbundled loop. Company will perform repair and maintenance once trouble is identified by Carrier.

6. Company shall provide an Electronic Interface with Carrier for on-line electronic file transfers by which Carrier may place, verify, and receive confirmation on orders for unbundled elements, and issue and track trouble-ticket and repair requests associated with unbundled elements.

B. Compensation.

Permanent, unbundled network elements prices shall be provided at a rate to be computed based on TELRIC plus a reasonable allocation of joint and common costs of each such Element. Until permanent rates are developed, and always subject to MFN provisions appearing elsewhere in this Agreement, interim rates within the proxy ranges approved by the FCC or a state Commission or otherwise agreed to by the parties shall be implemented.

IX. SPECIAL SERVICE ARRANGEMENTS AND CONSTRUCTION

A. Special Service Arrangements.

Company shall provide special service arrangements to Carrier as reasonably requested pursuant to Company's unbundled element and interconnection obligations under the Act. For special service arrangements not readily available through Company, unbundled

element pricing at TELRIC with a reasonable allocation of joint and common cost shall apply. This Company obligation includes the construction of a reasonable amount of additional facilities.

X. ACCESS TO TELEPHONE NUMBERS.

A. General Requirements.

1. To the extent Company serves as the Central Office Code Administrator, Company will work with Carrier in a neutral and non-discriminatory manner, consistent with regulatory requirements, in regard to Carrier's requests for assignment of Central Office code(s) (NXX) consistent with the Central office Code Assignment Guidelines, and any applicable Commission or FCC rules and/or orders.

2. It is the responsibility of each Party to program and update its own switches to recognize and route traffic to other Party's assigned NXX codes. Neither Party shall impose fees or charges on the other Party for required programming and switch updating activities.

B. Compensation.

To the extent that Company assigns NXXs, the Company will assign NXXs to Carrier at the same rates/charges it imposes upon itself.

C. Quality of Service.

Company will input Carrier's NXXs into its databases according to industry guidelines, including the terminating LATA in which the NXX/rate center is located.

D. Information.

1. Until such time that number administration is moved to an independent third party, Company will make available reporting on NXX availability, fill rates, and new assignments.

2. Company agrees to provide to Carrier information concerning NPA-NXX splits.

XI. LOCAL NUMBER PORTABILITY

A. General Requirement.

1. The Parties shall provide interim number portability arrangements to permit end-user customers to change providers without changing their current phone numbers, provided that such end-user remains located within the same Company or Carrier rate center. Such arrangements may include remote call forwarding or flexible DID.

2. Company will provide necessary data to Carrier to allow Carrier to recover appropriate terminating access charges, recognizing that both Carriers are involved in joint provision of access to IXCs associated with terminating traffic to ported numbers assigned to Carrier subscribers.

3. Company will provide interim number portability in an area until permanent number portability is implemented in that area.

B. Compensation.

1. For Interim Number Portability, Company shall be entitled to the TELRIC cost of providing this service less a 55% discount because of the lesser standard of service provided via interim number portability solutions.

2. For Permanent Number Portability, the parties will pay any costs as required by Commission Orders.

XII. ADDITIONAL SERVICES

A. 911/E911.

1. Description.

a. Carrier will interconnect trunk groups to the Company 911/E911 selective router(s)/911 tandem(s) which serve the area in which Carrier provides exchange services, for the provision of 911/E911 services and for access to all sub-tending Public Safety Answering Points ("PSAP"). Company will provide Carrier with the appropriate Common Language Location Identifier ("CLLI") codes and specifications of the tandem service area.

b. Where Company is the owner or operator of the 911/E911 database, Company will maintain, and the Parties will agree upon the time frame for automated input and daily updating of 911/E911 database information related to Carrier end-users. Company will work cooperatively with Carrier to ensure the accuracy of the data transfer by verifying it against the Master Street Address Guide ("MSAG"). Carrier shall use the NENA standards for street addressing and abbreviations, including a Carrier Code (NENA standard 5 - character field) on all ALI records sent to Company. Carrier is responsible for record data it provides to Company for entry in the database or, when available, for the information it enters into the database and agrees to indemnify and hold Company harmless from any and all claims or actions arising out of or relating to Carrier's negligence or intentional acts, errors or omissions in providing the record data to Company. Additionally, Company shall work with the appropriate governmental authorities to provide Carrier the ten-digit telephone number of each PSAP which sub-tends each Company selective router/911 tandem to which Carrier is interconnected.

Company will input Carrier's data in an interval that is no less frequent than that used by Company for its end-user.

c. Company will provide Carrier a default arrangement/disaster recovery plan including an emergency back-up number in case of massive trunk failures.

d. Company will use its best efforts to facilitate the prompt, robust, reliable, and efficient interconnection of Carrier systems to the 911/E911 platforms, with standards of provisioning, service, and performance that are non-discriminatory and are at least equal to those employed by Company for itself, its Affiliates and/or subsidiaries, and other carriers providing switched local exchange services.

2. Operator Reference Database ("ORDB").

If available, Company will work cooperatively with Carrier to assist Carrier in obtaining from the appropriate 911 government agencies monthly updates to the ORDB. If available, this will enable Carrier to promptly respond to emergency agencies (e.g., fire, police, emergency medical technicians, etc.), as a backup to 911, during a catastrophic situation.

B. White/Yellow Page Directory Listings and Distribution.

1. General Requirements.

The directory listings and distribution terms and rates specified in this section shall apply to listings of Carrier customer numbers falling within NXX codes directly assigned to Carrier, to listings of Carrier customer telephone numbers which are obtained by Carrier (or its customers) pursuant to Local Telephone Number Portability Arrangements, and to listings of customers served through resale of Company services. Company shall publish Carrier listings in those Company directories covering the geographic scope of Carriers local service areas. The terms of this section may require a subsequent additional agreement with Company's Directory Publishing Company which Company will assist Carrier in obtaining under the terms outlined below.

a. Company will include Carrier's customer telephone numbers plus Carrier's customer service and repair contact information, in a style and format (e.g., type, size, location in book, etc.) similar to how Company provides its own such information, in all its "White Pages" and "Yellow Pages" directory listings and directory assistance databases associated with the areas in which Carrier provides services to such customers, and will distribute printed White and Yellow Pages directories to Carrier's end-user customers, in the same manner it provides those functions for its own customers or at the option of Carrier, to Carrier for distribution to its end-users. Either Party may withhold provision of non-published telephone numbers of its end-users to the other Party.

b. At Carrier's request, Carrier's critical contact information shall appear on a Carrier Information Page appearing in the "Informational Pages" section of Company's telephone directory listing Carrier critical end-user contact information regarding emergency services, billing and service information, repair services, and other pertinent telephone numbers relative to Carrier. Carrier's information shall conform to all applicable regulatory requirements. Carrier will not incur any additional charges for inclusion of this information. Additional Information pages will be made available at the same price as Company is charged by its directory publisher or at TELRIC plus a reasonable allocation of joint and common costs, whichever is lower.

c. Carrier will provide Company with its directory listings and daily updates to those listings in an industry-accepted format and via an agreed upon medium.

d. Carrier and Company will accord Carrier's directory listing information the same level of confidentiality which Company accords its own directory listing information, and Company shall ensure that access to Carrier's customer proprietary confidential directory information will be limited solely to those Company employees who are directly involved in the preparation of listings.

e. Company and Carrier will work cooperatively to address any payments for sales of any bulk directory lists to third parties, where such lists include Carrier customer listings. Unless required by law, Company will not provide/sell Carrier's listings to any third parties without Carrier's prior written approval.

f. Company shall provide Parity directory distribution, directory database maintenance, and directory listings for Carrier's and its customers under the same terms that Company provides these same services for its end-user to the extent permitted by Section 222 of the Act..

g. The Company's Yellow Pages directory Publisher shall be entitled to the revenues from the sale of Yellow Pages advertising. The Yellow Pages directory Publisher shall treat Carrier's customers in the same fashion and using the same publishing standards and policies and on a nondiscriminatory basis with Company's customers.

2. Compensation.

Carrier and Company shall be treated in a non discriminatory manner concerning white and yellow pages directory expense responsibility, based on proportionate listing allocation of said expense, and in the same manner white and yellow pages additional listings, bolding, color, in-column advertising and display advertising profits or revenues shared with the Company by the directory publisher shall be shared with Carrier. However, Company (or its directory publisher) may elect to forego expense and

revenue/profit sharing with Carrier and instead, at no charge to Carrier, publish Carrier's customer's directory listings, publish a Carrier Information Page in the white pages directory, provide initial directory distribution to Carrier's customers and maintain any required directory listing publication databases.

3. Billing.

a. The Yellow Pages advertising billed to Carrier end-users will be rendered separately to Carrier customers by publisher, or at the option of Company, billed by Carrier to its end-users. On Carrier billed accounts, the name of Company as the Directory Services Provider will appear. Carrier shall not increase the billing to end-users s and does not become a resale or sales agent of Company's directory by virtue of this provision.

b. The directory publisher shall invoice Carrier's customer directly for white pages advertising, color or white page bolding, or at the option of Company, as outlined in (a) above. Carrier may invoice its end-users for directory charges.

4. Information.

a. Company shall provide to Carrier's publishing cycles and deadlines to ensure timely receipt and publication of Carrier's customer information.

b. Company shall identify the calling area covered by each directory and provide such information to Carrier in a timely manner.

5. Quality of Service.

a. The end-to-end interval for updating the database with Carrier customer data must be the same as provided for the Company's end-users.

b. Company will provide an automated capability (e.g., tape transfer or other data feed) to update the Company directory database.

C. Directory Assistance

1. General Requirements.

a. Where Company is a directory assistance service provider, at Carrier's request, subject to any existing system capacity restraints which Company shall work to overcome, Company will provide to Carrier for resale, Carrier branded directory assistance service which is comparable in every other way to the directory assistance service Company makes available to its own end-users.

b. When available, at Carrier's request pursuant to Section 222 of the Act, Company will:

i. provide to Carrier operators or to a Carrier-designated operator bureau an Electronic Interface to provide on-line access to Company's directory assistance database, where such access is identical to the type of access Company's own directory assistance operators utilize in order to provide assistance services to Company end-users ; and/or

ii. allow Carrier or a Carrier-designated operator bureau to license Company's directory assistance database for use in providing competitive directory assistance services.

c. Company will make Carrier's data available to anyone calling the Company's DA and will update its database with Carrier's data in Parity with updates from its own data.

d. Company may store proprietary customer information provided by Carrier in its Directory Assistance database; such information should be able to be identified by source provider in order to provide the necessary protection of Carrier's or Carrier customer's proprietary or protected information.

e. Carrier may limit the Company's use of Carrier's data to directory assistance or, pursuant to written agreement, grant greater flexibility in the use of the data subject to proper compensation.

f. If Directory Assistance is a separate retail service provided by Company, Company must allow wholesale resale of Company DA service.

g. To the extent Company provides directory assistance service, Carrier will provide its listings to Company via data and processed directory assistance feeds in accordance with an agreed upon industry format. Company shall include Carrier listings in its directory assistance database.

h. Carrier has the right to license Company unbundled directory databases and sub databases and utilize them in the provision of its own DA service. To the extent that Carrier includes Company listings in its own directory assistance database, Carrier shall make Company's data available to anyone calling Carrier's DA.

i. Company will make available to Carrier all service enhancements on a non-discriminatory basis.

j. When technically feasible and requested by Carrier, Company will route Carrier customer DA calls to Carrier DA centers.

2. Business Processes.

a. The Company will, consistent with Section 222 of the Act, update and maintain the DA database with Carrier data, utilizing the same procedures it uses for its own customers, for those Carrier customers who:

Disconnect
Change Carrier
Install
"Change" orders
Are Non-Published
Are Non-Listed
Are Non-Published/Non-Listed

b. Each Carrier shall bill its own end-users.

c. Carrier will be billed in an agreed upon standard format.

d. Company and Carrier will develop intercompany procedures to correct errors when they are identified in the database.

3. Compensation.

a. When Carrier is rebranding the local service of Company, directory assistance that is provided without separate charge to end-users will be provided to Carrier end-users as part of the basic wholesale local service, subject to any additional actual expense to brand the service with Carrier's brand. Where DA is separately charged as a retail service by Company, Carrier shall pay for DA service at wholesale avoided cost.

b. Company shall place Carrier end-users listings in its directory assistance database for no charge.

c. Company shall, subject to Section 222 of the Act, make its unbundled directory assistance database available to Carrier. Prices shall be set at TELRIC plus a reasonable allocation of joint and common costs.

d. Any additional actual trunking costs necessary to provide a Carrier branded resold directory assistance service or routing to Carrier's own directory assistance service location shall be paid by Carrier.

D. Operator Services.

1. General Requirements.

a. Where Company (or a Company Affiliate on behalf of Company) provides operator services, at Carrier's request (subject to any existing system capacity restraints which Company shall work to overcome). Company will provide to Carrier, Carrier branded operator service which is comparable in every other way to operator services Company makes available to its own end-users.

b. At Carrier's request, subject to any existing system capacity restraints which Company shall work to overcome, Company will route Operator Service traffic of Carrier's customers to the Carrier's Operator Service Center.

c. Company shall provide operator service features to include the following: (i) local call completion 0- and 0+, billed to calling cards, billed collect, and billed to third party, and (ii) billable time and charges, etc.

2. Compensation.

a. Company shall provide operator services for resale at wholesale prices, or at Carrier's option as an unbundled element at TELRIC with a reasonable allocation of joint and common costs.

b. When Carrier requests Carrier branded Company operator services for resale or as an unbundled element, any actual additional trunking costs associated with Carrier branding shall be paid by Carrier. Where technically feasible, Company shall also, at the request of Carrier, route Carrier operator service traffic to Carrier operator service centers.

c. The Parties shall jointly establish a procedure whereby they will coordinate Busy Line Verification ("BLV") and Busy Line Verification and Interrupt ("BLVI") services on calls between their respective end-users. BLV and BLVI inquiries between operator bureaus shall be routed over the appropriate trunk groups. Carrier and Company will reciprocally provide adequate connectivity to facilitate this capability. In addition, upon request of Carrier, Company will make available to Carrier for purchase under contract BLV and BLVI services at wholesale or unbundled element rates.

XIII. RECIPROCAL TRAFFIC EXCHANGE

A. Scope.

Reciprocal traffic exchange is the exchange of terminating or transit traffic between Carrier and Company for termination to end-users.

This Agreement establishes the terms and conditions pursuant to which Carrier may interconnect its network facilities to those of the Company for termination of Carrier's

traffic (or other traffic routed through Carrier) on Company's network and for termination of Company's traffic on Carrier's network.

B. Types of Traffic and Services

The types of traffic to be exchanged under this Agreement include:

1. Local traffic. This is traffic that is originated by an end-user of one carrier and terminates to an end-user of the another carrier as defined in accordance with Company's then current local serving areas (or the MTA for CMRS traffic) including any traffic for which there is no additional charge for termination.

2. IntraLATA toll traffic, as defined in accordance with Company's then current intraLATA toll serving areas (which will be considered local traffic for CMRS intra MTA usage).

3. Switched access traffic as specifically defined in Company's state and interstate switched access tariffs, and generally identified as that traffic that originates at one of the Party's end-users and is delivered to an IXC point of presence, or comes from an IXC point of presence and terminates at one of the Party's end-users, whether or not the traffic transits the other Party's network.

4. Transit traffic. This is any traffic (e.g., EAS/Local, intraLATA toll, switched access and CMRS) which originates from one provider's network, "transits" another provider's network substantially unchanged, and terminates to yet another provider's network.

5. Ancillary traffic. This includes all traffic destined for ancillary services, or that may have special billing requirements, including, but not limited to the following:

   a. Directory Assistance;
   b. 911/E911;
   c. Operator call termination (busy line interrupt and verify);
   d. LIDB; and
   e. Information services requiring special billing. (e.g., 900 and 950)

6. To the extent network and contractual arrangements exist throughout the term of this Agreement, Company will provide intermediary tandem switching and transport services for Carrier's connection of its end-user to a local end-user of: (a) other CLECs; (b) another incumbent local exchange telecommunications Carrier other than Company; (c) IXCs, and (d) CMRS carriers.

7. Company agrees not to impose restrictions on traffic types delivered to/from the Point of Interconnection ("POIs") but reserves the right to require development and reporting of a jurisdictional usage factor indicating local/EAS, intrastate toll (access/toll), interstate access usage and CMRS, if applicable or Carrier's actual usage reporting. Company and Carrier reserve the right to measure and audit all traffic to ensure that proper rates are

being applied. Carrier agrees to provide the necessary traffic data or permit Company recording equipment to be installed for sampling purposes in conjunction with such audit. Company may contract directly with CMRS carriers using Carrier's network for transit functions, and in such case, Company shall directly bill termination charges to the CMRS carrier.

C. Compensation.

1. Local Traffic.

a. Termination. Interim reciprocal, compensation arrangements within the proxy range established by the FCC shall be implemented . If usage in presumed to be balanced either because of actual experience or because measurement cannot be performed at this time, bill-and-keep may be used by the parties. When a TELRIC compensation rate is developed and approved, it shall replace any interim rate. If Company offers to any Party a rate under this section that is lower than the proxy rate or the TELRIC rate, Carrier may replace its current rate with that lower rate.

b. Transport. Permanent charges for transport between Company tandems and/or end offices shall be based upon TELRIC plus a reasonable allocation of joint and common costs. Until such time as a permanent rate is developed and approved, Company shall implement an interim proxy rate that reflects the Company's interstate dedicated transport price. Transport shall be a separately chargeable e element.

c. Tandem Charge. Tandem switching shall be a separately chargeable element based upon TELRIC plus a reasonable allocation of joint and common costs. Until such time as a permanent rate is developed and approved. Company shall charge the FCC proxy rate of $0.0015 per minute for tandem switching or such other proxy rate as subsequently established by the FCC.

2. IntraLATA toll traffic, switched access, and special access traffic, if separately chargeable, shall be charged the appropriate rate out of the terminating Carrier's tariff or via other appropriate meet point access arrangements.

3. Transit traffic shall be compensated based on charges associated with the functionality provided, e.g., tandem switching and transport.

4. Unless otherwise stated in this Agreement, ancillary service traffic will be exchanged and billed in accordance with whether the traffic is Local/EAS, intraLATA toll, Switched Access, or CMRS, if applicable. All tandem traffic is subject to a separate charge for the tandem service.

XIV. ACCESS TO POLES, DUCTS, CONDUITS, AND RIGHTS-OF-WAY

A. Access to Facility

1. The Parties agree to provide to the other nondiscriminatory access to any pole, duct, conduit, or right of way owned or controlled by Company or Carrier, where available. Such access will be provided subject to any terms and conditions by which Company or Carrier is bound including but not limited to local, state or national safety and/or construction standards

2. Any Company or Carrier authorization required to attach to poles, overlashing requirements or modifications to the conduit system or other pathways to allow egress and ingress to the system shall not be unreasonably withheld, delayed, or restricted.

3. Each Party agrees to obtain the requisite permits and take no action to intervene against, or attempt to delay the granting of permits to the other for use of public right of way or access to private property with property owners. Each Party agrees to indemnify and hold harmless the other from any claims or actions on account of or relating to the Party's failure to obtain the requisite permits. Each Party agrees to provide, within ten (10) business days after receipt of a request from the other Party, information relative to the location and access to such facilities in a given local area. If a Party requests access to any pole, duct, conduit, or right of way owned or controlled by the other Party, but fails to take such access, then the requesting party shall pay the actual costs the other Party incurred in responding to said request.

4. When establishing service to end users, both Carrier and Company agree not to damage the property of the other or take any action that would subject the network or facilities of the other party to dangerous electrical currents or other hazards.

B. Compensation.

Access to Company's and Carrier's poles, ducts, conduits, and rights of way, will be provided on a non-discriminatory, competitively neutral basis. Rearrangement costs will be pro-rated on a cost basis among all new users of the facility. Should new facilities be required, the costs shall be pro-rated among all users of the new facility. Existing facilities shall be provided on a pro rata, cost allocated basis. Cost allocations shall be performed in compliance with the FCC Rules.

XV. ADDITIONAL RESPONSIBILITIES OF THE PARTIES

A. Cooperation on Fraud.

The Parties agree that they shall cooperate with one another to investigate, minimize and take corrective action in cases of fraud. The Parties' fraud minimization

procedures are to be cost effective and implemented so as not to unduly burden or harm one Party as compared to the other.

At a minimum, such cooperation shall include, when allowed by law or regulation, providing to the other Party, upon request, information concerning any end-user who terminate services to that Party without paying all outstanding charges, when such end-user seeks service from the other Party. Where required, it shall be the responsibility of the Party seeking such information to secure the end-user's permission to obtain such information.

To the extent either Party is liable to any toll provider for fraud and to the extent the other Party could have reasonably prevented such fraud, the Party failing to exercise reasonable care will indemnify the other Party for any fraud due to compromise of its facilities or systems that could have been reasonably prevented.

B. Audit.

The Parties agree to exchange such reports and/or data as required to facilitate the proper billing of traffic. Upon thirty (30) days written notice, any Party may request an audit of the usage reports and any such audit shall be accomplished during normal business hours at the office designated by the Party being audited. Audit requests shall not be submitted more frequently than one (1) time per calendar year. A request for an audit must be received within one (1) year of receipt of the jurisdictional usage factor and usage reports from the audited party.

XVI. OPTION TO ELECT OTHER TERMS

If, at any time while this Agreement is in effect, Company provides arrangements similar to those described herein to a third party on terms different from those available under this Agreement then Carrier may opt to adopt any individual rates, terms, and conditions offered to the third party in place of specific rates, terms, or conditions otherwise applicable under this Agreement for its own arrangements with Company regardless of non-cost based volume discounts, other quantity terms, or other restrictions or provisions contained in the Agreement or tariff available to such third party.

In addition, if Company entered in an agreement (the "Other Agreement") approved by the Commission pursuant to Section 251 and/or Section 252 of the Act, and/or is subject to Order of the Commission, which provides for the provision of an interconnection, service, or unbundled element to another authorized Carrier, Company shall make available to Carrier such interconnection, service or unbundled element on an individual element-by-element or service-by-service basis without regard to other restrictions in said agreement upon the best individual terms and conditions as those provided in the Other Agreement.

Not withstanding the above provision, this agreement is subject to such changes or modifications with respect to the rates, terms or conditions contained herein as may be ordered or

directed by the State Commission or the FCC in the exercise of their respective jurisdictions (whether said changes or modifications result from a rulemaking proceeding, a generic investigation or an arbitration proceeding which applies to the Company or in which the State Commission makes a generic determination) to the extent that said changes apply to all similar Company agreements. This agreement shall be modified, however, only to the extent necessary to apply said changes where Company specific data has been made available to the Parties and considered by the State Commission. Any rates, terms or conditions thus developed shall be substituted in place of those previously in effect and shall be deemed to have been effective under this Agreement as of the effective date of the order by the State Commission or the FCC, whether such action was commenced before or after the effective date of this Agreement. If any such modification renders the Agreement inoperable or creates any ambiguity or requirement for further amendment to the Agreement, the Parties will negotiate in good faith to agree upon any necessary amendments to the Agreement.

XVII. PROPRIETARY INFORMATION

A. During the term of this Agreement, it may be necessary for the Parties to provide each other with certain information ("Information") considered to be private or proprietary. The recipient shall protect such Information from distribution, disclosure or dissemination to anyone except its employees or contractors with a need to know such Information in conjunction herewith, except as otherwise authorized in writing. All such Information shall be in writing or other tangible form and clearly marked with a confidential or proprietary legend. Information conveyed orally shall be designated as proprietary or confidential at the time of such oral conveyance and shall be reduced to writing within 30 days.

B. The Parties will not have an obligation to protect any portion of Information which: (a) is made publicly available lawfully by a non-Party to this Agreement; (b) is lawfully obtained from any source other than the providing Party; (c) is previously known without an obligation to keep it confidential; (d) is released by the providing Party in writing; or (e) commencing two (2) years after the termination date of this Agreement if such Information is not a trade secret under applicable law.

C. Each Party will make copies of the Information only as necessary for its use under the terms hereof, and each such copy will be marked with the same proprietary notices as appearing on the originals. Each Party agrees to use the Information solely in support of this Agreement and for no other purpose.

D. All records and data received from Carrier or generated by Company as part of its requirements hereunder, including but not limited to data or records which are received or generated and stored by Company pursuant to this Agreement, shall be proprietary to Carrier and subject to the obligations specified in this Section.

E. The Parties acknowledge that Information is unique and valuable, and that disclosure in breach of this Agreement will result in irreparable injury to owner for which monetary

damages alone would not be an adequate remedy. Therefore, the Parties agree that in the event of a breach or threatened breach of confidentiality, notwithstanding Section XXI, the owner shall be entitled to specific performance and injunctive or other equitable relief as a remedy for any such breach or anticipated breach without the necessity of posting a bond. Any such relief shall be in addition to and not in lieu of any appropriate relief in the way of monetary damages.

XVIII. TERM AND TERMINATION

This Agreement shall be deemed effective as of _____, 1996. Except as provided herein, Company and Carrier agree to provide service to each other on the terms defined in this Agreement for a term of two years, and thereafter the Agreement shall continue in force and effect unless and until terminated as provided herein. Either party may terminate this Agreement by providing written notice of termination to the other party, such written notice to be provided at least 180 days in advance of the date of termination. In the event of such termination as described herein, for service arrangements made available under this Agreement and existing at the time of termination, those arrangements shall continue without interruption under either (1) a new agreement executed by the Parties, (2) standard interconnection terms and conditions approved and made generally effective by the Commission or FCC, or (3) rates, terms and conditions available to other CLECs including continuation of MFN rights to available terms and conditions.

Either Party may terminate this Agreement in whole or in part in the event of a default by the other, provided that the non-defaulting Party so advises the defaulting Party in writing of the event of the alleged default and the defaulting Party does not remedy the alleged default within 60 days after written notice thereof. Default is defined to include:

a. Either Party's insolvency or initiation of bankruptcy or receivership proceedings by or against the Party; or

b. Either Party's material breach of any of the terms or conditions hereof, including the failure to make any undisputed payment when due.

Termination of this Agreement for any cause shall not release either Party from any liability which at the time of termination has already accrued to the other Party or which thereafter may accrue in respect to any act or omission prior to termination or from any obligation which is expressly stated herein to survive termination.

XIX. LAW ENFORCEMENT AND CIVIL PROCESS

A. Intercept devices.

Local and federal law enforcement agencies periodically request information or assistance from local telephone service providers. When either Party receives a request associated with a customer of the other Party, it shall refer such request to the Party that serves such customer, unless the request directs the

receiving Party to attach a pen register, trap-and-trace or form of intercept on the Party's facilities, in which case that Party shall comply with any valid request. The intercept will be done at no charge to Carrier when the request is in the form of a court order.

B. Subpoenas.

If a Party receives a subpoena for information concerning an end-user the Party knows to be an end-user of the other Party, it shall refer the subpoena back to the requesting Party with an indication that the other Party is the responsible company, unless the subpoena requests records for a period of time during which the Party was the end-users service provider, in which case the Party will respond to any valid request.

C. Hostage or Barricaded Persons Emergencies.

If a Party receives a request from a law enforcement agency for temporary number change, temporary disconnect or one-way denial of outbound calls for an end-user of the other Party by the receiving Party's switch, that Party will comply with any valid emergency request. However, neither Party shall be held liable for any claims or damages arising from compliance with such requests on behalf of the other Party's end-user and the Party serving such end-user agrees to indemnify and hold the other Party harmless against any and all such claims.

XX. FORCE MAJEURE

Neither Party will be liable or deemed to be in default for any delay or failure in performance under this Agreement for an interruption in service for which it had no control resulting directly or indirectly by reason of fire, flood, earthquake, or like acts of God, explosion, war, or other violence, or any requirement of a governmental agency, or cable cut by a third party, provided the Party so affected takes all reasonable steps to avoid or remove such cause of non-performance, provides immediate notice to the other Party setting forth the nature of such claimed event and the expected duration thereof, and resumes provision of service promptly whenever such causes are removed.

XXI. DISPUTE RESOLUTION

A. In the event of any disputes between Company and Carrier with respect to the terms and conditions of this Agreement, or any subject matter referred to in or governed by this Agreement, such disputes shall be settled as follows, except for disputes in which a Party seeks injunctive relief or must file suit in order to avoid expiration of the applicable statute of limitations.

B. Escalation Procedures. - All disputes between the Parties shall be escalated through normal business procedures to respective representatives from each Company at the vice-presidential level (or at such lower level as each Party's vice-president may delegate). Each Party has the right to request and, upon agreement of the other Party, to review any materials it deems pertinent to the dispute. The representatives shall consider any material submitted to it by either Party. Not to exceed 45 days from the date the dispute arises, each Party shall state in writing when it has received all materials it desires to review, and 15 days thereafter the representatives shall state in writing to the Parties the extent to which it has resolved the dispute. Both Parties agree to negotiate resolution of such problems in good faith.

C. Mediation.

1. In the event that a claim, controversy or dispute between Company and Carrier is not resolved by use of the Escalation Procedures, either Party may request non-binding Mediation by issuing a Notice of Mediation to the designated representative of the other Party. Both Parties agree to pursue a mediated resolution of the dispute in good faith. The Notice of Mediation shall be clearly marked as such and contain all information necessary to pursue resolution of the dispute. The originator of the Notice of Mediation shall arrange to have the Notice delivered within 24 hours of issuance.

2. Within 5 days of issuance of the Notice, the designated representative of the Parties shall agree upon an independent mediator. Said mediator shall be an individual who, unless the Parties otherwise mutually agree, has never been employed, directly or indirectly (e.g., an independent contractor or agent) by either of the Parties or their Affiliates (except as a mediator). If the Parties cannot agree upon a mediator, then within the same 5 day period, each shall appoint an independent representative, one who has never been employed, directly or indirectly, by either of the Parties or their Affiliates, and these two independent representatives, within 5 days of their appointment, shall appoint the mediator.

3. The mediator shall set the time for a meeting to be held with the designated representative of each company. The designated representative shall be a person empowered to resolve the dispute on behalf of his/her Company at the meeting and may be accompanied by a legal representative. A meeting shall take place within 30 days of the date of the appointment of the mediator and shall be held in a location agreed to by the Parties and the mediator. The mediator shall control the procedural aspects of the mediation, including the time and place of each session, the agenda for each meeting between the mediator and a Party or a joint meeting with both Parties. At any time following the initial joint meeting, either Party may withdraw from the mediation by written notice to the mediator and the other Party.

4. The mediator shall attempt to mediate the dispute and bring the Parties to a resolution of the issue. Failing this, the mediator, at the conclusion of the mediation process shall provide to the Parties within ten days his/her opinion of the appropriate resolution of the dispute. This opinion is not binding on either Party and may not be used by either Party in any future proceeding. The mediation process shall be treated as a compromise negotiation for purposes of the Federal Rules of Evidence and State Rules of Evidence. The mediator shall be disqualified as a witness, consultant or expert in any pending or future action relating to the subject matter of the mediation, including those between entities not Party to the mediation.

5. Within 14 days of receipt of the mediator's opinion, each Party's designated representatives shall meet one final time to resolve the dispute. If they are unable to resolve the dispute, both Parties are free to pursue their legal remedies.

6. The entire mediation process is confidential. The Parties and the Mediator shall not disclose to third Parties (i) Information disclosed by either Party during the mediation process, or (ii) information regarding the mediation process itself, including any settlement terms.

7. Costs of mediation shall be borne equally by the Parties, except that each Party shall be responsible for its own expenses. The mediator's compensation rate will be determined at or before his/her appointment. At the time of the mediator's appointment, the mediator shall be required to execute an agreement in a form mutually agreeable to the Parties.

D. Company shall continue providing services to Carrier during the pendency of any dispute resolution procedure, and Carrier shall continue to perform its obligations (including making payments) in accordance with this Agreement.

XXII. GOVERNING LAW

The Parties agree that this Agreement shall be construed in accordance with and governed by the laws of the State where the interconnection service is provided.

XXIII. COMPLIANCE WITH LAWS

Both Parties agree to comply with all applicable federal, state, and local laws, including, but not limited to the Communications Act of 1934 as amended.

XXIV. NOTICE

All notices required or permitted to be given hereunder shall be in writing and shall be deemed to be effective as follows: (i) by hand on the date delivered; (ii) by certified mail, postage prepaid, return receipt requested, on the date the mail is delivered or its delivery attempted; (iii) by facsimile transmission, on the date received in legible form (it being agreed that the burden of proof of receipt is on the sender and will not be met by a transmission report generated by the senders facsimile machine, or if sent by electronic messaging system, on the date that electronic message is received. Notices shall be given as follows:

If to Company:

If to Carrier:

Either Party may change its address or the person to receive notices by a notice given to the other Party in the manner set forth above.

XXV. MISCELLANEOUS

A. The Parties agree to use their respective diligent and good faith efforts to fulfill all of their obligations under this agreement. The Parties recognize, however, that to effectuate all the purposes of the Agreement, it may be necessary either to enter into future agreements or to modify the Agreement, or both. In such event, the Parties agree to cooperate with each other in good faith.

B. This Agreement may be modified by a written instrument only, executed by each Party hereto. However, adoption by Carrier of prices, terms and conditioning under its MFN right require only notice by Carrier to Company. Waiver of any of the obligations to be performed by the other or the breach thereof shall not be construed to be a waiver of any succeeding breach of performance obligation.

C. The headings in this Agreement are inserted for convenience and identification only and are not intended to interpret, define, or limit the scope, extent or intent of this Agreement.

D. This Agreement may be executed in one or more counterparts, all of which taken together will constitute one and the same instrument.

E. The Parties agree that this Agreement is for the sole benefit of the Parties hereto and is not intended to confer any rights or benefits on any third party, including any customer of either Party, and there are no third party beneficiaries to this Agreement or any part or specific provision of this Agreement.

XXVI. LIMITATION OF LIABILITY

Except as otherwise set forth in this Agreement, neither Party shall be responsible to the other for any indirect, special, consequential or punitive damages, including (without limitation) damages for loss of anticipated profits or revenue or other economic loss in connection with or arising from anything said, omitted, or done hereunder (collectively "Consequential Damages"), whether arising in contract or tort, provided that the foregoing shall not limit a party's obligation under XXVII A. to indemnify, defend, and hold the other party harmless against amounts payable to third parties.

Notwithstanding the foregoing, in no event shall Company's liability to Carrier for a service outage exceed an amount equal to the proportionate charge for the service(s) or unbundled element(s) provided for the period during which the service was affected.

XXVII. INDEMNIFICATION

A. Each Party agrees to indemnify and hold harmless the other Party from and against claims for damage to tangible personal or real property and/or personal injuries arising out of the negligence or willful act or omission of the indemnifying Party or its agents, servants,

employees, contractors or representatives. To the extent not prohibited by law, each Party shall defend, indemnify, and hold the other Party harmless against any loss to a third party arising out of the negligence or willful misconduct by such indemnifying Party, its agents, or contractors in connection with its provision of service or functions under this Agreement. In the case of any loss alleged or made by a Customer of either Party, the Party whose customer alleged such loss shall indemnify the other Party and hold it harmless against any or all of such loss alleged by each and every Customer. The indemnifying Party under this Section agrees to defend any suit brought against the other Party-either individually or jointly with the indemnifying Party-for any such loss, injury, liability, claim or demand. The indemnified Party agrees to notify the other Party promptly, in writing, of any written claims, lawsuits, or demands for which it is claimed that the indemnifying Party is responsible under this Section and to cooperate in every reasonable way to facilitate defense or settlement of claims. The indemnifying Party shall have complete control over defense of the case and over the terms of any proposed settlement or compromise thereof. The indemnifying Party shall not be liable under this Section for settlement by the indemnified Party or any claim, lawsuit, or demand, if the indemnifying Party has not approved the settlement in advance, unless the indemnifying Party has had the defense of the claim, lawsuit, or demand tendered to it in writing and has failed to assume such defense. In the event of such failure to assume defense, the indemnifying Party shall be liable for any reasonable settlement made by the indemnified Party without approval of the indemnifying Party.

B. Each Party agrees to indemnify and hold harmless the other Party from all claims and damages arising from the Indemnifying Party's discontinuance of service to one of its end-users for nonpayment.

C. When the lines or services of other companies and Carriers are used in establishing connections to and/or from points not reached by a Party's lines, neither Party shall be liable for any act or omission of the other companies or Carriers.

D. In addition to its indemnity obligations hereunder, each Party shall provide, in its tariffs and contracts with its customers that relate to any Telecommunications Service or Network Element provided or contemplated under this Agreement, that in no case shall such Party or any of its agents, contractors or others retained by such parties be liable to any Customer or third party for (i) any loss relating to or arising out of this Agreement, whether in contract or tort, that exceeds the amount such Party would have charged the applicable Customer for the service(s) or function(s) that gave rise to such loss, and (ii) consequential damages (as defined in XXVI above).

XXVIII. ASSIGNMENT

A. If any Affiliate of either Party succeeds to that portion of the business of such Party that is responsible for, or entitled to, any rights, obligations, duties, or other interests under this Agreement, such Affiliate may succeed to those rights, obligations, duties, and interest of such Party under this Agreement. In the event of any such succession

hereunder, the successor shall expressly undertake in writing to the other Party the performance and liability for those obligations and duties as to which it is succeeding a Party to this Agreement. Thereafter, the successor Party shall be deemed Carrier or Company and the original Party shall be relieved of such obligations and duties, except for matters arising out of events occurring prior to the date of such undertaking.

B. Except as herein before provided, and except to an assignment confined solely to moneys due or to become due, any assignment of this Agreement or of the work to be performed, in whole or in part, or of any other interest of a Party hereunder, without the other Party's written consent, which consent shall not be unreasonably withheld or delayed, shall be void. It is expressly agreed that any assignment of moneys shall be void to the extent that it attempts to impose additional obligations other than the payment of such moneys on the other Party or the assignee additional to the payment of such moneys.

XXIX. SURVIVORSHIP

Sections IX, XXVI, and XXVII shall survive termination or expiration of this Agreement.

XXX. ENTIRE AGREEMENT

This Agreement constitutes the entire agreement between the Parties and supersedes all prior oral or written agreements, representations, statements, negotiations, understandings, and proposals with respect to the subject matter hereof.

IN WITNESS WHEREOF, the Parties hereto have cause this Agreement to be executed by their respective duly authorized representatives.

COMPANY	CARRIER
By:_____	By:_____
Name:_____	Name:_____
Title:_____	Title:_____

PCDOCS #: 11489

Exhibit MRH-5

NETWORK ELEMENT BONA FIDE REQUEST

1. Each Party shall promptly consider and analyze access to a new unbundled network element with the submission of a network element bona fide request hereunder.

2. A bona fide request shall be submitted in writing and shall include a technical description of each request network element.

3. The requesting party may cancel a network element bona fide request at any time, but shall pay the other party's reasonable and demonstrable costs of processing and/or implementing the network element bona fide request up to the date of cancellation..

4. Within ten (10) business days of its receipt, the receiving Party shall acknowledge receipt of the network element bona fide request.

5. Except under extraordinary circumstances, within thirty (30) days of its receipt of a network element bona fide request, the receiving party shall provide to the requesting party a preliminary analysis of such network element bona fide request. The preliminary analysis shall confirm that the receiving party will offer access to the network element or will provide a detailed explanation that access to the network element is not technically feasible and/or that the request does not qualify as a network element that is required to be provided under the Act.

6. Upon receipt of the preliminary analysis, the requesting party shall notify the receiving party of its intent to proceed or not to proceed within thirty (30) days.

7. The receiving party shall promptly proceed with the network element bona fide request upon receipt of written authorization from the requesting party. When it receives such authorization, the receiving party shall promptly develop the requested services, determine their availability, calculate the applicable prices and establish installation intervals.

8. As soon as feasible, but not more than ninety (90) days after its receipt of authorization to proceed with developing the network element bona fide request, the receiving party shall provide to the requesting party a network element bona fide request quote which will include, at a minimum, a description of each network element, the availability, the applicable rates (developed in accordance with Commission or FCC approved pricing methodologies) and the installation intervals.

9. Within thirty (30) days of its receipt of the network element bona fide request quote, the requesting party must either confirm its order for the network element bona fide request pursuant to the network element bona fide request quote or seek arbitration by the Commission pursuant to Section 252 of the Act.

10. If a party to the network element bona fide request believes that the other party is not requesting, negotiating, or processing the network element bona fide request in good faith, or disputes a determination, or price or cost quote, such party may seek mediation or arbitration by the Commission pursuant to Section 252 of the Act.

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AVOIDED COST STUDY
USER GUIDE

Sprint Corporation

November 2, 1996

FLORIDA PUBLIC SERVICE COMMISSION
DOCKET NO. 961230-TP EXHIBIT NO. 20
COMPANY/WITNESS: Sprint/Farrar
DATE: 12-18-96

Table of Contents

I. STUDY SUMMARY

A. Purpose

The purpose of the study is to develop the avoided cost associated with the resale of local exchange service.

B. Scope

The cost results were developed specific for the State jurisdiction and will only be applicable for intraLATA company operations.

C. Introduction

The Telecommunications Act of 1996 (Act) states:

> A State commission shall determine wholesale rates on the basis of retail rates charged to subscribers for the telecommunications service requested, excluding the portion thereof attributable to any marketing, billing, collection, and other costs that will be avoided by the local exchange carrier. (252(d)(3))

The Avoided Cost Study was developed to meet the requirements of the Public Utilities Commission's Docket utilizing the Act as a methodology guideline. The Avoided Cost Study determines the level of avoided expenses associated with establishing wholesale rates for the resale of bundled services. Since the Act specifically refers to "marketing, billing, collection, and other expenses that will be avoided", the avoided cost study concentrates on those types of expenses. See Section , Methodology - Accounts Analysis, for a general discussion of that topic.

Sprint believes that the identification of avoided expenses should be based on the most recent data available that is identified through an Activity Based Costing procedure. Sprint's Avoided Cost Study utilizes an activity-based cost approach which identifies the avoided expense by expense category (subaccount) and assigns these expenses to service groups, based on an activity driver. To the extent that an expense can be associated with an activity, an increase (or decrease) in the activity drives an increase (or decrease) in the associated service groups.

The Avoided Cost Study uses the most recent expense and revenue data available. These revenues and expenses are assigned to a service group based on the actual

activity which creates or drives a specific type of expense, rather than on arbitrary assignment methodologies based on investment or revenue.

D. Service Groups

In order to determine the level of avoided expenses, it was necessary to consider that some services could have higher magnitudes of avoided expenses. For example, a highly competitive or complementary service would most likely have a greater amount of marketing resources dedicated to it, resulting in relatively greater avoided expenses. While there are numerous individual services provided by Sprint, it is impractical to study each service individually. Five service groups are identified for this study which are:

1. Simple Access (R1, B1, and local usage)
2. Complex Access (Centrex, Key, and PBX)
3. Features (CCF, CLASS, and Centrex features)
4. Operator / Directory Assistance
5. Other (e.g. private line and intraLATA toll)

E. Assumptions

1. The year-end 1995 revenue and expense balances are the most current available and are considered appropriate for this study.

2. The analysis of Product Management, Sales, and Product Advertising expenses was provided by the Marketing Department and is considered appropriate for this study.

3. The Local Message Processing (LMP) information provided by Accounting is considered appropriate for use in this study.

4. The special study provided by National Access Service Center (NASC) is considered appropriate for use in this study.

5. The monthly Billing Statistics Accounts Report is the most current available and is considered appropriate for use in this study. This report records billing activity by account, not access lines.

6. The March 1996 Customer Information System Report was provided by the Regulatory Department and is considered appropriate for this study. This report counts accounts by class of service, and not by access lines.

7. The 1995 annual Business Office time and motion study is the most current report and is considered appropriate for this study.

8. The 1995 annual Business Service Center time and motion study is the most current report and is considered appropriate for this study.

9. The December 1995 Station Data report was used for access line information and is considered appropriate for this study.

F. Methodology - Account Analysis

The following accounts contain expenses which may be avoided due to resale. An analysis of each account was conducted which resulted in the determination that some subaccounts are avoided and some are non-avoided.

6611.XXXProduct Management
6612.XXXSales
6613.XXXProduct Advertising
6623.XXXCustomer Services

These are the accounts detailed in the Avoided Cost Study.

Sprint believes that the identification of avoided expense should be based on the most recent expense and revenue data available that is identified through an Activity Based Costing procedure. These revenues and expenses are assigned to service groups based on the actual activity which creates or drives a specific type of expense, rather than on arbitrary assignment methodologies based on investment or revenue. To the extent that an expense can be associated with an activity, an increase (or decrease) in the activity drives an increase (or decrease) in the associated service groups.

The definition of avoided expense is, of course, the key to any such analysis. While the Act and FCC Order 96-325 do not specifically identify or define avoided expenses, they do give the proper direction. The Act indicates what type of expenses are avoided, specifically "marketing, billing, collection, and other costs." The FCC Order lists the specific accounts it considers avoided (see table in section F above). Each of these broad expense categories will be briefly discussed.

Depreciation (General Ledger (GL) accounts 6561 to 6565) relates directly to Sprint's capital assets used to provide service to both its own customers and those of the reseller. The vast majority of Sprint's capital assets are used to provide the services that competitors wish to resell. A competitor reselling Sprint's service will have no

effect on the nature of these capital assets. Sprint will continue to provide the physical facilities (switching, cable and wire, and circuit equipment) necessary to provide service to the reseller's customers as well as its own. Depreciation expenses will not be avoided.

Rate of Return is a cost of doing business. Investors must earn a fair return on their investment or capital will not be available for the company. Return is directly related to the level of investment. Because there will be no effect on investment, there will be no effect on return. Rate of Return is not avoided.

Taxes will not be avoided because Sprint must still pay taxes on profits earned on services that it provides for resale. Because the avoided expenses will be used to determine wholesale rates the expense will be deducted on an expense dollar for revenue dollar basis, the net effect on profit is effectively zero and will have relatively no effect on taxes. Taxes are not avoided.

Sprint's maintenance expenses (GL accounts 6211 to 6540) are related to the facilities used to provide the services that competitors will resell. Because Sprint will continue to own these facilities, the maintenance functions will remain with Sprint. The existence of a competitor reselling Sprint services will not alter Sprint's responsibility to maintain its network for the benefit of both its customers and those of the reseller. Sprint will continue to repair, monitor, test, and maintain equipment, and meet all safety requirements. Maintenance expenses are not avoided.

Common expenses are not avoided; common costs are necessary to support all of the Company's services, they are not avoided due to the resale of retail services.

Uncollectible expenses are not avoided. Sprint's long distance division's experience with reseller write-offs, unsubstantiated billing adjustments, and fraudulent code abuse are similar to the rate of uncollectibles experienced by Sprint's local division. The type of uncollectible may be different, but the problem is still there.

G. Methodology - Account Analysis

The following accounts contain expenses which are not avoided due to resale. An analysis of each account was conducted which resulted in the determination that some subaccounts are avoided and some are non-avoided.

- 6611.XXX - Product Management
- 6612.XXX - Sales
- 6621.XXX - Call Completion Services

- 6622.XXX - Number Services
- 6623.XXX - Customer Services

The following accounts were identified as having non-avoided expenses.

6611.06X - FORECASTING - ICSC

This account shall include the pay, office, travel, and other expenses of employees whose responsibilities include coordinating planning sessions between the company and carriers for determining access facility requirements.

Exchange access services is not subject to resell, therefore the expense is not avoided. (FCC Order 96-325, Paragraph 874)

6611.07X - FORECASTING - OTHER

This account consists of the following four functions.

- Forecasts of customer demand for all services affecting central office equipment, outside plant, and interexchange facilities.
- Administrative forecasts, such as toll message and revenue forecasts and forecasts of movement and gain used in the preparation of the company construction program.
- Local economic forecasts.
- Special purpose forecasts, such as those used for determining interexchange service requirements.

The above functions will be required for all services including wholesale/resell services.

6612.02X - SALES - INTEREXCHANGE CARRIER SERVICE CENTER

This account shall include the administrative staff and direct expenses incurred to promote access orders from interexchange carriers and implementing the associated marketing strategies.

Exchange access service is not subject to resell. The above expenses are not avoided. (FCC Order 96-325, Paragraph 874)

6612.4XX - ENGINEERING AND PROJECT MANAGEMENT-BMO

This account shall include the expenses incurred by personnel that support project management and administration of sales projects, and shall include provisioning and installation. The positions charged to this account will be the managers-Technical Support, Senior Sales Engineers, Sales Engineers and Project Managers and Customer Service Specialist.

These functions will be required for the provisioning and installation of resell services such as CENTREX, Key, PBX, etc.

6621.XXX - CALL COMPLETION SERVICES

This account shall include expenses incurred in helping customers place and complete calls, except directory assistance. This includes handling and recording; intercept; quoting rates, time and charges; and all other activities involved in the manual handling of calls.

Resellers have stated they will provide these services themselves; therefore, this is not a resell service and there are no expenses to be avoided.

6622.1XX - NUMBER SERVICES

This account shall include expenses incurred in providing customer number and classified listings. This includes preparing or purchasing, compiling, and disseminating those listings through directory assistance or other means.

Resellers have stated they will provide these services themselves; therefore, this is not a resell service and there are no expenses to be avoided.

6622.2XX - ALPHABETICAL DIRECTORY EXPENSE

This account shall include alphabetical expenses associated with compilation, printing, binding, distribution, advertising commissions, etc. for the white page section.

A white page listing is part of the basic access line service and the expense is not avoided.

6623.XXX - CUSTOMER SERVICES

This account shall include expenses incurred in establishing and servicing customer accounts. This includes:

- Initiating customer service orders and records;
- Maintaining and billing customer accounts;
- Collecting and investigating customer accounts, including collecting revenues, reporting receipts, administering collection treatment, and handling contacts with customers regarding adjustments of bills;
- Collecting and reporting pay station receipts; and
- Instructing customers in the use of products and services.

This account shall also include amounts paid by interexchange carriers or other exchange carriers to another exchange carrier for billing and collection services.

The following sub-accounts of Customer Services were defined as having non-avoided expenses.

6623.05X - COLLECTING AND REPORTING PAYSTATIONS

This account shall include the expenses associated with coin telephone collection work including:

- Scheduling, making and delivering collections from coin telephones.
- Handling of working and duplicate coin telephone keys.
- Opening receptacles and counting coins.
- Preparing coin deposits.
- Internal security activities, including supervisory safeguarding checks.
- Expenses of attendants, clerks, messengers and operators at public telephones.
- Expenses of employees engaged in direct supervision of the operation of paystation collection and reporting activities.
- Clerical and miscellaneous operations associated with activities 1-7 above.

Paystations are not a retail offering; therefore, the expenses are not avoided.

6623.1XX - INTEREXCHANGE CUSTOMER SERVICE CENTER

This account shall include the expenses of Interexchange Customer Service Center (ICSC) employees engaged in the work functions of establishing and servicing customer accounts pertaining to switched and special access and interexchange private line.

- Serving as the initial point of contact with the carriers for receiving and processing customers' requests for service.
- Administering documented standard intervals for service by coordinating company activities as required.
- Creating and maintaining records of carrier services and handling customer complaints and requests.
- Administering the company's credit, deposit, advance payment and account treatment policies.
- Coordinating and handling all carrier billing inquiries and dispute resolutions.
- Providing for and making billing adjustments or special billings; and ensuring the accuracy of the billing data.
- Administering applicable interstate, intrastate, and general subscriber tariffs pertaining to provisioning and billing.
- Coordinating internal and external equal access conversion and post conversion PIC processing maintenance.

The only part of this service that will be avoided is the portion assigned to intraLATA private line. The portion attributable to switched and special access is not avoided. (FCC Order 96-325, Paragraph 874)

6623.62X - TOLL PROCESSING AND CONTROL

This account shall include the expense of the accounting staff necessary to operate the Toll Processing and Control module.

The toll processing function will be required in a wholesale/resell environment.

6623.63X - CARRIER ACCESS BILLING

This account shall include:

- The expenses associated with billing interexchange carriers for use of the company's network.
- The expenses associated with the accounting staff necessary to support the Carrier Access Billing System (this would include expenses of reconciling general ledger accounts and investigating and correcting the billing of errors).
- Division of revenue matters - monthly interchange of toll settlements with Bell or other connecting companies.

Exchange access services should not be subject to resell; therefore, these expenses are not avoided. (FCC Order 96-325, Paragraph 874)

6623.7XX - PAYSTATION COMMISSIONS

This account shall include amounts paid to the owners or tenants of premises upon which attended or non-attended public telephone stations and public toll stations are located, as general compensation for occupancy privileges, light, heat, attendance, and all services rendered incident to the furnishing of service from such stations.

Paystations are not a retail service. There will be no avoided expenses.

H. Methodology - Work Sheets

1. Introduction

The Introduction worksheet is simply a title page, including a brief (1 - 3 lines) description of each individual worksheet.

2. Summary

The Summary worksheet is a one-page summary of the Avoided Cost Study results. The worksheet identifies the total revenue per service group as calculated in the Revenue worksheet, the total avoided expense per service group as calculated in the Avoided Expense worksheet, the incremental expense directly attributable to resale as calculated in the Incremental worksheet, the net avoided expense as a percent of revenue, and the avoided expense amount per access line.

3. Revenue

The Revenue worksheet assigns each individual 7-digit GL revenue account to the service groups. The information is for the twelve-month period ending December 1995.

The worksheet shows the total account amount for the time period studied. It also identifies the service group to which the account is assigned and the amount that is actually assigned.

4. Avoided Expense

The Expense worksheet assigns each individual 7-digit GL expense account to the service groups. The information is for the twelve-month period ending December 1995.

The worksheet shows the total account amount for the time period studied. The worksheet also identifies whether the account is avoided according to the guidelines provided by the Act and the amount assigned to each service group based upon the expense drivers developed in the Drivers worksheet.

5. Drivers

The Drivers worksheet contains the expense drivers used to assign expenses in the Expense worksheet. The worksheet identifies the GL expense account and references the worksheet where this driver was developed. The worksheet also references what percent will be assigned to each service group.

Three accounts are directly assigned to service groups. These are Product Advertising - Other Services (GL account 6613.044), Customer Services - Revenue Accounting - Miscellaneous Customer Billing (GL accounts 6623.64X), and Customer Services - Customer Instruction (GL account 6623.01X).

6. Centrex

The Centrex worksheet segregates Centrex feature avoided expenses from Centrex access avoided expenses.

7. Product Management (Prod. Mgmt.)

The Marketing Department performed an informed judgment analysis of the product management function. Based upon the results of this study, Product Management expenses (GL accounts 6611.XXX) are assigned to the service groups.

8. Sales

The Marketing Department performed an analysis of the actual labor reporting associated with the sales function. Based upon the results of this labor reporting, Sales expenses (GL accounts 6612.XXX) were assigned to the service groups.

9. Product Advertising (Prod. Adv.)

The Marketing Department performed a responsibility code analysis of the product advertising function. Based upon the results of this study, Product Advertising expenses (GL accounts 6613.XXX) were assigned to the service groups.

10. Local Message Processing (LMP)

The Local Message Processing system maintains a record of IXC errors and exceptions by type and carrier. Based upon the summary of this information, Customer Services - Centralized Toll Investigation expenses (GL accounts 6623.02X) were assigned to the service groups.

11. National Access Services Center (NASC)

The NASC has replaced the Interexchange Carrier Services Center (ICSC). The NASC provided a special study which allows assignment of NASC activity to the service groups.

12. Customer Perception Survey (CPS)

A Customer Perception Survey is conducted regularly and based on the number and type of contacts. Based upon the summary of this information, Customer Services - Telephone Survey System expenses (GL accounts 6623.31X) were assigned to the service groups.

13. Billing Statistics (Bill.Stat.)

Customer Records and Billing (CRB) expenses were assigned to service groups utilizing the "Billing Statistics - Accounts" report and Customer Information System report. These reports record billing activity by account, not access lines. Based upon the summary of this information, Customer Services - Centralized Mail Remittance expenses (GL accounts 6623.32X) and Customer Services - CRB expenses (GL accounts 6623.61X) were assigned to the service groups.

14. Business Office Study (Bus. Off.)

An annual Business Office time and motion study is conducted by Sprint. The most recent report (excluding non-regulated products) is used to assign Business Office Production - Incoming Demand - Consumer/Simple Business expenses (GL accounts 6623.41X) to the service groups.

15. Business Service Center (Bus. Svc. Cntr.)

An annual Business Service Center time and motion study is conducted by Sprint. The most recent report (excluding non-regulated products) is used to assign Business Office Production - Incoming Demand - Complex Business expenses (GL accounts 6623.43X) to the service groups.

16. Postage

This expense (GL account 6623.615) is caused primarily by monthly billings to end-users. The number of access related accounts from the Billing Statistics worksheet is multiplied by the bulk postage rate to determine the amount of local postage. This local postage is assigned to service groups based upon that number of billed accounts.

17. Customer Service (Cust. Svc.)

This worksheet is used to assign customer services GS&L expenses to the service groups.

18. Lines

The Lines worksheet contains access line information used to assign End User - Business Flat Rate - Interstate revenue (GL account 5081.130) to service groups.

19. Incremental

There will be incremental expenses related to the wholesale function. For example, a bill must be prepared and sent to the reseller. Such expenses will have the effect of reducing the net level of avoided expenses. The Incremental worksheet determines the total incremental expenses directly attributable to local competition.

II. WORK SHEETS

The attached exhibit lists Sprint's General Ledger accounts. Column C indicates whether the account is considered avoided or non-avoided.

AVOIDED EXPENSE ANALYSIS

Company: Sprint
Year:Twelve Months Ending December 1995

(A) Account Number	(B) Account Description	(C) Avoided/ Not Avoided
6112XXX	MOTOR VEHICLE EXPENSE	N
6113XXX	AIRCRAFT EXPENSE	N
6114XXX	SPECIAL PURPOSE VEHICLE EXPENSE	N
6115XXX	GARAGE WORK EQUIPMENT EXPENSE	N
6116XXX	OTHER WORK EQUIPMENT	N
6121XXX	LAND & BUILDING EXPENSE	N
6122XXX	FURNITURE & ARTWORKS EXPENSE	N
6123XXX	OFFICE EQUIPMENT EXPENSE	N
6124XXX	GENERAL PURPOSE COMPUTER EXPENSE	N
6211XXX	ANALOG ELECTRONIC EXPENSE	N
6212XXX	DIGITAL ELECTRONIC EXPENSE	N
6215XXX	STEP-BY-STEP SWITCHING EXPENSE	N
6220XXX	OPERATOR SYSTEMS EXPENSE	N
6231XXX	SATELLITE & EARTH STATION FACILITIES EXPENSE	N
6232XXX	CIRCUIT EQUIPMENT EXPENSE	N
6311XXX	STATION APPARATUS EXPENSE	N
6341XXX	LPBX EXPENSE	N
6351XXX	PUBLIC TELEPHONE TERMINAL EQUIPMENT EXPENSE	N
6362XXX	OTHER TERMINAL EQUIPMENT	N
6411XXX	POLES EXPENSE	N
6421XXX	AERIAL CABLE EXPENSE	N
6422XXX	UNDERGROUND CABLE EXPENSE	N
6423XXX	BURIED CABLE-METALLIC EXPENSE	N
6424XXX	SUBMARINE CABLE-METALLIC EXPENSE	N
6426XXX	INTRABUILDING NETWORK CABLE-METALLIC EXPENSE	N
6431XXX	AERIAL WIRE EXPENSE	N
6441XXX	CONDUIT SYSTEMS EXPENSE	N
6512XXX	PROVISIONING EXPENSE	N
6531XXX	POWER EXPENSE	N
6532XXX	NETWORK ADMINISTRATION EXPENSE	N
6533XXX	GENERAL SUPERVISION EXPENSE	N
6534XXX	PLANT OPERATION ADMINISTRATION EXPENSE	N
6535XXX	ENGINEERING EXPENSE	N
6540XXX	ACCESS EXPENSE	N
6561XXX	DEPRECIATION EXPENSE - TELECOMM. PLANT IN SERVICE	N
6562XXX	DEPRECIATION EXPENSE - PROP HELD FOR FUTURE USE	N
6563XXX	AMORTIZATION EXPENSE - TANGIBLE	N
6564XXX	AMORTIZATION EXPENSE-ORGANIZATIONAL COSTS	N

6565XXX	AMORTIZATION EXP. - EMBEDDED INVESTMENT UNDER $500N	
6611011	PRODUCT MGMT - CONSUMER - SALARIES	A
6611012	PRODUCT MGMT - CONSUMER - BENEFITS	A
6611014	PRODUCT MGMT - CONSUMER - OTHER	A
6611016	GENERAL SERVICE & LICENSE -PRODUCT MNGMT/MKTG ADMIN	A & N
6611017	SERVICE COMPANY BILLING-CONDUIT-PRODUCT MGMT/MKTG ADMIN	A
6611061	PRODUCT MGMT-FORECASTING-ICSC-SAL-NON EXEMPT	N
6611062	PRODUCT MGMT-FORECASTING-ICSC-BEN-NON EXEMPT	N
6611064	PROD MGMT-FORECASTING-ICSC-OTH-NONEXEMPT-OVHD ALLOC	N
6611071	PRODUCT MANAGE.-FORECASTING-OTHER/SALARIES-DISTRIBUTION	N
6611072	PRODUCT MANAGE.-FORECASTING-OTHER/BENEFITS-DISTRIBUTION	N
6611074	PRODUCT MANAGE.-FORECASTING-OTHER/OTHER-DISTRIBUTION	N
6611986	GENERAL SERVICE AND LICENSE - PRODUCT MANAGEMENT	A & N
6611987	SERVICE COMPANY BILLING-CONDUIT-PRODUCT MGMT-OTHER	A
6611988	PROUDCT MGMT-OTHER-INTEGRATION COST	N
6612011	REGULATED SALES AND SERVICES/SALARIES - CBS	A
6612012	REGULATED SALES AND SERVICES/BENEFITS - CBS	A
6612014	REGULATED SALES AND SERVICES/OTHER - CBS	A
6612021	SALES-ICSC-SAL-NON EXEMPT	A & N
6612022	SALES-ICSC-BEN-NON EXEMPT	A & N
6612024	SALES ICSC - OTHER	A & N
6612031	SALES-TELEMARKETING-IN HOUSE/SALARIES	A
6612032	SALES-TELEMARKETING-IN HOUSE/BENEFITS	A
6612034	SALES-TELEMARKETING-IN HOUSE/OTHER	A
6612041	TELEMARKETING CL - TOUCH TONE	A
6612042	SALES - TELEMARKETING - CONTRACT - BENEFITS	A
6612044	SALES-TELEMARKETING-CONTRACT-TEMPORARIES/OTHER	A
6612051	SALES ADMINISTRATION-SPRINT DIRECT MKTG*SAL	A
6612052	SALES ADMINISTRATION-SPRINT DIRECT MKTG*BEN	A
6612054	SALES ADMIN *OTHER - JOINT COSTS	A
6612061	GENERAL MANAGEMENT SUPPORT - BMO * SALARIES	A
6612062	GENERAL MANAGEMENT SUPPORT - BMO • BENEFITS	A
6612064	GENERAL MANAGEMENT SUPPORT - BMO*OTHER - JOINT	A
6612321	SALES - COMMISSIONS & INCENTIVE PAY	A
6612322	SALES - COMM & INC PAY - BEN	A
6612324	TRAVEL & ENTERTAINMENT - BMO	A
6612334	MISC SELLING EXPENSE - BMO	A
6612411	ENGINEERING & PROJECT MGMT - BMO/ADMIN*SALARIES	N
6612412	ENGINEERING & PROJECT MGMT - BMO/ADMIN*BENEFITS	N
6612414	ENGINEERING & PROJECT MGMT - BMO-ENG*OTHER - JOINT	N
6612511	BRANCH MANAGEMENT - BMO • SALARIES	A
6612512	BRANCH MANAGEMENT - BMO * BENEFITS	A
6612514	BRANCH MANAGEMENT - BMO * OTHER	A
6612986	GENERAL SERVICE & LICENSE - SALES	A & N
6612987	SERVICE COMPANY BILLING-CONDUIT-SALES	A

6613011	STAFF SUPPORT FOR PRODUCT ADVERTISING/SALARIES	A
6613012	STAFF SUPPORT FOR PRODUCT ADVERTISING/BENEFITS	A
6613014	STAFF SUPPORT FOR PRODUCT ADVERTISING/OTHER	A
6613024	PRODUCT ADVERTISING-COMPLEX *E911	A
6613034	PRODUCT ADVERTISING-CONSUMER/SB *PAGING	A
6613044	PRODUCT ADVERTISING-OTHER SERVICES	A
6613986	GENERAL SERVICE AND LICENSE - PRODUCT ADVERTISING	A
6621XXX	CALL COMPLETION SERVICES	N
6622XXX	NUMBER SERVICES	N
6623011	CUSTOMER SERVICES-CUSTOMER INSTRUCTION/SALARIES	A
6623012	CUSTOMER SERVICES-CUSTOMER INSTRUCTION/BENEFITS	A
6623014	CUSTOMER SERVICES-CUSTOMER INSTRUCTION/OTHER	A
6623016	SERVICE COMPANY BILLING - CUSTOMER INSTRUCTION	A
6623021	CUSTOMER SERVICES-CENTRALIZED TOLL INVEST/SALARIES	A
6623022	CUSTOMER SERVICES-CENTRALIZED TOLL INVEST/BENEFITS	A
6623024	CUSTOMER SERVICES-CENTRALIZED TOLL INVEST/OTHER	A
6623026	GENERAL SERVICE & LICENSE - CENTRALIZED TOLL INVEST	A & N
6623051	COLLECTING AND REPORTING PAYSTATIONS/SALARIES	N
6623052	COLLECTING AND REPORTING PAYSTATIONS/BENEFITS	N
6623054	CUST SVCS-COLLECTING AND REPORTING PAYSTATIONS/OTHER	N
6623061	CUSTOMER SERVICES-BUSINESS OFFICE PRODUCTION/SALARIES	A
6623074	CUST SERV-BUSINESS OFFICE SUPERVISION-OTH-NONEXEMPT-OV	A
6623081	CUSTOMER SERVICES-INTEREXCHANGE SERVICE CENTER/SALARIES	N
6623111	INTERXCHG CUST SERVICE CENTER-PROVISIONING/SALARIES	A & N
6623112	INTERXCHG CUST SERVICE CENTER-PROVISIONING/BENEFITS	A & N
6623114	INTERXCHG CUST SERVICE CENTER-PROVISIONING/OTHER	A & N
6623121	INTERXCHG CUST SERVICE CENTER-ACCT MAINTENANCE/SALARIES	A & N
6623122	INTERXCHG CUST SERVICE CENTER-ACCT MAINTENANCE/BENEFITS	A & N
6623124	INTERXCHG CUST SERVICE CENTER-ACCT MAINTENANCE/OTHER	A & N
6623131	INTERXCHG CUST SERVICE CENTER-ACCT INVEST&COLL/SALARIES	A & N
6623132	INTERXCHG CUST SERVICE CENTER-ACCT INVEST&COLL/BENEFITS	A & N
6623134	INTERXCHG CUST SERVICE CENTER-ACCT INVEST&COLL/OTHER	A & N
6623141	INTERXCHG CUST SERVICE CENTER-GENERAL STAFF/SALARIES	A & N
6623142	INTERXCHG CUST SERVICE CENTER-GENERAL STAFF/BENEFITS	A & N
6623144	INTERXCHG CUST SERVICE CENTER-GENERAL STAFF/OTHER	A & N
6623147	SERVICE COMPANY BILLING-CONDUIT-GENERAL STAFF-ICSC	A & N
6623151	INTERXCHG CUST SERVICE CENTER-GEN SUPERVISION/SALARIES	A & N
6623152	INTERXCHG CUST SERVICE CENTER-GEN SUPERVISION/BENEFITS	A & N
6623154	INTERXCHG CUST SERVICE CENTER-GEN SUPERVISION/OTHER	A & N
6623161	INTERXCHG CUST SERVICE CENTER-CENT OPER GROUP/SALARIES	A & N
6623162	INTERXCHG CUST SERVICE CENTER-CENT OPER GROUP/BENEFITS	A & N
6623164	INTERXCHG CUST SERVICE CENTER-CENT OPER GROUP/OTHER	A & N
6623171	INTERXCHG CUST SERVICE CENTER-EQ ACCESS-SPOC/SALARIES	N
6623172	INTERXCHG CUST SERVICE CENTER-EQ ACCESS-SPOC/BENEFITS	N
6623174	INTERXCHG CUST SERVICE CENTER-EQ ACCESS-SPOC/OTHER	N

6623175	INTERXCHG CUST SERVICE CENTER-EQ ACCESS-BALLOTING COSTS	N
6623210	CUSTOMER SERVICES-GEN BUS OFC-MESSAGE RECORDING COST	N
6623311	CUSTOMER OPR-TELEPHONE SURVEY SYSTEM/SALARIES	A
6623312	CUSTOMER OPR-TELEPHONE SURVEY SYSTEM/BENEFITS	A
6623314	CUSTOMER OPR-TELEPHONE SURVEY SYSTEM/OTHER	A
6623316	TELEPHONE SURVEY SYSTEM - SERVICE CO. BILLING	A & N
6623321	CUSTOMER OPR-CENTRALIZED MAIL REMITTANCE/SALARIES	A
6623322	CUSTOMER OPR-CENTRALIZED MAIL REMITTANCE/BENEFITS	A
6623324	CUSTOMER OPR-CENTRALIZED MAIL REMITTANCE/OTHER	A
6623326	GENERAL SERVICE & LICENSE - CENTRALIZED MAIL REMIT	A & N
6623411	BUS OFF PRODUCTION-INCOMING DEM-CONSUMER/SIMPLE BUS/SAL	A
6623412	BUS OFF PRODUCTION-INCOMING DEM-CONSUMER/SIMPLE BUS/BEN	A
6623414	BUS OFF PRODUCTION-INCOMING DEM-CONSUMER/SIMPLE BUS/OTH	A
6623431	BUS OFF PRODUCTION-INCOMING DEM-COMPLEX BUS/SALARIES	A
6623432	BUS OFF PRODUCTION-INCOMING DEM-COMPLEX BUS/BENEFITS	A
6623434	BUS OFF PRODUCTION-INCOMING DEM-COMPLEX BUS/OTHER	A
6623441	BUS OFF PRODUCTION-COLLECTION/SALARIES	A
6623442	BUS OFF PRODUCTION-COLLECTION/BENEFITS	A
6623444	BUS OFF PRODUCTION-COLLECTION/OTHER	A
6623451	BUS OFF PRODUCTION-TELLER SALARIES	A
6623452	BUS OFF PRODUCTION-TELLER/BENEFITS	A
6623454	BUS OFF PRODUCTION-TELLER/OTHER	A
6623461	BUS OFF PRODUCTION-GENERAL STAFF SUPPORT/SALARIES	A
6623462	BUS OFF PRODUCTION-GENERAL STAFF SUPPORT/BENEFITS	A
6623464	BUS OFF PRODUCTION-GENERAL STAFF SUPPORT/OTHER	A
6623471	CUST SERV OBSERVING-SAL-N/E	A
6623472	CUST SERV-SERV OBSERVING-BEN-NON EXEMPT	A
6623474	SERVICE OBSERVING-BUSINESS OFFICE/OTHER	A
6623481	BUS OFF SUPERVISION/SALARIES	A
6623482	BUS OFF SUPERVISION/BENEFITS	A
6623484	BUS OFF SUPERVISION/OTHER	A
6623491	GENERAL BUSINESS OFFICE STAFF*E911/SALARIES	A
6623492	GENERAL BUSINESS OFFICE STAFF*E911/BENEFITS	A
6623494	GENERAL BUSINESS OFFICE STAFF*E911/OTHER	A
6623496	GENERAL SERVICE & LICENSE-GEN BUS OFFICE STAFF-IPOC	N
6623497	SERVICE COMPANY BILLING-CONDUIT-GEN BUS OFFICE STAFF	A
6623611	REVENUE ACCT-CUSTOMER RECORDS & BILLING-SALARIES	A
6623612	REVENUE ACCT-CUSTOMER RECORDS & BILLING-BENEFITS	A
6623614	REVENUE ACCT-CUSTOMER RECORDS & BILLING-OTHER	A
6623615	REVENUE ACCT-CUSTOMER RECORDS & BILLING-POSTAGE	A
6623616	SERVICE COMPANY BILLING-CUST RECORDS & BILLING	A & N
6623617	SERVICE COMPANY BILLING-CONDUIT-CUST RECORDS & BILLING	A
6623621	REVENUE ACCT-TOLL PROCESSING & CONTROL-SALARIES	N
6623622	REVENUE ACCT-TOLL PROCESSING & CONTROL-BENEFITS	N
6623624	REVENUE ACCT-TOLL PROCESSING & CONTROL-OTHER	N
6623626	SERVICE COMPANY BILLING-TOLL PROC & CONTROL	N
6623627	SERVICE COMPANY BILLING-CONDUIT-TOLL PROC & CONTROL	N

6623631	REVENUE ACCT-CARRIER ACCESS BILLING-SALARIES	A & N
6623632	REVENUE ACCT-CARRIER ACCESS BILLING-BENEFITS	A & N
6623634	REVENUE ACCT-CARRIER ACCESS BILLING-OTHER	A & N
6623636	SERVICE COMPANY BILLING-CARRIER ACCESS BILLING	A & N
6623641	REVENUE ACCT-MISCELLANEOUS CUSTOMER BILLING-SALARIES	A
6623642	REVENUE ACCT-MISC. CUSTOMER BILLING-BENEFITS	A
6623644	REVENUE ACCT-MISCELLANEOUS CUSTOMER BILLING-OTHER	A
6623646	SERVICE COMPANY BILLING-MISC CUSTOMER BILLING	A & N
6623654	OTHER-LIFELINE/LINK UP DISCOUNTS-INTRASTATE	N
6623699	CUSTOMER SERVICES-ALLOCATED	N
6623710	CUSTOMER SVCS-SPACE RENT	N
6623720	CUSTOMER SVCS-PAYSTATION COMMISSIONS-INTERSTATE TOLLS	N
6623730	CUSTOMER SVCS-PAYSTATION COMMISSION-INTRASTATE TOLLS	N
6623740	CUSTOMER SVCS-PAYSTATION COMMISSIONS-LOCAL CALL REVENUE	N
6623760	INTERSTATE/INTERLATA PAYSTATION COMMISSION EXPENSE	N
6623761	PAYSTATION COMM.-INTERSTATE INTERLATA	N
6623762	PAYSTATION COMM.-INTERSTATE INTERLATA	N
6623763	PAYSTATION COMM.-INTER INTER-AIR STATION	N
6623771	PAYSTATION COMM.-INTRASTATE INTERLATA	N
6623772	PAYSTATION COMM. INTRASTATE INTERLATA	N
6623773	PAYSTATION COMM. INTRASTATE-AIR STATION	N
6623790	CUSTOMER SVCS-MISCELLANEOUS COMMON CARRIER COMMISSIONS	N
6623800	PAYSTATION SHORTAGES	N
6623988	CUST SERV-INTEGRATION COST	N
6711011	EXECUTIVE	N
6712011	PLANNING	N
6721011	TREASURY	N
6722011	GOVERNMENT & REGULATORY AFFAIRS	N
6722121	CUSTOMER NEWSLETTER & MISC. BILL INSERTS - SALARIES	N
6722122	CUSTOMER NEWSLETTER & MISC. BILL INSERTS - BENEFITS	N
6722124	CUSTOMER NEWSLETTER & MISC. BILL INSERTS - OTHER	N
6723XXX	HUMAN RESOURCES ADMINISTRATION	N
6724XXX	INFORMATION MANAGEMENT	N
6725XXX	LEGAL	N
6726XXX	PROCUREMENT	N
6727XXX	RESEARCH & DEVELOPMENT	N
6728XXX	OTHER GENERAL & ADMINISTRATIVE	N
5300XXX	UNCOLLECTIBLE REVENUE	N

AVOIDED COST STUDY

OCTOBER 24, 1996

RANDY G. FARRAR

AVOIDED COST STUDY
TABLE OF CONTENTS

AVOIDED COST STUDY
SUMMARY
Company: Sprint Florida - Combined
Date: October 24, 1996

	Revenue	Avoided Expenses			
		Amount	Incremental Wholesale	Net	Percent of Revenue
Simple Access *	$ 236,263,703	$ 39,794,692	$ 1,760,764	$ 38,033,928	16.10%
Complex Access	77,623,421	8,520,447	376,997	8,143,450	10.49%
Features	48,284,998	15,332,704	678,414	14,654,290	30.35%
Operator/DA	19,528,792	2,043,630	90,423	1,953,207	10.00%
Other	76,124,717	8,424,924	372,771	8,052,153	10.58%
Total	457,825,631	74,116,397	3,279,369	70,837,029	15.47%

* Includes R1, B1, and Usage

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AVOIDED COST STUDY
SUMMARY
Company: Sprint Florida - Combined
Date: October 24, 1996

Account	Description	Wholesale Avoided Expenses						Total Avoided / Total Direct Expenses
		Simple Access	Complex Access	Features	Operator/ Dir. Ass.	Other	Total	
5XXX	Revenue	$ 236,263,703	$ 77,623,421	$ 48,284,998	$ 19,528,792	$ 76,124,717	$ 457,825,631	
Avoided Expenses								
6121	Land & Building	0	0	0	0	0	0	0.00%
6122	Furniture	0	0	0	0	0	0	0.00%
6123	Office Equipment	0	0	0	0	0	0	0.00%
6124	General Purpose Computers	0	0	0	0	0	0	0.00%
656X	Depreciation & Amortization	0	0	0	0	0	0	0.00%
6611	Product Management	473,899	2,188,689	1,218,812	796,799	498,801	5,177,000	63.48%
6612	Sales	0	3,245,153	7,335,165	0	41,558	10,621,877	72.19%
6613	Product Advertising	569,703	21,415	2,497,032	0	681,274	3,769,424	100.00%
6621	Call Completion Services	0	0	0	0	0	0	0.00%
6622	Number Services	0	0	0	0	0	0	0.00%
6623	Customer Services	38,751,090	3,065,191	4,281,694	1,246,831	7,203,291	54,548,097	85.49%
6711	Executive	0	0	0	0	0	0	0.00%
6712	Planning	0	0	0	0	0	0	0.00%
6721	Treasury	0	0	0	0	0	0	0.00%
6722	External Relations	0	0	0	0	0	0	0.00%
6723	Human Resources	0	0	0	0	0	0	0.00%
6724	Information Management	0	0	0	0	0	0	0.00%
6725	Legal	0	0	0	0	0	0	0.00%
6726	Procurement	0	0	0	0	0	0	0.00%
6727	Research & Development	0	0	0	0	0	0	0.00%
6728	Other G & A	0	0	0	0	0	0	0.00%
5301	Uncollectible Revenue	0	0	0	0	0	0	0.00%
	Total Avoidable Costs	39,794,692	8,520,447	15,332,704	2,043,630	8,424,924	74,116,397	
	Incremental Wholesale Costs	1,760,764	376,997	678,414	90,423	372,771	3,279,369	
	Net Avoided Costs	38,033,928	8,143,450	14,654,290	1,953,207	8,052,153	70,837,029	
	% of Revenue	16.10%	10.49%	30.35%	10.00%	10.58%	15.47%	

COST DRIVERS

KEY: 0.0000 Does Not Apply 0.0000 Calculated to zero		Reference Sheet	1 Residence Access	2 Simple Business Access	3 Centrex Access	4 Key Access	5 PBX Access	6 Features	7 LMS / EAS Usage	8 IntraLATA Toll	9 Local / Toll Private Line	10 Switched Access	11 Special Access	12 Operator / Dir. Asst.	13 Other	14 Non-Discounted Services
6121.XXX	LAND & BUILDINGS	Overhead	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6122.XXX	FURNITURE	Overhead	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6123.XXX	OFFICE EQUIPMENT	Overhead	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6124.XXX	GENERAL PURPOSE COMPUTERS	Overhead	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
656X.XXX	DEPRECIATION & AMORTIZATION	GS Assets	0.4149	0.0596	0.0258	0.0542	0.0218	0.1833	0.0011	0.0407	0.0418	0.0234	0.0080	0.0244	0.0182	0.0827
6611.01X	PRODUCT MGMT / MARKETING ADMIN	Prod. Mgmt	0.0409	0.0163	0.2196	0.0729	0.0595	0.1615	0.0142	0.0485	0.0266	0.0887	0.1006	0.1200	0.0000	0.0307
6611.016	GENERAL SERVICE & LICENSE -PROD. MGMT/MKTG ADMIN	Prod. Mgmt	0.0229	0.0091	0.1226	0.0407	0.0332	0.0902	0.0079	0.0271	0.0149	0.0495	0.0562	0.0670	0.0000	0.0172
6611.986	GENERAL SERVICE AND LICENSE - PRODUCT MANAGEMENT	Prod. Mgmt	0.0229	0.0091	0.1226	0.0407	0.0332	0.0902	0.0079	0.0271	0.0149	0.0495	0.0562	0.0670	0.0000	0.0172
6612.01X	SALES-REGULATED SALES & SERVICES	Sales	0.0000	0.0000	0.1749	0.4449	0.2273	0.1519	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0000
6612.03X	SALES - TELEMARKETING - IN HOUSE	Sales	0.0000	0.0000	0.0000	0.0000	0.0000	0.9937	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0063	0.0000
6612.02X	SALES-ICSC	NASC	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.4888	0.0000	0.0000	0.0000	0.0000	0.5112
6612.04X	SALES - TELEMARKETING - CONTRACT	Sales	0.0000	0.0000	0.0000	0.0000	0.0000	0.9937	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0063	0.0000
6612.05X	SALES ADMINISTRATION DIRECT MARKETING	Sales	0.0000	0.0000	0.0000	0.0000	0.0000	0.9937	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0063	0.0000
6612.3XX	SALES - COMMISSIONS & INCENTIVE PAY	Sales	0.0000	0.0000	0.2065	0.5252	0.2683	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6612.986	GENERAL SERVICE AND LICENSE - SALES	Sales	0.0000	0.0000	0.0041	0.0105	0.0053	0.0316	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000
6613.01X	PRODUCT ADV - STAFF SUPPORT FOR PRODUCT ADV	Prod. Adv.	0.1420	0.0091	0.0681	0.0000	0.0057	0.5943	0.0000	0.0000	0.1372	0.0000	0.0000	0.0000	0.0436	0.0000
6613.024	PRODUCT ADVERTISING - COMPLEX BUSINESS	*Prod. Adv.*	*0.0000*	*0.0000*	*0.4519*	*0.0000*	*0.0377*	0.0000	0.0000	0.0000	0.4388	0.0000	0.0000	0.0000	0.0716	0.0000
6613.034	PRODUCT ADVERTISING - CONSUMER / SIMPLE BUS	Prod. Adv.	0.1739	0.0112	0.0000	0.0000	0.0000	0.7279	0.0000	0.0000	0.0870	0.0000	0.0000	0.0000	0.0000	0.0000
6613.044	PRODUCT ADVERTISING - OTHER SERVICES	Prod. Adv.	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	0.0000
6613.986	GENERAL SERVICE AND LICENSE - PRODUCT ADVERTISING	Prod. Adv.	0.1420	0.0091	0.0681	0.0000	0.0057	0.5943	0.0000	0.0000	0.1372	0.0000	0.0000	0.0000	0.0436	0.0000
6621.XXX	CALL COMPLETION SERVICES	Direct	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6622.XXX	NUMBER SERVICES	Direct	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6623.01X	CUSTOMER SERVICES - CUSTOMER INSTRUCTION	Direct	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000
6623.016	SERVICE COMPANY BILLING - CUSTOMER INSTRUCTION	Note (2)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6623.02X	CUSTOMER SERVICES-CENTRALIZED TOLL INVESTIGATION	LMP	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.5167	0.0000	0.0000	0.0000	0.0000	0.0000	0.4833
6623.026	*GENERAL SERVICE & LICENSE - CENTRALIZED TOLL INVEST*	LMP	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.5167	0.0000	0.0000	0.0000	0.0000	0.0000	0.4833
6623.06X	CUSTOMER SERVICES-BUSINESS OFFICE PRODUCTION	Note (1)	0.6090	0.0869	0.0298	0.0421	0.0069	0.0835	0.0000	0.0223	0.0174	0.0303	0.0000	*0.0000*	*0.0283*	*0.0436*
6623.07X	CUSTOMER SERVICES-BUSINESS OFFICE SUPERVISION	Note (1)	0.6090	0.0869	0.0298	0.0421	0.0069	0.0835	0.0000	0.0223	0.0174	0.0303	0.0000	0.0000	0.0283	0.0436
6623.1XX	ICSC	NASC	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.4888	0.0000	0.0000	0.0000	0.0000	0.5112
6623.21X	CUSTOMER SERVICES-GEN BUS OFC-MESSAGE RECORDING	Note (1)	0.6090	0.0869	0.0298	0.0421	0.0069	0.0835	0.0000	0.0223	0.0174	0.0303	0.0000	0.0000	0.0283	0.0436
6623.31X	CUSTOMER SERVICES-TELEPHONE SURVEY SYSTEM	CPS	0.8879	0.1121	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6623.316	TELEPHONE SURVEY SYSTEM - SERVICE CO. BILLING	CPS	0.8879	0.1121	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6623.32X	CUSTOMER SERVICES-CENTRALIZED MAIL REMITTANCE	Bill. Stat.	0.3612	0.0519	0.0015	0.0002	0.0001	0.0000	0.0000	*0.2156*	*0.0036*	*0.0000*	*0.0000*	*0.1740*	0.0000	0.1918
6623.326	GENERAL SERVICE & LICENSE - CENTRALIZED MAIL REMIT	Bill. Stat.	0.3612	0.0519	0.0015	0.0002	0.0001	0.0000	0.0000	0.2156	0.0036	0.0000	0.0000	0.1740	0.0000	0.1918
6623.41X	BUS OFC PROD-INCOMING DEMAND-CONS/SIMPLE BUS	Bus. Off.	0.7716	0.0475	0.0000	0.0000	0.0000	0.0887	0.0000	0.0227	0.0000	0.0315	0.0000	0.0000	0.0000	0.0380
6623.43X	BUS OFC PROD-INCOMING DEMAND-COMPLEX BUS	Bus. Svc. Cntr.	0.0000	0.2348	0.1412	0.1996	0.0326	0.0641	0.0000	0.0209	0.0824	0.0258	0.0000	0.0000	0.1340	0.0646
6623.4XX	BUS OFC PROD-INCOMING DEMAND-OTHER	Note (1)	0.6090	0.0869	0.0298	0.0421	0.0069	0.0835	0.0000	0.0223	0.0174	0.0303	0.0000	0.0000	0.0283	0.0436
6623.61X	CUSTOMER SERVICES-REV ACTG-CUST RECORDS & BILLG	Bill. Stat.	0.3612	0.0519	0.0015	0.0002	0.0001	0.0000	0.0000	0.2156	0.0036	0.0000	0.0000	0.1740	0.0000	0.1918
6623.615	CUSTOMER SERVICES- ... -POSTAGE															
	Local Pool	Postage	0.8559	0.1230	0.0036	0.0005	0.0003	0.0000	0.0000	0.0000	0.0086	0.0000	0.0000	0.0000	0.0000	0.0081
	Toll Pool	Postage	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6623.616	SERVICE COMPANY BILLING-CUST RECORDS & BILLING	Bill. Stat.	0.3612	0.0519	0.0015	0.0002	0.0001	0.0000	0.0000	0.2156	0.0036	0.0000	0.0000	0.1740	0.0000	0.1918
6623.646	SERVICE COMPANY BILLING-MISC CUSTOMER BILLING	Bill. Stat.	0.3612	0.0519	0.0015	0.0002	0.0001	0.0000	0.0000	0.2156	0.0036	0.0000	0.0000	0.1740	0.0000	0.1918
6623.63X	REVENUE ACCOUNTING-CABS	CASS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0091	0.0009	0.0000	0.0000	0.9900
6623.64X	CUSTOMER SERVICES-REV ACTG-MISC CUSTOMER BILLG	Direct	0.0000	0.0000	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	0.0000
6711.XXX	EXECUTIVE	Overhead	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6712.XXX	PLANNING	Overhead	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6721.XXX	TREASURY	Overhead	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6722.XXX	EXTERNAL RELATIONS	Overhead	*0.0000*	*0.0000*	*0.0000*	*0.0000*	*0.0000*	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6723.XXX	HUMAN RESOURCES	Overhead	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6724.XXX	INFORMATION MANAGEMENT	Overhead	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6725.XXX	LEGAL	Overhead	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6725.XXX	PROCUREMENT	Overhead	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6727.XXX	RESEARCH & DEVELOPMENT	Overhead	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6728.XXX	OTHER GENERAL & ADMINISTRATIVE	Overhead	*0.0000*	*0.0000*	*0.0000*	*0.0000*	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5301.XXX	UNCOLLECTIBLE REVENUE	Overhead	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Note (1): Based on the weighted average of the Business Office study and the Business Service Center study, weighted on total expenses.
Note (2): No dollars in this account

CENTREX ADJUSTMENT

In the "Revenue" worksheet, Centrex feature revenue is segregated from Centrex access revenue. However, in the "Avoided Expense" worksheet, Centrex avoided expense cannot be segregated between features and access - Centrex avoided expense includes both access and features; Features avoided expense excludes Centrex features. Since the level of avoided costs for non-Centrex features is known, this level is assumed to be the same for Centrex features.

Total Feature Revenue	$ 48,284,998	(A)
Centrex Feature Revenue	5,829,129	(B)
Non-Centrex Feature Revenue	42,455,870	(C)=(A-B)
Non-Centrex Feature Avoided Expenses		(D)
% of Revenue		(E)=(D/C)

		(F) Non-Centrex Feature Avoided Expense	(G)=(F/C) % of Non-Centrex Feature Revenue	(H)=(G*B) Centrex Feature Avoided Expense	(I)=(F+H) Total Feature Avoided Expense
6121.XXX	Land & Buildings	$ -	0.00%	$ -	$ -
6122.XXX	Furniture	-	0.00%	-	-
6123.XXX	Office Equipment	-	0.00%	-	-
6124.XXX	Gen. Purpose Computers	-	0.00%	-	-
656X.XXX	Depreciation & Amort.	-	0.00%	-	-
6611.XXX	Product Management	1,071,673	2.52%	147,139	1,218,812
6612.XXX	Sales	6,490,658	15.29%	844,507	7,335,165
6613.XXX	Product Advertising	2,240,340	5.28%	256,692	2,497,032
6621.XXX	Call Completion	0	0.00%	0	0
6622.XXX	Number Services	0	0.00%	0	0
6623.XXX	Customer Services	3,764,794	8.87%	516,901	4,281,694
6711.XXX	Executive	0	0.00%	0	0
6712.XXX	Planning	0	0.00%	0	0
6721.XXX	Treasury	0	0.00%	0	0
6722.XXX	External Relations	0	0.00%	0	0
6723.XXX	Human Resources	0	0.00%	0	0
6724.XXX	Information Management	0	0.00%	0	0
6725.XXX	Legal	0	0.00%	0	0
6726.XXX	Procurement	0	0.00%	0	0
6727.XXX	Research & Development	0	0.00%	0	0
6728.XXX	Other G & A	0	0.00%	0	0
5301.XXX	Uncollectible Revenue	0	0.00%	0	0
		13,567,465	31.96%	1,765,239	15,332,704

PRODUCT MANAGEMENT
Analysis of 6611.XXX
Company: Sprint Florida - Combined

		Complex Business	Consumer/ Simple Business	Total	Total %
1	Residence Access	0	4,276	4,276	4.09%
2	Simple Business Access	0	1,705	1,705	1.63%
3	Centrex Access	22,941	0	22,941	21.96%
4	Key Access	7,612	0	7,612	7.29%
5	PBX Access	6,217	0	6,217	5.95%
6	Features	0	16,870	16,870	16.15%
7	LMS/EAS Usage	0	1,479	1,479	1.42%
8	IntraLATA Toll	0	5,068	5,068	4.85%
9	Local/Toll Private Line	2,784	0	2,784	2.66%
10	Switched Access	9,264	0	9,264	8.87%
11	Special Access	10,512	0	10,512	10.06%
12	Operator/DA	8,640	3,903	12,543	12.00%
13	Other	0	0	0	0.00%
14	Non-Discounted Services	3,211	0	3,211	3.07%
		71,181	33,301	104,482	100.00%

Analysis of 6611.986

Account	Description	Residence Access	Simple Business Access	Centrex Access	Key Access	PBX Access	Features	LMS / EAS Usage	IntraLATA Toll	Local / Toll Private Line	Switched Access	Special Access	Operator / Dir. Asst.	Other	Non-Discounted Services
Avoided Expense Summary 6611.0XX															
6611011	PRODUCT MGMT - CONSU	79,210	31,584	424,964	141,006	115,165	312,504	27,397	93,881	51,571	171,608	194,727	232,349	0	59,481
6611012	PRODUCT MGMT - CONSU	15,745	6,278	84,476	28,030	22,893	62,120	5,446	18,662	10,252	34,113	38,708	46,187	0	11,824
6611014	PRODUCT MGMT - CONSU	51,205	20,417	274,718	91,154	74,448	202,018	17,711	60,689	33,338	110,936	125,881	150,202	0	38,452
6611061	PRODUCT MGMT-FORECA	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6611062	PRODUCT MGMT-FORECA	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6611064	PROD MGMT-FORECASTI	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6611071	PRODUCT MANAGE.-FOR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6611072	PRODUCT MANAGE.-FOR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6611074	PRODUCT MANAGE.-FOR	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Sub Total	146,160	58,279	784,158	260,190	212,506	576,642	50,554	173,232	95,161	316,657	359,316	428,739	0	109,757
	% Avoided	2.29%	0.91%	12.26%	4.07%	3.32%	9.02%	0.79%	2.71%	1.49%	4.95%	5.62%	6.70%	0.00%	1.72%

SALES EXPENSE STUDY
Analysis of 6612.XXX
Company Sprint Florida - Combined

	Complex Business	% of Total	Consumer/ Simple Business	% of Total	Total	% of Total
1 Residence Access	0	0.00%	0	0.00%	0	0.00%
2 Simple Business Access	0	0.00%	0	0.00%	0	0.00%
3 Centrex Access	55,301	20.65%	0	0.00%	55,301	17.49%
4 Key Access	140,651	52.52%	0	0.00%	140,652	44.49%
5 PBX Access	71,852	26.83%	0	0.00%	71,852	22.73%
6 Features	0	0.00%	48,029	99.37%	48,029	15.19%
7 LMS/EAS Usage	0	0.00%	0	0.00%	0	0.00%
8 IntraLATA Toll	0	0.00%	0	0.00%	0	0.00%
9 Local/Toll Private Line	0	0.00%	0	0.00%	0	0.00%
10 Switched Access	0	0.00%	0	0.00%	0	0.00%
11 Special Access	0	0.00%	0	0.00%	0	0.00%
12 Operator/DA	0	0.00%	0	0.00%	0	0.00%
13 Other	0	0.00%	303	0.63%	303	0.10%
14 Non-Discounted Services	0	0.00%	0	0.00%	0	0.00%
	267,804	100.00%	48,332	100.00%	316,137	100.00%

Analysis of 6612.986

Account	Description	Residence Access	Simple Business Access	Centrex Access	Key Access	PBX Access	Features	LMS / EAS Usage	IntraLATA Toll	Local / Toll Private Line	Switched Access	Special Access	Operator / Dir. Asst.	Other	Non-Discounted Services	
Avoided Expense Summary 6612.XX																
6612011	REGULATED SALES AND SERVI	0	0	579,944	1,475,014	753,516	503,681	0	0	0	0	0	0	3,178	0	
6612012	REGULATED SALES AND SERVI	0	0	75,866	192,956	98,572	65,890	0	0	0	0	0	0	416	0	
6612014	REGULATED SALES AND SERVI	0	0	170,954	434,799	222,118	148,473	0	0	0	0	0	0	937	0	
6612021	SALES-ICSC-SAL-NON EXEMPT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6612022	SALES-ICSC-BEN-NON EXEMPT	0	0	0	0	0	0	0	0	31	0	0	0	0	32	
6612024	SALES ICSC - OTHER	0	0	0	0	0	0	0	0	567	0	0	0	0	593	
6612031	SALES-TELEMARKETING-IN HO	0	0	0	0	0	247,853	0	0	0	0	0	0	1,564	0	
6612032	SALES-TELEMARKETING-IN HO	0	0	0	0	0	64,741	0	0	0	0	0	0	408	0	
6612034	SALES-TELEMARKETING-IN HO	0	0	0	0	0	134,345	0	0	0	0	0	0	848	0	
6612041	TELEMARKETING CL - TOUCH T	0	0	0	0	0	99,287	0	0	0	0	0	0	626	0	
6612042	SALES - TELEMARKETING - CON	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6612044	SALES-TELEMARKETING-CONT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6612051	SALES ADMINISTRATION-SPRIN	0	0	0	0	0	3,398,667	0	0	0	0	0	0	21,441	0	
6612052	SALES ADMINISTRATION-SPRIN	0	0	0	0	0	749,491	0	0	0	0	0	0	4,728	0	
6612054	SALES ADMIN "OTHER - JOINT C	0	0	0	0	0	941,881	0	0	0	0	0	0	5,942	0	
6612061	GENERAL MANAGEMENT SUPP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6612062	GENERAL MANAGEMENT SUPP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6612064	GENERAL MANAGEMENT SUPP	0	0	2	5	2	2	0	0	0	0	0	0	0	0	
6612321	SALES - COMMISSIONS & INCEN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6612322	SALES - COMM & INC PAY - BEN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6612324	TRAVEL & ENTERTAINMENT - B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6612334	MISC SELLING EXPENSE - BMO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6612411	ENGINEERING & PROJECT MGM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6612412	ENGINEERING & PROJECT MGM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6612414	ENGINEERING & PROJECT MGM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6612511	BRANCH MANAGEMENT - BMO *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6612512	BRANCH MANAGEMENT - BMO *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6612514	BRANCH MANAGEMENT - BMO *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Sub Total	0	0	826,766	2,102,774	1,074,209	5,354,311	0	0	598	0	0	0	40,087	626	##########
	% Total	0.00%	0.00%	7.95%	20.22%	10.33%	51.10%	0.00%	0.00%	0.01%	0.00%	0.00%	0.00%	0.39%	0.01%	
	Avoided Expenses	0	0	17,740	45,120	23,050	136,348	0	0	13	0	0	0	860	13	
	% Total	0.00%	0.00%	0.41%	1.05%	0.53%	3.16%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.02%	0.00%	5.17%

6612.99 GENERAL SERVICE AND LICEN	4,315,352
% Avoided	5.17%
Avoided Expenses	223,145

Special Study of 6612.986

Carrier Systems	##########
Carrier Operations	2,036,951
AT&T Program Development	1,440,590
Total IXC	16,170,142
Total 6612.986	17,051,888
% IXC Related	94.83%

PRODUCT ADVERTISING STUDY
Analysis of 6613.XXX
Company: Sprint Florida - Combined

KEY:	0.00 Does Not Apply
	0.00 Calculated to zero

	Complex Business	Consumer/ Simple Business	Other	Weighted Average *
1 Residence Access	0.00%	17.39%	0.00%	14.20%
2 Simple Business Access	0.00%	1.12%	0.00%	0.91%
3 Centrex Access	45.19%	0.00%	0.00%	6.81%
4 Key Access	0.00%	0.00%	0.00%	0.00%
5 PBX Access	3.77%	0.00%	0.00%	0.57%
6 Features	0.00%	72.79%	0.00%	59.43%
7 LMS/EAS Usage	0.00%	0.00%	0.00%	0.00%
8 IntraLATA Toll	0.00%	0.00%	0.00%	0.00%
9 Local/Toll Private Line	43.88%	8.70%	0.00%	13.72%
10 Switched Access	0.00%	0.00%	0.00%	0.00%
11 Special Access	0.00%	0.00%	0.00%	0.00%
12 Operator/DA	0.00%	0.00%	0.00%	0.00%
13 Other	7.16%	0.00%	100.00%	4.36%
14 Non-Discounted Services	0.00%	0.00%	0.00%	0.00%
Grand Total	100.00%	100.00%	100.00%	100.00%

* Weighted average based upon avoided expenses.

CUSTOMER SERVICES - CENTRALIZED TOLL INVESTIGATION

LOCAL MESSAGE PROCESSING SYSTEM

Company: Sprint Florida - Combined
Study Period: 1994

	IntraLATA (Carrier 000)			InterLATA (IXCs)		
	Deny All Knowledge	Unbilled	Other	Deny All Knowledge	Unbilled	Other
January	8,797	13,473	13,081	6,359	8,409	13,891
February	4,654	6,245	10,823	6,145	4,326	12,804
March	5,155	5,827	14,209	6,222	5,095	17,601
April	4,350	7,664	13,617	9,520	6,006	14,453
May	3,146	10,107	11,617	11,314	5,002	11,216
June	3,887	12,121	14,895	7,921	7,376	9,667
July	7,373	12,859	48,233	10,455	6,858	5,562
August	5,178	8,352	15,340	7,791	9,221	34,413
September	0	0	0	0	0	0
October	0	0	0	0	0	0
November	0	0	0	0	0	0
December	0	0	0	0	0	0
Total	42,540	76,648	141,815	65,727	52,293	119,607
Weighting	2	2	1	2	2	1
Wt. Total	85,080	153,296	141,815	131,454	104,586	119,607
Grand Total			380,191			355,647
% of Grand Total			51.67%			48.33%

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NASC SPECIAL STUDY
Company: Sprint Florida - Combined
Study Period: 1995

KEY:	0.00 Does Not Apply
	0.00 Calculated to zero

Note: GL ISCS accounts include intraLATA private line as well as NASC activity. The difference between the GL account value and the actual NASC charges is directly attributable to intraLATA private line. The actual NASC activity is attributable to Switched Access and Special Access based upon ASR (Access Service Request) count.

ASRs	Florida Combined		Weighting	Weighted			Total	Florida % of Total	
Switched	5,956		1.50	8,934	-	-	8,934	88.25%	(C)
Special	1,189		1.00	1,189	-	-	1,189	11.75%	(D)
				10,123 (A)	-	-	10,123 (B)	100.00%	

Actual 1995 NASC Charges						
Florida	2,040,992	(E)				
Florida	2,040,992	(F) = (E * A/B)				
			IntraLATA Private Line	1,951,196	(G)	48.88%
Amount Recorded in GL	3,992,188		Switched Access	1,801,267	(H * C)	45.12%
Less Actual	2,040,992	(H)	Special Access	239,725	(H * D)	6.00%
	1,951,196	(G)				100.00%

1	Residence Access	0.00%	
2	Simple Business Access	0.00%	
3	Centrex Access	0.00%	
4	Key Access	0.00%	
5	PBX Access	0.00%	
6	Features	0.00%	
7	LMS/EAS Usage	0.00%	
8	IntraLATA Toll	0.00%	
9	Local/Toll Private Line	48.88%	(Avoided)
10	Switched Access	45.12%	(Not Avoided)
11	Special Access	6.00%	(Not Avoided)
12	Operator/DA	0.00%	
13	Other	0.00%	
		100.00%	

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CUSTOMER PERCEPTION SURVEY
Company: Sprint Florida - Combined
Time Period: August, 1996

KEY:	0.00	Does Not Apply
	0.00	Calculated to zero

		Survey Percent
1	Residence Access	88.79%
2	Simple Business Access	11.21%
3	Centrex Access	0.00%
4	Key Access	0.00%
5	PBX Access	0.00%
6	Features	0.00%
7	LMS/EAS Usage	0.00%
8	IntraLATA Toll	0.00%
9	Local/Toll Private Line	0.00%
10	Switched Access	0.00%
11	Special Access	0.00%
12	Operator/DA	0.00%
13	Other	0.00%
14	Non-Discounted Services	0.00%
		100.00%

BILLING STATISTICS - ACCOUNTS REPORT

Company: Sprint Forida - Combined
Period: December 1995 - May 1996

Report	Number of Accounts Billed Average	Percent of Total	Product Family
Res. Svc.	1,260,257	36.12%	1
Bus. Svc.	181,031	5.19%	2
Centrex	5,287	0.15%	3
D/A Chrgs.	607,008	17.40%	12
PBX Svc.	450	0.01%	5
Key Sys.	736	0.02%	4
Semipublic	1,533	0.04%	14
Public	10,365	0.30%	14
Mobile	2	0.00%	14
WATS	878	0.03%	8
Local Pvt Ln	7,921	0.23%	9
Pvt TRA TER	53	0.00%	9
Pvt TRA TRA	4,748	0.14%	9
Pvt TER TER	0	0.00%	11
Pvt TER TRA	0	0.00%	11
MTS TRA TER	316,404	9.07%	14
MTS TRA TRA	713,085	20.44%	8
MTS TER TER	341,026	9.77%	14
MTS TER TRA	38,493	1.10%	8
Grand Total	3,489,277	100.00%	

Note (1): Access Line information is from CIS data base, as of March 1996.

Sprint - Proprietary Information
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BUSINESS OFFICE STUDY

Office: Sprint Florida - Combined
Study Date: February 1 - 28, 1995

KEY:	0.00	Does Not Apply
	0.00	Calculated to zero

Weighted Monthly Tallies

	Service Order Processing	Service / Repair Inquires	Billing Inquires	Total	% of Total
1 Residence Access	30,857,016	10,136,840	8,454,983	49,448,839	76.99%
Touchtone *	69,992	37,225	2,733	109,950	0.17%
Total Residence	30,927,008	10,174,065	8,457,716	49,558,789	77.16%
2 Simple Business Access	1,739,925	835,107	465,504	3,040,536	4.73%
Touchtone *	3,947	3,067	150	7,164	0.01%
Total Simple Business	1,743,872	838,174	465,654	3,047,700	4.75%
3 Centrex Access	0	0	0	0	0.00%
4 Key Access	0	0	0	0	0.00%
5 PBX Access	0	0	0	0	0.00%
6 CCF	2,845,106	1,671,896	62,329	4,579,331	7.13%
CLASS	707,970	387,906	21,119	1,116,995	1.74%
Features	3,553,076	2,059,802	83,448	5,696,326	8.87%
7 LMS/EAS Usage	0	0	0	0	0.00%
8 IntraLATA Toll - Intrastate	0	0	1,459,287	1,459,287	2.27%
IntraLATA Toll - Interstate	0	0	0	0	0.00%
Total IntraLATA Toll	0	0	1,459,287	1,459,287	2.27%
9 Toll Private Line	0	0	0	0	0.00%
Local Private Line	0	0	0	0	0.00%
Total Private Line	0	0	0	0	0.00%
10 InterLATA Toll - Intrastate	0	0	0	0	0.00%
InterLATA Toll - Interstate	0	0	2,022,661	2,022,661	3.15%
Total Switched Access	0	0	2,022,661	2,022,661	3.15%
11 Special Access	0	0	0	0	0.00%
12 Operator Svc/Dir Asst	0	0	0	0	0.00%
13 Directory	0	0	0	0	0.00%
Other	0	0	0	0	0.00%
Total Other	0	0	0	0	0.00%
14 Non-Discounted Services					
Directory Advertising	0	0	0	0	0.00%
Equal Access	1,293,013	862,479	284,598	2,440,090	3.80%
	1,293,013	862,479	284,598	2,440,090	3.80%
Grand Total	37,516,969	13,934,520	12,773,364	64,224,853	100.00%
Touchtone *	73,939	40,292	2,883		

* Assigned to Residence and Simple Business

Sprint - Proprietary Information

BUSINESS SERVICE CENTER STUDY

Office: Sprint Florida - Combined
Study Date: April 3 - 24, 1995

KEY:	
0.00	Does Not Apply
0.00	Calculated to zero

Weighted Monthly Tallies

	Service Order Processing	Service / Repair Inquires	Billing Inquires	Total	% of Total
1 Residence Access	0	0	0	0	0.00%
2 Simple Business Access	886,798	599,097	313,551	1,799,446	23.48%
Touchtone *	0	0	0	0	0.00%
	886,798	599,097	313,551	1,799,446	23.48%
3 Centrex Access	408,408	533,276	140,991	1,082,675	14.12%
Touchtone *	0	0	0	0	0.00%
	408,408	533,276	140,991	1,082,675	14.12%
4 Key Access	773,843	563,436	192,336	1,529,615	19.96%
Touchtone *	0	0	0	0	0.00%
	773,843	563,436	192,336	1,529,615	19.96%
5 PBX Access	99,381	106,966	43,819	250,166	3.26%
Touchtone *	0	0	0	0	0.00%
	99,381	106,966	43,819	250,166	3.26%
6 CCF	242,827	240,942	7,358	491,127	6.41%
CLASS	0	0	0	0	0.00%
Features	242,827	240,942	7,358	491,127	6.41%
7 LMS/EAS Usage	0	0	0	0	0.00%
8 IntraLATA Toll - Intrastate	34,874	93,849	31,634	160,357	2.09%
IntraLATA Toll - Interstate	0	0	0	0	0.00%
Total IntraLATA Toll	34,874	93,849	31,634	160,357	2.09%
9 Local Private Line	68,352	203,717	44,278	316,347	4.13%
Toll Private Line	65,597	189,315	60,501	315,413	4.11%
Switched Link	0	0	0	0	0.00%
Total Private Line	133,949	393,032	104,779	631,760	8.24%
10 InterLATA Toll - Intrastate	0	0	0	0	0.00%
InterLATA Toll - Interstate	69,130	96,744	31,884	197,758	2.58%
Total Switched Access	69,130	96,744	31,884	197,758	2.58%
11 Special Access	0	0	0	0	0.00%
12 Operator Svc/Dir Asst	0	0	0	0	0.00%
13 WATS	0	0	0	0	0.00%
Other	0	0	0	0	0.00%
Total Other	272,209	586,520	168,547	1,027,276	13.40%
14 Non-Discounted Services					
COCOT	0	0	0	0	0.00%
Public Telephone	0	0	0	0	0.00%
E911	0	0	0	0	0.00%
Touchtone *	0	0	0	0	0.00%
Equal Access	126,000	198,990	89,178	414,168	5.40%
Directory Advertising	34,850	24,806	21,008	80,664	1.05%
	160,850	223,796	110,186	494,832	6.46%
Grand Total	3,082,269	3,437,658	1,145,085	7,665,012	100.00%
Touchtone *	0	0	0		

* Assigned to Simple Business, Centrex, Key, PBX, COCOT, Public Telephone, E911, and Switched Link.

Sprint - Proprietary Information

POSTAGE ANALYSIS
Company: Sprint Florida - Combined

KEY:	0.00	Does Not Apply
	0.00	Calculated to zero

	Local Pool Accounts	% of Total
1 Residence Access	1,260,257	85.59%
2 Simple Business Access *	181,031	12.30%
3 Centrex Access	5,287	0.36%
4 Key Access	736	0.05%
5 PBX Access	450	0.03%
6 Features	0	0.00%
7 LMS/EAS Usage	0	0.00%
8 IntraLATA Toll	0	0.00%
9 Local/Toll Private Line	12,722	0.86%
10 Switched Access	0	0.00%
11 Special Access	0	0.00%
12 Operator/DA	0	0.00%
13 Other **	0	0.00%
14 Non-Discounted Services ***	11,900	0.81%
(A)	1,472,383	100.00%

Postage Calculation		
Bulk Rate:	$ 0.2810	(B)
6623.615	$ 4,591,314	(C)
Local Pool:	4,591,314	(D)
Toll Pool:	0	(E)

(D) = (A * B * 12); or (C)
(E) = (D - C)

* Includes 1, 2, 4, and multi- party business, and foreign exchange
** Includes Public, Semi-Public, COCOT, Mobile, Service Station, and WATS

CASS STUDY
Company: Sprint Florida - Combined

KEY:	0.00	Does Not Apply
	0.00	Calculated to zero

		% Avoided
1	Residence Access	0.00%
2	Simple Business Access	0.00%
3	Centrex Access	0.00%
4	Key Access	0.00%
5	PBX Access	0.00%
6	Features	0.00%
7	LMS/EAS Usage	0.00%
8	IntraLATA Toll	0.00%
9	Local/Toll Private Line	0.00%
10	Switched Access	0.91%
11	Special Access	0.09%
12	Operator/DA	0.00%
13	Other	0.00%
		1.00%

Note:
Only that portion utilized by non-IXC end-users is considered avoided.

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ACCESS LINE INFORMATION
Company: Sprint Florida - Combined

KEY:	0.00	Does Not Apply
	0.00	Calculated to zero

		Access Lines	% of Total	% of Business	Business Weighted	% of Business Weighted
1	Residence Access •	1,227,659	72.60%	0.00%		
2	Simple Business Access **	204,032	12.07%	44.03%	714,112	31.89%
3	Centrex Access	105,420	6.23%	22.75%	632,520	28.24%
4	Key Access	110,739	6.55%	23.90%	664,434	29.67%
5	PBX Access	30,967	1.83%	6.68%	185,802	8.30%
6	Features	0	0.00%	0.00%		
7	LMS/EAS Usage	0	0.00%	0.00%		
8	IntraLATA Toll	0	0.00%	0.00%		
9	Local/Toll Private Line	0	0.00%	0.00%		
10	Switched Access	0	0.00%	0.00%		
11	Special Access	0	0.00%	0.00%		
12	Operator/DA	0	0.00%	0.00%		
13	Other ***	945	0.06%	0.21%	3,308	0.15%
14	Non-Discounted Services ****	11,269	0.67%	2.43%	39,442	1.76%
		1,691,031	100.00%	100.01%	2,239,617	100.00%

• Includes LMS customers.
** Includes 1, 2, 4, and multi- party business, and foreign exchange
*** Includes COCOT, Service Station, and WATS; excludes company official.
**** Includes Public, Semi-Public, and Mobile; excludes company official.

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INCREMENTAL WHOLESALE EXPENSES

CORPORATE SUMMARY	Year 1	Year 2	Year 3	Year 4	Year 5
System Deveopment	$ 1,488,744	$ 7,967,232	$ 6,806,292	$ 5,053,789	$0
System Deveopment Support	139,051	144,613	150,398	156,414	162,670
Miscellaneous	25,194	26,202	27,250	28,340	29,473
Corporate Staff	2,579,599	2,682,783	2,232,076	1,741,019	1,207,106
	4,232,588	10,820,830	9,216,016	6,979,561	1,399,250
Demand	6,765,853	7,036,487	7,317,947	7,610,664	7,915,091
Levelized at 10%					
Expense	3,847,808	8,942,835	6,924,129	4,767,134	868,824
Demand	6,150,775	5,815,279	5,498,082	5,198,186	4,914,649
$ / Access Line / Year	$ 0.9193				
OTC specific	$ 1.02				
Total per Access Line	$ 1.9393				
Access Lines	1,691,031				
Total Incremental Add-Back	$ 3,279,369 (1)				

(1) This value is attributed to services based upon avoided expenses.

	Avoided Expenses	% of Total	Attributed Incremental Add-Backs
1 Residence Access	34,712,858	46.84%	$ 1,535,912
2 Simple Business Access	4,987,881	6.73%	220,695
3 Centrex Access	2,162,550	2.92%	95,685
4 Key Access	4,531,814	6.11%	200,516
5 PBX Access	1,826,083	2.46%	80,797
6 Features	15,332,704	20.69%	678,414
7 LMS/EAS Usage	93,954	0.13%	4,157
8 IntraLATA Toll	3,406,191	4.60%	150,711
9 Local/Toll Private Line	3,493,517	4.71%	154,575
10 Switched Access *	0	0.00%	0
11 Special Access *	0	0.00%	0
12 Operator/DA	2,043,630	2.76%	90,423
13 Other	1,525,216	2.06%	67,485
14 Non-Discounted Services *	0	0.00%	0
	74,116,397	100.00%	3,279,369

* Add-backs not assigned to Non-Discounted Services

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OPERATOR SURCHARGE ADJUSTMENT

Account 5100.410, IntraLATA Toll, includes operator surcharge revenues, which properly belong in the Operator/DA product (Product 12), not the IntraLATA Toll product (Product 8).

Operator assisted calls:		-	
Rate per call	$	-	
Operator assist revenues:	$	3,509,032	Source - See Below

Operator Assited Revenues (A/C 5100 410):

Category	Avg Units	Rate	Annual Revenue
Credit Card	114812	$0.75	$1,033,308
Person To Person	3130	$2.50	$93,900
Other	155475	$1.00	$1,865,700
Set Use Charge	168885	$0.25	$506,655
Busy Verify	680	$0.95	$7,752
Emergency Interrupt	318	$0.45	$1,717
			$3,509,032

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FLORIDA PUBLIC SERVICE COMMISSION
DOCKET NO. 961230-TP EXHIBIT NO Comp 21
COMPANY/ WITNESS: FARRAR / SPRINT
DATE: 12/18/96

DOCUMENT NUMBER-DATE
12194 NOV 15 96
FPSC-RECORDS/REPORTING

UNBUNDLED NETWORK ELEMENTS COST STUDIES

A.

Local Loops

Company: **Sprint - Florida**

Rate Element: **Local Loops**

State	Loop Type	Band	Percent of Loops	Weighted Avg Cost	Common	Loop Price
Florida	2 wire voice grade					
	$0-$11.99	1	14.10%	8.87	0.145832	10.16
	$12.00-$16.99	2	17.40%	14.90	0.145832	17.07
	$17.00-$21.99	3	22.00%	19.36	0.145832	22.18
	$22.00-$26.99	4	16.60%	24.15	0.145832	27.67
	$27.00-$31.99	5	9.30%	29.31	0.145832	33.58
	$32.00-$41.99	6	8.10%	36.33	0.145832	41.63
	$42.00-$54.99	7	7.20%	47.81	0.145832	54.78
	$55.00+	8	5.20%	68.52	0.145832	78.51
	4 wire voice grade					
		1		14.90	0.145832	17.07
		2		25.03	0.145832	28.68
		3		32.52	0.145832	37.27
		4		40.57	0.145832	46.49
		5		49.24	0.145832	56.42
		6		61.03	0.145832	69.94
		7		80.32	0.145832	92.03
		8		115.11	0.145832	131.90

Florida Cost Support for 4 wire Voice Grade Loop

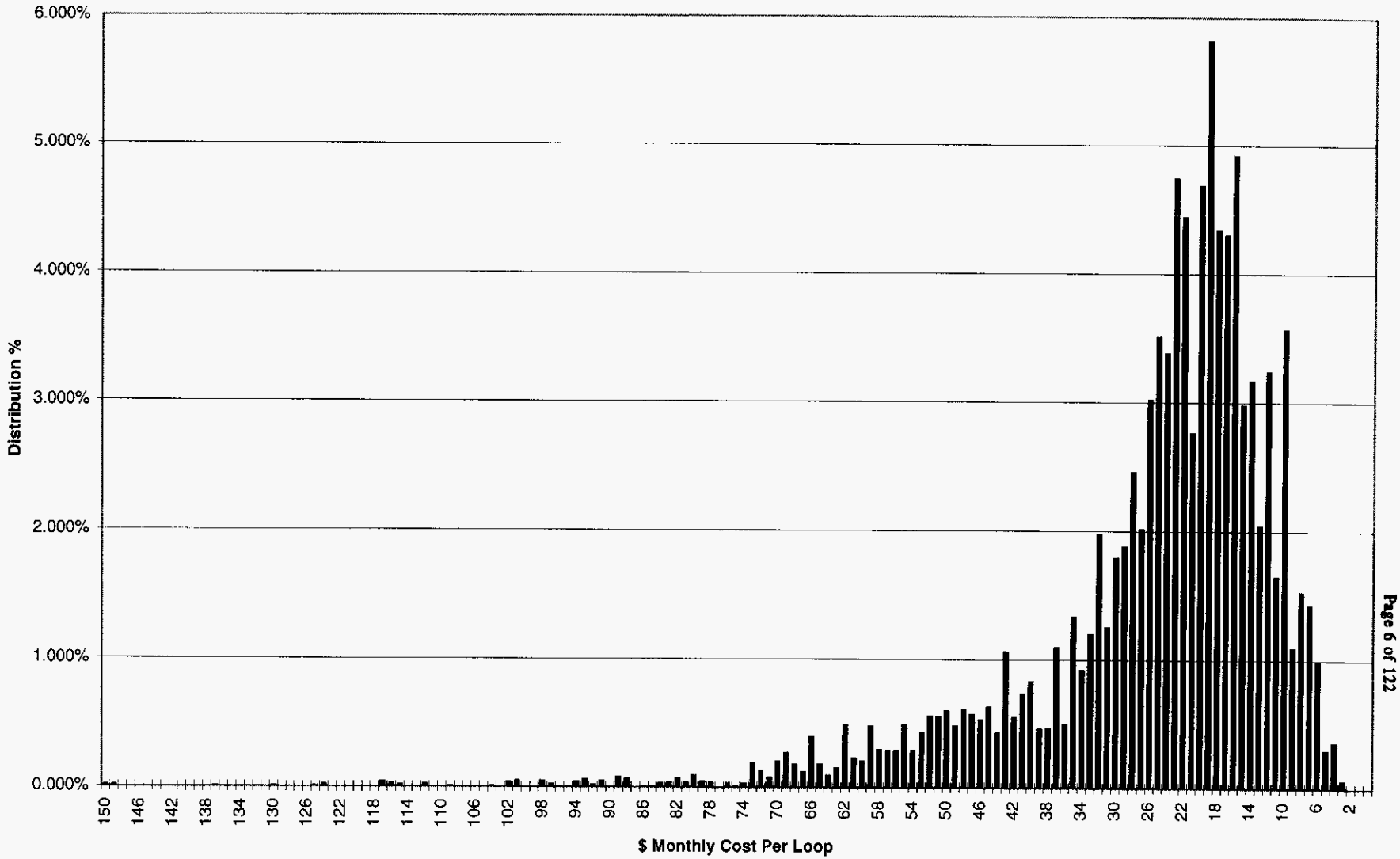
BCM Investment in Copper	$	1,150,167,170
BCM 2 Investment in Fiber	$	113,617,877
BCM 2 Investment in Circuit Equipment (DLC)	$	431,644,567
Total OSP investment from Proxy model	$	1,695,429,614

BCM 2 Investment Times 2 (two pair are required)	$	2,300,334,341
BCM 2 Investment in Fiber	$	113,617,877
BCM 2 Investment in Circuit Equipment (DLC)	$	431,644,567
Invest. to provide 4 wire VG loop to end user	$	2,845,596,785
Ratio of 4 wire VG loop to 2 wire loop		1.68

Ratio should be applied to cost of two wire voice grade loop to adjust the cost to reflect the additional pair of copper wires utilized in a circuit provisioned as a "4-wire" loop.

In the provisioning of a 4 wire loop, the circuit is separated into the transmit and receive signals, placing them on physically separate paths. Using the BCM 2 model, the investments representing copper distrubution and drop, loop pair gain devices and fiber feeder plant are identified uniquely. An investment is calculated which represents the use of two copper pairs (4 wires) plus the necessary circuit equipment and feeder plant. This investment is compared to the investment required for the standard two wire loop configuration. The ratio between the two investments suggests that a 4 wire loop utilizes 68% more investment then the normal two wire loop configuration. Once a circuit is transformed into an electronic equivalent of an analog loop, it is normally separated into two unique transmission paths which are effectively a 4 wire circuit, therefore no additional investment is utilized or required to provision the 4 wire circuit vs a 2 wire loop.

Loop Cost Distribution - Sprint Florida



Sprint
Docket No. 961230-TP
Randy G. Farrar
Composite Exhibit No. RGF-3
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LOOP COST CALCULATIONS BY CENSUS BLOCK GROUP

FLORIDA	Census Block Group Number	Monthly Cost	Total CBG Lines Served	Percent of Total Lines
BAND 1	120730013003	$ 2.18	584	0.034%
BAND 1	120710001002	$ 2.55	210	0.012%
BAND 1	120830014005	$ 2.82	155	0.009%
BAND 1	120830019003	$ 3.11	949	0.055%
BAND 1	121170219022	$ 3.12	557	0.033%
BAND 1	120730001001	$ 3.86	3,837	0.224%
BAND 1	120950160013	$ 3.88	681	0.040%
BAND 1	120950159012	$ 4.21	2,411	0.141%
BAND 1	120150203002	$ 4.42	1,010	0.059%
BAND 1	120950159013	$ 4.81	1,602	0.094%
BAND 1	120730006003	$ 5.19	1,688	0.099%
BAND 1	120950152011	$ 5.24	1,464	0.086%
BAND 1	120910225004	$ 5.30	436	0.025%
BAND 1	120730002004	$ 5.44	2,650	0.155%
BAND 1	120910226002	$ 5.51	1,924	0.112%
BAND 1	120730005002	$ 5.52	2,557	0.149%
BAND 1	120730009025	$ 5.52	2,961	0.173%
BAND 1	120730002003	$ 5.69	1,775	0.104%
BAND 1	121170219023	$ 5.82	1,495	0.087%
BAND 1	120710011002	$ 6.04	2,230	0.130%
BAND 1	120210001003	$ 6.21	906	0.053%
BAND 1	120710008002	$ 6.24	2,434	0.142%
BAND 1	120559608004	$ 6.24	698	0.041%
BAND 1	120830019006	$ 6.33	916	0.054%
BAND 1	120730020022	$ 6.44	2,711	0.158%
BAND 1	120210001006	$ 6.46	1,941	0.113%
BAND 1	120950160023	$ 6.57	1,333	0.078%
BAND 1	120710011006	$ 6.58	4,006	0.234%
BAND 1	120730006001	$ 6.64	5,082	0.297%
BAND 1	120210001004	$ 6.76	1,759	0.103%
BAND 1	120830019001	$ 6.98	317	0.019%
BAND 1	120210007001	$ 7.03	1,969	0.115%
BAND 1	120690309112	$ 7.09	929	0.054%
BAND 1	120910220001	$ 7.10	1,585	0.093%
BAND 1	121319502003	$ 7.12	587	0.034%
BAND 1	120710007001	$ 7.12	733	0.043%
BAND 1	120910215004	$ 7.13	384	0.022%
BAND 1	120830019002	$ 7.18	1,039	0.061%
BAND 1	120690306022	$ 7.24	684	0.040%
BAND 1	120150103002	$ 7.32	3,769	0.220%
BAND 1	120730016011	$ 7.42	1,001	0.059%
BAND 1	120950159022	$ 7.44	1,365	0.080%
BAND 1	120950176004	$ 7.52	455	0.027%
BAND 1	120950127021	$ 7.54	3,415	0.200%
BAND 1	120599604003	$ 7.62	774	0.045%
BAND 1	120730007002	$ 7.73	1,241	0.073%

FLORIDA	Census Block Group Number	Monthly Cost	Total CBG Lines Served	Percent of Total Lines
BAND 1	120710001001	$ 7.88	1,055	0.062%
BAND 1	120950159011	$ 7.91	1,916	0.112%
BAND 1	120690306024	$ 7.94	1,235	0.072%
BAND 1	120830011011	$ 7.95	2,006	0.117%
BAND 1	120730002001	$ 8.01	1,654	0.097%
BAND 1	120730015003	$ 8.08	2,128	0.124%
BAND 1	121170219026	$ 8.17	1,097	0.064%
BAND 1	120830019007	$ 8.21	1,180	0.069%
BAND 1	120950160012	$ 8.22	632	0.037%
BAND 1	120950154011	$ 8.26	488	0.028%
BAND 1	120710002002	$ 8.31	1,095	0.064%
BAND 1	120910205004	$ 8.36	924	0.054%
BAND 1	120710005014	$ 8.36	1,210	0.071%
BAND 1	121170220012	$ 8.41	1,121	0.066%
BAND 1	121319502002	$ 8.50	792	0.046%
BAND 1	120950159021	$ 8.56	1,962	0.115%
BAND 1	120730004001	$ 8.72	443	0.026%
BAND 1	121010326004	$ 8.73	524	0.031%
BAND 1	120639805003	$ 8.84	858	0.050%
BAND 1	120950155012	$ 8.89	1,342	0.078%
BAND 1	120730005001	$ 8.99	1,183	0.069%
BAND 1	120210107003	$ 9.01	2,678	0.156%
BAND 1	120950171021	$ 9.05	21,092	1.232%
BAND 1	120910226001	$ 9.05	1,353	0.079%
BAND 1	120970403014	$ 9.08	1,438	0.084%
BAND 1	120950154023	$ 9.12	1,234	0.072%
BAND 1	120210001005	$ 9.14	691	0.040%
BAND 1	120830017002	$ 9.21	1,551	0.091%
BAND 1	120830020011	$ 9.22	1,487	0.087%
BAND 1	120730007003	$ 9.28	634	0.037%
BAND 1	120939906001	$ 9.32	638	0.037%
BAND 1	120910216002	$ 9.34	1,175	0.069%
BAND 1	120730003001	$ 9.41	1,357	0.079%
BAND 1	120690308011	$ 9.49	927	0.054%
BAND 1	120730020024	$ 9.56	451	0.026%
BAND 1	120690309116	$ 9.58	559	0.033%
BAND 1	120910221002	$ 9.64	564	0.033%
BAND 1	120730016013	$ 9.64	1,594	0.093%
BAND 1	120710010007	$ 9.64	2,066	0.121%
BAND 1	120710206002	$ 9.64	1,061	0.062%
BAND 1	120910224001	$ 9.65	642	0.037%
BAND 1	120710010002	$ 9.68	1,189	0.070%
BAND 1	120950170013	$ 9.74	4,112	0.240%
BAND 1	120659801984	$ 9.82	548	0.032%
BAND 1	121170218012	$ 9.82	4,768	0.279%
BAND 1	120639806003	$ 9.86	747	0.044%
BAND 1	120710011004	$ 9.86	1,472	0.086%
BAND 1	120950164042	$ 9.88	2,258	0.132%
BAND 1	121170215045	$ 9.96	2,301	0.134%

FLORIDA	Census Block Group Number	Monthly Cost	Total CBG Lines Served	Percent of Total Lines
BAND 1	121270908024	$ 9.98	416	0.024%
BAND 1	120210106002	$ 10.12	1,074	0.063%
BAND 1	120210114002	$ 10.12	722	0.042%
BAND 1	120710014004	$ 10.20	901	0.053%
BAND 1	120179805004	$ 10.23	971	0.057%
BAND 1	120730008001	$ 10.27	799	0.047%
BAND 1	120559608003	$ 10.28	588	0.034%
BAND 1	120690302025	$ 10.29	567	0.033%
BAND 1	120830014014	$ 10.37	314	0.018%
BAND 1	120710007002	$ 10.37	1,670	0.098%
BAND 1	120730006004	$ 10.40	631	0.037%
BAND 1	120730009014	$ 10.46	795	0.046%
BAND 1	120830021002	$ 10.51	1,040	0.061%
BAND 1	121170220022	$ 10.57	433	0.025%
BAND 1	120210107004	$ 10.63	900	0.053%
BAND 1	120210001002	$ 10.69	644	0.038%
BAND 1	120910225001	$ 10.70	974	0.057%
BAND 1	121170219021	$ 10.71	668	0.039%
BAND 1	120950152012	$ 10.76	1,862	0.109%
BAND 1	120639805004	$ 10.77	843	0.049%
BAND 1	120910226003	$ 10.80	1,242	0.073%
BAND 1	120210001007	$ 10.82	762	0.045%
BAND 1	120830018003	$ 10.84	944	0.055%
BAND 1	120710010005	$ 10.88	1,157	0.068%
BAND 1	120690309111	$ 10.89	1,123	0.066%
BAND 1	120830019004	$ 10.90	649	0.038%
BAND 1	120150208002	$ 10.93	2,134	0.125%
BAND 1	120950154022	$ 10.93	805	0.047%
BAND 1	120950130019	$ 10.95	811	0.047%
BAND 1	120910211002	$ 10.98	979	0.057%
BAND 1	120559602003	$ 10.99	1,156	0.068%
BAND 1	121270910032	$ 11.01	1,118	0.065%
BAND 1	120710105024	$ 11.05	626	0.037%
BAND 1	120210109005	$ 11.05	531	0.031%
BAND 1	121010326005	$ 11.12	378	0.022%
BAND 1	120210109006	$ 11.13	1,103	0.064%
BAND 1	120830020012	$ 11.15	618	0.036%
BAND 1	120910229001	$ 11.15	2,152	0.126%
BAND 1	120730009022	$ 11.16	1,011	0.059%
BAND 1	121170215044	$ 11.16	2,614	0.153%
BAND 1	120710012001	$ 11.19	4,489	0.262%
BAND 1	120830019005	$ 11.21	641	0.037%
BAND 1	120950148023	$ 11.24	686	0.040%
BAND 1	120950148031	$ 11.24	4,646	0.271%
BAND 1	120559616001	$ 11.28	674	0.039%
BAND 1	120830020021	$ 11.32	1,635	0.096%
BAND 1	120599604004	$ 11.32	769	0.045%
BAND 1	120910220002	$ 11.32	1,237	0.072%
BAND 1	120910215003	$ 11.33	595	0.035%

FLORIDA	Census Block Group Number	Monthly Cost	Total CBG Lines Served	Percent of Total Lines
BAND 1	120910224002	$ 11.38	1,022	0.060%
BAND 1	121170216073	$ 11.38	1,551	0.091%
BAND 1	120970405021	$ 11.38	759	0.044%
BAND 1	120690306013	$ 11.40	1,770	0.103%
BAND 1	121010326003	$ 11.41	342	0.020%
BAND 1	120710103031	$ 11.42	830	0.048%
BAND 1	120950158013	$ 11.43	469	0.027%
BAND 1	120910218002	$ 11.45	2,576	0.151%
BAND 1	121170221044	$ 11.48	1,565	0.091%
BAND 1	120639806002	$ 11.49	920	0.054%
BAND 1	120830024011	$ 11.55	152	0.009%
BAND 1	120710506003	$ 11.55	1,941	0.113%
BAND 1	120730016012	$ 11.58	1,522	0.089%
BAND 1	120910212003	$ 11.59	803	0.047%
BAND 1	120730015002	$ 11.61	634	0.037%
BAND 1	120950158012	$ 11.64	640	0.037%
BAND 1	120179802001	$ 11.68	696	0.041%
BAND 1	120830018001	$ 11.69	613	0.036%
BAND 1	121170222031	$ 11.71	1,049	0.061%
BAND 1	120730013002	$ 11.75	44	0.003%
BAND 1	120639806001	$ 11.77	523	0.031%
BAND 1	120950174002	$ 11.78	755	0.044%
BAND 1	120910215005	$ 11.80	812	0.047%
BAND 1	120950160011	$ 11.82	611	0.036%
BAND 1	120950176002	$ 11.83	1,034	0.060%
BAND 1	120730020025	$ 11.83	1,256	0.073%
BAND 1	120710106023	$ 11.84	793	0.046%
BAND 1	120950149023	$ 11.84	683	0.040%
BAND 1	120179809003	$ 11.88	1,109	0.065%
BAND 1	120730008002	$ 11.94	622	0.036%
BAND 1	120710601007	$ 11.96	512	0.030%
BAND 1	120710007004	$ 11.98	555	0.032%

SUMMARY			
BAND 1	Percent of Total:		14.1%
	Weighted Average Cost:	$	8.87

BAND 2	120179810005	$ 12.00	677	0.040%
BAND 2	120910222001	$ 12.08	1,022	0.060%
BAND 2	120950154021	$ 12.09	1,630	0.095%
BAND 2	120950177003	$ 12.11	276	0.016%
BAND 2	120730007001	$ 12.17	898	0.052%
BAND 2	120910220004	$ 12.17	1,628	0.095%
BAND 2	121270908025	$ 12.19	284	0.017%
BAND 2	120730022046	$ 12.23	377	0.022%
BAND 2	120690302026	$ 12.25	481	0.028%
BAND 2	120559603004	$ 12.26	542	0.032%
BAND 2	120179801007	$ 12.34	362	0.021%
BAND 2	120279802004	$ 12.35	658	0.038%

FLORIDA	Census Block Group Number	Monthly Cost	Total CBG Lines Served	Percent of Total Lines
BAND 2	121170219024	$ 12.41	1,532	0.090%
BAND 2	120519601005	$ 12.41	1,213	0.071%
BAND 2	120950175023	$ 12.46	1,824	0.107%
BAND 2	120710011003	$ 12.48	771	0.045%
BAND 2	120710004004	$ 12.48	578	0.034%
BAND 2	120970405012	$ 12.50	758	0.044%
BAND 2	120910212002	$ 12.51	715	0.042%
BAND 2	120179809005	$ 12.54	734	0.043%
BAND 2	120210004005	$ 12.57	290	0.017%
BAND 2	120950161003	$ 12.59	1,169	0.068%
BAND 2	120710010006	$ 12.66	482	0.028%
BAND 2	120970405011	$ 12.70	760	0.044%
BAND 2	120179809006	$ 12.71	336	0.020%
BAND 2	120730019003	$ 12.74	1,000	0.058%
BAND 2	120730020015	$ 12.75	947	0.055%
BAND 2	120710601004	$ 12.77	967	0.056%
BAND 2	121170221011	$ 12.81	385	0.022%
BAND 2	120710403064	$ 12.84	193	0.011%
BAND 2	120150207001	$ 12.86	2,176	0.127%
BAND 2	121170216072	$ 12.87	5,889	0.344%
BAND 2	120730015001	$ 12.87	831	0.049%
BAND 2	121050160003	$ 12.87	240	0.014%
BAND 2	120910215002	$ 12.88	742	0.043%
BAND 2	120710105027	$ 12.88	254	0.015%
BAND 2	120970403011	$ 12.91	624	0.036%
BAND 2	120210101007	$ 12.93	1,333	0.078%
BAND 2	120710005021	$ 13.01	518	0.030%
BAND 2	120730003002	$ 13.01	815	0.048%
BAND 2	120830016001	$ 13.06	3,524	0.206%
BAND 2	120519601003	$ 13.08	2,281	0.133%
BAND 2	120830021004	$ 13.11	689	0.040%
BAND 2	120910207001	$ 13.11	1,067	0.062%
BAND 2	120150207002	$ 13.11	1,787	0.104%
BAND 2	120950175021	$ 13.12	1,489	0.087%
BAND 2	120730006002	$ 13.12	499	0.029%
BAND 2	120690305013	$ 13.16	789	0.046%
BAND 2	121170218022	$ 13.18	1,067	0.062%
BAND 2	120690313024	$ 13.18	1,162	0.068%
BAND 2	120730022012	$ 13.20	1,441	0.084%
BAND 2	120710006002	$ 13.26	638	0.037%
BAND 2	120730017002	$ 13.30	1,908	0.111%
BAND 2	120950155021	$ 13.30	358	0.021%
BAND 2	120830017003	$ 13.30	559	0.033%
BAND 2	120179801008	$ 13.41	310	0.018%
BAND 2	120730011021	$ 13.41	766	0.045%
BAND 2	120559611002	$ 13.43	402	0.024%
BAND 2	120690308014	$ 13.45	581	0.034%
BAND 2	120710015001	$ 13.46	2,200	0.129%
BAND 2	120730009012	$ 13.48	2,164	0.126%

FLORIDA	Census Block Group Number	Monthly Cost	Total CBG Lines Served	Percent of Total Lines
BAND 2	120710003024	$ 13.52	651	0.038%
BAND 2	121170214012	$ 13.53	1,912	0.112%
BAND 2	120730009023	$ 13.53	749	0.044%
BAND 2	120710007003	$ 13.55	678	0.040%
BAND 2	120950177002	$ 13.58	353	0.021%
BAND 2	120179802002	$ 13.58	524	0.031%
BAND 2	121170221041	$ 13.59	873	0.051%
BAND 2	121170216081	$ 13.64	4,986	0.291%
BAND 2	120179802003	$ 13.67	518	0.030%
BAND 2	120279803004	$ 13.69	1,412	0.083%
BAND 2	120730020014	$ 13.71	1,149	0.067%
BAND 2	120730010011	$ 13.72	675	0.039%
BAND 2	120970403022	$ 13.74	1,161	0.068%
BAND 2	120279802003	$ 13.80	571	0.033%
BAND 2	120910221001	$ 13.80	419	0.025%
BAND 2	120690302021	$ 13.80	995	0.058%
BAND 2	120690306021	$ 13.81	565	0.033%
BAND 2	120950155022	$ 13.82	251	0.015%
BAND 2	121170216064	$ 13.83	1,696	0.099%
BAND 2	120710206003	$ 13.88	406	0.024%
BAND 2	120730008003	$ 13.94	1,032	0.060%
BAND 2	120730003005	$ 13.96	1,846	0.108%
BAND 2	120179802004	$ 13.96	545	0.032%
BAND 2	120710203004	$ 13.98	831	0.049%
BAND 2	120210002002	$ 13.98	1,094	0.064%
BAND 2	120970405025	$ 13.98	1,033	0.060%
BAND 2	120910212005	$ 14.00	271	0.016%
BAND 2	120950164012	$ 14.00	4,108	0.240%
BAND 2	120730004002	$ 14.02	727	0.042%
BAND 2	120690306023	$ 14.03	658	0.038%
BAND 2	120710206004	$ 14.06	497	0.029%
BAND 2	120910221003	$ 14.09	1,118	0.065%
BAND 2	120690313026	$ 14.14	954	0.056%
BAND 2	120970405022	$ 14.15	437	0.026%
BAND 2	120910229003	$ 14.22	3,177	0.186%
BAND 2	120150206001	$ 14.23	2,847	0.166%
BAND 2	120950163021	$ 14.25	2,105	0.123%
BAND 2	121270908022	$ 14.25	659	0.039%
BAND 2	121199902002	$ 14.26	807	0.047%
BAND 2	120730017005	$ 14.27	507	0.030%
BAND 2	120910233003	$ 14.27	1,888	0.110%
BAND 2	120710011005	$ 14.30	1,242	0.073%
BAND 2	120559611001	$ 14.34	577	0.034%
BAND 2	120910223001	$ 14.35	605	0.035%
BAND 2	120830020013	$ 14.36	740	0.043%
BAND 2	121010326001	$ 14.37	1,311	0.077%
BAND 2	120710203003	$ 14.38	1,024	0.060%
BAND 2	121170222034	$ 14.39	595	0.035%
BAND 2	120690307011	$ 14.39	400	0.023%

FLORIDA	Census Block Group Number	Monthly Cost	Total CBG Lines Served	Percent of Total Lines
BAND 2	120910205003	$ 14.42	411	0.024%
BAND 2	120950176001	$ 14.43	1,205	0.070%
BAND 2	120559609003	$ 14.45	970	0.057%
BAND 2	120210003011	$ 14.47	2,425	0.142%
BAND 2	120730002002	$ 14.52	715	0.042%
BAND 2	121170216052	$ 14.53	867	0.051%
BAND 2	120830021001	$ 14.54	805	0.047%
BAND 2	120950175022	$ 14.56	2,821	0.165%
BAND 2	120710017025	$ 14.59	418	0.024%
BAND 2	121010326002	$ 14.60	751	0.044%
BAND 2	120210112033	$ 14.61	786	0.046%
BAND 2	121050160002	$ 14.63	691	0.040%
BAND 2	120710010001	$ 14.68	544	0.032%
BAND 2	120910205002	$ 14.69	494	0.029%
BAND 2	120639805002	$ 14.69	591	0.035%
BAND 2	120950176003	$ 14.70	687	0.040%
BAND 2	120710106021	$ 14.71	557	0.033%
BAND 2	120710104035	$ 14.80	727	0.042%
BAND 2	120690308013	$ 14.82	598	0.035%
BAND 2	120950128004	$ 14.82	478	0.028%
BAND 2	120830018002	$ 14.82	519	0.030%
BAND 2	120710202001	$ 14.84	568	0.033%
BAND 2	120559602004	$ 14.87	713	0.042%
BAND 2	120690309114	$ 14.90	857	0.050%
BAND 2	120710015005	$ 14.90	1,537	0.090%
BAND 2	120710103032	$ 14.90	793	0.046%
BAND 2	120210101006	$ 14.93	1,439	0.084%
BAND 2	121170219015	$ 15.04	3,622	0.212%
BAND 2	120830022032	$ 15.05	3,542	0.207%
BAND 2	120950156012	$ 15.10	882	0.052%
BAND 2	120279803002	$ 15.11	535	0.031%
BAND 2	120710003013	$ 15.11	909	0.053%
BAND 2	120519602002	$ 15.11	291	0.017%
BAND 2	121270910036	$ 15.12	492	0.029%
BAND 2	120519604004	$ 15.13	663	0.039%
BAND 2	120950153002	$ 15.15	2,161	0.126%
BAND 2	120970403015	$ 15.16	584	0.034%
BAND 2	120970403025	$ 15.18	392	0.023%
BAND 2	120690302011	$ 15.23	465	0.027%
BAND 2	120910218003	$ 15.26	3,281	0.192%
BAND 2	120710206001	$ 15.31	564	0.033%
BAND 2	121170221043	$ 15.36	606	0.035%
BAND 2	120690308012	$ 15.37	485	0.028%
BAND 2	121170218021	$ 15.39	3,493	0.204%
BAND 2	120950161002	$ 15.44	467	0.027%
BAND 2	120730020012	$ 15.44	985	0.058%
BAND 2	120730020023	$ 15.45	984	0.058%
BAND 2	120710017022	$ 15.47	977	0.057%
BAND 2	120910224003	$ 15.48	648	0.038%

FLORIDA	Census Block Group Number	Monthly Cost	Total CBG Lines Served	Percent of Total Lines
BAND 2	120210002001	$ 15.50	1,791	0.105%
BAND 2	120970405024	$ 15.51	775	0.045%
BAND 2	120710004001	$ 15.51	724	0.042%
BAND 2	120710017031	$ 15.53	1,488	0.087%
BAND 2	120910224004	$ 15.54	544	0.032%
BAND 2	120210001008	$ 15.56	120	0.007%
BAND 2	120910225002	$ 15.60	1,663	0.097%
BAND 2	120710011001	$ 15.60	1,447	0.085%
BAND 2	120730014002	$ 15.62	632	0.037%
BAND 2	120710208003	$ 15.64	721	0.042%
BAND 2	120730014004	$ 15.65	539	0.031%
BAND 2	120950164011	$ 15.67	5,055	0.295%
BAND 2	120710103011	$ 15.69	1,432	0.084%
BAND 2	120690313023	$ 15.70	1,236	0.072%
BAND 2	120710205022	$ 15.71	903	0.053%
BAND 2	121170220011	$ 15.74	1,007	0.059%
BAND 2	120210101008	$ 15.76	1,463	0.085%
BAND 2	120210102013	$ 15.77	2,633	0.154%
BAND 2	120950173001	$ 15.78	943	0.055%
BAND 2	120830014021	$ 15.79	4,172	0.244%
BAND 2	120910220003	$ 15.80	1,167	0.068%
BAND 2	120830023011	$ 15.81	4,011	0.234%
BAND 2	120730003003	$ 15.83	1,871	0.109%
BAND 2	120710008001	$ 15.84	1,112	0.065%
BAND 2	120559611003	$ 15.85	714	0.042%
BAND 2	120710901003	$ 15.85	360	0.021%
BAND 2	120830012027	$ 15.86	905	0.053%
BAND 2	120710108021	$ 15.86	507	0.030%
BAND 2	120830020022	$ 15.87	1,838	0.107%
BAND 2	120950153003	$ 15.88	1,831	0.107%
BAND 2	120730020011	$ 15.90	900	0.053%
BAND 2	120210106004	$ 15.91	927	0.054%
BAND 2	120710105026	$ 15.91	392	0.023%
BAND 2	120710016004	$ 15.94	1,281	0.075%
BAND 2	121050160005	$ 15.95	1,131	0.066%
BAND 2	121170218013	$ 15.96	8,388	0.490%
BAND 2	120910224005	$ 16.00	561	0.033%
BAND 2	120730017006	$ 16.02	468	0.027%
BAND 2	120710003014	$ 16.03	789	0.046%
BAND 2	120210106003	$ 16.05	743	0.043%
BAND 2	120830022022	$ 16.07	1,073	0.063%
BAND 2	120499704002	$ 16.12	513	0.030%
BAND 2	120690302013	$ 16.12	2,346	0.137%
BAND 2	120710506005	$ 16.13	545	0.032%
BAND 2	120950152022	$ 16.14	932	0.054%
BAND 2	120730022045	$ 16.15	713	0.042%
BAND 2	120730021007	$ 16.20	1,314	0.077%
BAND 2	120730024045	$ 16.20	1,155	0.067%
BAND 2	120279803003	$ 16.27	875	0.051%

FLORIDA	Census Block Group Number	Monthly Cost	Total CBG Lines Served	Percent of Total Lines
BAND 2	120210109007	$ 16.30	629	0.037%
BAND 2	120950151011	$ 16.31	3,675	0.215%
BAND 2	121170215032	$ 16.31	1,233	0.072%
BAND 2	120439502004	$ 16.36	397	0.023%
BAND 2	120830022021	$ 16.42	920	0.054%
BAND 2	121170215023	$ 16.43	704	0.041%
BAND 2	120970403012	$ 16.44	1,568	0.092%
BAND 2	120690306014	$ 16.44	723	0.042%
BAND 2	120210006001	$ 16.44	212	0.012%
BAND 2	120559603003	$ 16.45	466	0.027%
BAND 2	120150203003	$ 16.47	2,533	0.148%
BAND 2	120950163011	$ 16.48	3,294	0.192%
BAND 2	121170220023	$ 16.48	2,730	0.160%
BAND 2	120910223002	$ 16.48	313	0.018%
BAND 2	120730017004	$ 16.50	1,339	0.078%
BAND 2	120950147005	$ 16.52	3,259	0.190%
BAND 2	120210003012	$ 16.53	1,451	0.085%
BAND 2	120710108022	$ 16.60	1,491	0.087%
BAND 2	120559613001	$ 16.62	2,047	0.120%
BAND 2	121319502004	$ 16.66	366	0.021%
BAND 2	120710015004	$ 16.70	1,287	0.075%
BAND 2	120730017001	$ 16.72	1,492	0.087%
BAND 2	121170220055	$ 16.76	2,513	0.147%
BAND 2	120710106022	$ 16.77	1,696	0.099%
BAND 2	120710010004	$ 16.78	970	0.057%
BAND 2	120910206001	$ 16.81	216	0.013%
BAND 2	120519601002	$ 16.83	534	0.031%
BAND 2	120830011021	$ 16.86	331	0.019%
BAND 2	120970403023	$ 16.86	995	0.058%
BAND 2	120690304012	$ 16.87	4,533	0.265%
BAND 2	121170217022	$ 16.89	6,463	0.378%
BAND 2	120710010003	$ 16.91	271	0.016%
BAND 2	120710005026	$ 16.93	330	0.019%
BAND 2	120910218001	$ 16.93	1,094	0.064%
BAND 2	120559608002	$ 16.93	475	0.028%
BAND 2	120710601005	$ 16.95	584	0.034%
BAND 2	120710003023	$ 16.96	925	0.054%
BAND 2	120950174003	$ 16.97	1,014	0.059%
BAND 2	120690305012	$ 16.97	894	0.052%
BAND 2	120210001001	$ 16.97	608	0.036%
BAND 2	120950177004	$ 16.98	1,615	0.094%
BAND 2	121170220054	$ 16.99	2,330	0.136%
BAND 2	120690302027	$ 16.99	1,581	0.092%

SUMMARY			
	Percent of Total:		17.4%
BAND 2	Weighted Average Cost:	$	14.90

BAND 3	120690305021	$ 17.01	646	0.038%

FLORIDA	Census Block Group Number	Monthly Cost	Total CBG Lines Served	Percent of Total Lines
BAND 3	120950158011	$ 17.02	291	0.017%
BAND 3	120210112032	$ 17.02	270	0.016%
BAND 3	120210003013	$ 17.09	1,237	0.072%
BAND 3	120970404001	$ 17.09	3,275	0.191%
BAND 3	120730024049	$ 17.10	2,455	0.143%
BAND 3	120730019005	$ 17.10	480	0.028%
BAND 3	120910212001	$ 17.14	1,059	0.062%
BAND 3	120710104023	$ 17.15	372	0.022%
BAND 3	120830025021	$ 17.18	3,357	0.196%
BAND 3	120950154012	$ 17.19	1,989	0.116%
BAND 3	120710017033	$ 17.20	749	0.044%
BAND 3	120910217002	$ 17.22	699	0.041%
BAND 3	120730022041	$ 17.22	1,049	0.061%
BAND 3	120730020013	$ 17.22	332	0.019%
BAND 3	120830025015	$ 17.25	2,839	0.166%
BAND 3	120730024048	$ 17.26	970	0.057%
BAND 3	120210107001	$ 17.28	520	0.030%
BAND 3	120710303003	$ 17.28	1,023	0.060%
BAND 3	120950150001	$ 17.29	3,460	0.202%
BAND 3	120499702002	$ 17.31	346	0.020%
BAND 3	120950152021	$ 17.36	2,702	0.158%
BAND 3	120519604003	$ 17.36	932	0.054%
BAND 3	120210109008	$ 17.36	2,471	0.144%
BAND 3	121170215021	$ 17.37	2,572	0.150%
BAND 3	120710002003	$ 17.38	282	0.016%
BAND 3	120690304022	$ 17.42	1,098	0.064%
BAND 3	120710403044	$ 17.45	593	0.035%
BAND 3	120730024046	$ 17.45	878	0.051%
BAND 3	120970403013	$ 17.45	550	0.032%
BAND 3	121270910028	$ 17.47	1,052	0.061%
BAND 3	120710208008	$ 17.49	234	0.014%
BAND 3	120690303018	$ 17.49	2,402	0.140%
BAND 3	120690305011	$ 17.51	1,495	0.087%
BAND 3	120690313025	$ 17.51	605	0.035%
BAND 3	120710402037	$ 17.52	1,481	0.087%
BAND 3	121050159002	$ 17.52	78	0.005%
BAND 3	120279802005	$ 17.52	617	0.036%
BAND 3	120950148013	$ 17.52	3,148	0.184%
BAND 3	120950173002	$ 17.58	1,152	0.067%
BAND 3	120210110004	$ 17.60	140	0.008%
BAND 3	120710203001	$ 17.61	521	0.030%
BAND 3	120519602004	$ 17.61	600	0.035%
BAND 3	120179810006	$ 17.63	536	0.031%
BAND 3	120690302023	$ 17.64	566	0.033%
BAND 3	120710016003	$ 17.67	1,976	0.115%
BAND 3	120910212004	$ 17.73	611	0.036%
BAND 3	120950178022	$ 17.77	1,943	0.114%
BAND 3	121170214043	$ 17.79	1,773	0.104%
BAND 3	120710403061	$ 17.79	928	0.054%

FLORIDA	Census Block Group Number	Monthly Cost	Total CBG Lines Served	Percent of Total Lines
BAND 3	120730012001	$ 17.83	1,156	0.068%
BAND 3	120730025042	$ 17.83	729	0.043%
BAND 3	120730009015	$ 17.84	1,334	0.078%
BAND 3	120970405014	$ 17.84	527	0.031%
BAND 3	120710206006	$ 17.88	611	0.036%
BAND 3	120710205011	$ 17.90	1,572	0.092%
BAND 3	120559606001	$ 17.90	1,137	0.066%
BAND 3	120970402032	$ 17.91	1,685	0.098%
BAND 3	120950177001	$ 17.92	2,049	0.120%
BAND 3	120710019022	$ 17.96	1,363	0.080%
BAND 3	120559607001	$ 17.97	662	0.039%
BAND 3	120710403043	$ 18.00	714	0.042%
BAND 3	120710014003	$ 18.02	2,151	0.126%
BAND 3	121010324006	$ 18.03	203	0.012%
BAND 3	120150202004	$ 18.04	2,151	0.126%
BAND 3	120830014012	$ 18.06	775	0.045%
BAND 3	120210104025	$ 18.06	3,632	0.212%
BAND 3	120830022011	$ 18.07	1,773	0.104%
BAND 3	120970405023	$ 18.11	612	0.036%
BAND 3	120730021003	$ 18.13	865	0.051%
BAND 3	120690308015	$ 18.13	833	0.049%
BAND 3	120950157012	$ 18.16	1,102	0.064%
BAND 3	121170217033	$ 18.16	2,731	0.160%
BAND 3	120690302012	$ 18.16	506	0.030%
BAND 3	120910215001	$ 18.18	2,634	0.154%
BAND 3	120179806001	$ 18.18	935	0.055%
BAND 3	121170222019	$ 18.18	953	0.056%
BAND 3	120710105021	$ 18.20	547	0.032%
BAND 3	120710103033	$ 18.21	868	0.051%
BAND 3	120710601006	$ 18.21	318	0.019%
BAND 3	120970403021	$ 18.26	722	0.042%
BAND 3	120799903004	$ 18.29	658	0.038%
BAND 3	120179814001	$ 18.30	1,170	0.068%
BAND 3	120710205023	$ 18.30	714	0.042%
BAND 3	120439502005	$ 18.33	396	0.023%
BAND 3	120690309113	$ 18.33	865	0.051%
BAND 3	120559604001	$ 18.34	1,017	0.059%
BAND 3	120950149024	$ 18.34	1,670	0.098%
BAND 3	120210104032	$ 18.34	2,772	0.162%
BAND 3	120710017032	$ 18.36	2,016	0.118%
BAND 3	121170216053	$ 18.38	680	0.040%
BAND 3	120910225003	$ 18.38	1,072	0.063%
BAND 3	120730021006	$ 18.40	1,193	0.070%
BAND 3	120950152023	$ 18.41	971	0.057%
BAND 3	121170216068	$ 18.43	1,991	0.116%
BAND 3	120950153001	$ 18.44	913	0.053%
BAND 3	120210110001	$ 18.45	622	0.036%
BAND 3	120710005024	$ 18.46	868	0.051%
BAND 3	120830023021	$ 18.49	2,327	0.136%

FLORIDA	Census Block Group Number	Monthly Cost	Total CBG Lines Served	Percent of Total Lines
BAND 3	120950178032	$ 18.49	1,935	0.113%
BAND 3	121270908026	$ 18.51	1,622	0.095%
BAND 3	121270908014	$ 18.53	899	0.053%
BAND 3	120910211001	$ 18.54	997	0.058%
BAND 3	120710002001	$ 18.54	405	0.024%
BAND 3	120710108012	$ 18.55	326	0.019%
BAND 3	120710009002	$ 18.58	802	0.047%
BAND 3	120710103014	$ 18.59	2,030	0.119%
BAND 3	120939902005	$ 18.59	294	0.017%
BAND 3	120970403016	$ 18.60	1,180	0.069%
BAND 3	120950149021	$ 18.61	1,355	0.079%
BAND 3	121170222013	$ 18.61	3,332	0.195%
BAND 3	120559603002	$ 18.62	755	0.044%
BAND 3	120830021003	$ 18.64	1,110	0.065%
BAND 3	120690313022	$ 18.65	634	0.037%
BAND 3	121170216017	$ 18.67	7,331	0.428%
BAND 3	120910204002	$ 18.68	1,162	0.068%
BAND 3	120710105025	$ 18.71	273	0.016%
BAND 3	120950158021	$ 18.74	981	0.057%
BAND 3	120950162001	$ 18.77	3,300	0.193%
BAND 3	120950151013	$ 18.79	1,904	0.111%
BAND 3	120730022044	$ 18.82	852	0.050%
BAND 3	120710017026	$ 18.82	798	0.047%
BAND 3	120210101005	$ 18.86	1,031	0.060%
BAND 3	120710205012	$ 18.86	939	0.055%
BAND 3	121270910037	$ 18.88	1,175	0.069%
BAND 3	120830022031	$ 18.88	371	0.022%
BAND 3	120710901002	$ 18.89	158	0.009%
BAND 3	120710108011	$ 18.89	413	0.024%
BAND 3	120210104037	$ 18.90	1,268	0.074%
BAND 3	120150203001	$ 18.93	2,913	0.170%
BAND 3	120519604002	$ 18.96	524	0.031%
BAND 3	121170221034	$ 18.97	5,380	0.314%
BAND 3	120710005023	$ 18.97	409	0.024%
BAND 3	120730024032	$ 18.97	747	0.044%
BAND 3	121170215013	$ 18.98	1,489	0.087%
BAND 3	120210104033	$ 18.98	1,528	0.089%
BAND 3	120939905002	$ 19.00	1,067	0.062%
BAND 3	120950148032	$ 19.00	8,007	0.468%
BAND 3	120910233002	$ 19.04	950	0.056%
BAND 3	120730019001	$ 19.05	1,093	0.064%
BAND 3	120559607004	$ 19.06	1,134	0.066%
BAND 3	120710105023	$ 19.06	581	0.034%
BAND 3	120710206005	$ 19.08	338	0.020%
BAND 3	120970401011	$ 19.09	3,706	0.217%
BAND 3	121170221012	$ 19.10	2,531	0.148%
BAND 3	120950160022	$ 19.11	487	0.028%
BAND 3	120730014001	$ 19.11	1,053	0.062%
BAND 3	120710106014	$ 19.11	750	0.044%

FLORIDA	Census Block Group Number	Monthly Cost	Total CBG Lines Served	Percent of Total Lines
BAND 3	120730022014	$ 19.12	1,118	0.065%
BAND 3	120950164052	$ 19.13	3,869	0.226%
BAND 3	120830014013	$ 19.15	1,519	0.089%
BAND 3	120210107002	$ 19.16	1,213	0.071%
BAND 3	120910210009	$ 19.16	172	0.010%
BAND 3	120710105014	$ 19.17	408	0.024%
BAND 3	120710008003	$ 19.18	491	0.029%
BAND 3	121170215012	$ 19.23	1,654	0.097%
BAND 3	120710501002	$ 19.24	1,625	0.095%
BAND 3	120950155011	$ 19.29	805	0.047%
BAND 3	120710006001	$ 19.31	632	0.037%
BAND 3	120759706003	$ 19.34	797	0.047%
BAND 3	120730022011	$ 19.35	1,026	0.060%
BAND 3	120690309121	$ 19.36	545	0.032%
BAND 3	120910206002	$ 19.38	445	0.026%
BAND 3	120710403053	$ 19.38	761	0.044%
BAND 3	120730019004	$ 19.39	972	0.057%
BAND 3	121170214041	$ 19.40	830	0.048%
BAND 3	120970402041	$ 19.42	1,831	0.107%
BAND 3	120950155013	$ 19.45	1,444	0.084%
BAND 3	120730009013	$ 19.46	771	0.045%
BAND 3	120710506002	$ 19.50	455	0.027%
BAND 3	120559608001	$ 19.53	409	0.024%
BAND 3	120910228001	$ 19.54	1,577	0.092%
BAND 3	120710401026	$ 19.54	112	0.007%
BAND 3	120970402042	$ 19.57	4,830	0.282%
BAND 3	120730022042	$ 19.60	901	0.053%
BAND 3	120730019007	$ 19.62	1,157	0.068%
BAND 3	120910210002	$ 19.63	2,815	0.164%
BAND 3	121170214014	$ 19.65	2,294	0.134%
BAND 3	120690301013	$ 19.66	646	0.038%
BAND 3	120830014011	$ 19.68	1,717	0.100%
BAND 3	121170217044	$ 19.72	1,215	0.071%
BAND 3	120210103004	$ 19.72	1,258	0.074%
BAND 3	120730003004	$ 19.73	934	0.055%
BAND 3	120950170037	$ 19.82	3,630	0.212%
BAND 3	121010325002	$ 19.83	491	0.029%
BAND 3	120830007011	$ 19.84	519	0.030%
BAND 3	120730009024	$ 19.87	1,403	0.082%
BAND 3	120690309115	$ 19.89	616	0.036%
BAND 3	120210104018	$ 19.89	1,396	0.082%
BAND 3	121170222043	$ 19.93	3,676	0.215%
BAND 3	120730020021	$ 19.94	758	0.044%
BAND 3	120730009021	$ 19.95	1,657	0.097%
BAND 3	120710005022	$ 19.97	378	0.022%
BAND 3	120710504001	$ 19.99	695	0.041%
BAND 3	120710103013	$ 20.00	921	0.054%
BAND 3	120830015003	$ 20.10	1,123	0.066%
BAND 3	121319506001	$ 20.12	2,031	0.119%

FLORIDA	Census Block Group Number	Monthly Cost	Total CBG Lines Served	Percent of Total Lines
BAND 3	121170221042	$ 20.14	1,100	0.064%
BAND 3	120710502004	$ 20.14	1,088	0.064%
BAND 3	120179807004	$ 20.15	921	0.054%
BAND 3	120690305014	$ 20.20	996	0.058%
BAND 3	120710403062	$ 20.24	850	0.050%
BAND 3	121170222032	$ 20.28	2,788	0.163%
BAND 3	120730018003	$ 20.28	597	0.035%
BAND 3	120210104019	$ 20.34	1,347	0.079%
BAND 3	121270908023	$ 20.36	1,540	0.090%
BAND 3	120210101003	$ 20.40	2,924	0.171%
BAND 3	120730023012	$ 20.43	1,146	0.067%
BAND 3	120710013001	$ 20.45	873	0.051%
BAND 3	120710005025	$ 20.47	64	0.004%
BAND 3	120210104022	$ 20.48	1,123	0.066%
BAND 3	120830012021	$ 20.54	2,183	0.128%
BAND 3	120690305023	$ 20.55	696	0.041%
BAND 3	120210003025	$ 20.56	1,052	0.061%
BAND 3	120710103043	$ 20.65	1,923	0.112%
BAND 3	121170216056	$ 20.67	3,239	0.189%
BAND 3	120559601003	$ 20.67	885	0.052%
BAND 3	120210003024	$ 20.70	907	0.053%
BAND 3	120830017001	$ 20.73	957	0.056%
BAND 3	120910211003	$ 20.76	805	0.047%
BAND 3	121050160006	$ 20.77	697	0.041%
BAND 3	120730024043	$ 20.77	738	0.043%
BAND 3	120730010012	$ 20.78	579	0.034%
BAND 3	120730011011	$ 20.81	667	0.039%
BAND 3	120910229002	$ 20.81	1,466	0.086%
BAND 3	120710103012	$ 20.81	1,039	0.061%
BAND 3	120950128005	$ 20.81	423	0.025%
BAND 3	120710203002	$ 20.82	662	0.039%
BAND 3	120710003012	$ 20.86	405	0.024%
BAND 3	120950128001	$ 20.89	769	0.045%
BAND 3	120710201002	$ 20.90	1,816	0.106%
BAND 3	120710502001	$ 20.90	866	0.051%
BAND 3	120710205021	$ 20.90	487	0.028%
BAND 3	120179810003	$ 20.91	1,407	0.082%
BAND 3	121170217045	$ 20.92	1,136	0.066%
BAND 3	120210102024	$ 21.02	1,609	0.094%
BAND 3	120690308021	$ 21.03	1,026	0.060%
BAND 3	120519601004	$ 21.05	767	0.045%
BAND 3	120690309123	$ 21.06	1,303	0.076%
BAND 3	120710802026	$ 21.09	535	0.031%
BAND 3	120150203004	$ 21.10	3,119	0.182%
BAND 3	120950174001	$ 21.12	1,759	0.103%
BAND 3	121170220044	$ 21.17	1,127	0.066%
BAND 3	120279802002	$ 21.17	921	0.054%
BAND 3	121170220021	$ 21.19	135	0.008%
BAND 3	120710208007	$ 21.19	229	0.013%

FLORIDA	Census Block Group Number	Monthly Cost	Total CBG Lines Served	Percent of Total Lines
BAND 3	120690301014	$ 21.21	1,461	0.085%
BAND 3	120950175025	$ 21.26	1,280	0.075%
BAND 3	121170215011	$ 21.28	2,020	0.118%
BAND 3	120730022031	$ 21.30	1,338	0.078%
BAND 3	121199902001	$ 21.30	1,147	0.067%
BAND 3	120950178033	$ 21.30	1,585	0.093%
BAND 3	120210005001	$ 21.30	1,423	0.083%
BAND 3	120950160021	$ 21.31	539	0.032%
BAND 3	121319505004	$ 21.31	988	0.058%
BAND 3	120210106005	$ 21.31	1,010	0.059%
BAND 3	120710105022	$ 21.32	601	0.035%
BAND 3	120210105011	$ 21.37	4,532	0.265%
BAND 3	120730014005	$ 21.37	505	0.030%
BAND 3	121050160004	$ 21.44	149	0.009%
BAND 3	120710105012	$ 21.46	387	0.023%
BAND 3	120830015004	$ 21.46	420	0.025%
BAND 3	120179803005	$ 21.48	2,200	0.129%
BAND 3	120710403052	$ 21.49	288	0.017%
BAND 3	120710006004	$ 21.53	706	0.041%
BAND 3	120730021002	$ 21.53	952	0.056%
BAND 3	120950179006	$ 21.56	1,365	0.080%
BAND 3	120710017013	$ 21.57	1,163	0.068%
BAND 3	120710107006	$ 21.58	829	0.048%
BAND 3	120710019024	$ 21.62	1,190	0.070%
BAND 3	120730021004	$ 21.63	742	0.043%
BAND 3	120950128002	$ 21.66	600	0.035%
BAND 3	120950125001	$ 21.66	386	0.023%
BAND 3	120710104034	$ 21.69	1,347	0.079%
BAND 3	120210110002	$ 21.70	56	0.003%
BAND 3	120730021005	$ 21.70	957	0.056%
BAND 3	120210103002	$ 21.76	933	0.054%
BAND 3	120690308016	$ 21.77	1,323	0.077%
BAND 3	121170221013	$ 21.78	741	0.043%
BAND 3	120950163012	$ 21.80	1,396	0.082%
BAND 3	120179808004	$ 21.80	900	0.053%
BAND 3	120710403051	$ 21.80	267	0.016%
BAND 3	120179802005	$ 21.81	2,010	0.117%
BAND 3	120559603005	$ 21.81	811	0.047%
BAND 3	120150209003	$ 21.82	852	0.050%
BAND 3	121270910034	$ 21.83	1,303	0.076%
BAND 3	120210109004	$ 21.85	1,055	0.062%
BAND 3	120210105022	$ 21.85	1,278	0.075%
BAND 3	121270910023	$ 21.87	960	0.056%
BAND 3	120210004003	$ 21.88	639	0.037%
BAND 3	120970402031	$ 21.88	1,725	0.101%
BAND 3	121170222044	$ 21.89	1,454	0.085%
BAND 3	120710108013	$ 21.90	328	0.019%
BAND 3	121270910024	$ 21.91	806	0.047%
BAND 3	120950178014	$ 21.92	925	0.054%

FLORIDA	Census Block Group Number	Monthly Cost	Total CBG Lines Served	Percent of Total Lines
BAND 3	120710019025	$ 21.92	1,311	0.077%
BAND 3	120210113004	$ 21.96	580	0.034%
BAND 3	120830024012	$ 21.96	2,333	0.136%
BAND 3	120710014001	$ 21.96	518	0.030%
BAND 3	120210102035	$ 21.97	3,639	0.213%
BAND 3	120830024021	$ 21.98	1,939	0.113%
BAND 3	120950161001	$ 21.99	1,249	0.073%
SUMMARY	Percent of Total:			22.0%
BAND 3	Weighted Average Cost:			$ 19.36
BAND 4	120710019023	$ 22.04	1,111	0.065%
BAND 4	120210106007	$ 22.05	3,310	0.193%
BAND 4	120210105023	$ 22.05	1,069	0.062%
BAND 4	121270910035	$ 22.07	968	0.057%
BAND 4	120710802023	$ 22.09	311	0.018%
BAND 4	120150206002	$ 22.11	2,448	0.143%
BAND 4	120910211007	$ 22.14	905	0.053%
BAND 4	120830012026	$ 22.18	711	0.042%
BAND 4	120730018005	$ 22.19	1,089	0.064%
BAND 4	120710105013	$ 22.20	199	0.012%
BAND 4	120210104034	$ 22.24	2,267	0.132%
BAND 4	120179811002	$ 22.26	628	0.037%
BAND 4	120730026015	$ 22.26	1,187	0.069%
BAND 4	120710601002	$ 22.27	651	0.038%
BAND 4	120730011013	$ 22.27	349	0.020%
BAND 4	120150209001	$ 22.30	981	0.057%
BAND 4	120690303015	$ 22.31	814	0.048%
BAND 4	120690305022	$ 22.34	1,199	0.070%
BAND 4	120690304021	$ 22.35	644	0.038%
BAND 4	120950164051	$ 22.35	1,797	0.105%
BAND 4	120559611004	$ 22.35	1,012	0.059%
BAND 4	120710103022	$ 22.36	864	0.050%
BAND 4	120710403054	$ 22.36	317	0.019%
BAND 4	120710802011	$ 22.36	640	0.037%
BAND 4	120150304003	$ 22.37	1,394	0.081%
BAND 4	120970405032	$ 22.38	7,410	0.433%
BAND 4	120690303013	$ 22.40	1,355	0.079%
BAND 4	120730010013	$ 22.40	623	0.036%
BAND 4	120730016022	$ 22.41	469	0.027%
BAND 4	120710019013	$ 22.42	1,213	0.071%
BAND 4	120150103001	$ 22.42	1,148	0.067%
BAND 4	120830012029	$ 22.45	1,138	0.067%
BAND 4	120710003011	$ 22.48	980	0.057%
BAND 4	120710004002	$ 22.49	672	0.039%
BAND 4	120950148024	$ 22.49	1,041	0.061%
BAND 4	120690308017	$ 22.52	578	0.034%
BAND 4	120730018002	$ 22.53	1,340	0.078%

FLORIDA	Census Block Group Number	Monthly Cost	Total CBG Lines Served	Percent of Total Lines
BAND 4	120950178031	$ 22.56	1,473	0.086%
BAND 4	120950150003	$ 22.58	2,329	0.136%
BAND 4	120950162002	$ 22.58	733	0.043%
BAND 4	120730024044	$ 22.59	612	0.036%
BAND 4	120830013021	$ 22.60	1,382	0.081%
BAND 4	120279803001	$ 22.63	323	0.019%
BAND 4	120730011022	$ 22.63	420	0.025%
BAND 4	120910219001	$ 22.64	3,755	0.219%
BAND 4	120690309124	$ 22.66	1,087	0.064%
BAND 4	120799903005	$ 22.68	892	0.052%
BAND 4	120710018003	$ 22.68	695	0.041%
BAND 4	120559605007	$ 22.68	808	0.047%
BAND 4	121170216046	$ 22.68	2,140	0.125%
BAND 4	120710017012	$ 22.69	924	0.054%
BAND 4	120210110003	$ 22.71	42	0.002%
BAND 4	120210101004	$ 22.74	454	0.027%
BAND 4	120970402021	$ 22.74	1,482	0.087%
BAND 4	120690302024	$ 22.76	912	0.053%
BAND 4	120730017003	$ 22.79	901	0.053%
BAND 4	120710009001	$ 22.80	480	0.028%
BAND 4	120690309117	$ 22.84	797	0.047%
BAND 4	120759706002	$ 22.86	849	0.050%
BAND 4	120950127011	$ 22.88	1,180	0.069%
BAND 4	120690307021	$ 22.89	532	0.031%
BAND 4	120950175024	$ 22.92	383	0.022%
BAND 4	120710003022	$ 22.92	854	0.050%
BAND 4	120910231001	$ 22.93	3,285	0.192%
BAND 4	120910214009	$ 22.94	2,911	0.170%
BAND 4	120690308022	$ 22.96	886	0.052%
BAND 4	120730024041	$ 22.97	1,681	0.098%
BAND 4	120710019014	$ 22.99	1,082	0.063%
BAND 4	120970403024	$ 23.00	985	0.058%
BAND 4	120710019012	$ 23.03	2,048	0.120%
BAND 4	120950157022	$ 23.04	433	0.025%
BAND 4	120830012028	$ 23.06	1,248	0.073%
BAND 4	120710015006	$ 23.08	1,564	0.091%
BAND 4	120730025032	$ 23.09	1,060	0.062%
BAND 4	121270908015	$ 23.14	498	0.029%
BAND 4	121170217039	$ 23.16	2,325	0.136%
BAND 4	120710802013	$ 23.18	545	0.032%
BAND 4	120150209002	$ 23.18	1,675	0.098%
BAND 4	120559613004	$ 23.19	525	0.031%
BAND 4	120730018004	$ 23.19	599	0.035%
BAND 4	120730018001	$ 23.19	434	0.025%
BAND 4	120950151012	$ 23.20	1,169	0.068%
BAND 4	121270908012	$ 23.22	1,750	0.102%
BAND 4	120910233001	$ 23.25	4,645	0.271%
BAND 4	120730024042	$ 23.25	1,115	0.065%
BAND 4	120710107004	$ 23.29	1,384	0.081%

FLORIDA	Census Block Group Number	Monthly Cost	Total CBG Lines Served	Percent of Total Lines
BAND 4	120939906002	$ 23.33	719	0.042%
BAND 4	121319503003	$ 23.34	699	0.041%
BAND 4	120730009011	$ 23.40	838	0.049%
BAND 4	121170215046	$ 23.43	543	0.032%
BAND 4	120499702003	$ 23.44	682	0.040%
BAND 4	120150304002	$ 23.45	843	0.049%
BAND 4	120710504004	$ 23.48	414	0.024%
BAND 4	120910227002	$ 23.50	1,430	0.084%
BAND 4	120690302022	$ 23.51	1,170	0.068%
BAND 4	120710401042	$ 23.51	1,534	0.090%
BAND 4	120730015004	$ 23.51	481	0.028%
BAND 4	120950158022	$ 23.55	657	0.038%
BAND 4	120830011023	$ 23.56	874	0.051%
BAND 4	120210004001	$ 23.56	2,573	0.150%
BAND 4	120150208001	$ 23.58	1,500	0.088%
BAND 4	120710504002	$ 23.60	617	0.036%
BAND 4	120730025031	$ 23.61	832	0.049%
BAND 4	121270910033	$ 23.61	663	0.039%
BAND 4	120710102023	$ 23.65	1,036	0.061%
BAND 4	120910209001	$ 23.66	523	0.031%
BAND 4	120710402038	$ 23.67	693	0.040%
BAND 4	120150302001	$ 23.68	1,193	0.070%
BAND 4	120210006002	$ 23.69	914	0.053%
BAND 4	120830026022	$ 23.72	601	0.035%
BAND 4	120690302014	$ 23.73	909	0.053%
BAND 4	120730024031	$ 23.75	859	0.050%
BAND 4	120710502005	$ 23.75	1,269	0.074%
BAND 4	120910217001	$ 23.75	1,103	0.064%
BAND 4	121270910012	$ 23.77	785	0.046%
BAND 4	120730019006	$ 23.85	372	0.022%
BAND 4	120730014003	$ 23.86	539	0.032%
BAND 4	120710016006	$ 23.87	1,592	0.093%
BAND 4	120710006003	$ 23.92	717	0.042%
BAND 4	120150103004	$ 23.94	658	0.038%
BAND 4	120690306015	$ 23.96	1,043	0.061%
BAND 4	120710106011	$ 23.97	660	0.039%
BAND 4	120710005016	$ 23.97	719	0.042%
BAND 4	120710016002	$ 23.98	578	0.034%
BAND 4	120690307012	$ 24.00	1,006	0.059%
BAND 4	120910204001	$ 24.01	565	0.033%
BAND 4	120830013022	$ 24.02	1,181	0.069%
BAND 4	120710103021	$ 24.04	642	0.038%
BAND 4	120950156021	$ 24.06	573	0.034%
BAND 4	120970404002	$ 24.07	1,463	0.086%
BAND 4	120910210001	$ 24.07	1,201	0.070%
BAND 4	120690313027	$ 24.09	955	0.056%
BAND 4	120559612001	$ 24.09	826	0.048%
BAND 4	120559616007	$ 24.13	1,368	0.080%
BAND 4	120710104022	$ 24.15	537	0.031%

FLORIDA	Census Block Group Number	Monthly Cost	Total CBG Lines Served	Percent of Total Lines
BAND 4	120210102012	$ 24.17	1,868	0.109%
BAND 4	120710003021	$ 24.18	549	0.032%
BAND 4	120730024047	$ 24.18	1,211	0.071%
BAND 4	121270910025	$ 24.20	1,000	0.058%
BAND 4	120710802027	$ 24.21	395	0.023%
BAND 4	120950179007	$ 24.22	516	0.030%
BAND 4	120210108004	$ 24.23	828	0.048%
BAND 4	120910227001	$ 24.25	1,000	0.058%
BAND 4	120710106013	$ 24.29	666	0.039%
BAND 4	120499703004	$ 24.29	228	0.013%
BAND 4	120710107005	$ 24.32	1,055	0.062%
BAND 4	120559615004	$ 24.38	456	0.027%
BAND 4	120690304014	$ 24.38	1,065	0.062%
BAND 4	120710501004	$ 24.38	906	0.053%
BAND 4	120950148021	$ 24.40	1,519	0.089%
BAND 4	120690308023	$ 24.41	1,278	0.075%
BAND 4	120939902004	$ 24.41	1,601	0.094%
BAND 4	120710014006	$ 24.42	599	0.035%
BAND 4	120179817001	$ 24.43	889	0.052%
BAND 4	120559613003	$ 24.44	644	0.038%
BAND 4	120070001003	$ 24.46	1,030	0.060%
BAND 4	120950173003	$ 24.48	1,585	0.093%
BAND 4	120639806005	$ 24.51	1,263	0.074%
BAND 4	120710107007	$ 24.53	536	0.031%
BAND 4	120830008001	$ 24.54	1,378	0.081%
BAND 4	121010324004	$ 24.56	535	0.031%
BAND 4	120179806002	$ 24.58	993	0.058%
BAND 4	120179801004	$ 24.59	669	0.039%
BAND 4	120710505002	$ 24.59	838	0.049%
BAND 4	120690311004	$ 24.65	775	0.045%
BAND 4	120970405013	$ 24.65	938	0.055%
BAND 4	120150205001	$ 24.65	1,233	0.072%
BAND 4	120210106001	$ 24.68	1,402	0.082%
BAND 4	120950157021	$ 24.70	719	0.042%
BAND 4	120730010021	$ 24.70	854	0.050%
BAND 4	120950156022	$ 24.71	752	0.044%
BAND 4	120710207002	$ 24.72	1,100	0.064%
BAND 4	120910205005	$ 24.75	1,317	0.077%
BAND 4	120710205024	$ 24.76	998	0.058%
BAND 4	120150204006	$ 24.80	879	0.051%
BAND 4	120179808003	$ 24.81	661	0.039%
BAND 4	120150201003	$ 24.82	2,128	0.124%
BAND 4	120710506001	$ 24.82	464	0.027%
BAND 4	120150302002	$ 24.82	1,185	0.069%
BAND 4	120910209002	$ 24.85	1,276	0.075%
BAND 4	120499704001	$ 24.87	305	0.018%
BAND 4	120210113003	$ 24.88	677	0.040%
BAND 4	120710302001	$ 24.90	463	0.027%
BAND 4	120950178021	$ 24.92	1,537	0.090%

FLORIDA	Census Block Group Number	Monthly Cost	Total CBG Lines Served	Percent of Total Lines
BAND 4	120730022043	$ 24.94	468	0.027%
BAND 4	120970405031	$ 24.98	1,040	0.061%
BAND 4	120730016021	$ 24.99	729	0.043%
BAND 4	120730023014	$ 25.00	676	0.039%
BAND 4	120150202002	$ 25.00	1,323	0.077%
BAND 4	120710005013	$ 25.00	761	0.044%
BAND 4	120830011022	$ 25.03	357	0.021%
BAND 4	120970401021	$ 25.05	441	0.026%
BAND 4	120730021001	$ 25.07	956	0.056%
BAND 4	120179815003	$ 25.09	1,260	0.074%
BAND 4	120690304013	$ 25.11	1,090	0.064%
BAND 4	120710401021	$ 25.12	655	0.038%
BAND 4	120710017011	$ 25.13	715	0.042%
BAND 4	120710005015	$ 25.19	1,366	0.080%
BAND 4	120690303016	$ 25.21	468	0.027%
BAND 4	120730022032	$ 25.21	934	0.055%
BAND 4	120690304024	$ 25.22	913	0.053%
BAND 4	120150104003	$ 25.27	618	0.036%
BAND 4	120710201003	$ 25.27	581	0.034%
BAND 4	120939905001	$ 25.28	813	0.048%
BAND 4	120830005001	$ 25.28	683	0.040%
BAND 4	120710107001	$ 25.32	597	0.035%
BAND 4	120730025044	$ 25.33	665	0.039%
BAND 4	120830011012	$ 25.38	1,270	0.074%
BAND 4	120970402023	$ 25.39	1,064	0.062%
BAND 4	120210110006	$ 25.43	144	0.008%
BAND 4	120730027001	$ 25.43	605	0.035%
BAND 4	120519602003	$ 25.44	646	0.038%
BAND 4	120730026024	$ 25.45	843	0.049%
BAND 4	120950179001	$ 25.46	554	0.032%
BAND 4	120710019021	$ 25.47	1,394	0.081%
BAND 4	120950179002	$ 25.48	546	0.032%
BAND 4	121199902003	$ 25.49	307	0.018%
BAND 4	120910211004	$ 25.50	383	0.022%
BAND 4	120210108003	$ 25.52	694	0.041%
BAND 4	120950174004	$ 25.54	718	0.042%
BAND 4	120710204001	$ 25.54	391	0.023%
BAND 4	120730027007	$ 25.56	569	0.033%
BAND 4	120179811001	$ 25.63	851	0.050%
BAND 4	120150103005	$ 25.63	597	0.035%
BAND 4	120939903001	$ 25.63	525	0.031%
BAND 4	120710504003	$ 25.69	651	0.038%
BAND 4	120950156011	$ 25.69	629	0.037%
BAND 4	120950164053	$ 25.70	1,813	0.106%
BAND 4	120710104018	$ 25.71	422	0.025%
BAND 4	120210106006	$ 25.72	1,030	0.060%
BAND 4	121270908021	$ 25.73	697	0.041%
BAND 4	120710602005	$ 25.73	549	0.032%
BAND 4	120830013012	$ 25.75	1,218	0.071%

FLORIDA	Census Block Group Number	Monthly Cost	Total CBG Lines Served	Percent of Total Lines
BAND 4	120710017021	$ 25.82	924	0.054%
BAND 4	120970401012	$ 25.82	4,856	0.284%
BAND 4	120950175011	$ 25.83	982	0.057%
BAND 4	121170214039	$ 25.84	1,856	0.108%
BAND 4	120150103003	$ 25.84	994	0.058%
BAND 4	120710104032	$ 25.86	664	0.039%
BAND 4	120939904003	$ 25.87	301	0.018%
BAND 4	120710207001	$ 25.87	527	0.031%
BAND 4	120950162003	$ 25.88	533	0.031%
BAND 4	120970401022	$ 25.89	570	0.033%
BAND 4	121010327001	$ 25.90	598	0.035%
BAND 4	120559617004	$ 25.93	337	0.020%
BAND 4	120970402022	$ 25.93	778	0.045%
BAND 4	120710702003	$ 25.94	535	0.031%
BAND 4	120830007021	$ 25.96	792	0.046%
BAND 4	120710104033	$ 25.97	1,479	0.086%
BAND 4	120179807005	$ 25.99	569	0.033%
BAND 4	120210102011	$ 26.01	827	0.048%
BAND 4	120830023022	$ 26.02	958	0.056%
BAND 4	120559609002	$ 26.04	500	0.029%
BAND 4	120730016023	$ 26.08	465	0.027%
BAND 4	120710104021	$ 26.09	633	0.037%
BAND 4	120179809004	$ 26.11	434	0.025%
BAND 4	120950149022	$ 26.12	361	0.021%
BAND 4	120910216001	$ 26.14	638	0.037%
BAND 4	120710103051	$ 26.15	1,446	0.084%
BAND 4	120830009022	$ 26.16	988	0.058%
BAND 4	120690303023	$ 26.19	1,109	0.065%
BAND 4	120710103041	$ 26.29	1,156	0.068%
BAND 4	121170215022	$ 26.30	289	0.017%
BAND 4	120950179003	$ 26.32	1,625	0.095%
BAND 4	120970402033	$ 26.39	1,079	0.063%
BAND 4	120559606002	$ 26.42	412	0.024%
BAND 4	120950125002	$ 26.44	1,475	0.086%
BAND 4	120530001002	$ 26.45	742	0.043%
BAND 4	120710108031	$ 26.47	384	0.022%
BAND 4	120710015002	$ 26.48	899	0.053%
BAND 4	120830009021	$ 26.55	659	0.039%
BAND 4	120939905004	$ 26.57	359	0.021%
BAND 4	120179815002	$ 26.58	1,769	0.103%
BAND 4	121170214042	$ 26.60	1,206	0.070%
BAND 4	120710104024	$ 26.60	540	0.032%
BAND 4	120710015003	$ 26.66	363	0.021%
BAND 4	120710502003	$ 26.70	1,093	0.064%
BAND 4	120950150002	$ 26.74	754	0.044%
BAND 4	120659801983	$ 26.75	1,045	0.061%
BAND 4	120210101001	$ 26.76	2,937	0.172%
BAND 4	120559604003	$ 26.78	721	0.042%
BAND 4	120710014002	$ 26.85	732	0.043%

FLORIDA	Census Block Group Number	Monthly Cost	Total CBG Lines Served	Percent of Total Lines
BAND 4	120710802021	$ 26.85	294	0.017%
BAND 4	120150201004	$ 26.92	957	0.056%
BAND 4	120150210003	$ 26.92	805	0.047%
BAND 4	120150210001	$ 26.94	1,937	0.113%
BAND 4	121010324003	$ 26.94	422	0.025%
BAND 4	120730022013	$ 26.95	734	0.043%
BAND 4	120950175012	$ 26.99	728	0.043%
SUMMARY	Percent of Total:			16.65%
BAND 4	Weighted Average Cost:			$ 24.15
BAND 5	120710802012	$ 27.01	858	0.050%
BAND 5	120710208004	$ 27.03	437	0.026%
BAND 5	120179810004	$ 27.04	710	0.042%
BAND 5	120210110005	$ 27.04	1,215	0.071%
BAND 5	120939904005	$ 27.05	695	0.041%
BAND 5	120710108025	$ 27.06	438	0.026%
BAND 5	120519604005	$ 27.08	750	0.044%
BAND 5	120559612002	$ 27.08	420	0.025%
BAND 5	120710502002	$ 27.15	1,447	0.085%
BAND 5	120950171011	$ 27.19	1,910	0.112%
BAND 5	120070002005	$ 27.20	836	0.049%
BAND 5	120910232001	$ 27.21	1,626	0.095%
BAND 5	120559617003	$ 27.23	583	0.034%
BAND 5	120150202003	$ 27.30	2,162	0.126%
BAND 5	120210104041	$ 27.45	517	0.030%
BAND 5	120710009003	$ 27.46	574	0.034%
BAND 5	120710012002	$ 27.48	1,757	0.103%
BAND 5	120690309122	$ 27.51	457	0.027%
BAND 5	120210108001	$ 27.55	2,073	0.121%
BAND 5	120070001005	$ 27.57	662	0.039%
BAND 5	120559601004	$ 27.60	992	0.058%
BAND 5	120710018005	$ 27.60	756	0.044%
BAND 5	120179807003	$ 27.63	531	0.031%
BAND 5	120559603001	$ 27.63	384	0.022%
BAND 5	120690303017	$ 27.68	414	0.024%
BAND 5	120730013001	$ 27.71	65	0.004%
BAND 5	120559607003	$ 27.73	419	0.025%
BAND 5	121010326006	$ 27.73	889	0.052%
BAND 5	120210112034	$ 27.74	1,347	0.079%
BAND 5	120710017023	$ 27.74	1,148	0.067%
BAND 5	121270910038	$ 27.79	461	0.027%
BAND 5	120150104002	$ 27.81	1,642	0.096%
BAND 5	120830022012	$ 27.82	659	0.039%
BAND 5	120730011012	$ 27.83	513	0.030%
BAND 5	120710017024	$ 27.83	760	0.044%
BAND 5	120710501006	$ 27.84	661	0.039%
BAND 5	120830015002	$ 27.84	339	0.020%

FLORIDA	Census Block Group Number	Monthly Cost	Total CBG Lines Served	Percent of Total Lines
BAND 5	120710013002	$ 27.84	1,116	0.065%
BAND 5	120970401023	$ 27.85	836	0.049%
BAND 5	120499703001	$ 27.85	1,347	0.079%
BAND 5	120950157011	$ 27.86	366	0.021%
BAND 5	120150102003	$ 27.87	826	0.048%
BAND 5	120710401028	$ 27.88	158	0.009%
BAND 5	120950172003	$ 27.90	174	0.010%
BAND 5	120830012024	$ 27.90	456	0.027%
BAND 5	120710104037	$ 27.94	1,909	0.112%
BAND 5	120530001003	$ 27.97	514	0.030%
BAND 5	120710106012	$ 27.99	596	0.035%
BAND 5	120830015001	$ 28.00	1,635	0.096%
BAND 5	120210107005	$ 28.03	1,752	0.102%
BAND 5	120939903003	$ 28.03	484	0.028%
BAND 5	120910205001	$ 28.04	663	0.039%
BAND 5	120710403041	$ 28.06	629	0.037%
BAND 5	120559615005	$ 28.08	619	0.036%
BAND 5	120150104001	$ 28.10	3,109	0.182%
BAND 5	120710104026	$ 28.13	480	0.028%
BAND 5	120710802014	$ 28.13	233	0.014%
BAND 5	120210111011	$ 28.14	1,160	0.068%
BAND 5	120710208006	$ 28.17	468	0.027%
BAND 5	120150204002	$ 28.17	728	0.043%
BAND 5	120710103034	$ 28.19	567	0.033%
BAND 5	120210103001	$ 28.23	583	0.034%
BAND 5	120710103052	$ 28.26	1,037	0.061%
BAND 5	120150210002	$ 28.29	1,890	0.110%
BAND 5	120830007013	$ 28.34	1,070	0.063%
BAND 5	120210113002	$ 28.35	551	0.032%
BAND 5	121010325006	$ 28.41	454	0.027%
BAND 5	120710402047	$ 28.42	554	0.032%
BAND 5	120910211006	$ 28.45	1,041	0.061%
BAND 5	120690303022	$ 28.47	784	0.046%
BAND 5	120710401025	$ 28.56	102	0.006%
BAND 5	120559614002	$ 28.58	1,341	0.078%
BAND 5	120150103006	$ 28.60	902	0.053%
BAND 5	120730025034	$ 28.60	1,333	0.078%
BAND 5	120939906003	$ 28.61	517	0.030%
BAND 5	120710802025	$ 28.63	437	0.026%
BAND 5	120710108032	$ 28.65	484	0.028%
BAND 5	120950148012	$ 28.71	645	0.038%
BAND 5	120710302004	$ 28.74	414	0.024%
BAND 5	120730019002	$ 28.75	376	0.022%
BAND 5	120730023013	$ 28.77	506	0.030%
BAND 5	120690309021	$ 28.79	335	0.020%
BAND 5	121010325001	$ 28.80	356	0.021%
BAND 5	120150201001	$ 28.86	1,011	0.059%
BAND 5	120710102025	$ 28.86	1,069	0.062%
BAND 5	120710004005	$ 28.87	790	0.046%

FLORIDA	Census Block Group Number	Monthly Cost	Total CBG Lines Served	Percent of Total Lines
BAND 5	120950174005	$ 28.88	401	0.023%
BAND 5	120710108014	$ 28.91	488	0.029%
BAND 5	121010325003	$ 28.94	511	0.030%
BAND 5	121270910013	$ 28.95	683	0.040%
BAND 5	120179812002	$ 28.97	563	0.033%
BAND 5	120710018002	$ 29.00	722	0.042%
BAND 5	120210103003	$ 29.02	333	0.019%
BAND 5	120710802015	$ 29.02	545	0.032%
BAND 5	121010322002	$ 29.03	662	0.039%
BAND 5	120730025033	$ 29.04	466	0.027%
BAND 5	120730011023	$ 29.04	587	0.034%
BAND 5	120150102002	$ 29.05	1,736	0.101%
BAND 5	120939906004	$ 29.08	592	0.035%
BAND 5	120830013011	$ 29.10	941	0.055%
BAND 5	120970401025	$ 29.12	1,844	0.108%
BAND 5	120150304001	$ 29.12	682	0.040%
BAND 5	120710107003	$ 29.13	517	0.030%
BAND 5	120910211008	$ 29.14	895	0.052%
BAND 5	120179816001	$ 29.17	667	0.039%
BAND 5	120710103023	$ 29.22	634	0.037%
BAND 5	120179815001	$ 29.23	1,167	0.068%
BAND 5	121270903023	$ 29.23	1,500	0.088%
BAND 5	120710403063	$ 29.27	833	0.049%
BAND 5	120710019011	$ 29.28	755	0.044%
BAND 5	120710501001	$ 29.42	524	0.031%
BAND 5	120710502006	$ 29.45	1,008	0.059%
BAND 5	120710602002	$ 29.45	657	0.038%
BAND 5	120730023015	$ 29.46	331	0.019%
BAND 5	120279803007	$ 29.49	917	0.054%
BAND 5	120710014005	$ 29.56	612	0.036%
BAND 5	120210004004	$ 29.58	389	0.023%
BAND 5	120950175014	$ 29.59	554	0.032%
BAND 5	120179806003	$ 29.61	1,684	0.098%
BAND 5	120690312002	$ 29.61	1,050	0.061%
BAND 5	120710802024	$ 29.68	300	0.018%
BAND 5	120559607002	$ 29.70	448	0.026%
BAND 5	120970401027	$ 29.71	433	0.025%
BAND 5	120710005012	$ 29.72	565	0.033%
BAND 5	120939906005	$ 29.75	1,441	0.084%
BAND 5	120710103042	$ 29.79	668	0.039%
BAND 5	120150205002	$ 29.87	630	0.037%
BAND 5	120830025018	$ 29.91	311	0.018%
BAND 5	120690304011	$ 29.91	788	0.046%
BAND 5	120710602003	$ 29.94	173	0.010%
BAND 5	120519604001	$ 29.95	732	0.043%
BAND 5	120559604005	$ 29.98	380	0.022%
BAND 5	120910207002	$ 30.00	1,641	0.096%
BAND 5	120710201001	$ 30.01	954	0.056%
BAND 5	120519604007	$ 30.03	943	0.055%

FLORIDA	Census Block Group Number	Monthly Cost	Total CBG Lines Served	Percent of Total Lines
BAND 5	120710016001	$ 30.12	481	0.028%
BAND 5	120710102028	$ 30.17	461	0.027%
BAND 5	120970405041	$ 30.25	1,248	0.073%
BAND 5	120710104025	$ 30.29	364	0.021%
BAND 5	120710302002	$ 30.31	1,005	0.059%
BAND 5	120710104036	$ 30.33	445	0.026%
BAND 5	120710108023	$ 30.36	348	0.020%
BAND 5	120559616002	$ 30.39	869	0.051%
BAND 5	120710303002	$ 30.44	440	0.026%
BAND 5	120710004003	$ 30.52	438	0.026%
BAND 5	120710505003	$ 30.53	645	0.038%
BAND 5	121199906002	$ 30.55	590	0.034%
BAND 5	120710103044	$ 30.57	548	0.032%
BAND 5	120499704003	$ 30.58	750	0.044%
BAND 5	120710506004	$ 30.60	550	0.032%
BAND 5	120830009011	$ 30.63	1,422	0.083%
BAND 5	120179812001	$ 30.63	963	0.056%
BAND 5	120179801006	$ 30.67	2,380	0.139%
BAND 5	120690311003	$ 30.74	755	0.044%
BAND 5	120559604002	$ 30.76	510	0.030%
BAND 5	120710108024	$ 30.82	275	0.016%
BAND 5	120179801003	$ 30.84	521	0.030%
BAND 5	121170214013	$ 30.87	511	0.030%
BAND 5	120690302015	$ 30.95	716	0.042%
BAND 5	120710302005	$ 30.99	655	0.038%
BAND 5	121319502005	$ 31.01	1,244	0.073%
BAND 5	120559617005	$ 31.01	1,030	0.060%
BAND 5	120179812003	$ 31.03	308	0.018%
BAND 5	120710403013	$ 31.04	103	0.006%
BAND 5	120730025035	$ 31.04	1,065	0.062%
BAND 5	121319503002	$ 31.05	355	0.021%
BAND 5	120710702005	$ 31.07	537	0.031%
BAND 5	120939905003	$ 31.08	455	0.027%
BAND 5	120710602006	$ 31.10	560	0.033%
BAND 5	120710018006	$ 31.13	786	0.046%
BAND 5	120710204002	$ 31.16	107	0.006%
BAND 5	120830012025	$ 31.18	433	0.025%
BAND 5	120799903001	$ 31.22	1,319	0.077%
BAND 5	120830008003	$ 31.22	660	0.039%
BAND 5	120910211005	$ 31.24	238	0.014%
BAND 5	120830026021	$ 31.33	522	0.030%
BAND 5	120639806004	$ 31.33	694	0.041%
BAND 5	120150301003	$ 31.53	993	0.058%
BAND 5	120730023011	$ 31.60	1,283	0.075%
BAND 5	120179814003	$ 31.61	1,918	0.112%
BAND 5	120499703003	$ 31.62	573	0.033%
BAND 5	121199902004	$ 31.62	2,570	0.150%
BAND 5	120179817004	$ 31.63	807	0.047%
BAND 5	120759706001	$ 31.65	398	0.023%

FLORIDA	Census Block Group Number	Monthly Cost	Total CBG Lines Served	Percent of Total Lines
BAND 5	120559606003	$ 31.65	2,964	0.173%
BAND 5	120730024024	$ 31.66	2,037	0.119%
BAND 5	120710208002	$ 31.71	381	0.022%
BAND 5	120179814002	$ 31.73	165	0.010%
BAND 5	120559612003	$ 31.76	996	0.058%
BAND 5	120830023012	$ 31.81	373	0.022%
BAND 5	120690304025	$ 31.82	1,152	0.067%
BAND 5	120710208005	$ 31.86	543	0.032%
BAND 5	120950168016	$ 31.91	3,680	0.215%
BAND 5	120830025011	$ 31.98	469	0.027%
BAND 5	120150305002	$ 31.99	2,111	0.123%
SUMMARY	Percent of Total:			9.35%
BAND 5	Weighted Average Cost:			$ 29.31
BAND 6	120210102037	$ 32.00	430	0.025%
BAND 6	120710018004	$ 32.01	582	0.034%
BAND 6	120710204003	$ 32.01	723	0.042%
BAND 6	120639804001	$ 32.02	788	0.046%
BAND 6	120499703002	$ 32.02	633	0.037%
BAND 6	120939904006	$ 32.03	774	0.045%
BAND 6	120150302003	$ 32.05	576	0.034%
BAND 6	120730018006	$ 32.08	428	0.025%
BAND 6	120559604004	$ 32.09	218	0.013%
BAND 6	120710402036	$ 32.11	502	0.029%
BAND 6	120939902003	$ 32.16	703	0.041%
BAND 6	120910204003	$ 32.22	1,173	0.069%
BAND 6	120210108006	$ 32.22	970	0.057%
BAND 6	120179817002	$ 32.24	623	0.036%
BAND 6	120710108034	$ 32.27	476	0.028%
BAND 6	120710005011	$ 32.29	262	0.015%
BAND 6	120639807003	$ 32.29	820	0.048%
BAND 6	120710505001	$ 32.31	688	0.040%
BAND 6	120710503023	$ 32.31	384	0.022%
BAND 6	120830025012	$ 32.35	576	0.034%
BAND 6	120710301002	$ 32.39	535	0.031%
BAND 6	120950179009	$ 32.47	1,042	0.061%
BAND 6	120710014007	$ 32.54	377	0.022%
BAND 6	120710901001	$ 32.57	115	0.007%
BAND 6	120830025022	$ 32.64	1,911	0.112%
BAND 6	120179806004	$ 32.68	1,039	0.061%
BAND 6	120710701004	$ 32.74	797	0.047%
BAND 6	120179806005	$ 32.79	426	0.025%
BAND 6	120150202001	$ 32.84	389	0.023%
BAND 6	120070001002	$ 32.91	285	0.017%
BAND 6	120710403071	$ 32.92	111	0.007%
BAND 6	120710104012	$ 32.96	282	0.016%
BAND 6	120710402046	$ 32.96	471	0.027%

FLORIDA	Census Block Group Number	Monthly Cost	Total CBG Lines Served	Percent of Total Lines
BAND 6	120210104036	$ 32.99	444	0.026%
BAND 6	120710105011	$ 33.02	458	0.027%
BAND 6	120710602004	$ 33.07	426	0.025%
BAND 6	120830007023	$ 33.07	1,012	0.059%
BAND 6	120070002002	$ 33.14	1,239	0.072%
BAND 6	120710108026	$ 33.16	346	0.020%
BAND 6	121290102005	$ 33.17	1,605	0.094%
BAND 6	120710501003	$ 33.20	703	0.041%
BAND 6	120690304023	$ 33.33	708	0.041%
BAND 6	120710504005	$ 33.37	491	0.029%
BAND 6	120150210004	$ 33.44	127	0.007%
BAND 6	120710503022	$ 33.45	475	0.028%
BAND 6	120150205003	$ 33.52	1,510	0.088%
BAND 6	120179817005	$ 33.53	482	0.028%
BAND 6	120519602001	$ 33.53	1,275	0.075%
BAND 6	121170214031	$ 33.54	217	0.013%
BAND 6	120710602001	$ 33.56	143	0.008%
BAND 6	121010325004	$ 33.68	392	0.023%
BAND 6	120710401041	$ 33.72	828	0.048%
BAND 6	120210114003	$ 33.74	863	0.050%
BAND 6	120710501005	$ 33.76	965	0.056%
BAND 6	120710802016	$ 33.86	717	0.042%
BAND 6	120710601003	$ 33.96	267	0.016%
BAND 6	120710402045	$ 33.99	437	0.026%
BAND 6	120710104016	$ 34.07	235	0.014%
BAND 6	120179807002	$ 34.10	227	0.013%
BAND 6	120210104021	$ 34.16	434	0.025%
BAND 6	120179805003	$ 34.19	398	0.023%
BAND 6	120710401024	$ 34.20	119	0.007%
BAND 6	120970405033	$ 34.21	1,282	0.075%
BAND 6	120730027004	$ 34.23	1,430	0.084%
BAND 6	120710403042	$ 34.24	381	0.022%
BAND 6	120690311001	$ 34.39	623	0.036%
BAND 6	120179817003	$ 34.40	437	0.026%
BAND 6	120970404003	$ 34.44	1,334	0.078%
BAND 6	120179809001	$ 34.46	750	0.044%
BAND 6	120559605005	$ 34.47	547	0.032%
BAND 6	120279803005	$ 34.48	577	0.034%
BAND 6	120950179005	$ 34.49	215	0.013%
BAND 6	120710104014	$ 34.50	366	0.021%
BAND 6	121319506004	$ 34.50	897	0.052%
BAND 6	120950162004	$ 34.51	146	0.009%
BAND 6	120710402012	$ 34.51	119	0.007%
BAND 6	120710018001	$ 34.54	416	0.024%
BAND 6	120690305024	$ 34.55	1,153	0.067%
BAND 6	120690302032	$ 34.56	1,194	0.070%
BAND 6	120830025017	$ 34.57	82	0.005%
BAND 6	120559615006	$ 34.60	187	0.011%
BAND 6	120710108033	$ 34.64	363	0.021%

FLORIDA	Census Block Group Number	Monthly Cost	Total CBG Lines Served	Percent of Total Lines
BAND 6	120710701005	$ 34.67	555	0.032%
BAND 6	120830024022	$ 34.69	1,010	0.059%
BAND 6	120179804003	$ 34.69	830	0.048%
BAND 6	121199901005	$ 34.71	729	0.043%
BAND 6	120690311002	$ 34.80	1,165	0.068%
BAND 6	120690301017	$ 34.83	308	0.018%
BAND 6	120710701001	$ 34.87	432	0.025%
BAND 6	120830006023	$ 34.88	1,043	0.061%
BAND 6	121270910031	$ 34.90	928	0.054%
BAND 6	120710107002	$ 34.92	558	0.033%
BAND 6	121050160001	$ 34.93	306	0.018%
BAND 6	120710403011	$ 34.96	226	0.013%
BAND 6	120710102014	$ 34.99	168	0.010%
BAND 6	120690307022	$ 34.99	655	0.038%
BAND 6	120710101032	$ 35.12	125	0.007%
BAND 6	121010322001	$ 35.12	975	0.057%
BAND 6	121199904004	$ 35.14	493	0.029%
BAND 6	121199904001	$ 35.21	571	0.033%
BAND 6	120559601005	$ 35.23	692	0.040%
BAND 6	120559614007	$ 35.24	318	0.019%
BAND 6	120279803006	$ 35.32	367	0.021%
BAND 6	120210104035	$ 35.33	416	0.024%
BAND 6	120710403012	$ 35.33	117	0.007%
BAND 6	120710702004	$ 35.37	311	0.018%
BAND 6	120710302003	$ 35.37	676	0.039%
BAND 6	120830025016	$ 35.53	207	0.012%
BAND 6	120710102016	$ 35.64	113	0.007%
BAND 6	120950170026	$ 35.80	1,975	0.115%
BAND 6	120950172002	$ 35.92	346	0.020%
BAND 6	120710403065	$ 35.95	213	0.012%
BAND 6	120519601001	$ 35.96	519	0.030%
BAND 6	120710802022	$ 36.00	204	0.012%
BAND 6	121270910022	$ 36.05	550	0.032%
BAND 6	120710401011	$ 36.08	347	0.020%
BAND 6	120150201002	$ 36.14	399	0.023%
BAND 6	120690311006	$ 36.23	473	0.028%
BAND 6	120710402035	$ 36.25	327	0.019%
BAND 6	120179816003	$ 36.40	1,259	0.074%
BAND 6	120950171013	$ 36.42	692	0.040%
BAND 6	120830010001	$ 36.43	3,712	0.217%
BAND 6	120279801003	$ 36.58	1,534	0.090%
BAND 6	120970405054	$ 36.59	1,512	0.088%
BAND 6	121270910021	$ 36.64	655	0.038%
BAND 6	120710104031	$ 36.64	229	0.013%
BAND 6	120950178011	$ 36.70	1,244	0.073%
BAND 6	120639805001	$ 36.74	477	0.028%
BAND 6	120710208001	$ 36.79	322	0.019%
BAND 6	120690313028	$ 36.81	1,932	0.113%
BAND 6	120179803004	$ 36.89	2,206	0.129%

FLORIDA	Census Block Group Number	Monthly Cost	Total CBG Lines Served	Percent of Total Lines
BAND 6	120830007022	$ 36.90	667	0.039%
BAND 6	120559605006	$ 37.10	165	0.010%
BAND 6	120710505004	$ 37.14	340	0.020%
BAND 6	120710102026	$ 37.16	151	0.009%
BAND 6	120939902002	$ 37.20	667	0.039%
BAND 6	120710102015	$ 37.24	213	0.012%
BAND 6	120150301002	$ 37.25	519	0.030%
BAND 6	120939903002	$ 37.31	255	0.015%
BAND 6	120710102013	$ 37.36	150	0.009%
BAND 6	120950172001	$ 37.47	127	0.007%
BAND 6	120710104015	$ 37.67	102	0.006%
BAND 6	120559601002	$ 37.74	554	0.032%
BAND 6	120710303005	$ 37.76	191	0.011%
BAND 6	120830012022	$ 37.76	1,133	0.066%
BAND 6	120210112031	$ 37.81	541	0.032%
BAND 6	120830011013	$ 37.84	2,039	0.119%
BAND 6	120690303014	$ 37.88	170	0.010%
BAND 6	120710702001	$ 37.97	519	0.030%
BAND 6	120690303012	$ 38.23	650	0.038%
BAND 6	120710603006	$ 38.26	240	0.014%
BAND 6	120710401031	$ 38.29	169	0.010%
BAND 6	120710503011	$ 38.45	1,253	0.073%
BAND 6	121170210003	$ 38.48	388	0.023%
BAND 6	120830008002	$ 38.62	1,914	0.112%
BAND 6	120710601001	$ 38.69	184	0.011%
BAND 6	120830025014	$ 38.78	156	0.009%
BAND 6	120639807002	$ 38.80	751	0.044%
BAND 6	120690310003	$ 38.81	792	0.046%
BAND 6	120439501001	$ 38.84	484	0.028%
BAND 6	120210109002	$ 38.88	776	0.045%
BAND 6	120730026025	$ 39.02	444	0.026%
BAND 6	120710302006	$ 39.05	487	0.028%
BAND 6	120830010003	$ 39.06	2,826	0.165%
BAND 6	120970405051	$ 39.07	1,283	0.075%
BAND 6	120710019027	$ 39.08	609	0.036%
BAND 6	120830003021	$ 39.09	917	0.054%
BAND 6	120179809002	$ 39.10	661	0.039%
BAND 6	120710202004	$ 39.18	529	0.031%
BAND 6	120690310002	$ 39.18	869	0.051%
BAND 6	120210109003	$ 39.27	316	0.018%
BAND 6	120639810003	$ 39.35	1,124	0.066%
BAND 6	120710108015	$ 39.38	288	0.017%
BAND 6	120710701002	$ 39.45	495	0.029%
BAND 6	120830026023	$ 39.45	1,142	0.067%
BAND 6	120210109009	$ 39.58	773	0.045%
BAND 6	120710102017	$ 39.64	191	0.011%
BAND 6	120179803003	$ 39.67	395	0.023%
BAND 6	120150204005	$ 39.86	539	0.032%
BAND 6	121199904002	$ 39.94	279	0.016%

FLORIDA	Census Block Group Number	Monthly Cost	Total CBG Lines Served	Percent of Total Lines
BAND 6	120690305015	$ 40.04	851	0.050%
BAND 6	120830026031	$ 40.09	3,333	0.195%
BAND 6	121319503004	$ 40.10	379	0.022%
BAND 6	120710506006	$ 40.27	210	0.012%
BAND 6	120179801005	$ 40.36	747	0.044%
BAND 6	120690312006	$ 40.47	984	0.057%
BAND 6	120710303004	$ 40.49	298	0.017%
BAND 6	120179812004	$ 40.54	489	0.029%
BAND 6	120830012011	$ 40.71	597	0.035%
BAND 6	120730026023	$ 40.74	629	0.037%
BAND 6	120710102027	$ 40.78	241	0.014%
BAND 6	120830003022	$ 40.84	851	0.050%
BAND 6	120179815004	$ 40.88	748	0.044%
BAND 6	120150105001	$ 40.89	1,176	0.069%
BAND 6	120910206003	$ 40.97	978	0.057%
BAND 6	120710403015	$ 41.09	68	0.004%
BAND 6	120499701003	$ 41.12	385	0.022%
BAND 6	120690309022	$ 41.25	1,023	0.060%
BAND 6	120710801005	$ 41.34	161	0.009%
BAND 6	120150105002	$ 41.41	2,208	0.129%
BAND 6	120559613005	$ 41.44	2,524	0.148%
BAND 6	120910213009	$ 41.44	539	0.031%
BAND 6	120970401024	$ 41.54	1,518	0.089%
BAND 6	120710603004	$ 41.67	129	0.008%
BAND 6	120179808005	$ 41.67	237	0.014%
BAND 6	121199904003	$ 41.92	475	0.028%
BAND 6	120710102029	$ 41.99	82	0.005%
SUMMARY	Percent of Total:			8.1%
BAND 6	Weighted Average Cost:			$ 36.33
BAND 7	120830006031	$ 42.01	688	0.040%
BAND 7	121199901004	$ 42.14	447	0.026%
BAND 7	121010327003	$ 42.20	431	0.025%
BAND 7	120179811003	$ 42.23	1,925	0.112%
BAND 7	120710403014	$ 42.31	75	0.004%
BAND 7	120939901001	$ 42.38	1,683	0.098%
BAND 7	120690312003	$ 42.41	300	0.018%
BAND 7	120970405055	$ 42.44	936	0.055%
BAND 7	120730025043	$ 42.48	712	0.042%
BAND 7	120210104031	$ 42.57	2,127	0.124%
BAND 7	120179810002	$ 42.63	348	0.020%
BAND 7	120559602001	$ 42.64	623	0.036%
BAND 7	120710016005	$ 42.64	206	0.012%
BAND 7	120950172004	$ 42.65	221	0.013%
BAND 7	120730024023	$ 42.65	570	0.033%
BAND 7	120179807001	$ 42.71	2,342	0.137%
BAND 7	120710301003	$ 42.75	207	0.012%

FLORIDA	Census Block Group Number	Monthly Cost	Total CBG Lines Served	Percent of Total Lines
BAND 7	120710603007	$ 42.87	49	0.003%
BAND 7	120970405052	$ 42.87	1,160	0.068%
BAND 7	120599604005	$ 42.90	1,380	0.081%
BAND 7	120710401012	$ 42.95	1,120	0.065%
BAND 7	120070001004	$ 42.96	571	0.033%
BAND 7	120730024022	$ 43.02	1,553	0.091%
BAND 7	120710401043	$ 43.06	677	0.040%
BAND 7	120710503021	$ 43.08	750	0.044%
BAND 7	120179816002	$ 43.15	1,467	0.086%
BAND 7	120559617007	$ 43.20	212	0.012%
BAND 7	120830009012	$ 43.26	1,060	0.062%
BAND 7	120939904004	$ 43.34	180	0.011%
BAND 7	120830010002	$ 43.64	202	0.012%
BAND 7	120710402034	$ 43.68	121	0.007%
BAND 7	120279802001	$ 43.81	336	0.020%
BAND 7	120150305001	$ 43.81	698	0.041%
BAND 7	121010324002	$ 44.03	746	0.044%
BAND 7	120710603003	$ 44.05	177	0.010%
BAND 7	120639804002	$ 44.05	793	0.046%
BAND 7	120710104017	$ 44.06	260	0.015%
BAND 7	120830009023	$ 44.20	1,216	0.071%
BAND 7	120639809002	$ 44.28	539	0.032%
BAND 7	120690301012	$ 44.28	638	0.037%
BAND 7	120559610003	$ 44.33	1,133	0.066%
BAND 7	120950175013	$ 44.34	131	0.008%
BAND 7	120939904002	$ 44.52	155	0.009%
BAND 7	120639809001	$ 44.54	920	0.054%
BAND 7	120559602002	$ 44.60	680	0.040%
BAND 7	120210104042	$ 44.79	2,536	0.148%
BAND 7	120150102001	$ 44.80	567	0.033%
BAND 7	120210101002	$ 44.96	217	0.013%
BAND 7	120559617006	$ 45.06	116	0.007%
BAND 7	120939901002	$ 45.17	914	0.053%
BAND 7	120690313011	$ 45.26	815	0.048%
BAND 7	120179803006	$ 45.30	637	0.037%
BAND 7	120710403031	$ 45.34	55	0.003%
BAND 7	120210114001	$ 45.37	840	0.049%
BAND 7	121290102002	$ 45.40	923	0.054%
BAND 7	120519602005	$ 45.47	630	0.037%
BAND 7	120690301016	$ 45.53	897	0.052%
BAND 7	120690312004	$ 45.62	777	0.045%
BAND 7	120210111022	$ 45.85	309	0.018%
BAND 7	121199904005	$ 45.86	903	0.053%
BAND 7	121339702001	$ 45.89	521	0.030%
BAND 7	120690301015	$ 45.93	699	0.041%
BAND 7	120730013004	$ 45.98	4	0.000%
BAND 7	120559616005	$ 46.21	209	0.012%
BAND 7	120179805001	$ 46.47	1,337	0.078%
BAND 7	120530001004	$ 46.50	548	0.032%

FLORIDA	Census Block Group Number	Monthly Cost	Total CBG Lines Served	Percent of Total Lines
BAND 7	120950171012	$ 46.53	514	0.030%
BAND 7	121290101005	$ 46.58	447	0.026%
BAND 7	120799903002	$ 46.68	674	0.039%
BAND 7	120710503012	$ 46.69	325	0.019%
BAND 7	120710101036	$ 46.70	152	0.009%
BAND 7	121270908011	$ 46.74	434	0.025%
BAND 7	120639809004	$ 46.76	698	0.041%
BAND 7	120710603005	$ 46.76	164	0.010%
BAND 7	120530003002	$ 46.80	680	0.040%
BAND 7	120690301031	$ 46.80	947	0.055%
BAND 7	120910203001	$ 46.88	1,014	0.059%
BAND 7	120939904007	$ 46.95	752	0.044%
BAND 7	120599603001	$ 46.97	825	0.048%
BAND 7	120690311005	$ 47.09	1,141	0.067%
BAND 7	121010327002	$ 47.11	397	0.023%
BAND 7	120830006013	$ 47.13	900	0.053%
BAND 7	120710701003	$ 47.18	587	0.034%
BAND 7	120970405042	$ 47.41	1,117	0.065%
BAND 7	120710403032	$ 47.41	55	0.003%
BAND 7	121170214049	$ 47.43	23	0.001%
BAND 7	120710101016	$ 47.55	222	0.013%
BAND 7	121010323001	$ 47.56	885	0.052%
BAND 7	120499701005	$ 47.60	281	0.016%
BAND 7	120710301001	$ 47.62	420	0.025%
BAND 7	120690301022	$ 47.62	612	0.036%
BAND 7	120070002001	$ 47.62	1,228	0.072%
BAND 7	120970405056	$ 47.78	593	0.035%
BAND 7	120690303011	$ 47.86	1,175	0.069%
BAND 7	120070004001	$ 47.93	661	0.039%
BAND 7	120710401016	$ 48.05	80	0.005%
BAND 7	120559615003	$ 48.10	505	0.030%
BAND 7	121199902005	$ 48.15	234	0.014%
BAND 7	120690313012	$ 48.17	762	0.045%
BAND 7	120830026011	$ 48.24	944	0.055%
BAND 7	120710402031	$ 48.39	35	0.002%
BAND 7	120559605001	$ 48.46	776	0.045%
BAND 7	120710403017	$ 48.48	68	0.004%
BAND 7	120710102021	$ 48.49	108	0.006%
BAND 7	120150301004	$ 48.52	209	0.012%
BAND 7	120830025013	$ 48.60	295	0.017%
BAND 7	120659801987	$ 48.66	814	0.048%
BAND 7	120690304015	$ 48.70	872	0.051%
BAND 7	121199901001	$ 48.73	538	0.031%
BAND 7	121199905002	$ 48.83	973	0.057%
BAND 7	120659801985	$ 48.84	453	0.026%
BAND 7	120179808001	$ 49.00	486	0.028%
BAND 7	120799901002	$ 49.09	705	0.041%
BAND 7	121319502001	$ 49.16	861	0.050%
BAND 7	120710019015	$ 49.22	170	0.010%

FLORIDA	Census Block Group Number	Monthly Cost	Total CBG Lines Served	Percent of Total Lines
BAND 7	120710202003	$ 49.24	652	0.038%
BAND 7	120150204001	$ 49.25	260	0.015%
BAND 7	120710403073	$ 49.38	78	0.005%
BAND 7	120710104038	$ 49.41	335	0.020%
BAND 7	120439501004	$ 49.47	177	0.010%
BAND 7	120910203002	$ 49.50	1,574	0.092%
BAND 7	120179810001	$ 49.54	367	0.021%
BAND 7	120599603003	$ 49.60	510	0.030%
BAND 7	121319505003	$ 49.61	321	0.019%
BAND 7	120799902002	$ 49.65	516	0.030%
BAND 7	120210105024	$ 49.69	360	0.021%
BAND 7	120710702002	$ 49.71	593	0.035%
BAND 7	120639811001	$ 49.75	466	0.027%
BAND 7	120710302007	$ 49.76	428	0.025%
BAND 7	120599604002	$ 49.77	921	0.054%
BAND 7	120950179004	$ 49.78	69	0.004%
BAND 7	120279804006	$ 49.98	811	0.047%
BAND 7	120179817006	$ 50.03	443	0.026%
BAND 7	120939901004	$ 50.10	610	0.036%
BAND 7	121319503001	$ 50.13	703	0.041%
BAND 7	121319501007	$ 50.17	198	0.012%
BAND 7	120830006034	$ 50.21	356	0.021%
BAND 7	120690312005	$ 50.23	846	0.049%
BAND 7	121270832013	$ 50.26	1,058	0.062%
BAND 7	120659801986	$ 50.34	742	0.043%
BAND 7	120910201002	$ 50.46	665	0.039%
BAND 7	120730026021	$ 50.53	637	0.037%
BAND 7	120830006024	$ 50.61	592	0.035%
BAND 7	120730027002	$ 50.72	766	0.045%
BAND 7	120710101021	$ 50.82	1,588	0.093%
BAND 7	120710104011	$ 50.84	155	0.009%
BAND 7	120799901001	$ 51.03	557	0.033%
BAND 7	120710402024	$ 51.08	138	0.008%
BAND 7	120390206001	$ 51.08	447	0.026%
BAND 7	120210112011	$ 51.10	359	0.021%
BAND 7	120730025023	$ 51.17	666	0.039%
BAND 7	120070002003	$ 51.26	595	0.035%
BAND 7	121010324001	$ 51.27	478	0.028%
BAND 7	121199906005	$ 51.35	665	0.039%
BAND 7	120759705003	$ 51.36	151	0.009%
BAND 7	120559605004	$ 51.57	21	0.001%
BAND 7	120639808002	$ 51.59	833	0.049%
BAND 7	120710403016	$ 51.64	69	0.004%
BAND 7	120759705002	$ 51.66	829	0.048%
BAND 7	120710801003	$ 51.68	144	0.008%
BAND 7	120730026011	$ 51.69	979	0.057%
BAND 7	120530007005	$ 51.71	768	0.045%
BAND 7	121319506002	$ 51.93	317	0.019%
BAND 7	120210111012	$ 51.94	1,416	0.083%

FLORIDA	Census Block Group Number	Monthly Cost	Total CBG Lines Served	Percent of Total Lines
BAND 7	120759705001	$ 52.02	361	0.021%
BAND 7	120599604001	$ 52.03	525	0.031%
BAND 7	120179813001	$ 52.07	597	0.035%
BAND 7	120690310001	$ 52.14	546	0.032%
BAND 7	120639804003	$ 52.28	538	0.031%
BAND 7	120690302031	$ 52.29	370	0.022%
BAND 7	120279804003	$ 52.41	792	0.046%
BAND 7	120799903003	$ 52.51	661	0.039%
BAND 7	120210113001	$ 52.70	624	0.036%
BAND 7	120639810002	$ 52.71	421	0.025%
BAND 7	121050160007	$ 52.87	834	0.049%
BAND 7	120179805005	$ 52.93	930	0.054%
BAND 7	120830006033	$ 53.07	212	0.012%
BAND 7	120279804002	$ 53.11	806	0.047%
BAND 7	121199903003	$ 53.29	560	0.033%
BAND 7	120690303021	$ 53.45	356	0.021%
BAND 7	121010328001	$ 53.51	797	0.047%
BAND 7	120599602001	$ 53.52	537	0.031%
BAND 7	120950148022	$ 53.80	85	0.005%
BAND 7	120759706004	$ 53.90	486	0.028%
BAND 7	120639806006	$ 53.94	338	0.020%
BAND 7	120830007012	$ 53.99	625	0.037%
BAND 7	120639801003	$ 54.01	523	0.031%
BAND 7	120559615002	$ 54.03	302	0.018%
BAND 7	120730027006	$ 54.13	451	0.026%
BAND 7	120799903006	$ 54.15	751	0.044%
BAND 7	120530001005	$ 54.16	480	0.028%
BAND 7	120730023022	$ 54.20	580	0.034%
BAND 7	120659802002	$ 54.25	574	0.034%
BAND 7	120559610002	$ 54.45	354	0.021%
BAND 7	120690301011	$ 54.51	462	0.027%
BAND 7	120830006022	$ 54.51	811	0.047%
BAND 7	121199905003	$ 54.54	552	0.032%
BAND 7	120210109001	$ 54.60	58	0.003%
BAND 7	121319506006	$ 54.70	520	0.030%
BAND 7	120910230009	$ 54.72	394	0.023%
BAND 7	121270910051	$ 54.72	230	0.013%
BAND 7	121319505005	$ 54.82	691	0.040%
BAND 7	121199907001	$ 54.94	582	0.034%
SUMMARY	Percent of Total:			7.2%
BAND 7	Weighted Average Cost:			$ 47.81
BAND 8	120639810001	$ 55.00	637	0.037%
BAND 8	120710403035	$ 55.24	36	0.002%
BAND 8	120519603002	$ 55.31	739	0.043%
BAND 8	120639801002	$ 55.40	430	0.025%
BAND 8	120730025025	$ 55.60	548	0.032%

FLORIDA	Census Block Group Number	Monthly Cost	Total CBG Lines Served	Percent of Total Lines
BAND 8	120210108007	$ 55.88	77	0.005%
BAND 8	120499704004	$ 55.94	563	0.033%
BAND 8	120990083011	$ 55.97	1,114	0.065%
BAND 8	121050159003	$ 55.97	683	0.040%
BAND 8	120830006021	$ 56.04	67	0.004%
BAND 8	120070003002	$ 56.06	590	0.034%
BAND 8	121199901002	$ 56.12	547	0.032%
BAND 8	120559614003	$ 56.16	55	0.003%
BAND 8	120910201004	$ 56.22	589	0.034%
BAND 8	120910201003	$ 56.47	508	0.030%
BAND 8	121199906004	$ 56.48	353	0.021%
BAND 8	120710101035	$ 56.54	78	0.005%
BAND 8	121010321021	$ 56.57	292	0.017%
BAND 8	120519603003	$ 56.63	793	0.046%
BAND 8	120150306002	$ 56.64	178	0.010%
BAND 8	120970405043	$ 56.91	793	0.046%
BAND 8	120639809003	$ 57.15	245	0.014%
BAND 8	121319504001	$ 57.19	469	0.027%
BAND 8	120730025024	$ 57.27	488	0.029%
BAND 8	120710402044	$ 57.53	128	0.007%
BAND 8	120950178012	$ 57.57	999	0.058%
BAND 8	120910201005	$ 57.67	599	0.035%
BAND 8	120710401033	$ 57.70	94	0.006%
BAND 8	120279801001	$ 57.73	550	0.032%
BAND 8	120070001001	$ 57.78	469	0.027%
BAND 8	120759701001	$ 57.88	390	0.023%
BAND 8	120599602005	$ 57.96	532	0.031%
BAND 8	120710202002	$ 58.01	324	0.019%
BAND 8	120390206002	$ 58.03	421	0.025%
BAND 8	121199906003	$ 58.06	576	0.034%
BAND 8	120179805002	$ 58.12	323	0.019%
BAND 8	120830006032	$ 58.21	416	0.024%
BAND 8	120710019028	$ 58.31	465	0.027%
BAND 8	121319505002	$ 58.31	510	0.030%
BAND 8	120639808003	$ 58.33	494	0.029%
BAND 8	120690301023	$ 58.33	384	0.022%
BAND 8	120639807001	$ 58.42	604	0.035%
BAND 8	120730026022	$ 58.52	724	0.042%
BAND 8	120499704005	$ 58.57	819	0.048%
BAND 8	121339702003	$ 58.60	613	0.036%
BAND 8	120939902001	$ 58.95	622	0.036%
BAND 8	121010324005	$ 58.98	726	0.042%
BAND 8	120710102024	$ 58.99	76	0.004%
BAND 8	120759705006	$ 59.30	253	0.015%
BAND 8	120559612004	$ 59.38	565	0.033%
BAND 8	120559614001	$ 59.39	398	0.023%
BAND 8	120690312007	$ 59.41	789	0.046%
BAND 8	120690301021	$ 59.42	345	0.020%
BAND 8	120730025022	$ 59.51	652	0.038%

FLORIDA	Census Block Group Number	Monthly Cost	Total CBG Lines Served	Percent of Total Lines
BAND 8	120799902003	$ 59.93	439	0.026%
BAND 8	120710801004	$ 60.01	123	0.007%
BAND 8	120639811002	$ 60.06	359	0.021%
BAND 8	120070004002	$ 60.44	644	0.038%
BAND 8	120599601003	$ 60.51	517	0.030%
BAND 8	120939904001	$ 60.73	1,065	0.062%
BAND 8	120710402023	$ 60.76	49	0.003%
BAND 8	120210108005	$ 60.91	29	0.002%
BAND 8	120710503031	$ 60.92	1,006	0.059%
BAND 8	121319503005	$ 61.06	1,381	0.081%
BAND 8	121010319006	$ 61.14	813	0.048%
BAND 8	120690313032	$ 61.22	1,173	0.069%
BAND 8	121290102004	$ 61.31	1,558	0.091%
BAND 8	121199906001	$ 61.41	761	0.044%
BAND 8	120599603002	$ 61.42	334	0.020%
BAND 8	121319501004	$ 61.52	400	0.023%
BAND 8	120439502003	$ 61.53	502	0.029%
BAND 8	121339703001	$ 61.66	710	0.042%
BAND 8	120599602003	$ 61.87	451	0.026%
BAND 8	120179808002	$ 61.97	221	0.013%
BAND 8	120499701002	$ 62.14	528	0.031%
BAND 8	121270910011	$ 62.42	458	0.027%
BAND 8	120519604006	$ 62.43	575	0.034%
BAND 8	120530001001	$ 62.51	585	0.034%
BAND 8	120599602004	$ 62.70	361	0.021%
BAND 8	120710402011	$ 63.04	340	0.020%
BAND 8	120559613002	$ 63.37	77	0.005%
BAND 8	120690312001	$ 63.45	442	0.026%
BAND 8	121199903002	$ 63.60	477	0.028%
BAND 8	120950179008	$ 63.89	212	0.012%
BAND 8	121319506003	$ 64.46	430	0.025%
BAND 8	121199905001	$ 64.53	370	0.022%
BAND 8	121319501001	$ 64.64	473	0.028%
BAND 8	120830006035	$ 64.65	213	0.012%
BAND 8	120639801001	$ 64.86	495	0.029%
BAND 8	120559617001	$ 64.86	418	0.024%
BAND 8	120559609001	$ 64.97	608	0.036%
BAND 8	121319504003	$ 65.00	360	0.021%
BAND 8	121199907003	$ 65.02	841	0.049%
BAND 8	120279804004	$ 65.10	607	0.035%
BAND 8	120710403021	$ 65.17	53	0.003%
BAND 8	121319506005	$ 65.34	739	0.043%
BAND 8	121319501005	$ 65.34	385	0.022%
BAND 8	120799901003	$ 65.53	262	0.015%
BAND 8	120710402041	$ 65.53	70	0.004%
BAND 8	120830006011	$ 65.57	631	0.037%
BAND 8	121290101003	$ 65.63	466	0.027%
BAND 8	120830001001	$ 65.66	767	0.045%
BAND 8	121290101006	$ 65.67	281	0.016%

FLORIDA	Census Block Group Number	Monthly Cost	Total CBG Lines Served	Percent of Total Lines
BAND 8	120179812005	$ 65.79	177	0.010%
BAND 8	121199907002	$ 65.98	469	0.027%
BAND 8	120070004003	$ 66.00	560	0.033%
BAND 8	120830006036	$ 66.03	706	0.041%
BAND 8	120179803007	$ 66.08	70	0.004%
BAND 8	121290102003	$ 66.35	468	0.027%
BAND 8	120710303001	$ 66.45	289	0.017%
BAND 8	121199903001	$ 66.86	458	0.027%
BAND 8	120710403082	$ 66.89	45	0.003%
BAND 8	120710403022	$ 67.09	40	0.002%
BAND 8	120279801002	$ 67.31	803	0.047%
BAND 8	120150105004	$ 67.35	304	0.018%
BAND 8	121319504002	$ 67.56	356	0.021%
BAND 8	120830006012	$ 67.58	407	0.024%
BAND 8	120499702001	$ 67.66	501	0.029%
BAND 8	120150306001	$ 67.79	526	0.031%
BAND 8	120710104019	$ 67.96	31	0.002%
BAND 8	121290101002	$ 68.01	478	0.028%
BAND 8	120439502006	$ 68.01	415	0.024%
BAND 8	120279804005	$ 68.41	579	0.034%
BAND 8	120830005002	$ 68.47	350	0.020%
BAND 8	120150105003	$ 68.47	401	0.023%
BAND 8	120559605003	$ 68.61	26	0.002%
BAND 8	121290102007	$ 68.81	551	0.032%
BAND 8	120499702004	$ 68.82	561	0.033%
BAND 8	120730025021	$ 68.86	312	0.018%
BAND 8	120559601001	$ 68.93	871	0.051%
BAND 8	120710102012	$ 69.08	53	0.003%
BAND 8	120599602002	$ 69.12	453	0.026%
BAND 8	121319505001	$ 69.31	591	0.035%
BAND 8	120710402021	$ 69.37	212	0.012%
BAND 8	120710401052	$ 69.38	323	0.019%
BAND 8	120799904002	$ 69.72	644	0.038%
BAND 8	121290102006	$ 69.92	429	0.025%
BAND 8	120659801981	$ 69.96	643	0.038%
BAND 8	120499701001	$ 70.13	773	0.045%
BAND 8	120690301032	$ 70.18	474	0.028%
BAND 8	120759705007	$ 71.14	163	0.010%
BAND 8	120830004004	$ 71.38	604	0.035%
BAND 8	121199901003	$ 71.45	599	0.035%
BAND 8	120690301024	$ 71.78	430	0.025%
BAND 8	121290101004	$ 71.94	374	0.022%
BAND 8	120639811003	$ 72.07	165	0.010%
BAND 8	120659801982	$ 72.13	473	0.028%
BAND 8	120499703005	$ 72.56	440	0.026%
BAND 8	121079514007	$ 72.65	289	0.017%
BAND 8	120559610001	$ 72.69	324	0.019%
BAND 8	120639811007	$ 72.71	230	0.013%
BAND 8	120499701004	$ 72.89	787	0.046%

FLORIDA	Census Block Group Number	Monthly Cost	Total CBG Lines Served	Percent of Total Lines
BAND 8	120639802001	$ 72.90	482	0.028%
BAND 8	120730025041	$ 73.68	21	0.001%
BAND 8	120799902001	$ 73.81	429	0.025%
BAND 8	120970405053	$ 74.34	178	0.010%
BAND 8	120799904001	$ 75.12	361	0.021%
BAND 8	120710401032	$ 75.17	78	0.005%
BAND 8	120710101034	$ 75.65	37	0.002%
BAND 8	120559617002	$ 76.24	8	0.000%
BAND 8	120710402043	$ 77.71	78	0.005%
BAND 8	120279804001	$ 77.84	505	0.030%
BAND 8	120439502002	$ 78.07	317	0.019%
BAND 8	120439501002	$ 78.17	399	0.023%
BAND 8	120710403036	$ 78.17	32	0.002%
BAND 8	120639808001	$ 79.68	297	0.017%
BAND 8	120659802003	$ 79.70	173	0.010%
BAND 8	120210111021	$ 79.76	964	0.056%
BAND 8	120710102011	$ 79.88	56	0.003%
BAND 8	120710101011	$ 80.16	183	0.011%
BAND 8	120939901003	$ 80.38	392	0.023%
BAND 8	120150101001	$ 81.39	1,146	0.067%
BAND 8	120910201001	$ 82.08	417	0.024%
BAND 8	120830005003	$ 82.19	211	0.012%
BAND 8	120559616003	$ 83.35	30	0.002%
BAND 8	120659802001	$ 83.62	336	0.020%
BAND 8	120710403023	$ 83.70	34	0.002%
BAND 8	120710402042	$ 83.76	64	0.004%
BAND 8	120710402022	$ 83.88	24	0.001%
BAND 8	120710101026	$ 84.32	54	0.003%
BAND 8	120179803008	$ 85.44	46	0.003%
BAND 8	120710104013	$ 85.62	26	0.001%
BAND 8	120970406004	$ 87.40	529	0.031%
BAND 8	121290102001	$ 87.56	456	0.027%
BAND 8	121150027028	$ 87.60	58	0.003%
BAND 8	120759705008	$ 87.88	52	0.003%
BAND 8	120559616006	$ 88.14	605	0.035%
BAND 8	120710401051	$ 88.14	61	0.004%
BAND 8	120439501003	$ 88.58	603	0.035%
BAND 8	120210112021	$ 90.17	659	0.039%
BAND 8	120710401053	$ 90.92	73	0.004%
BAND 8	120830012023	$ 91.62	32	0.002%
BAND 8	120190310001	$ 91.62	247	0.014%
BAND 8	120519602006	$ 92.04	738	0.043%
BAND 8	120730024021	$ 92.43	170	0.010%
BAND 8	120830011014	$ 92.83	24	0.001%
BAND 8	120970406001	$ 93.40	624	0.036%
BAND 8	120710403033	$ 93.72	17	0.001%
BAND 8	120710402033	$ 94.39	29	0.002%
BAND 8	120710403025	$ 95.56	32	0.002%
BAND 8	120559616004	$ 96.33	238	0.014%

FLORIDA	Census Block Group Number	Monthly Cost	Total CBG Lines Served	Percent of Total Lines
BAND 8	120710101033	$ 96.84	27	0.002%
BAND 8	120710403037	$ 97.24	21	0.001%
BAND 8	120799902004	$ 97.60	427	0.025%
BAND 8	120559615001	$ 97.98	291	0.017%
BAND 8	120970406002	$ 100.21	444	0.026%
BAND 8	120910208009	$ 100.54	294	0.017%
BAND 8	120659802004	$ 101.74	550	0.032%
BAND 8	120710101031	$ 103.03	34	0.002%
BAND 8	120710403068	$ 108.58	28	0.002%
BAND 8	120830006014	$ 111.41	122	0.007%
BAND 8	120639811004	$ 111.63	124	0.007%
BAND 8	121079513005	$ 111.89	65	0.004%
BAND 8	121199907004	$ 114.28	249	0.015%
BAND 8	120519603001	$ 115.28	407	0.024%
BAND 8	120710401014	$ 116.13	25	0.001%
BAND 8	121150027026	$ 116.24	30	0.002%
BAND 8	120439502001	$ 116.25	560	0.033%
BAND 8	120710403066	$ 118.44	16	0.001%
BAND 8	120210111023	$ 123.07	236	0.014%
BAND 8	120759705005	$ 125.00	48	0.003%
BAND 8	120710101024	$ 129.15	31	0.002%
BAND 8	121319505006	$ 136.21	47	0.003%
BAND 8	120950171014	$ 138.17	15	0.001%
BAND 8	120559614004	$ 143.80	15	0.001%
BAND 8	120799904004	$ 148.65	143	0.008%
BAND 8	120799904003	$ 149.04	107	0.006%
BAND 8	120710403081	$ 149.26	18	0.001%
BAND 8	120710101025	$ 150.49	19	0.001%
BAND 8	120710403024	$ 157.07	12	0.001%
BAND 8	120710801002	$ 157.57	23	0.001%
BAND 8	120150211986	$ 162.04	10	0.001%
BAND 8	120639811006	$ 163.81	27	0.002%
BAND 8	120559614005	$ 169.07	8	0.000%
BAND 8	120710403078	$ 182.15	10	0.001%
BAND 8	120710403076	$ 184.85	11	0.001%
BAND 8	121239502007	$ 185.29	77	0.004%
BAND 8	120710403034	$ 195.68	8	0.000%
BAND 8	121150027986	$ 199.47	11	0.001%
BAND 8	120710101013	$ 221.00	21	0.001%
BAND 8	121150027027	$ 242.08	7	0.000%
BAND 8	120879701004	$ 249.02	19	0.001%
BAND 8	120710801001	$ 249.22	3	0.000%
BAND 8	120710101023	$ 249.44	10	0.001%
BAND 8	120730024063	$ 249.44	5	0.000%
BAND 8	120710101022	$ 249.44	2	0.000%
BAND 8	120710403069	$ 249.51	1	0.000%
BAND 8	121150027984	$ 249.52	8	0.000%
BAND 8	120150305003	$ 249.64	2	0.000%
BAND 8	120559614006	$ 249.76	4	0.000%

FLORIDA	Census Block Group Number	Monthly Cost	Total CBG Lines Served	Percent of Total Lines
BAND 8	120710403077	$ 249.77	1	0.000%
BAND 8	120710101019	$ 249.79	1	0.000%
BAND 8	120910218004	$ 249.92	3	0.000%
BAND 8	120710401022	$ 250.03	1	0.000%
BAND 8	120710401027	$ 250.11	1	0.000%

SUMMARY	Percent of Total:		5.2%
BAND 8	Weighted Average Cost:	$	68.52

As shown in the figures above, approximately 81.4% of loops are placed within $5.00 of their costs.

B.

Cross-Connect Facilities

Cross Connect Rate Development

Company: ***Sprint Local Telephone Companies - Florida***

Rate Element: ***DS3 Electrical Cross Connect***

A: Investment

		Hours	Labor Rate		
1.	Circuit Equipment Material				$592.33
2.	Engineering Labor - COE - CKT	2.00	$56.60	$113.20	
3.	Installation Labor - COE - CKT	4.50	$42.50	$191.25	
4.	Total Labor (L2 + L4)				$304.45
5.	Total Installed Cost (L1 + L4)				$896.78
6.	Net Salvage Value - Material				$59.23
7.	Net Installed Cost (L5 - L6)				$837.55

B. Annual Cost

	Circuit Equipment	Cost Factor	
8.	Direct Cost (TELRIC)	33.2800%	$278.74
9.	Common Cost	14.5832%	$40.65
10.	Total Annual Cost (L9 + L10)		$319.39

C. Pricing

11.	Proposed Nonrecurring Charge		$0.00
12.	Monthly Floor Cost	*PRICE FLOOR*	$26.62
13.	***Proposed Monthly Rate***		***$26.62***

Floor Cost / Unit Investment	0.3561
Floor Cost / Rate	1.0000

Cross Connect Rate Development

Company: ***Sprint Local Telephone Companies - Florida***

Rate Element: ***DS1 Electrical Cross Connect***

A: Investment

		Hours	Labor Rate		
1.	Circuit Equipment Material				$60.41
2.	Engineering Labor - COE - CKT	0.29	$56.60	$16.41	
3.	Installation Labor - COE - CKT	0.57	$42.50	$24.23	
4.	Total Labor (L2 + L4)				$40.64
5.	Total Installed Cost (L1 + L4)				$101.05
6.	Net Salvage Value - Material				$6.04
7.	Net Installed Cost (L5 - L6)				$95.01

B. Annual Cost

	Circuit Equipment	Cost Factor	
8.	Direct Cost (TELRIC)	33.2800%	$31.62
9.	Common Cost	14.5832%	$4.61
10.	Total Annual Cost (L9 + L10)		$36.23

C. Pricing

11.	Proposed Nonrecurring Charge		$0.00
12.	Monthly Floor Cost	*PRICE FLOOR*	$3.02
13.	***Proposed Monthly Rate***		***$3.02***

Floor Cost / Unit Investment	0.3585
Floor Cost / Rate	1.0000

Cross Connect Rate Development

Company: ***Sprint Local Telephone Companies - Florida***

Rate Element: ***DS0 Electrical Cross Connect***

A: Investment

		Hours	Labor Rate		
1.	Circuit Equipment Material				$17.00
2.	Engineering Labor - COE - CKT	0.17	$56.60	$9.62	
3.	Installation Labor - COE - CKT	0.13	$42.50	$5.53	
4.	Total Labor (L2 + L4)				$15.15
5.	Total Installed Cost (L1 + L4)				$32.15
6.	Net Salvage Value - Material				$1.70
7.	Net Installed Cost (L5 - L6)				$30.45

B. Annual Cost

	Circuit Equipment	Cost Factor	
8.	Direct Cost (TELRIC)	33.2800%	$10.13
9.	Common Cost	14.5832%	$1.48
10.	Total Annual Cost (L9 + L10)		$11.61

C. Pricing

11.	Proposed Nonrecurring Charge		$0.00
12.	Monthly Floor Cost	*PRICE FLOOR*	$0.97
13.	***Proposed Monthly Rate***		***$0.97***
	Floor Cost / Unit Investment		0.3612
	Floor Cost / Rate		1.0000

C.

Network Interface Device

Sprint/Florida
Network Interface Device
Prices

Description	Monthly Recurring Price
Network Interface Device w/1 line	$ 0.91
Network Interface Device w/2 lines	$ 1.09
Smart Jack	$ 14.17
HDSL RT Unit	$ 28.44

Sprint/Florida
Network Interface Devices (NIDs)1-Line
Cost Support

Cost Elements	Material Code	Material Cost	Quantity	Labor Hours	Labor Rate	Total Costs	Monthly Recurring
Network Interface Device-1-Line Gel Jack							
w/355MT/Bridging Bars(Includes STax, Supply Exp.)	774222	$ 14.96	1			$ 14.96	
Ground Wire (Includes Sales Tax, Supply Exp.)(Ft.)	350061	$ 0.37	6			$ 2.22	
Ground Rod (Includes Sales Tax, Supply Exp.)	726106	$ 5.57	1.00			$ 5.57	
Installation-I & R (Work Group #300)				0	$ 55.14	$ -	
Total Capital Costs						$ 22.75	
ACF (Weighted Drop)						41.78%	
Total Monthly Recurring							$ 0.79
Common Cost Factor					14.58%		$0.12
Total Monthly Revenue Requirement per 1 Line NID							$ 0.91
Smart Jack	526172	$ 355.18	1			$ 355.18	
ACF (Weighted Drop)						41.78%	
Total Monthly Recurring							$ 12.37
Common Cost Factor					14.58%		$1.80
Total Monthly Revenue Requirement for Smart Jack							$ 14.17

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Sprint/Florida
Network Interface Devices (NIDs)2-Line
Cost Support

Cost Elements	Material Code	Material Cost	Quantity	Labor Hours	Labor Rate	Total Costs	Monthly Recurring
Network Interface Device-2-Line Gel Jack							
w/355MT/Bridging Bars(Includes STax, Supply Exp.)	774223	$ 22.31	1			$ 22.31	
Ground Wire (Includes Sales Tax, Supply Exp.)(Ft.)	350061	$ 0.37	6			$ 2.22	
Ground Rod (Includes Sales Tax, Supply Exp.)	726106	$ 5.57	0.50			$ 2.79	
Installation-I & R (Work Group #300)				0	$ 55.14	$ -	
Total Capital Costs						$ 27.32	
ACF (Weighted Drop)						41.78%	
Total Monthly Recurring							$ 0.95
Common Cost Factor					14.58%		$0.14
Total Monthly Revenue Requirement for Two Line NID							$ 1.09
Smart Jack	526172	$ 355.18	1			$ 355.18	
ACF (Weighted Drop)						41.78%	
Total Monthly Recurring							$ 12.37
Common Cost Factor					14.58%		$1.80
Total Monthly Revenue Requirement for Smart Jack							$ 14.17

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Network Interface Devices (NIDs)2-Line with HDSL

Cost Support

Cost Elements	Material Code	Material Cost	Quantity	Labor Hours	Labor Rate	Total Costs	Monthly Recurring
Network Interface Device-2-Line Gel Jack							
w/355MT/Bridging Bars(Includes STax, Supply Exp.)	774223	$ 22.31	1			$ 22.31	
Ground Wire (Includes Sales Tax, Supply Exp.)(Ft.)	350061	$ 0.37	6			$ 2.22	
Ground Rod (Includes Sales Tax, Supply Exp.)	726106	$ 5.57	0.50			$ 2.79	
Installation-I & R (Work Group #300)				0	$ 55.14	$ -	
Total Capital Costs						$ 27.32	
ACF (Weighted Drop)						41.78%	
Total Monthly Recurring							$ 0.95
Common Cost Factor					14.58%		$0.14
Total Monthly Revenue Requirement for 2 Line NID							$ 1.09
HDSL RT Unit	526767	$ 712.88	1			$ 712.88	
ACF (Weighted Drop)						41.78%	
Total Monthly Recurring							$ 24.82
Common Cost Factor					14.58%		$3.62
Total Monthly Revenue Requirement for HDSL RT Unit							$ 28.44

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Sprint/Florida				
Weighted ACF for NID				
				Weighted
	1995 y/e Bal.	% Distrib.	ACF	ACF
Aerial Metallic Drop	29,367,174	13.77%	46.77%	6.44%
Buried Metallic Drop	183,921,705	86.23%	40.98%	35.34%
	213,288,879			
				41.78%
Common Cost Percentage	14.58%			

D.

Local Switching

Sprint-Florida

Exchange	Rate Band		Rate
ALTAMONTE SPRINGS, FL	1	$	5.82
BONITA SPRINGS, FL	1	$	5.82
CYPRESS LAKE, FL	1	$	5.82
FT MYERS BEACH, FL	1	$	5.82
FT. MYERS, FL	1	$	5.82
FT. WALTON BEACH, FL	1	$	5.82
GOLDENROD, FL	1	$	5.82
LAKE BRANTLEY,FL	1	$	5.82
TALLAHASSEE, FL	1	$	5.82
WINTER PARK, FL	1	$	5.82
APOPKA, FL	2	$	7.72
CASSELBERRY, FL	2	$	7.72
CHERRY LAKE, FL	2	$	7.72
CRYSTAL RIVER, FL	2	$	7.72
DESTIN, FL	2	$	7.72
EUSTIS, FL	2	$	7.72
FREEPORT, FL	2	$	7.72
INVERNESS, FL	2	$	7.72
LADY LAKE, FL	2	$	7.72
LEESBURG, FL	2	$	7.72
MADISON, FL	2	$	7.72
MARCO ISLAND, FL	2	$	7.72
MONTICELLO , FL	2	$	7.72
MT. DORA, FL	2	$	7.72
NAPLES MOORINGS, FL	2	$	7.72
NAPLES, FL	2	$	7.72
NORTH NAPLES, FL	2	$	7.72
OCALA, FL	2	$	7.72
ORANGE CITY, FL	2	$	7.72
PORT CHARLOTTE, FL	2	$	7.72
SANTA ROSA, FL	2	$	7.72
SEA GROVE BEACH, FL	2	$	7.72
WILDWOOD, FL	2	$	7.72

Local Switching Rates

Exchange	Rate Band		Rate
ALFORD, FL	3	$	8.99
ARCADIA, FL	3	$	8.99
ASTOR, FL	3	$	8.99
BAKER, FL	3	$	8.99
BONIFAY, FL	3	$	8.99
BOWLING GREEN, FL	3	$	8.99
COTTONDALE, FL	3	$	8.99
EVERGLADES, FL	3	$	8.99
GLENDALE, FL	3	$	8.99
GREENVILLE, FL	3	$	8.99
GREENWOOD, FL	3	$	8.99
HOWEY-IN-THE-HILLS, FL	3	$	8.99
KENANSVILLE, FL	3	$	8.99
KINGSLEY LAKE, FL	3	$	8.99
KISSIMMEE, FL	3	$	8.99
LAWTEY, FL	3	$	8.99
LEE, FL	3	$	8.99
MAITLAND, FL	3	$	8.99
MALONE, FL	3	$	8.99
MONTVERDE, FL	3	$	8.99
OKLAWAHA, FL	3	$	8.99
PANACEA, FL	3	$	8.99
PONCE DE LEON, FL	3	$	8.99
REYNOLDS HILL, FL	3	$	8.99
SALT SPRINGS, FL	3	$	8.99
SILVER SPRINGS SHORES, FL	3	$	8.99
SNEADS, FL	3	$	8.99
SOPCHOPPY, FL	3	$	8.99
ST. MARKS, FL	3	$	8.99
TAVARES, FL	3	$	8.99
UMATILLA, FL	3	$	8.99
VALPRAISO, FL	3	$	8.99
WEST KISSIMMEE, FL	3	$	8.99
WESTVILLE, FL	3	$	8.99
WILLISTON, FL	3	$	8.99
WINTER GARDEN, FL	3	$	8.99

Local Switching Rates

Exchange	Rate Band	Rate
BELLEVIEW, FL	4	$ 10.08
BEVERLY HILLS, FL	4	$ 10.08
BOCA GRANDE, FL	4	$ 10.08
CAPE CORAL, FL	4	$ 10.08
CLEWISTON, FL	4	$ 10.08
CRESTVIEW, FL	4	$ 10.08
DADE CITY, FL	4	$ 10.08
DEFUNIAK SPRINGS, FL	4	$ 10.08
FOREST, FL	4	$ 10.08
FORT MEADE, FL	4	$ 10.08
HOMOSASSA SPRINGS, FL	4	$ 10.08
LEHIGH ACRES, FL	4	$ 10.08
MOORE HAVEN, FL	4	$ 10.08
NORTH CAPE CORAL, FL	4	$ 10.08
NORTH FT. MYERS, FL	4	$ 10.08
OKEECHOBEE, FL	4	$ 10.08
PINE ISLAND, FL	4	$ 10.08
REEDY CREEK, FL	4	$ 10.08
SHADY ROAD, FL	4	$ 10.08
ST. CLOUD, FL	4	$ 10.08
STARKE, FL	4	$ 10.08
WAUCHULA, FL	4	$ 10.08
WINDERMERE, FL	4	$ 10.08
ZOLFO SPRINGS, FL	4	$ 10.08
AVON PARK, FL	5	$ 11.66
CLERMONT, FL	5	$ 11.66
CRAWFORDVILLE, FL	5	$ 11.66
GROVELAND, FL	5	$ 11.66
IMMOKALEE, FL	5	$ 11.66
LABELLE, FL	5	$ 11.66
PUNTA GORDA, FL	5	$ 11.66
SAN ANTONIO, FL	5	$ 11.66
TRILLACOOCHEE, FL	5	$ 11.66
BUSHNELL, FL	6	$ 13.83
CAPE HAZE, FL	6	$ 13.83
LAKE PLACID, FL	6	$ 13.83
MARIANNA, FL	6	$ 13.83
SANIBEL ISLAND, FL	6	$ 13.83
SEBRING, FL	6	$ 13.83
SHALIMAR, FL	6	$ 13.83
SPRING LAKE, FL	6	$ 13.83

Sprint-Florida

Exchange A		Host Name B	Total MOU C	Lines	Port Charge D	Loc Sw Rate Orig/Term MOU E	Loc Sw Revenues F=C x E	Assumed MOU G	Combined Rate H=D + (F x H)	Total Band MOU	Total Band Revenues	Band Rate	Dev to Band Rate	% Dev to Band Rate	Lines x Port Cost	Total Band Revenue	Total Band Lines	Avg Port Chg Band	Flat Rate per Band	Common Addative	Loaded Rate
ALTAMONTE SPRINGS	in	ALSP	161,709,626	67,049	2.28	0.001961	$ 317,147	1259	$4.75				-0.00017	-8.026%	$152,872						
WINTER PARK	in	WNPK	126,953,533	45,116	2.52	0.002030	$ 257,690	1259	$5.08				-0.00010	-4.809%	$113,692						
LAKE BRANTLEY	in	LKBY	124,862,603	50,721	2.28	0.002102	$ 262,399	1259	$4.93				-0.00003	-1.446%	$115,644						
CYPRESS LAKE	in	CYLK	106,413,702	41,259	2.52	0.002149	$ 228,635	1259	$5.23				0.00002	0.760%	$103,973						
FT. MYERS	in	FTMY	80,658,699	25,213	2.50	0.002218	$ 178,902	1259	$5.29				0.00009	4.017%	$63,033						
GOLDENROD	in	GLRD	135,984,438	57,292	2.41	0.002396	$ 325,876	1259	$5.43	736,582,601	$ 1,570,649	0.00213	0.00026	12.384%	$138,074	687,287	286,650	$2.40	$5.08	1.145832	$5.82
OCALA	in	OCAL	132,268,350	90,046	2.28	0.003176	$ 420,080	1259	$6.28				-0.00030	-8.513%	$205,305						
NAPLES MOORINGS	in	NMOR	82,208,791	59,037	2.48	0.003415	$ 280,776	1259	$6.78				-0.00006	-1.616%	$146,412						
CASSELBERRY	in	CSLB	55,097,735	41,710	2.37	0.003440	$ 189,542	1259	$6.70				-0.00003	-0.905%	$98,853						
ORANGE CITY	in	ORCY	53,919,317	28,547	2.39	0.003467	$ 186,945	1259	$6.76				0.00000	-0.126%	$68,227						
APOPKA	in	APPK	90,027,517	49,199	2.28	0.003546	$ 319,225	1259	$6.74				0.00007	2.142%	$112,174						
NORTH NAPLES	in	NNPL	56,897,527	37,518	2.63	0.003769	$ 214,463	1259	$7.38				0.00030	8.578%	$98,672						
LEESBURG	in	LSBG	66,401,608	43,478	2.28	0.003803	$ 252,544	1259	$7.07	536,820,844	$ 1,863,575	0.00347	0.00033	9.557%	$99,130	828,773	349,535	$2.37	$6.74	1.145832	$7.72
OCALA	out	OCAL	2,820,283	1,920	2.97	0.003951	$ 11,142	1259	$7.94				-0.00037	-8.485%	$5,702						
BELLEVIEW	out	BLVW	10,243,580	7,680	2.50	0.004038	$ 41,368	1259	$7.58				-0.00028	-6.456%	$19,200						
TAVARES	in	TVRS	30,378,828	22,770	2.28	0.004226	$ 128,383	1259	$7.60				-0.00009	-2.109%	$51,916						
MAITLAND	in	MTLD	32,645,345	23,422	2.28	0.004296	$ 140,245	1259	$7.69				-0.00002	-0.488%	$53,402						
WEST KISSIMMEE	in	WKSM	44,332,733	26,843	2.28	0.004381	$ 194,219	1259	$7.80				0.00006	1.479%	$61,202						
LEESBURG	out	LSBG	9,774,375	6,400	2.91	0.004383	$ 42,838	1259	$8.43				0.00007	1.519%	$18,624						
NAPLES MOORINGS	out	NMOR	7,129,580	5,120	2.76	0.004454	$ 31,754	1259	$8.37				0.00014	3.169%	$14,131						
TAVARES	out	TVRS	10,257,024	7,688	2.76	0.004599	$ 47,176	1259	$8.55	147,581,748	$ 637,125	0.00432	0.00028	6.540%	$21,219	245,396	101,843	$2.41	$7.84	1.145832	$8.99
NORTH FT. MYERS	in	NFMY	24,296,053	19,200	2.69	0.004783	$ 116,206	1259	$8.71				-0.00032	-6.310%	$51,648						
BELLEVIEW	in	BLVW	41,671,896	31,243	2.28	0.004881	$ 203,388	1259	$8.42				-0.00022	-4.394%	$71,234						
WEST KISSIMMEE	out	WKSM	6,341,977	3,840	2.67	0.004965	$ 31,486	1259	$8.92				-0.00014	-2.750%	$10,253						
SHADY ROAD	in	SHRD	56,691,754	40,543	2.28	0.005035	$ 285,425	1259	$8.62				-0.00007	-1.378%	$92,438						
BEVERLY HILLS	out	BVHL	7,799,644	7,680	2.50	0.005044	$ 39,340	1259	$8.85				-0.00006	-1.200%	$19,200						
LEHIGH ACRES	in	LHAC	26,022,959	19,765	2.28	0.005216	$ 135,740	1259	$8.85				0.00011	2.177%	$45,064						
BEVERLY HILLS	in	BVHL	23,706,651	23,343	2.28	0.005377	$ 127,481	1259	$9.05				0.00027	5.336%	$53,222						
LABELLE	out	LBLL	10,114,298	8,960	2.79	0.005428	$ 54,905	1259	$9.62				0.00032	6.335%	$24,998						
DADE CITY	in	DDCY	25,546,687	22,253	2.28	0.005493	$ 140,326	1259	$9.20	222,191,920	$ 1,134,295	0.00511	0.00039	7.598%	$50,737	418,794	176,827	$2.37	$8.80	1.145832	$10.08
LABELLE	in	LBLL	19,201,363	17,010	2.28	0.006025	$ 115,680	1259	$9.86				-0.00016	-2.571%	$38,783						
CLERMONT	in	CLMT	26,273,520	20,841	2.28	0.006251	$ 164,249	1259	$10.15				0.00007	1.099%	$47,517						
CLERMONT	out	CLMT	3,227,303	2,560	2.83	0.006289	$ 20,296	1259	$10.75				0.00011	1.704%	$7,245						
DADE CITY	out	DDCY	5,877,816	5,120	2.97	0.006341	$ 37,273	1259	$10.95	54,580,002	$ 337,499	0.00618	0.00016	2.552%	$15,206	108,751	45,531	$2.39	$10.17	1.145832	$11.66
CAPE HAZE	in	CPHZ	17,094,970	15,144	2.28	0.007602	$ 129,957	1259	$11.85				-0.00013	-1.732%	$34,528						
SEBRING	out	SBNG	4,227,230	6,400	2.88	0.007723	$ 32,648	1259	$12.60				-0.00001	-0.166%	$18,432						
SEBRING	in	SBNG	32,818,498	49,687	2.28	0.007808	$ 256,232	1259	$12.11	54,140,698	$ 418,836	0.00774	0.00007	0.924%	$113,286	166,247	71,231	$2.33	$12.07	1.145832	$13.83
Sorted by Local Switching MOU Rate																					
			1,751,897,813	1,031,617			$ 5,961,979								$2,455,248						
Total Cost			$ 5,961,979			Total Cost	$2,455,248		Avg MOU/Line	1,698											
Total MOU			1,751,897,813			Total Lines	1,031,617														
Avg. State Rate/MOU			$ 0.003403			Avg Rate/Line	$ 2.38														

Revenues

11/14/96

Sprint
Docket No. 961230-TP
Randy G. Farrar
Composite Exhibit No. RGF-3
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Sprint-Florida

EXCHANGE	Orig & Term Total Line MOU (a)	Total Trunk MOU (b)	Total Lines (c)	Line Average MOU (a/c)	Trunk Average MOU (b/c)
Altamonte Spring	88,921,873	72,787,753	67,049	1,326	1,086
Apopka	52,740,381	37,287,136	49,199	1,072	758
Belleview	31,302,317	20,613,159	38,923	804	530
Beverly Hills	19,300,393	12,205,902	31,023	622	393
Cape Haze	12,145,776	4,949,194	15,144	802	327
Clemont	18,605,426	10,895,397	23,401	795	466
Dade City	21,306,613	10,117,890	27,373	778	370
Ft Myers	48,394,457	32,264,242	25,213	1,919	1,280
Labelle	20,828,434	8,487,227	25,970	802	327
Cypress Lake	62,321,215	44,092,487	41,259	1,510	1,069
Leesburg	48,527,095	27,648,888	49,878	973	554
Lehigh Acres	16,261,791	9,761,168	19,765	823	494
N. Ft Myers	13,509,523	10,786,530	19,200	704	562
N. Naples	32,634,968	24,262,559	37,518	870	647
Ocala	91,799,529	43,289,104	91,966	998	471
Naples Moorings	54,468,283	34,870,088	64,157	849	544
Orange City	32,192,327	21,726,990	28,547	1,128	761
Shady Road	32,825,297	23,866,457	40,543	810	589
Sebring	25,191,386	11,854,342	56,087	449	211
Tavares	24,314,275	16,321,577	30,458	798	536
West Kissimmee	27,141,775	23,532,935	30,683	885	767
Winter Park	69,606,656	57,346,877	45,116	1,543	1,271
Casselberry	29,700,137	25,397,598	41,710	712	609
Goldenrod	74,178,005	61,806,433	57,292	1,295	1,079
Lake Brantley	68,952,635	55,909,968	50,721	1,359	1,102
Maitland	17,734,410	14,910,935	23,422	757	637
Totals	1,034,904,977	716,992,836	1,031,617	**1,003**	**695**
Total Line/Trunk MOU		1,751,897,813			

MOU Calc (Total Line Avg. MOU / SE Stdy Avg. Orig MOU <809>) * SE Stdy Class of Serv. MOU

Port Type	SE Stdy	Calculation	Orig & Term by Class of Service
Basic Port	600	((1003+695)/809)*600)	**1,259**

E.

Tandem Switching

Tandem Switching Rate Development

Sprint-Florida

Exchange	Tandem Sw MOU Rate *	Interoffice Host Trunk MOU	Tandem Cost
ALTAMONTE SPRINGS, FL	$ 0.001920	57,073,831	$ 109,582
APOPKA	$ 0.002820	22,735,763	$ 64,115
BELLEVIEW	$ 0.002760	12,478,685	$ 34,441
BEVERLY HILLS	$ 0.003550	8,177,006	$ 29,028
CAPE HAZE	$ 0.008010	3,275,932	$ 26,240
CLERMONT	$ 0.004010	9,107,511	$ 36,521
DADE CITY	$ 0.003940	7,752,256	$ 30,544
FT. MYERS	$ 0.003980	32,264,242	$ 128,412
LABELLE	$ 0.004470	4,722,389	$ 21,109
CYPRESS LAKE	$ 0.001950	29,045,534	$ 56,639
LEESBURG	$ 0.003050	19,843,917	$ 60,524
LEHIGH ACRES	$ 0.003660	9,761,168	$ 35,726
NORTH FT. MYERS	$ 0.005360	7,910,122	$ 42,398
NORTH NAPLES	$ 0.003290	9,362,795	$ 30,804
OCALA	$ 0.002220	26,418,940	$ 58,650
NAPLES MOORINGS	$ 0.003120	20,260,490	$ 63,213
ORANGE CITY	$ 0.002800	10,036,565	$ 28,102
SHADY ROAD	$ 0.002740	11,810,491	$ 32,361
SEBRING	$ 0.004450	7,255,228	$ 32,286
TAVARES	$ 0.002720	10,829,965	$ 29,458
WEST KISSIMMEE	$ 0.003100	12,734,000	$ 39,475
WINTER PARK	$ 0.002250	44,330,829	$ 99,744
CASSELBERRY	$ 0.002380	21,500,580	$ 51,171
GOLDENROD	$ 0.001870	35,570,092	$ 66,516
LAKE BRANTLEY	$ 0.001690	47,444,272	$ 80,181
MAITLAND	$ 0.005230	14,910,935	$ 77,984
		496,613,539	$ 1,365,224

* (2 x Trunk CCS) + Trunk Setup

Total Cost	$ 1,365,224	
Total MOU	496,613,539	
Avg. Tandem/MOU Rate	$ 0.002749	
Common Addative	1.145832	
Total Avg. Tandem MOU Rate	**$ 0.003150**	

F.

Loop, Port & NID Combination Discount

Company: ***Sprint - Florida***

Rate Element: ***Discount for Combination of NID, Loop, Local Switching***
(Basic Voice Grade Service)

1	Total Households included in BCM2 Study	893,555
2	Households 0 to 10 Kft	214,363
3	Households 10 Kft to 15 Kft	200,891
4	Households in the 10 - 15 band under 12 Kft (2,000 / 5,000 * L 3)	80,356
5 = 1 - 2 - 4	Total Households over 12 Kft	598,836
6 = 5 / 1 * 100	Percent Households over 12 Kft	67.0172%
7	Average Line Card Cost per Local Switching Study	$2.38
8	Common Factor	1.145832
9 = 7 * 8 * 6	**Discount**	**$1.83**

G.

Call Termination

Sprint-Florida

Exchange	Rate Band		Rate
ALTAMONTE SPRINGS, FL	1	$	0.002384
BONITA SPRINGS, FL	1	$	0.002384
CYPRESS LAKE, FL	1	$	0.002384
FT MYERS BEACH, FL	1	$	0.002384
FT. WALTON BEACH, FL	1	$	0.002384
GOLDENROD, FL	1	$	0.002384
LAKE BRANTLEY,FL	1	$	0.002384
TALLAHASSEE, FL	1	$	0.002384
WINTER PARK, FL	1	$	0.002384
CASSELBERRY, FL	2	$	0.003418
FT. MYERS, FL	2	$	0.003418
OCALA, FL	2	$	0.003418
ORANGE CITY, FL	2	$	0.003418
APOPKA, FL	3	$	0.003978
CHERRY LAKE, FL	3	$	0.003978
CRYSTAL RIVER, FL	3	$	0.003978
DESTIN, FL	3	$	0.003978
EUSTIS, FL	3	$	0.003978
FREEPORT, FL	3	$	0.003978
INVERNESS, FL	3	$	0.003978
KISSIMMEE, FL	3	$	0.003978
LADY LAKE, FL	3	$	0.003978
LEESBURG, FL	3	$	0.003978
MADISON, FL	3	$	0.003978
MARCO ISLAND, FL	3	$	0.003978
MONTICELLO , FL	3	$	0.003978
MT. DORA, FL	3	$	0.003978
NAPLES MOORINGS, FL	3	$	0.003978
NAPLES, FL	3	$	0.003978
NORTH NAPLES, FL	3	$	0.003978
PORT CHARLOTTE, FL	3	$	0.003978
SANTA ROSA, FL	3	$	0.003978
SEA GROVE BEACH, FL	3	$	0.003978
TAVARES, FL	3	$	0.003978
VALPRAISO, FL	3	$	0.003978
WILDWOOD, FL	3	$	0.003978

Local Switching Interconnection Rates

Exchange	Rate Band		Rate
ALFORD, FL	4	$	0.004911
ARCADIA, FL	4	$	0.004911
ASTOR, FL	4	$	0.004911
BAKER, FL	4	$	0.004911
BELLEVIEW, FL	4	$	0.004911
BONIFAY, FL	4	$	0.004911
BOWLING GREEN, FL	4	$	0.004911
COTTONDALE, FL	4	$	0.004911
EVERGLADES, FL	4	$	0.004911
GLENDALE, FL	4	$	0.004911
GREENVILLE, FL	4	$	0.004911
GREENWOOD, FL	4	$	0.004911
HOWEY-IN-THE-HILLS, FL	4	$	0.004911
KENANSVILLE, FL	4	$	0.004911
KINGSLEY LAKE, FL	4	$	0.004911
LAWTEY, FL	4	$	0.004911
LEE, FL	4	$	0.004911
LEHIGH ACRES, FL	4	$	0.004911
MAITLAND, FL	4	$	0.004911
MALONE, FL	4	$	0.004911
MONTVERDE, FL	4	$	0.004911
OKEECHOBEE, FL	4	$	0.004911
OKLAWAHA, FL	4	$	0.004911
PANACEA, FL	4	$	0.004911
PONCE DE LEON, FL	4	$	0.004911
REYNOLDS HILL, FL	4	$	0.004911
SALT SPRINGS, FL	4	$	0.004911
SHADY ROAD, FL	4	$	0.004911
SILVER SPRINGS SHORES, FL	4	$	0.004911
SNEADS, FL	4	$	0.004911
SOPCHOPPY, FL	4	$	0.004911
ST. MARKS, FL	4	$	0.004911
UMATILLA, FL	4	$	0.004911
WEST KISSIMMEE, FL	4	$	0.004911
WESTVILLE, FL	4	$	0.004911
WILLISTON, FL	4	$	0.004911
WINTER GARDEN, FL	4	$	0.004911

Local Switching Interconnection Rates

Exchange	Rate Band		Rate
AVON PARK, FL	5	$	0.005813
BEVERLY HILLS, FL	5	$	0.005813
BOCA GRANDE, FL	5	$	0.005813
CAPE CORAL, FL	5	$	0.005813
CLERMONT, FL	5	$	0.005813
CRAWFORDVILLE, FL	5	$	0.005813
CRESTVIEW, FL	5	$	0.005813
DADE CITY, FL	5	$	0.005813
FOREST, FL	5	$	0.005813
FORT MEADE, FL	5	$	0.005813
HOMOSASSA SPRINGS, FL	5	$	0.005813
IMMOKALEE, FL	5	$	0.005813
LABELLE, FL	5	$	0.005813
NORTH CAPE CORAL, FL	5	$	0.005813
NORTH FT. MYERS, FL	5	$	0.005813
REEDY CREEK, FL	5	$	0.005813
ST. CLOUD, FL	5	$	0.005813
STARKE, FL	5	$	0.005813
WINDERMERE, FL	5	$	0.005813
CLEWISTON, FL	6	$	0.007233
DEFUNIAK SPRINGS, FL	6	$	0.007233
GROVELAND, FL	6	$	0.007233
MOORE HAVEN, FL	6	$	0.007233
PINE ISLAND, FL	6	$	0.007233
PUNTA GORDA, FL	6	$	0.007233
SAN ANTONIO, FL	6	$	0.007233
SEBRING, FL	6	$	0.007233
TRILLACOOCHEE, FL	6	$	0.007233
WAUCHULA, FL	6	$	0.007233
ZOLFO SPRINGS, FL	6	$	0.007233
BUSHNELL, FL	7	$	0.008898
CAPE HAZE, FL	7	$	0.008898
LAKE PLACID, FL	7	$	0.008898
MARIANNA, FL	7	$	0.008898
SANIBEL ISLAND, FL	7	$	0.008898
SHALIMAR, FL	7	$	0.008898
SPRING LAKE, FL	7	$	0.008898

Local Switching Interconnection Rate Bands

Sprint-Florida Exchange A		Host Name B	MOU C	Rate D	Rate x MOU E=C x D	Total Band MOU Sum D	Total Band Revenues Sum F	Band Avg Rate	Deviation From Avg Rate	% Deviation From Avg Rate	Common Addative	Loaded Avg Rate
ALTAMONTE SPRINGS	in	ALSP	72,787,753	0.001971	$143,466				-0.000110	-5.27%		
LAKE BRANTLEY	in	LKBY	55,909,968	0.001974	$110,345				-0.000107	-5.14%		
CYPRESS LAKE	in	CYLK	44,092,487	0.002101	$92,657				0.000021	1.00%		
WINTER PARK	in	WNPK	57,346,877	0.002129	$122,068				0.000048	2.30%		
GOLDENROD	in	GLRD	61,806,433	0.002247	$138,901	291,943,518	$607,437	0.002081	0.000167	8.01%	1.145832	0.002384
OCALA	in	OCAL	42,385,345	0.002824	$119,709				-0.000158	-5.31%		
FT. MYERS	in	FTMY	32,264,242	0.002890	$93,244				-0.000093	-3.10%		
CASSELBERRY	in	CSLB	25,397,598	0.003101	$78,770				0.000119	3.99%		
ORANGE CITY	in	ORCY	21,726,990	0.003290	$71,478	121,774,175	$363,202	0.002983	0.000307	10.30%	1.145832	0.003418
APOPKA	in	APPK	37,287,136	0.003324	$123,957				-0.000147	-4.23%		
NAPLES MOORINGS	in	NMOR	32,067,307	0.003336	$107,038				-0.000136	-3.91%		
LEESBURG	in	LSBG	24,101,174	0.003532	$85,120				0.000060	1.74%		
TAVARES	in	TRVS	12,201,796	0.003700	$45,148				0.000229	6.59%		
NORTH NAPLES	in	NNPL	24,262,559	0.003702	$89,811	129,939,973	$451,074	0.003471	0.000230	6.63%	1.145832	0.003978
OCALA	out	OCAL	903,759	0.003910	$3,534				-0.000376	-8.77%		
BELLEVIEW	out	BLVW	4,067,237	0.003960	$16,106				-0.000326	-7.60%		
WEST KISSIMMEE	in	WKSM	20,587,771	0.003988	$82,109				-0.000297	-6.94%		
BELLEVIEW	in	BLVW	16,545,922	0.004122	$68,196				-0.000164	-3.83%		
SHADY ROAD	in	SHRD	23,866,457	0.004278	$102,092				-0.000008	-0.19%		
TAVARES	out	TRVS	4,119,781	0.004390	$18,086				0.000104	2.43%		
LEESBURG	out	LSBG	3,547,714	0.004440	$15,752				0.000154	3.60%		
NAPLES MOORINGS	out	NMOR	2,782,781	0.004460	$12,411				0.000174	4.07%		
LEHIGH ACRES	in	LHAC	9,761,168	0.004660	$45,487				0.000374	8.73%		
MAITLAND	in	MTLD	14,910,935	0.004660	$69,485	101,093,524	$433,258	0.004286	0.000374	8.73%	1.145832	0.004911
BEVERLY HILLS	in	BVHL	9,184,230	0.004733	$43,470				-0.000340	-6.70%		
BEVERLY HILLS	out	BVHL	3,021,672	0.004860	$14,685				-0.000213	-4.20%		
DADE CITY	in	DDCY	8,225,383	0.004914	$40,420				-0.000159	-3.14%		
WEST KISSIMMEE	out	WKSM	2,945,164	0.004970	$14,637				-0.000103	-2.04%		
NORTH FT. MYERS	in	NFMY	10,786,530	0.005049	$54,465				-0.000024	-0.47%		
LABELLE	in	LBLL	5,559,019	0.005443	$30,255				0.000369	7.28%		
CLERMONT	in	CLMT	9,703,473	0.005443	$52,815	49,425,471	$250,748	0.005073	0.000370	7.29%	1.145832	0.005813
LABELLE	out	LBLL	2,928,208	0.005670	$16,603				-0.000643	-10.18%		
DADE CITY	out	DDCY	1,892,507	0.006260	$11,847				-0.000053	-0.83%		
CLERMONT	out	CLMT	1,191,924	0.006270	$7,473				-0.000043	-0.67%		
SEBRING	in	SBNG	10,501,662	0.006506	$68,324	16,514,300	$104,247	0.006313	0.000193	3.06%	1.145832	0.007233
SEBRING	out	SBNG	1,352,680	0.007390	$9,996				-0.000376	-4.84%		
CAPE HAZE	in	CPHZ	4,949,194	0.007868	$38,943	6,301,874	$48,939	0.007766	0.000103	1.32%	1.145832	0.008898
TOTAL			716,992,836		$2,258,905							

H.

Common Channel Signaling Interconnection Service

Company: **Sprint Florida**

Services: **Common Channel Signalling Interconnection Service**
- **STP Port**
- **STP Switching**
- **STP Transport Links**

Service Cost Type: **Network Elements**

Service Description: Common Channel Signalling / Signaling System 7 (CCS/SS7) Interconnection Service provides a signaling path between a customer designated point of signalling premises and an Sprint LTD Signal Transfer Point (STP). This two-way signaling path provides the customer interconnection to the out-of-band Signaling network in order to transmit and receive signaling information related to call completion.

The link facilities for CCS/SS7 Interconnection Service will consist of a 56.0 kbps circuit, or an optional DS-1 (1.544 Mbps) channel at the customer designated premises multiplexed by the OTC to a 56.0 kbps circuit for interconnection to the STP Port. The STP Port is the interface equipment, contained in the STP, to which the interconnecting link terminates.

The STP switching service is for the routing of the ISDN Users Part (ISUP) message through the STP. The rate for switching is applied on the basis of equivalent 56.0 kbps trunks per month. The T-1 rate would be equal to 24 times the STP switching rate per 56.0 kbps trunk per month.

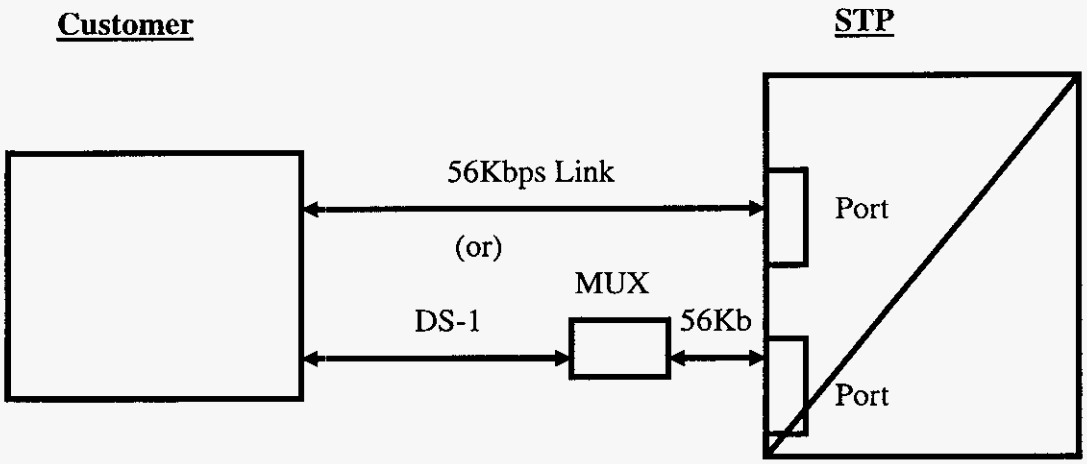
CCS/SS7 Interconnection Service must be purchased by the customer to interconnect to both STPs of a mated pair. Also the interconnecting links should be provisioned with diversity as established in generally accepted industry technical standards for out of band signaling networks.

Application

CCS/SS7 Interconnection Service is used by the customer to interconnect to an OTC's out-of-band signaling network to support Feature Group D call setup using the SS7 protocol rather than the in-band MF signaling typically used. The SS7 signalling protocol also allows for the transmission of additional data between networks for use by interexchange carriers and LECs to provide services to end users such as calling number and calling name delivery. Interconnection for these purposes can occur to each mated pair of STPs deployed n the Sprint LTD network..

CCS/SS7 Interconnection Service also provides for interconnection by the customer to data base services such a LIDB. However, since the LIDB resides on Service Control Points located in Johnson City and Bristol, Tennessee, for LIDB Access Service the CCS/ SS7 Interconnection Service must be ordered to the mated pair of STPs in those two locations.

Diagram



Rates for SS-7 Interconnection Service

STP Port	**$498.97 per month**
STP Switching	**$ .09 per equivalent DS0 trunk per month**

Basis: TELRIC Cost Study (Attached)

56.0 Kbps Link	**$82.00 per month (fixed)** **$ 4.80 per month per mile**
1.544 Mbps Link	**$93.00 per month (fixed)** **$20.00 per month per mile**

Multiplexing DS1 to DS0 (required with 1.544 Mbps)

$318.00 per month
$142.00 Non-Recurring

Basis for multiplexing and Links (Proxy)Interstate Access Tariff CCS/SS7 Interconnection Service

Sprint Florida
SS7 Switching
Cost Support

Monthly Revenue Requirement Per SS7 Trunk			$ 0.078740
Common Costs	0.145832	Rate	0.011482812
Price for SS7 Trunk Switching per trunk/ per month			**$ 0.09**

1	Company Name:	Sprint Florida										
2	Study Name:	SS7 Usage Component										
3	Study Date:	January 9, 19	After Tax	After Tax								
4	Income Tax Rate	38.57%	Capital Cost	Wtd. Cost							Note: All	
5	Debt Cost	8.06%	5.00%	2.10%							unprotected	
6	Debt. Percent	42.00%									cells are	
7	Equity Cost	15.78%	15.78%	9.15%							user inputs.	
8	Equity Percent	58.00%										
9	Capital Cost	12.54%		11.25% Total Cap. Cost								
10	Ad Valorem Tax Factor	1.88%										
11	Maintenance Factor	3.34%										
12	Demand Input			Populate demand to duration of study life or deprec. life, which ever is greater								
13	Study Life (yrs)	7										
14	Revenues Accounted	1										
	Mid-year=1 or Year End=2											
				Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7		
15	Demand Units-Year End			166	206	215	223	233	242.32	252.0128		
16	Demand Units - Mid-Year			83	186	211	219	228	238	247		
17a	Investment-MACRS Class of Plant (yrs)	3		$0	$0	$0	$0	$0	$0	$0		
17b	Investment-MACRS Class of Plant (yrs)	5		$4,923,837	$390,926	$447,365	$335,639	$214,260	$138,839	$90,193		
17c	Investment-MACRS Class of Plant (yrs)	7		$0	$0	$0	$0	$0	$0	$0		
17d	Investment-MACRS Class of Plant (yrs)	10		$0	$0	$0	$0	$0	$0	$0		
17e	Investment-MACRS Class of Plant (yrs)	15		$0	$0	$0	$0	$0	$0	$0		
17f	Investment-MACRS Class of Plant (yrs)	20		$0	$0	$0	$0	$0	$0	$0		
17g	Period Beginning Expense (Software)			$0	$0	$0	$0	$0	$0	$0		
18	Residual Benefit(+)/Cost(-)(Salv/COR)			$0	$0	$0	$0	$0	$0	$0		
19	Cumulative Investment			$4,923,837	$5,314,763	$5,762,128	$6,097,767	$6,312,027	$6,450,866	$6,541,059		
20	Principle Repayment (rate purposes)			$703,405	$768,560	$858,033	$941,942	$1,013,362	$1,082,782	$1,172,975		
21	Cumulative Principle Repayment			$703,405	$1,471,965	$2,329,998	$3,271,940	$4,285,302	$5,368,084	$6,541,059		
22	Value to Recover(unrecovered principle)			$4,923,837	$4,611,358	$4,290,163	$3,767,769	$3,040,087	$2,165,564	$1,172,975		
23	Debt and Equity Cost			$38,520	$125,573	$231,084	$358,231	$508,442	$683,484	$887,170		
24	Ad Valorem Tax			$74,055	$50,312	$36,916	$27,197	$15,275	$7,716	$5,344		
25	Maintenance Expense			$164,407	$177,460	$192,397	$203,604	$210,759	$215,394	$218,406		
26	Software Expense & Other Oper. Exp.	6%		$485,523	$508,192	$534,134	$553,597	$566,022	$574,073	$579,303		
27	A-Link Expense			$631,648	$701,831	$772,014	$849,216	$934,137	$1,027,551	$1,130,306		
28	Income Tax			($401,391)	($69,035)	$231,754	$363,790	$384,044	$522,966	$663,696		
29	Revenue Requirement			$1,696,167	$2,262,893	$2,856,332	$3,297,578	$3,632,041	$4,113,965	$4,657,200		
30	Discount Rate @ 11.25%	4.93		0.94808	0.85219	0.76600	0.68852	0.61888	0.55629	0.50002		
31	Present Value of Rev. Req.			$1,608,103	$1,928,412	$2,187,939	$2,270,451	$2,247,805	$2,288,542	$2,328,702		
32	Cumulative PV Rev. Req.			$1,608,103	$3,536,516	$5,724,454	$7,994,906	$10,242,710	$12,531,252	$14,859,954		
33	NPV Dollars last Yr.			$14,815,640	$14,815,640	$14,815,640	$14,815,640	$14,815,640	$14,815,640	$14,815,640		
34	Demand (Mid-Year) Units			83	186	211	219	228	238	247		
35	Discount Rate @ 11.25%			0.94808	0.85219	0.76600	0.68852	0.61888	0.55629	0.50002		
36	Present Value of Demand			79	159	161	151	141	132	124		
37	Cumulative PV Demand			79	237	398	549	690	823	946		
38	NPV Units in Service	191.91		946	946	946	946	946	946	946		
39	Levelized Rev. Req./Year			$15,659	$15,659	$15,659	$15,659	$15,659	$15,659	$15,659		
40	Revenue Generated			$1,299,718	$2,912,621	$3,296,273	$3,429,377	$3,570,310	$3,721,578	$3,870,442		
41	Discount Rate @ 11.25%			0.9481	0.8522	0.7660	0.6885	0.6189	0.5563	0.5000		
42	PV Revenue by Year			$1,232,238	$2,482,104	$2,524,932	$2,361,198	$2,209,600	$2,070,263	$1,935,305		
43	Levelized Rev. Req./Month			$1,304.94	$1,304.94	$1,304.94	$1,304.94	$1,304.94	$1,304.94	$1,304.94		
	SS7 Port Rev Req/Month			$ 435.47								
	Residule SS7 Rev.Req./Month			$ 869.47								
46	Total Access Lines as of	1,765,984										
47	Convert to Trunks 10 to	176,598										
48	**Residule SS7 Rev.Req/Month/Trunk**			**$ 0.07874**	Times Shared	1.1458	$ 0.09	Per Trunk Per Month				

I.

Line Information Database Service

Company: **Sprint Florida**

Service: **Line Information Database (LIDB) Administration Service**

Service Cost Type: **Network Element**

Service Description

LIDB Administration Service provides administrative support to the Line Information Database. This service provides the administrative interface for automated loads and updates of carrier line information including Alternate Billing Service restrictions (ABS) and Personal Identification numbers in the LIDB database. In addition, this service monitors queries to the LIDB and responds to alerts initiated by queries exceeding predetermined thresholds.

Major Cost Areas and Sources

These updates occur through the Database Administration System II (DBASII) which is provided at the Sprint United Management Company Intelligent Network Administrative Center located in Overland Park, Kansas. The major costs include:

- Software Right to Use Fees
- Labor and Benefits

The sources of cost information are the Budget for the operation of the DBAS, and vendor quotes for software.

Cost Development Methodology

The TELRIC cost development for LIDB Administrative Service is comprised of 5 steps.

1. Determine the Direct Costs These include determining the annual operating budget of the Intelligent Network Administrative Center for Wages and Benefits and Miscellaneous Expenses, the cost of annual right to use fees for software from the vendor, and the depreciation for capitalized, supporting DBAS computer equipment and software. One time costs were depreciated/ amortized over a 5 year economic life. A return on capital cost is calculated using a 11.25 % after tax return times average net plant value. Taxes were calculated using the 1996 Kansas composite tax rate of .3978% because INAC operations are located in Kansas where INAC revenues are booked. Other Direct Costs were determined based on a factor applied to direct Costs. The factor was obtained from the Indirect Investment and Common Expense Summary Study.

2.Determine Common Costs - A common cost factor of 14.5832 % was identified through the embedded cost study for Service Management Systems and Call related Databases and was multiplied times the direct cost in step 1.

3. Determine Demand The demand is projected 1997 Sprint Local Companies access line telephone numbers stored in the Sprint United Management Company (SUMC) Line Information Database. These were forecast based on an assumed 3 percent annual growth rate beginning with a 7/96 basis of 6,935,381 telephone numbers.

4. Determine the LIDB Administrative System Cost per access line per month: The direct costs in step 1 are added to the common expense determined in step 3 and divided by the demand in step 4 and divided by 12 months to arrive at a cost for LIDB Administrative System and Services per access line per month. The result is

$.056 per telephone number record stored in the SUMC LIDB per month

Line Information Database Administration Service Cost Support	
1. INAC Net Direct Cost	$ 3,629,179
2. INAC Depreciation Cost	$ 258,812
3. Return @ 11.25 Percent	$ 87,349
4. Subtotal (1+2+3)	$ 3,975,340
5. Taxes	$ 34,747
6. Subtotal Plus Taxes (4+5)	$ 4,010,087
7. Other Direct Cost	$ 176,259
8. Total Direct Costs	$ 4,186,347
9. Common Costs	$ 610,503
10. Total Costs	$ 4,796,850
11. 7/97 Projected Access Lines	7,143,442
12. Annual Expense Per Access Line (10/ 11)	$ 0.6715
13. Monthly Expense Per Access Line (Ln. 12 / 12 mo)	$ 0.056
Line Information Data Base Administration Service Cost Per Access Line Per Month	**$ 0.056**

Company: **Sprint Florida**

Service: **Line Information Database (LIDB) Access Service**

Service Cost Type: **Network Element**

Service Description

LIDB Access Service provides the customer the ability to access billing validation data contained on the Telephone Company's LIDB located in Johnson City, Tennessee and Bristol, Tennessee. The LIDB is accessed through the Telephone Company SS7 network utilizing the American National Standards Institute (ANSI) signalling protocol. Access to the Telephone Company's LIDB provides customers the ability to provide toll fraud protection by validating calling card and toll billing exception data and performing public telephone checks.

CLEC LIDB data placed in the telephone company LIDB is administered for initial inclusion and subsequent updates for Personal Identification number, and Alternate Billing Service (ABS) restrictions via the **Line Information Database Administration Service** Network Element described in a separate service description.

LIDB Query Transport and LIDB Query Services are described partially below and in full in the Common Channel Signalling / Signaling System 7 (CCS/SS7) Data Base Services section of the Sprint Local Telephone Companies Interstate Access Tariff F.C.C. No. 1..

Query Transport

The Query Transport rate element is charged per query for use of the transmission facilities between the Telephone company's STPs located in Johnson City, Tennessee and Bristol, Tennessee and The Telephone Company SCP where the LIDB resides.

LIDB Query

The LIDB Query rate element provides for the validation of calling card and toll billing exception data and performance of public telephone checks. For these validation purposes, LIDB Access Service customers will query the LIDB located in the Telephone Company SCP via the Telephone Company CCS/SS7 network. The LIDB will respond with a verification signal message back to the LIDB Access Service customer via the Telephone Company CCS/SS7 network.

Rate Categories:

$.0166 Query Transport per query

$.0366 per database query

Company: **Sprint Florida**

Service: **Toll Free Code (TFC) Access Service**

Service Cost Type: **Network Element**

Service Description

TFC Access Service is an originating service that is provided via TFC Access Service switched trunk groups, or may be provided in conjunction with FGB, FGC, or FGD. The service provides for the forwarding of end user dialed TFC calls to a Telephone Company Service Switching Point (SSP) which will initiate a query to the Telephone Company's TFC data base to perform the customer identification function. The call is forwarded to the appropriate customer based on the dialed TFC number. The customer has the option of having the TFC dialed number (e.g., 800-NXX-XXXX) or, if the TFC to Local Exchange Number Translation optional feature is specified, a translated ten digit local exchange number (i.e., NPA-NXX-XXXX) delivered to the customer premises.

The provision of TFC Access Service requires access to the TFC Service Management System (TFC SMS) by a Responsible Organization on behalf of the customer or through direct access by the customer to the TFC SMS.

TFC Access Services are described partially below and in full in Toll Free Code (TFC) Access Service section of the Sprint Local Telephone Companies Interstate Access Tariff F.C.C. No. 1..

Data Base Optional Service Features

In addition to the TFC call routing (e.g., 1+800-NXX-XXXX) described in (A) preceding, at the customer's option, the Telephone Company will perform additional call routing service options as follows:

(1) TFC to Local Exchange Number Translation

This option allows a TFC Access Service customer to specify standard local exchange telephone numbers for TFC call completion at the terminating end. When a TFC call is to be routed to a local exchange telephone number, the TFC Access Service customer must provide to its Responsible Organization or to the TFC SMS, the full ten digit local exchange number (NPA-NXX-XXXX) to be associated with the TFC number and indicate to which carrier the local exchange telephone number is to be delivered. If the TFC to Local Exchange Number Translation

optional feature is used, the customer will be unable to determine that such calls originated as TFC dialed calls (e.g., 1+800-NXX-XXXX) unless the customer also orders the Flexible Automatic Number Identification (Flex ANI) optional feature.

(2) Customized TFC Call Routing

This option allows for routing to multiple carriers, except as specified in Section 6.2.5(A), or variable terminating locations for TFC call completion based on the following criteria:

- time of day
- day of week
- specific days of the year (e.g., December 25)
- percentage of traffic (in one percent increments)
- calling telephone number (unless technical limitations exist which do not provide for originating number identification.

With this option, TFC calls can be delivered to the carrier in either the direct dialed TFC number format or in the local exchange telephone number translated format. The customer must enter the desired format and the necessary ten digit local exchange telephone number, if any, into the TFC SMS or provide such information to its Responsible Organization for handling.

Basis for Rates:

The rates identified herein are based on the Sprint Local Telephone Companies Interstate Access Tariff F.C.C. No. 1..

Rate Categories:

$.008498 TFC Access Service Data Base Query per query

$.001419 TFC Data Base Optional Service Features per query

J.

Directory Assistance Database Listing & Update Service

Company: **Sprint Florida**

Service: **Directory Assistance Database Listing and Update**

Service Cost Type: **Network Element**

Service Description: Directory Assistance Database Listing and Update service is the provision of Subscriber Listing Information for the purpose of providing carriers information so that they can provision their own directory assistance databases supporting their provision of directory assistance service to end users. The basis of this service is the underlying end user subscriber listing that consists of customer telephone number, published/ non-published, or non listed status, primary directory classification for businesses, and customer address. In addition, each provision of add, delete and change activity updates constitutes an initial or update listing. Listings and Updates are provided each business day of the year. The media (e.g.,tape or data communications) by which the listings are provided and the transport cost of that media is in addition to the cost per lisiting or update.

Major Cost Areas and Sources: These listings and updates occur as a result of business office service activity for initial, change of service, or termination of service activity. The major source of cost is the labor, wages and benefits of personnel directly validating the data and correcting any erroneous information, and the shared costs for service order activity and computer processing of information and common costs of business overhead.

The direct cost of producing a subscriber listing involves costs for :

- personnel and payroll costs for validating and correcting information entered into the data repository,
- managing the repository of data ,
- Other direct costs of buildings, and other supporting facilities supporting the personnel performing these functions

Common Costs are the costs to recover Executive and General and Administrative Expenses.

Pricing of Subscriber List Data Methodology

1. Determine Direct cost Identify the direct cost of subscriber list information (SLI)

    - Number Services Groups Wages and Benefits (Accounts 6622.211 and 6622.212)

2. Determine the Other Direct Cost - This cost represents buildings, and general support expenses. This is determined by multiplying the cost in 1 above by a factor determined by the Summary of Indirect Investment Related and Common Expense Factor Study for Florida for the 12 months ending December 1995. The Factor is .18621 of Direct Cost.

3.Determine Demand - Determine total number of demand transactions involving SLI supported by these expense accounts.

- Directory Assistance Listings and Updates
- White Page Listing Updates

4. Determine Common Cost - Multiply the sum of identified direct cost, and other direct cost by a carrying charge of 14.5832 percent for common costs.

5. Determine the Price Per Initial and Updated Listing - Divide the sum of direct, other direct, and Common Cost by the demand identified in (3) above. This is the cost per initial or update listing of subscriber list information (directory assistance listings).

The resulting cost for Directory Assistance Listings and Updates is:

$.05 per initial listing or subsequent update record

Sprint- Florida
Cost Study for Directory Assistance Listings and Updates
Based on cost of Subscriber List Information (SLI)

Directory Assistance / Directory Alpha Preparation (Account 6622.211+ 6622.212 Directory Alpha- Salaries and Benefits)	**$ 845,526**
Other Direct Operating Costs	**$ 157,445**
Total Direct Operating Costs	**$ 1,002,971**
Common Costs	**$ 146,265**
Total Direct, Other Direct and Common Costs	**$ 1,002,971**
Total Demand for Listings/Updates	**20,979,314**
Cost per DA/ SLI Listing or Update	**$ 0.05**

Demand for DA/SLI Listings or Updates

Directory Assistance Listings and Updates	17,503,062	One master file update per year plus inward and outward movement time 6 users of the data including LTD, LDD, ATT, MCI, Excel and one other.
White Page Listings and Updates	3,476,252	Assumes 2 directories requesting subscriber listings times number of access lines as basis for listings.
Total SLI Demand	**20,979,314**	

Average Annual Access Lines over 5 years

		Inward Movement	Outward Movement	Total Inward and Outward Movement	
1995 Access Lines	1,691,031	560,100	477,471	1,037,571	
1996 Access Lines	1,775,268	651,413	555,313	1,206,726	84,237
1997 Access Lines	1,795,234	629,044	536,244	1,165,288	19,966
1998 Access Lines	1,745,711	642,601	593,078	1,235,679	(49,523)
1999 Access Lines	1,683,386	656,158	593,833	1,249,991	(62,325)
5 Year Average Annual Access Lines	1,738,126	627,863	551,188	1,179,051	2,917,177

K.

Directory Assistance - Database Query Service

Company: **Sprint Florida**

Service: **Directory Assistance Data Base Query Service**

Cost Methodology: **TELRIC**

Service Cost Type: **Network Element**

Service Description

Directory Assistance (DA) Data Base Query service makes Sprint-Florida's electronic directory listing information database, (The same database used by Sprint Florida Directory Assistance Operators) available for access by CLECs. The functions of this service include access to the directory listing information, use of the data base equipment and software for the purpose of searching the database, and the local area network providing access to the data base from the CLEC's directory assistance positions and network routers.. The CLEC desiring access to the data base is required to provide all of the necessary routers connecting the Sprint Florida DA Local Area Network the connecting links and other routers to interconnect to their own DA center. CLEC systems must be compatible with ILEC systems.

Rate Application

The rate for directory assistance database query service is based on per database position seizure measurements. Every initiated search of the database is a position seizure.

Major Cost Areas and Sources

The major cost areas include: the maintenance of the directory listing information and the hardware and software costs associated with the data base equipment and local area network. The sources for these costs are the subscriber listing TELRIC costs for Sprint Florida, the vendor quotes and the Sprint Florida engineering estimates contained in Sprint Florida's project to implement a new directory assistance system

Cost Development Methodology (Attachment A)

The TELRIC cost development methodology for Directory Assistance Data Base Query Service is comprised of five (5) steps:

1. Determine the Direct Costs. These include the hardware and software one-time and recurring costs associated with the directory assistance database portion of the directory assistance system. The subscriber listing direct cost that is used to determine TELRIC for subscriber listing information is included to reflect the cost of information contained in the data base. The one-time costs were depreciated/ amortized over a five (5) economic life. A return on capital cost was computed using a 11.25% after tax return, and includes taxes.

2. Determine Other Direct Costs Other Direct Costs are those costs associated with providing the buildings, maintenance, and network support as identified in a factor by the Summary of Indirect Investment Related and Common Expense Factors Study for Sprint Florida for the twelve months ending December 1995. Other Direct Costs for Directory Assistance Services are 58.107percent of investment.

3. Determine Common Cost. The sum of direct identified and other direct cost was multiplied by Sprint Florida's common cost factor of 14.5382% to determine the allowed common cost as identified in the Summary of Indirect Investment Related and Common Expense Factors Study for Sprint Florida for the twelve months ending December 1995.

4. Determine the Demand. The demand is the annual 1995 position seizures.

5. Determine the cost per initial position seizure. The sum of direct identified costs, other direct costs and common costs is divided by demand to get cost per database seizure. The resulting TELRIC per call is:

$.044 per database seizure

Sprint - Florida
Cost Study for Directory Assistance Database Access Service

	Assumptions			Data Source Reference
1	Database Hardware Cost	$	551,027	1 IBM System Quote
2	Database Software Cost	$	1,376,220	2 IBM System Quote
3	Total Capitalized Hardware/Software	$	1,927,247	3 Line 1 +2
4	Hardware Annual Maintenance	$	44,717	4 IBM System Quote
5	Software Annual Maintenance	$	197,205	5 IBM System Quote
6	After Tax Rate of Return		11.25%	6 Interstate Allowed ROR
7	Depreciation Rate (yrs)	$	5.00	7 Estimated System Life Assumption based on General Purpose Computer Life.
8	Database Updates	$	145,859	8 $.05 direct cost per listing from subscriber listing study times average of 5 year annual access lines and inward/outward movement.
9	***** Blank Line ******	**	Blank Line **	9 ***** Blank Line ******
10	***** Blank Line ******	**	Blank Line **	10 ***** Blank Line ******
11	Income Tax Factor		38.7500%	11 Florida Income Tax Rate
12	***** Blank Line ******	**	Blank Line **	12 ***** Blank Line ******
13	***** Blank Line ******	**	Blank Line **	13 ***** Blank Line ******
14	Property Tax Factor		0.01880	14 Line 12 / Line 13
15	Total Data Base Seizures		54,419,814	15 Annual Directory Assistance Database Queries by UTF Operators

Cost Analysis

16	Annual Depreciation	$	385,449	16 Line 3 / Line 7
17	Annual Maintenance	$	241,922	17 Line 4 + Line 5
18	Average Annual Return	$	108,408	18 Line 3 * Line 6
19	Annual Property Tax	$	36,232	19 Line 14 * Line 3
20	Annual Income Tax	$	42,008	20 Line 11 * Line 18
21	Data Base Updates	$	145,859	21 Line 8
22	***** Blank Line ******	**	Blank Line **	22 ***** Blank Line ******
23	Total Direct Cost	$	959,878	23 Sum of Lines 16 through 21
24	Other Direct Costs	$	1,119,865	24 .58107 times total investment on line 3
25	Total Direct Costs	$	2,079,744	25 Sum lines 23 and 24
26	Common Costs	$	303,293	26 .145832 times line 25
26a	***** Blank Line ******	**	Blank Line **	26a ***** Blank Line ******
26b	Total Costs	$	2,383,037	26b Sum lines 25, 26
27	**Cost per database initial seizure**	**$**	**0.044**	27 Line 26b divided by line 15

Directory Assistance Platform Cost (IBM System Quote for Florida)

			Annual Maintenance	
	Hardware	Software	Hardware	Software
DA System Inquiry	$ 180,343	$ 536,660	$ 16,536	$ 174,120
DA System Audio	$ 225,951	$ 350,806	$ 23,153	
DA System Network	$ 59,327	$ 10,080	$ 5,028	$ 1,335
Installation	$ 31,000	$ 271,308		
Admin Workstation	$ 2,854	$ 45,166		$ 1,980
Database Conversion		$ 83,200		
File Update Process		$ 79,000		$ 18,000
Network TPORT Gateway/Router	$ 51,552			$ 1,770
Total	$ 551,027	$ 1,376,220	$ 44,717	$ 197,205

Return Calculation

		Year 1	Year 2	Year 3	Year 4	Year 5
Gross Investment	$ 1,927,247	$ 1,734,522	$ 1,349,073	$ 963,624	$ 578,174	$ 192,725
Annual Return	$ 542,038	$ 195,134	$ 151,771	$ 108,408	$ 65,045	$ 21,682
Avg. Annual Return	**$ 108,408**					

L.

Toll & Local Operator Assistance

Company: **Sprint Florida**

Service: **Toll and Local Assistance Service (Live)**

Cost Methodology: **TELRIC**

Service Cost Type: **Network Element**

Service Description

The Toll and Local Assistance Service (Live) provides live assistance to a customer to complete a telephone call. The functionality includes a live operator, and the associated facilities and equipment necessary to record for billing and / or completion of the call.

Major Cost Areas and Sources

The major costs included the development of TELRIC for Toll and Local Assistance Service (Live) are:

- Operator labor
- Position equipment and local area networking

The sources for the TELRIC costs are Sprint Florida's general ledger, vendor quotes and Sprint Florida's engineering estimates for the operator/ DA connecting network contained in Sprint Florida's project to implement a new directory assistance system.

The operator workforce expenses are those number completion services related expenses found in Sprint Florida's general ledger. The position equipment are from vendor quotes. The local area networking costs are those contained in the project to implement a new directory assistance system in Sprint Florida.

Cost Development Methodology (Attachment A)

The TELRIC cost development for Toll and Local Assistance Service (live) is comprised of five (5) steps:

1. Determine the Direct Costs. These include the 1995 operator workforce expenses, and the hardware and software one-time and recurring costs associated with toll assistance positions, and the local area network for the new directory assistance system. The one-time costs are depreciated/amortized over a five (5) year economic life. A return on capital cost is calculated using a 11.25% after tax return and taxes are included. .

2. Determine Other Direct Costs Other Direct Costs were determined via a factor resulting from the Indirect Investment Related and Common Exp;ense Factor study for Sprint- Florida for the twelve month period ending December 1995. This factor for Operator Services is 18.62 percent of directly identified expenses.

3. Determine the Common Cost. The common cost is determined by multiplying Sprint Florida's common cost factor of 14.583% by the total of direct and other direct cost.

4. Determine the Demand. The demand is the annual, 1995 Toll and Local Assistance position seizures.

5. Determine the Toll and Local Assistance Service (Live) TELRIC per call. The sum of direct costs, other direct costs, and common costs are divided by the demand (step 4) to determine the Toll and Local Assistance Service (Live) cost per initial position seizure. The result is:

Cost for Toll and Local Assistance : $.496 per initial position seizure

Sprint - Florida
Cost Study for Toll Assistance Service (Live)

	Assumptions:			Data Source Reference
1	Integrated Workstation (IWS) Per Unit	$	10,300	1 Based on Quote from NORTEL for 5 Intelligent Workstations at $51,500
2	Toll and Assist Workstations		73	2 Per Network Department
3	Toll and Assist Workstation Investment	$	751,900	3 Line 1*Line2
4	Toll and Assist Center Connecting Network Investment	$	958,110	4 $3,987,889 Network Investment times (1- DA call allocator.)
5	Toll and Assist Network Software Upgrade for CLEC operator functions	$	1,000,000	5 Nortel Estimate for LET06 Software upgade to accomodate CLEC support for Toll and Assist. Must be installed in 4 locations at a cost of $500,000 per location.
6	LAN Hardware Investment	$	53,088	6 LAN Hardware and Installation times 3 locations factored to Toll and Assist (line 18)
7	LAN Software Investment	$	18,973	7 LAN Software and Installation times 3 locations factored to Toll and Assist (line 18)
8	Toll and Assist Investment	$	2,782,071	8 Sum of Lines 3,4,5,6,7
9	Annual Toll and Assistance Investment Deprectiation	$	556,414	9 Line 8/Line17
10	***** Blank Line ******	**	Blank Line **	10 ***** Blank Line ******
11	Toll and Assit CCS Worked	$	5,193,746	11 Operator Work Study
12	***** Blank Line ******	**	Blank Line **	12 ***** Blank Line ******
13	Directory Assistance Seizures		54,419,814	13 Annualized based on 20,922,120 Seizures through Aug./96. Provided by M. Anderson in memo dated 9/13/96
14	Toll Assist Seizures		17,209,230	14 Annualized based on 2,701,477 Seizures through Aug./96. Provided by M. Anderson in memo dated 9/13/96
15	Total DA/Operator Seizures		71,629,044	15 Sum Lines 13,14
16	Directory Assistance Seizure Ratio		0.75975	16 Line 13 / Line 15
17	Equipment Depreciation Life (years)		5	17 Estimated Equipment Life
18	Toll and Assist Seizure Factor		0.2403	18 (1--DA Factor)
19	Workstation Maintenance	$	31,674	19 Operator systems repair account 6220.114 (1995)
20	***** Blank Line ******	**	Blank Line **	20 ***** Blank Line ******
21	Rate of Return Factor		11.25%	21
22	***** Blank Line ******	**	Blank Line **	22 ***** Blank Line ******
23	***** Blank Line ******	**	Blank Line **	23 ***** Blank Line ******
24	***** Blank Line ******	**	Blank Line **	24 ***** Blank Line ******

25	Property Tax Factor		0.018800	25 Florida Specific
26	Income Tax Factor		0.3858	26 Florida Specific
27	***** Blank Line ******	**	Blank Line **	27 ***** Blank Line ******

Cost Analysis

28	Annual Toll and Assistance Investment Deprectiation	$	556,414	28 Line 14
29	Workstation Maintenance	$	31,674	29 Line 19
30	***** Blank Line ******	**	Blank Line **	30 ***** Blank Line ******
31	***** Blank Line ******	**	Blank Line **	31 ***** Blank Line ******
32	***** Blank Line ******	**	Blank Line **	32 ***** Blank Line ******
33	***** Blank Line ******	**	Blank Line **	33 ***** Blank Line ******
34	Property Tax	$	52,303	34 Line 25 * Line 8
35	Average Annual Net Profit	$	156,491	35 See Return Calculation (Sum of Mid Year Undepreciated Plant * .1125 /5)
36	Income Tax	$	60,374	36 Line 36 * Line 26
37	***** Blank Line ******	**	Blank Line **	37 ***** Blank Line ******
38	Subtotal Investment Depretiation, Taxes, ROI and Maintenance	$	857,257	38 Sum of lines 28,29,30,31,32,33,34,35,36,37
38a	Call Completion Validation Costs	$	225,818	38a General Ledger costs from account 6621.987 for validation from RBOCs and Sprint LTD
39	Toll and Assit Workforce and Supervision payroll and benefits Cost. (5 Year Average at 3.5 percent growth per year)	$	5,201,750	39 General Ledger for first 10 months of 1996 annualized, then grown for subsequent years at 3.5 percent and averaged.
40	Other Direct Costs	$	1,170,297	40 Sum of lines 38, 38a, 39 times .19604
41a	Total Direct Costs	$	7,455,122	41a Sum of lines 38, 38a, 39 and 40
41b	***** Blank Line ******	**	Blank Line **	41b ***** Blank Line ******
41c	Common Cost	$	1,087,195	41c .145832 times line 41a
42	Total direct, other direct and common costs	$	8,542,317	42 Sum lines 41a, 41b, 41c
43	**Cost for Toll and Local Assist per Intial Position Seizure**	**$**	**0.496**	43 Line 42 divided by line 14
44	Cost per CCS for Toll and Local Assist.	$	1.645	44 Line 42 divided by line 11

Network Router Cost

Network Router	Hardware	Software	Maintenance Hardware	Software
Hardware	$ 43,342	$ 10,080		$ 1,770
Installation	$ 30,313	$ 16,243		
Total Network Gateway Costs	$ 73,655	$ 26,323		$ 1,770
	$ 99,979			

Return Calculation

		Yr 1	Yr2	Yr 3	Yr 4	Yr 5
Gross Investment	$ 2,782,071	$ 2,503,864	$ 1,947,450	$ 1,391,035	$ 834,621	$ 278,207
		$ 281,685	$ 219,088	$ 156,491	$ 93,895	$ 31,298
5 year total Return	$ 782,457					
Average Annual Return	$ 156,491					

Operator Wages/ 5 Year Average

1996	1997	1998	1999	2000	5 Year Average
$ 4,850,147	$ 5,019,902	$ 5,195,599	$ 5,377,445	$ 5,565,655	$ 5,201,750

M.

Directory Assistance Operator Service

Company: **Sprint Florida**

Service: **Directory Assistance Operator Service (Live)**

Cost Methodology: **TELRIC**

Service Cost Type: **Network Element**

Service Description

The Directory Assistance Operator Service (Live) provides live assistance to a customer to obtain directory listing information and / or to complete a telephone call. The functionality includes a live operator, a data base of directory listing information, and the associated facilities and equipment necessary to access the data base and / or to complete the call. The service does not include customized branding. The calls must be delivered to an existing operator center consolidation network location.

Major Cost Areas and Sources

The major costs included the development of TELRIC for Directory Assistance Operator Service (Live) are:

- Operator labor
- Position equipment and local area networking
- Inter-operator work center networking
- Directory Assistance data base and associated maintenance

The sources for the TELRIC costs are Sprint Florida's general ledger, and vendor quotes and Sprint Florida's engineering estimates contained in Sprint Florida's project to implement a new directory assistance system.

The operator work force expenses are those directory assistance related expenses found in Sprint Florida's general ledger. The position equipment and local area networking, inter-operator work center networking, and directory assistance data base costs are those contained in the project to implement a new directory assistance system in Sprint Florida.

Cost Development Methodology (Attachment A)

The TELRIC cost development for Directory Assistance Operator Service (live) is comprised of six (6) steps:

1. Determine the Direct costs. These include the 1995 operator work force labor and payroll costs averaged over 5 years, and the hardware and software one-time and recurring costs associated with the new directory assistance system. The one-time costs are depreciated/amortized over a five (5) year economic life. A return on capital cost is calculated using a 11.25% after tax return, and taxes are included.

2. Determine Other Direct Costs. These include the fixture/furniture and building and network support costs. These costs are determined by a carry factor multiplied times Direct Identified Costs in 1. above. The factor was determined in the Summary of Indirect Investment Related and Common Expense Factors study for Sprint Florida for the 12 months ending December 1995.

3. Determine Common Cost. The sum of direct cost, and other direct cost is multiplied by the common cost factor of 14.5832 % to determine the allowed common cost.

4. Determine the Demand. The demand is the annual, 1995 position seizures.

5. Determine the live DA operator cost per initial seizure. The sum of direct identified, other direct, and common costs are divided by the demand to determine the live operator cost per initial position seizure.

6. Determine the Directory Assistance Operator Service (Live) Cost Per Initial Position Seizure. The live operator function cost per initial seizure determined in l (step 5) is added to the cost per initial position seizure for Directory Assistance Data Base Query Service to get the Directory Assistance Service (Live) price per initial position seizure. The result is:

    - Live operator function cost per Initial Position Seizure $.335
    + Directory Assistance Data Base Query per Initial Position Seizure $.044

    = **Directory Assistance Service (Live) Per Initial Position Seizure $.379**

Sprint Florida
Cost Study for Directory Assistance Operator Service (Live)

	Assumptions:			Data Source Reference
1	Integrated Workstation (IWS) Per Unit	$	7,338	1 IBM Quote of $6381 per Workstation with 15% UTF loadings equalling $7338 Per position. cost for DA workstations.
2	Number Dir. Assistance Workstations		214	2 178 DA + 36 supervisor and training positions per Joe Thomas UTF Network Dept.
3	DA/Operator Workstation Investment	$	1,570,364	3 Line 1*Line2
4	DA/ Workcenter Connecting Network	$	3,029,779	4 $3,987,889 total Network Investment for DA and Toll and Local Assist times DA factor on line 16.
5	***** Blank Line ******	**	Blank Line **	5 ***** Blank Line ******
6	LAN Hardware Investment	$	167,877	6 LAN Hardware and Installation times 3 locations times DA factor on line 16.
7	LAN Software Investment	$	59,997	7 LAN Software and Installation times 3 locations times DA factor on line 16.
8	Total DA Investment	$	4,828,017	8 Sum of Lines 4,5,6,7
9	Annual DA Equip / Net / Software Depreciation	$	965,603	9 Line 8 / Line 17.
10	***** Blank Line ******	**	Blank Line **	10 ***** Blank Line ******
11	***** Blank Line ******	**	Blank Line **	11 ***** Blank Line ******
12	***** Blank Line ******	**	Blank Line **	12 ***** Blank Line ******
13	Directory Assistance Seizures		54,419,814	13 Annualized based on 20,922,120 Seizures through Aug./96. Provided by M. Anderson in memo dated 9/13/96
14	Toll Assist Seizures		17,209,230	14 Annualized based on 2,701,477 Seizures through Aug./96. Provided by M. Anderson in memo dated 9/13/96
15	Total DA/Operator Seizures		71,629,044	15 Sum Lines 13,14
16	Directory Assistance Seizure Ratio		0.75975	16 Line 13 / Line 15
17	Equipment Depreciation Life (years)		5	17 Estimated Equipment Life
18	***** Blank Line ******	**	Blank Line **	18 ***** Blank Line ******
19	***** Blank Line ******	**	Blank Line **	19 ***** Blank Line ******
20	***** Blank Line ******	**	Blank Line **	20 ***** Blank Line ******
21	Rate of Return Factor		11.25%	21
22	Annual Workstation Software Maintenance	$	45,243	22 IBM Quote $15,081 per location times 3 Locations.

23	Annual Local Area Network Maintenance	$	4,005	23 IBM Quote, $1335 per location times 3 locations.
24	***** Blank Line ******	**	Blank Line **	24 ***** Blank Line ******
25	Property Tax Factor		0.018800	25
26	Income Tax Factor		0.3858	26
27	Total DA CCS Worked		14,998,827	27 Operator Cost Study line 4 Annualized

Cost Analysis

28	Annual DA Equip / Net / Software Depreciation	$	965,603	28 Line 9
29	***** Blank Line ******	**	Blank Line **	29 ***** Blank Line ******
30	***** Blank Line ******	**	Blank Line **	30 ***** Blank Line ******
31	Annual Local Area Network Maintenance	$	4,005	31 Line 23
32	Annual Workstation Software Maintenance	$	45,243	32 Line 22
33	***** Blank Line ******	**	Blank Line **	33 ***** Blank Line ******
34	DA Attributable Property Tax	$	90,767	34 Line 25 * Line 8
35	Average Annual Net Profit	$	271,576	35 See Return Calculation (Sum of Mid Year Undepreciated Plant * .1125 /5)
36	Income Tax	$	104,774	36 Line 36 * Line 26
37	***** Blank Line ******	**	Blank Line **	37 ***** Blank Line ******
38	Subtotal Investment Depreciation, Taxes, ROI and Maintenance	$	1,481,968	38 Sum of lines 28,29,30,31,32,33,34,35,36,37
39	DA Operator Wages and Payroll Costs	$	13,195,429	39 DA Workforce and Supervision Wages and Benefits From G.L.
39a	Other Direct Operating Costs	$	2,733,078	39a Sum of lines 38, 39 times .186210
40	Total Direct Costs	$	15,928,508	40 Sum lines 39, 39a
41	***** Blank Line ******	**	Blank Line **	41 ***** Blank Line ******
42	Common Costs	$	2,322,886	42 .13994 times line 40
42a	Total Direct, Other Direct and Common costs	$	18,251,394	42a Sum lines 40,41,42
43	**DA Operator Cost per Initial Position Seizure**	**$**	**0.335**	43 Line 42a divided by line 14
43a	Cost for DA Database Access	$	0.044	43a From DA Database Access Study
43b	**Price of DA Operator Service (Live) per Initial Position Seizure**	**$**	**0.379**	43b Sum lines 43, 43a
44	Cost per CCS	$	1.22	44 Line 42a divided by line 27.

Network Router Cost

Network Router	Hardware	Software	Maintenance Hardware	Software
Hardware	$ 43,342	$ 10,080		$ 1,770
Installation	$ 30,313	$ 16,243		
Total Network Gateway Costs	$ 73,655	$ 26,323		$ 1,770

Return Calculation

		Yr 1	Yr2	Yr 3	Yr 4	Yr 5
Gross Investment	$ 4,828,017	$ 4,345,216	$ 3,379,612	$ 2,414,009	$ 1,448,405	$ 482,802
Annual Return		$ 488,837	$ 380,206	$ 271,576	$ 162,946	$ 54,315
5 year total Return	$ 1,357,880					
Average Annual Return	$ 271,576					

Operator Wages/ 5 Year Average

1996	1997	1998	1999	2000	5 year Average
$ 12,303,509	$ 12,734,132	$13,179,826	$13,641,120	$14,118,560	$13,195,429

N.

911 Tandem Port &Trunks

Company: **Sprint Florida**

Service: **911 Tandem Ports and Trunks**

Service Cost Type: **Network Element**
Ports , TELRIC
Trunks

Service Description

Sprint, as the ILEC, may be the lead company providing 911 selective routing service to an emergency response agency. Where this is the case, the CLEC will need to provision, based on Florida Law, adequate trunks from the CLEC switch to the Sprint Florida selective routing tandem. The ports portion of this cost study is the cost for 911 tandem ports per DS0 or equivalent.

The Trunking from the CLEC switch to the Sprint Florida 911 tandem is provided based on transport pricing from the Interstate Access Tariff for Sprint Florida.

Major Cost Areas and Sources for Port Costs

The cost for the ports is predominately the installed cost of Subscriber Module Urban (SMU)Units on the DMS 911 Tandem. Because 911 is an emergency service these are redundant to accommodate a minimum of two diverse routes to the CLEC or other LEC end offices.

Cost Development Methodology

1. Identify Direct Costs The direct cost for NORTEL Subscriber Modules plus the cost of Engineering and installation was identified. The SMUs were depreciated over a 7 year life. An annual rate of return of 11.25 percent was assumed. Income and property taxes were calculated based on the 7 year average of net book value. Annual maintenance was assumed based on the switching maintenance factor of 3.34 percent of initial investment.

2. Identify Other Direct Costs Other Direct Costs were determined by multiplying the costs identified in step 1 above by the Indirect Investment Related and Common Cost Factors Study carry factor for Local Switching of 6.7523 %.

3. Identify Common Costs Common Costs were determined by multiplying the sum of the costs identified in step 1 and step 2 above by the Indirect Investment Related and Common Cost Factors Study Common Cost carry factor for Local Switching of 14.583 percent.

4. Determine Demand - Demand was determined based on the utilization of the capacity of 480 DS0 equivalents for the two SMUs times a utilization factor of 31 percent. The current fill is 100 of the 480 circuits for all central offices.

5. Determine the Cost per Port The Cost per DS0 equivalent 911 Tandem port was determined by multiplying the utilization factor times the capacity of the ports, then dividing the result into the Total Annual Costs for the port and diving the result by 12.

The result is:

$19.50 per DS0 equivalent

CLEC Unbundled Transport Pricing for 911

All rtrunk ates are the Sprint Florida rates for transport in the Sprint Local Telephone Companies Interstate Access Tariff.

911 Trunk Voice Grade Facility

• Channel mileage facility fixed	$ 30.00	Per Month
• Channel mileage facility per mile	$ 2.40	Per Month

911 Trunk on DS1 Facility

• Channel mileage facility fixed	$ 39.50	Per Month
• Channel mileage facility per mile	$ 17.00	Per Month

CLEC Cost Per 911 Tandem Port or DS0 Equivalent			
Sprint - Florida			
Investment			
2 NORTEL Subscriber Module Urban Units @ $40,000 each.			$ 80,000
Engineering and Installation			$ 12,000
		Total Investment	$ 92,000
Costs			
Annual Depreciation @ 7 years			$ 13,143
Average Annual Return @11.25 percent			$ 5,914
Income Tax			$ 2,282
Property Tax			$ 141
Maintenance			$ 3,073
	Direct Costs		$ 24,553
Other Direct Costs			$ 6,212
	Total Direct Costs		$ 30,765
	Common Costs		$ 4,487
	Total Costs		$ 35,252
Demand			
Capacity	480		
Utilization Factor	0.31		
Number of DS0 ports Utilized	151		
Annual Cost Recovery Requirement			$ 234
Monthly Cost Recovery Requirement per DS0 or equivalent			19.50

O.

Common Cost Study

Summary of Other Direct Operating and Common Expense Factors

Sprint Florida - Combined

Twelve Months Ending December 1995

8400

	Embedded Investment (A)	Maintenance Expense (B)	Maintenance Factor (C)=B/A	Other Direct Operating Expense (D)	Other Direct Operating Expense Factor (E)=D/A	Common Expense Factor (F)
Loop - Cable & Wire	1,459,140,108	99,937,213	6.8490%	40,285,633	2.7609%	14.5832%
Loop - Circuit	300,455,299	10,127,933	3.3709%	13,250,352	4.4101%	14.5832%
Loop Total	1,759,595,407	110,065,146	6.2551%	53,535,985	3.0425%	14.5832%
Cross Connect - Circuit	2,246,758	75,735	3.3709%	129,571	5.7670%	14.5832%
Network Interface Device	9,215,012	885,897	9.6136%	986,783	10.7084%	14.5832%
Local Switching	681,984,645	10,560,599	1.5485%	46,049,379	6.7523%	14.5832%
Tandem Switching	11,912,257	184,462	1.5485%	727,500	6.1072%	14.5832%
Switching	693,896,901	10,745,061	1.5485%	46,776,879	6.7412%	14.5832%
Interoffice - Cable & Wire	96,672,275	4,374,827	4.5254%	6,393,917	6.6140%	14.5832%
Interoffice - Circuit	149,517,490	4,986,823	3.3353%	13,312,001	8.9033%	14.5832%
Interoffice Total	246,189,765	9,361,650	3.8026%	19,705,918	8.0044%	14.5832%
Digital Cross Connect	4,276,637	86,547	2.0237%	235,244	5.5007%	14.5832%
Signaling Links & STP Ports	22,590,869	416,448	1.8434%	1,310,001	5.7988%	14.5832%
	Embedded Direct Cost					
Call Related Databases	442,281	N/A	N/A	19,440	4.3954%	14.5832%
Service Management Systems	949,806	N/A	N/A	41,748	4.3954%	14.5832%
Operator Services & DA	20,502,192	N/A	N/A	3,817,709	18.6210%	14.5832%
Collocation	2,967,028	-	0.0000%	817,466	27.5517%	14.5832%
Cable & Wire Detail						
Poles	16,805,931	5,380,111	32.0132%		3.0003%	
Aerial Cable	66,212,574	5,114,707	7.7247%		3.0003%	
Aerial Drop	29,367,160	3,982,669	13.5616%		10.7084%	
Underground Cable	135,956,974	3,149,553	2.3166%		3.0003%	
Buried Cable	1,042,998,736	46,884,789	4.4952%		3.0003%	
Buried Drop	183,921,678	16,522,137	8.9832%		10.7084%	
Submarine Cable	1,362,398	5,184	0.3805%		3.0003%	
IntraBldg Network Cable	9,932,952	50,789	0.5113%		3.0003%	
Aerial Wire	-	406	0.0000%		3.0003%	
Conduit Systems	79,690,308	242,871	0.3048%		3.0003%	
Cable and Wire Facilities	1,566,248,711	81,333,214	5.1929%			
Digital Circuit	343,411,811	9,942,782	2.8953%		5.9031%	

Sprint Florida 11/14/96 13:09

		Capital	
Income Tax Rate	38.57%	Cost	Wtd. Cost
Debt Cost	8.06%	4.95%	2.08%
Debt. Percent	42.00%		
Equity Cost	15.81%	15.81%	9.17%
Equity Percent	58.00%		
Capital Cost	12.56%		11.25%
Ad Valorem Tax Factor	1.88%		

SUMMARY ACF SCHEDULE

(Economic Life) For Use In SWIM/BCM

Plant	Maint	RESULTS ACF (A)	MACRS Life	ACF STUDY LIFE	Other Dir. Oper. Exp. (B)	Combined =(A+B)
Switching	0.03339	24.42%	5	11	6.74%	31.16%
Circuit Digital	0.02540	27.38%	15	11	5.90%	33.28%
Buried Cable Metalic	0.05300	25.27%	15	18		
Aerial Cable Metalic	0.09136	30.85%	15	15		
Underground Fiber	0.00573	19.58%	15	20	6.61%	26.19%
Buried Fiber Drop	0.00524	19.53%	15	20		
Buried Metalic Drop	0.09998	30.27%	15	18		
Buried Fiber	0.00524	19.53%	15	20	6.61%	26.14%
Underground Metalic	0.03129	24.43%	15	15		
Aerial Cable Met. Drop	0.14019	36.06%	15	15		
Circuit Fiber	0.00792	25.49%	15	11	8.90%	34.39%
Aerial Fiber	0.00847	19.53%	15	20	6.61%	26.14%
Conduit	0.00380	17.25%	15	40	6.61%	23.87%
Poles	0.31463	55.41%	15	14	6.61%	62.03%

Combined OSP		1995 y/e bal.	% Distrib. (A)	ACF (B)	Wtd. Avg. =(A*B) (C)	Other Dir. Oper. Exp. (D)	Wtd. Avg. Total =(A*D) (E)	=(C+E) (F)
Buried Cable Metalic	$	969,688,147	62.39%	25.27%	15.77%	3.00%	1.87%	17.64%
Aerial Cable Metalic	$	65,518,389	4.22%	30.85%	1.30%	3.00%	0.13%	1.43%
Aerial Cable Metalic Drop	$	29,367,174	1.89%	36.06%	0.68%	10.71%	0.20%	0.88%
Underground Metalic	$	119,283,606	7.67%	24.43%	1.88%	3.00%	0.23%	2.11%
Buried Metalic Drop	$	183,921,705	11.83%	30.27%	3.58%	10.71%	1.27%	4.85%
Buried Fiber	$	73,310,589	4.72%	19.53%	0.92%	3.00%	0.14%	1.06%
Aerial Fiber	$	-	0.00%	19.53%	0.00%	3.00%	0.00%	0.00%
Underground Fiber	$	16,673,356	1.07%	19.58%	0.21%	3.00%	0.03%	0.24%
Buried Fiber/Fiber Drop	$	-	0.00%	19.53%	0.00%	3.00%	0.00%	0.00%
Conduit	$	79,690,308	5.13%	17.25%	0.88%	3.00%	0.15%	1.04%
Poles	$	16,805,931	1.08%	55.41%	0.60%	3.00%	0.03%	0.63%
Total	$	1,554,259,205	100%		25.82%		4.06%	29.88%

EXHIBITS 22

CONFIDENTIAL INFORMATION RELATING TO EXHIBIT 21

CONFIDENTIAL

LATE - FILED EXH. 23
P.O.D. 40

DN 13753-96
Xref - DN 00526-97

FLORIDA PUBLIC SERVICE COMMISSION
DOCKET NO. 961230-TP EXHIBIT NO 23
COMPANY/
WITNESS: FARRAH
DATE: 12/18/96

EXHIBIT NO. _____

DOCKET NO: 961230-TP

WITNESS: RANDY G. FARRAR

PARTY: SPRINT CENTEL/UNITED

DESCRIPTION:

SPRINT CENTEL/UNITED'S RESPONSE TO STAFF'S 1ST SET OF INTERROGATORIES (NOS. 1-23 AND 28-45).

PROFFERING PARTY: STAFF

FLOBIDA PUBLIC SERVICE COMMISSION
DOCKET
NO. 961230-TP EXHIBIT NO 24
COMPANY/
WITNESS: STAFF
DATE: 12/18/96

I.D. # RGF-4

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Petition by MCI Telecommunications Corporation for arbitration with United Telephone Company of Florida and Central Telephone Company of Florida concerning interconnection rates, terms, and conditions, pursuant to the Federal Telecommunications Act of 1996	DOCKET NO. 961230-TP

UNITED TELEPHONE COMPANY OF FLORIDA AND CENTRAL TELEPHONE COMPANY OF FLORIDA'S ANSWERS TO STAFF'S FIRST SET OF INTERROGATORIES (NOS. 1-45)

United Telephone Company of Florida ("Sprint-United") and Central Telephone Company of Florida ("Sprint-Centel") (collectively "Sprint"), pursuant to Rule 25-22.034, Florida Administrative Code, Florida Rule of Civil Procedure 1.340, hereby provide the following answers to Staff's First Set of Interrogatories, served on November 22, 1996 ("Staff's First Set").

1. **For purposes of the following request, please refer to Randy Farrar's direct testimony, page 6, lines 13-15.**

   (a) Is the TELRIC cost standard specified in the FCC's interconnection order identical to TSLRIC, but with the addition of an allocation of forward-looking joint and common costs?

   (b) If the response to (a) is negative, please explain how TELRIC differs from TSLRIC.

   (c) Please identify which of the following options represents the appropriate key assumption regarding "forwarding-looking" that underlies a TELRIC study:

   (i) "scorched earth" or "greenfield" (i.e., nothing is assumed to be in place, no constraints on modeling)
   (ii) "scorched node" (i.e., nothing is assumed to be in place; only constraints on modeling are the existing locations or wire centers)
   (iii) "all things equal" (i.e., study for a given element or service assumes that all other elements or services are currently provided, and thus implicit constraints on network architecture and technology are imposed; however, for element being studied, technology choice reflects firm's current and prospective manner of provisioning and associated costs)

Answer:

(a) No.

(b) The TELRIC methodology is equal to TSLRIC methodology applied to a network element. TELRIC (or TSLRIC of an element) includes some costs which are shared at the service level, but are direct at the element level. Neither TELRIC nor TSLRIC include common costs.

(c) (ii) "scorched node."

2. For purposes of the following requests, please refer to Randy Farrar's direct testimony, page 21.

(a) Please indicate the number of different unbundled loop elements that Sprint intends to offer.

(b) If Sprint intends to offer more than one unbundled loop element (per zone), please explain how BCM2 has been modified to derive costs for loops with different characteristics (e.g., 2-wire v. 4-wire, ISDN, etc.).

Answer:

(a) One element only. Sprint will provide sub-element unbundling on a ICB basis upon bona fide request.

(b) The rate for a 2-line loop is equal to 1.68 times the rate for a 1-line loop, as shown on Composite Exhibit No. RGF-3, page 5. BCM 2 does not provide costs for ISDN, HDSL, ADSL or other loops which require conditioning.

3. For purposes of the following requests, please refer to Randy Farrar's direct testimony, page 24, lines 13-19.

(a) Will costs for cross-connect facilities be derived using BCM2?

(b) If the response to (a) is affirmative, please identify the cost components in BCM2 that will be attributed to cross-connect facilities.

(c) If the response to (a) is negative, please identify and describe the model that will be used to derive costs for cross-connect facilities.

Answer:

(a) No.

(b) No answer required.

(c) The development of the cross-connect facilities costs are shown on Composite Exhibit No. RGF-3, pages 47-50. Sprint proposes to provide these services on an ICB basis.

4. For purposes of the following requests, please refer to Randy Farrar's direct testimony, page 28, lines 11-21.

(a) Please identify the switches deployed by Sprint in Florida and the number of lines served by each switch.

(b) Please explain how the 95% value referred to at line 21 was derived.

Answer:

(a) Please see the attached document.

(b) The 95% value is incorrect. Of forward-looking, state-of-the-art technologies, DMS switches represent 82% of access lines; 5ESS switches represent 18% of access lines.

5. For purposes of the following requests, please refer to Randy Farrar's direct testimony, page 29, lines 104.

(a) Please identify the proposed rate element(s) for which "Getting Started Costs" are to be recovered.

(b) Please describe how "Getting Started Costs" are factored into each proposed rate element.

Answer:

(a) Getting Started Costs are costs associated with the set-up or initiation of a call or use of a feature.

(b) For local and tandem switching, "Getting Started Costs" are factored according to their utilization of the processor, as shown on Composite Exhibit No. RGF-3, page 69. For features, the costs used in Composite Exhibit No. RGF-3, page 71, are derived from SCIS and include utilized processor costs.

6. For purposes of the following requests, please refer to Randy Farrar's direct testimony, page 29, lines 9-13.

(a) Please explain the function of DS-30A links.

(b) Please explain the function of DS-30 links.

Answer:

(a) The DS-30A link is the connecting link between the line concentrating module (LCM) and the line group controller (LGC). There are from 2 to 6 links per LCM, depending on the volume of traffic. Each link provides 30 speech channels.

(b) The DS-30 link is the connecting link between the network module and the line group controller (LGC) or digital trunk controller (DTC). There are from 3 to 16 links per LGC, and from 4 to 16 links per DTC. Each link provides 30 speech channels.

7. For purposes of the following requests, please refer to Randy Farrar's direct testimony, page 30.

(a) Referring to lines 8-9, please identify the call types for which MOU and set-up data was gathered.

(b) Referring to lines 8-9, please identify or indicate:

(i) the offices that were sampled;
(ii) when the traffic studies were conducted; and
(iii) the total number of offices.

(c) Referring to lines 11-12, please identify the source(s) used to identify the number of processor milliseconds required to process the various call types.

Answer:

(a) Originating and terminating intra and interoffice local calls and toll calls.

(b) Composite Exhibit No. RGF-3, page 73, reflects the 26 offices which are studied to provide switching costs and pricing. The traffic studies were completed predominately between 1993 and 1995, as shown in the response to First Request for Production of Documents No. 47.

(c) Bellcore provided this Nortel proprietary data through the SCIS mode.

8. **For purposes of the following requests, please refer to Randy Farrar's direct testimony, page 33, lines 4-9.**

(a) Please state whether Sprint is preparing or intends to prepare TELRIC studies for unbundled signaling links that will be filed in this proceeding prior to hearing.

(b) If the response to (a) is negative, please indicate when the existing interstate rates were developed.

Answer:

(a) Sprint will not file signal link TELRIC studies prior to the hearing.

(b) Centel studies were filed March 15, 1994.

United Studies were filed August 14, 1992.

9. For purposes of the following requests, please refer to Randy Farrar's direct testimony, page 35, lines 1-11.

(a) Referring to lines 1-4, will the Company be proposing two rates -- one per 56 kbps equivalent trunk and one per T1?

(b) If the response to (a) is negative, please clarify the proposed rate structure.

(c) Please describe how the STP switching was determined.

(d) Referring to lines 9-11, please identify the software used to develop Sprint's levelizing program.

Answer:

(a) No, it is applicable per DS0 circuit, e.g., times 24 for a DS1.

(b) The switching cost is based on the volume of traffic that can be generated by a DS0/56 kbs circuit. Thus, for each DS0 the rate is $1.08; for a T1 with 24 circuits the rate is $25.92. Additional charges are applicable for the actual links (transport) and ports associated with providing the service. See response to Interrogatory No. 41(k).

(c) The STP switching TELRIC methodology is described in the Direct Testimony of Randy G. Farrar on pages 34-36, and is shown on Composite Exhibit No. RGF-3, pages 81-86. Also see response to Interrogatory No. 41(k).

(d) The levelizing program is an internal Excel program which is being provided in response to Document Request No. 3.

10. Referring to Randy Farrar's direct testimony, page 40, lines 17-18, please identify the software used to develop Sprint's Annual Charge Factor Program.

Answer: The Annual Charge Factor Program is an internal Excel program which is being provided in response to Document Request No. 4.

11. Referring to Randy Farrar's direct testimony, page 40, lines 24-25, and page 41, lines 1-4, please identify the document(s) from which the 1995 investments and expenses were obtained.

Answer: All investment and expenses information is derived from Sprint's 1995 General Ledger.

12. For purposes of the following requests, please refer to Randy Farrar's Exhibit RGF-2, page 4.

(a) Please identify the specific services which comprise the column labeled "Other."

(b) Do the amounts shown in the column labeled "Total" equal the totals for the respective accounts per the Company's general ledger?

(c) If the response to (b) is negative, please indicate to what these amounts relate.

(d) Please indicate the time period to which the amounts in the "total" column relate.

Answer:

(a) The "Other" category consists of IntraLATA Toll (69% of revenues), Local/Toll Private Line (31% of revenue), and insignificant other revenues such as ISDN, which account for less than 1% of the total.

(b) Yes, the "Total" column matches the totals from the Sprint General Ledger for services offered for resale.

(c) No response necessary.

(d) All values are for 1995.

13. For purposes of the following requests, please refer to Randy Farrar's Exhibit RGF-2, page 5.

(a) Are the values shown on this page the percentages of each expense that will be assigned to the indicated categories?

(b) If the response to (a) is negative, please identify to what these values relate.

(c) In the upper left corner there is a box labeled "Key." Please explain what this represents.

(d) Please indicate which categories shown on this page are summed to yield the respective categories shown on page 4.

(e) Referring to the column labeled "Reference Sheet," please identify which pages of this exhibit correspond to each of the sheets listed.

(f) Account 656X.XXX shows values on page 5; however, no dollar amounts are shown on page 4. Please explain why this is the case.

Answer:

(a) Yes.

(b) No response necessary.

(c) This is a color-code which does not affect any calculations. Its purpose is to assist the user when inputting data. Zero values in green font are fixed by the model, and no user input is expected. Zero values in black font are the result of a model calculation, and may vary according to user inputs.

(d) This is shown on Composite Exhibit No. RGF-1, page 4, Section D.

Simple Access: R1,B1, usage
Complex Access: PBX, key, Centrex
Features: CCF, CLASS, Centrex features
Operator/DA
Other: IntraLATA Toll, Private Line

(e) Overhead: None
GS Assets: None
Prod. Mgmt.: Page 7
Sales: Page 8
Prod. Adv.: Page 9
Direct: None
LMP: Page 10
NASC: Page 11
CPS: Page 12
Bill. Stat.: page 13
Bus. Off.: Page 14
Bus. Svc. Cntr.: Page 15
Postage: Page 16
CASS: Page 17

(f) Since depreciation is not an avoidable expense, no dollars appear on page 4. The model is multiplying the percentages on page 5 by $0.

14. For purposes of the following requests, please refer to Randy Farrar's Exhibit RGF-2, page 6.

(a) Please identify the worksheet from which the "Total Feature Revenue" (A) was derived.

(b) Please identify the worksheet from which the "Centrex Feature Revenue" (B) was derived.

(c) Please identify the worksheet from which the values shown in column (F) were derived.

Answer:

(a) The "Revenue" worksheet of the Excel model provides "Total Feature Revenue."

(b) The "Revenue" worksheet of the Excel model provides "Centrex Feature Revenue."

(c) The "Avoided Exp." worksheet of the Excel model provides the values shown in column (F).

15. For purposes of the following requests, please refer to Randy Farrar's Exhibit RGF-2, page 7.

(a) Please indicate the units that the stated values represent, e.g., dollars, hours, etc.

(b) Please identify what services are included in "Non-Discounted Services."

Answer:

(a) The unit data represents hours.

(b) Non-discounted services include service stations, E911, COCOT, semi-public, public telephone, mobile and paging, lifeline, PIC changes, and SLC.

16. For purposes of the following requests, please refer to Randy Farrar's Exhibit RGF-2, page 8.

(a) Please indicate the units that the stated values represent, e.g., dollars, hours, etc.

(b) Referring to the account "6612.99 GENERAL SERVICE AND LICEN" in the lower left hand corner, please identify the source(s) for the dollar amount shown.

Answer:

(a) The unit data represents hours.

(b) This is the General Ledger amount for account 6612.986. The cell is not formatted correctly, thus account 6612.986 appears as 6612.99.

17. For purposes of the following requests, please refer to Randy Farrar's Exhibit RGF-2, page 10.

(a) Please indicate the units that the numeric values shown represent.

(b) Please explain the column headings.

Answer:

(a) Actual call counts.

(b) "Deny All Knowledge" - means the billed customer denies responsibility for call.

"Unbilled" - means that no customer can be found, or customer has been disconnected.

"Other" - means all other unbillable calls.

18. Referring to Randy Farrar's Exhibit RGF-2, page 11, please identify the source document(s) for each value shown.

Answer: All inputs are derived from the NASC special study, which is provided in response to Staff Request for Production of Documents No. 15.

19. **Referring to Randy Farrar's Exhibit RGF-2, page 13, please explain how the account data was disaggregated into the product categories shown and how double counting was avoided.**

Answer: The account data was compiled from a "Billing Statistics Report" for each individual company. Copies of those reports are attached. The check marks next to individual accounts indicate which accounts were included in the total. The report summarized the information into the categories identified on the exhibit.

20. For purposes of the following requests, please refer to Randy Farrar's Exhibit RGF-2, page 14.

(a) Please indicate the units that the stated values represent, e.g., hours, contacts, etc.

(b) Please explain how TouchTone was assigned to residence and business.

Answer:

(a) The units represented in Composite Exhibit No. RGF-2, page 14, are "customer contacts."

(b) Touchtone was assigned to residence and business based on the number of residence access customer contacts and the number of simple business access customer contacts.

The study provided the raw numbers of Residence Access customer contacts (shown on line 1) and Simple Business Access customer contacts (shown on line 2) as well as the Touchtone numbers shown on the bottom line of the page. The Touchtone number was divided between residence and simple business based on the percentages of total access contacts that were residence and simple business. The actual calculations associated with "Service Order Processing" are developed below as an example.

		Service Order Processing
1.	Residence Access	30,857,016
2.	Simple Business Access	1,739,925
3.	TOTAL (Sum - Lines 1 & 2)	32,596,941
4.	Touchtone Total	73,939
5.	% of Residence (Line 1/Line 3)	94.66%
6.	% of Business (Line 2/Line 3)	5.34%
7.	Touchtone Residence (Line 4 * Line 5)	69,992
8.	Touchtone Business (Line 4 * Line 6)	3,947

21. For purposes of the following requests, please refer to Randy Farrar's Exhibit RGF-2, page 15.

(a) Please indicate the units that the stated values represent, e.g., hours, contacts, etc.

(b) Please explain how TouchTone was assigned to simple business, centrex, key, PBX, COCOT, public telephone, E911, and switched link.

Answer:

(a) The units represented in Composite Exhibit No. RGF-2, page 15, are "customer contacts."

(b) Touchtone was not assigned to simple business, centrex, key, PBX, COCOT, Public Telephone, E911 or Switched Link in this study. The actual study did not count the customer contacts associated with Touchtone; therefore, no touchtone was assigned.

22. For purposes of the following requests, please refer to Randy Farrar's Exhibit RGF-2, page 19.

(a) Please identify all documents from which the Incremental Wholesale expenses were derived.

(b) Please identify the document or work paper from which the OTC specific value of $1.02 was derived.

(c) Please define "OTC."

(d) Please identify the document or work paper from which the values in the column "Avoided Expenses" were derived.

Answer:

(a) This information is provided in response to Staff Request for Production of Documents No. 28.

(b) Please see attachment and the documents provided in response to Document Request No. 28.

(c) "OTC" means Operating Telephone Company, i.e., Sprint/United of Florida.

(d) The "Avoided Exp." worksheet of the Excel model provides the value in the column "Avoided Expenses."

23. Referring to Randy Farrar's Exhibit RGF-2, page 20, please identify the document or work paper which incorporates this adjustment.

Answer: Account 5100.410 of the "Revenue" worksheet of the Excel model provides this adjustment.

28. Referring to Composite Exhibit RGF-3, page 84, please explain why this sheet (filed under seal) has redacted values.

Answer: The material costs are proprietary to Digital Switch Corporation. Please see the Companies' Request for Confidential Classification, dated December 6, 1996, which explains why the sheet has redacted values.

29. For purposes of the following request, please refer to Randy Farrar's supplemental direct testimony, page 2, lines 15-20.

(a) Please identify the specific expenses which are treated as "other direct operating expenses."

(b) Please describe the mechanics of how these other direct operating expenses were included in the annual charge factor(s) used in the TELRIC studies.

Answer:

(a)
661X - Network Support (Except aircraft expense)
6121 - Land and Building
6124 - General Purpose Computers
6512 - Provisioning
6531 - Power
6532 - Network Administration (Except SMS)
6533 - Testing
6534 - Plant Operation Administration
6535 - Engineering
6561 - Depreciation (General Support assets only)
6563 - Amortization - Tangible
651X - Marketing (Non-Retail portion only)
6522 - Number services (ALPHA directory printing & Distribution only)
6523 - Customer Service (Non-Retail portion only)

(b) The Other Direct Operating Expense factor is simply added to the TELRIC Annual Charge Factor (ACF) as shown on the "Summary of TELRIC, Other Direct Operating and Common Expense Factors." The resulting "Total ACF" is then applied to TELRIC Investment to determine the revenue requirement for rate development.

30. For purposes of the following request, please refer to Composite Exhibit No. RGF-3, page 48.

(a) Please identify the components that make up the Circuit Equipment Material on line 1.

(b) Please identify the source for the net salvage value used in line 6.

Answer:

(a) Cable
Cable Installation
Relay Rack
DSX Shelf
DSX Card
DSX Installation
Two Crossconnects
Power

(b) Salvage is assumed to be 10% of gross investment.

31. For purposes of the following request, please refer to Composite Exhibit No. RGF-3, page 49.

(a) Please identify the components that make up the Circuit Equipment Material on line 1.

(b) Please identify the source for the net salvage value used in line 6.

Answer:

(a) Cable
Cable Installation
Relay Rack (Toll)
DSX Toll
DSX Installation
Crossconnect
Power

(b) Salvage is assumed to be 10% of gross investment.

32. For purposes of the following request, please refer to Composite Exhibit No. RGF-3, page 50.

(a) Please identify the components that make up the Circuit Equipment Material on line 1.

(b) Please identify the source for the net salvage value used in line 6.

Answer:

(a) Cable
Cable Installation
Relay Rack (Toll)
DSX Toll
DSX Installation
Crossconnect
Power

(b) Salvage is assumed to be 10% of gross investment.

33. Referring to Composite Exhibit No. RGF-3, page 53, please explain what a "smart jack" is.

Answer: A "smart jack" is a DS1 interface connector. It allows the network to conduct a loopback test between the serving wire center and the network - customer interface, isolating the loop.

34. Referring to Composite Exhibit No. RGF-3, page 55, please explain what an "HDSL RT Unit" is.

Answer: A HDSL RT is a High Bit-Rate Digital Subscriber Line Remote Terminal.

A HDSL system consists of two High Bit-Rate Terminal Units, a Central Office Unit, and a Remote Distance Unit. Communication between the units is over two non-loaded metallic cable pairs. (See attached Diagram.)

35. **Referring to Composite Exhibit No. RGF-3, page 56, please explain what the values in the column labeled "1995 y/e Bal." are.**

Answer: The heading is misleading. The values are 1995 expenses for these two expense accounts, 6421.6XX, aerial metallic drop, and 6423.6XX, buried metallic drop.

36. For purposes of the following request, please refer to Composite Exhibit No. RGF-3, page 62.

(a) Please explain how the data or results shown on this page are used to derive the local switching rates.

(b) Referring to the bottom of this page, please explain to what "SE Study" refers, and where this study is located in this documentation.

(c) Referring to the bottom of this page, please identify the source of each of the values used in the formula shown.

Answer:

(a) This page calculates the average MOU per line for residence and simple business customers, 1259 MOU. This value is used on Column G of Composite Exhibit No. RGF-3, page 61, to calculate the average switching rate. Since the value of 1259 is less than the overall average, the result is lower switching costs and rates. Column H provides the cost for each switch; the correct formula for Column H is H = D + (E x G).

(b) "SE Study"refers to a usage study performed by Sprint's Southeast operating company (Tennessee and Virginia) for October 1993, which is the most recent data available. The most recent Florida specific data is over ten years old, and would have resulted in higher costs and rates.

(c) 600: Average MOU for basic ports (residence and business) from the Southeast usage study.

809: Average MOU for all ports from the Southeast usage study.

1003: Average Line MOU, as developed in fifth column on this page.

695: Average Trunk MOU, as developed in the sixth column on this page.

37. For purposes of the following request, please refer to Composite Exhibit No. RGF-3, page 73.

(a) Are all of Sprint Florida's tandems shown on this exhibit?

(b) If the response to (a) is negative, please identify which Sprint Florida tandems are not shown on this exhibit.

(c) If the response to (a) is negative, please explain why the tandems identified in response to (b) were omitted.

(d) Were the values in the column labeled "Tandem Sw MOU Rate" derived using SCIS results?

(e) If the response to (d) is negative, please identify the cost basis used to derive these rates.

(f) If the response to (d) is affirmative, please identify the switch types for which SCIS runs were performed, for each of the exchanges shown.

(g) Please identify the vintage and source of the interoffice host trunk MOU data shown on this exhibit.

Answer:

(a) No.

(b) Avon Park, Crestview, Fort Walton Beach, Tallahassee, and Marianna.

(c) These offices were acquired with the Sprint/Centel merger, and have not been modeled to date.

(d) Yes. Each value is equal to two times the Trunk CCS cost plus the Trunk Set-up cost.

(e) No response necessary.

(f) All offices are DMS-100, DMS-200, or DMS-100/200.

(g) The usage data for interoffice host trunk MOU is collected by the Factor and Circuit Traffic System (FACTS) and the vintage is generally between 1993 and 1995. See First Request for Production of Documents No. 47 for individual switch vintage usage collection date.

38. **For purposes of the following request, please refer to Composite Exhibit No. RGF-3, page 75.**

(a) **Were the values shown on lines 2 and 3 derived from the BCM2 run, i.e., derived by sorting the BCM2 results by loop length?**

(b) **If the response to (a) is negative, please identify the source document from which these values were obtained.**

(c) **If the response to (a) is affirmative, why wasn't the same procedure used to determine the number of households between 10 and 12 Kft?**

(d) **Please identify the source document for the average line card cost on line 7.**

Answer:

(a) Yes, the values shown on lines 2 and 3 were derived by sorting the BCM 2 results by loop length.

(b) No response necessary.

(c) The number of households between 10 and 12 Kft was determined by using a standard summary report produced from the BCM 2 model. The report aggregates loop category based on 5 Kft increments. Resorting the BCM 2 mode for all loops over 12 Kft results in a discount of $1.80 versus $1.83.

(d) The source for the average line card cost on line 7 was the SCIS model.

39. For purposes of the following request, please refer to Composite Exhibit No. RGF-3, page 80.

(a) Please identify the vintage and source of the MOU data shown in column C.

(b) Do the exchanges shown on this exhibit represent all of Sprint Florida's exchanges?

(c) If the response to (b) is negative, do these exchanges represent all of those in which the Company intends to offer local switching interconnection?

(d) If the response to (c) is affirmative, please explain why the Company intends to offer local switching interconnection in these exchanges.

(e) If the response to (c) is negative, please explain how the Company will determine the rates for local switching interconnection to apply in the exchanges not shown on this exhibit.

Answer:

(a) The usage data for interoffice host trunk MOU is collected by the Factor and Circuit Traffic System (FACTS) and the vintage is generally between 1993 and 1995. See First Request for Production of Documents No. 47 for individual switch vintage usage collection date.

(b) No.

(c) No.

(d) No response necessary

(e) Surrogate office cost results are used for offices which were not studied. These surrogates have similar characteristics as studied offices in terms of line size and remote switch usage.

40. Referring to Composite Exhibit No. RGF-3, page 82, please define "OTC."

Answer: "OTC" means Operating Telephone Company, i.e., Sprint/United of Florida.

41. For purposes of the following request, please refer to Composite Exhibit No. RGF-3, page 86.

(a) Please identify the software used to produce the underlying spreadsheet for this page.

(b) Please identify the source for the demand values shown on line 15.

(c) Please identify the source document or model for the values shown on the line 17b.

(d) Please identify the source document or supporting work paper for the maintenance expense factor.

(e) Since the study life is seven years, is it assumed that the depreciable life of the investments is seven years?

(f) If the response to (d) is affirmative, please explain the basis for using seven year lives for these investments.

(g) If the response to (d) is negative, please explain the basis for a seven year study life.

(h) Please identify the source document or supporting work paper for the values shown on line 26.

(i) Please identify the source document or supporting work papers for the values shown on line 27.

(j) Please describe the sequence of calculations which yield the $435.47 SS7 port revenue requirement per month.

(k) Please describe the sequence of calculations which yield the $.07874 residule [sic] SS7 revenue requirement per month per trunk.

Answer:

(a) The levelizing program is written in Excel. See response to Document Request No. 3.

(b) Years 1 and 2 are actual data. Years 3, 4, and 5 are current budget. Years 6 and 7 are extrapolations.

(c) Years 1 and 2 are actual data. Years 3-7 are current budget.

(d) This value can be found on Composite Exhibit No. RGF-3, page 122. Derivation is provided as First Request for Production of Documents No. 43(a).

(e) Yes.

(f) The Technology Futures, Inc., depreciation study, referred to in Randy G. Farrar's Direct Testimony, page 41.

(g) No response necessary.

(h) This line equals 5.7988% Other Direct Expense factor for SS7 investment, plus $100,000 per year for software in each of the two STP complexes.

(i) First, the airline miles for each A-Link pair was determined. Second, the AT&T interstate private line tariff rates were applied to each A-Link pair to determine the cost.

(j) The $435.47 value is calculated on Composite Exhibit No. RGF-3, page 84.

(k) The actual calculations are included in the disk provided as First Request for Production of Documents No. 3.

The calculation is:

Line 30: 4.93 = cumulative NPV for seven years of one unit at 11.25% discount rate
Line 38: 946 units/4.93 = 191.91 average demand over seven years
Line 39: $14,815,640/946 = $15,659 annual revenue requirement per port
Line 43: $15,659/12 = $1,304.94 monthly revenue requirement per port
Port cost = $435.47 per month (Composite Exhibit No. RGF-3, page 84)
$1,304.94 - $435.47 = $869.47 residual revenue requirement
Line-to-trunk ratio = 10
Line 48: ((191.91 *$869.47)/12)/176,598 = $0.07874 per port month
$0.07874 * 1.1458 common factor = $0.09022 per month

Note: There is an error in Line 48: Since the $869.47 value is already a monthly figure, it should not have been divided by 12. Thus, the actual cost and rate is twelve times greater.

42. Refer to Composite Exhibit No. RGF-3, page 90, please identify the source documents and work papers that support the values shown on lines 1, 2, 5, 7, and 11.

Answer: Line 1: INAC Net Direct Expense: This component is made up of the following elements:

Net Direct Expense, per 1997 Budget Summary	$ 2,975,426
Less Original Equipment Projected	$ (117,382)
Less Original Software Projected	$ (2,500)
Less Original Mainframe Projected	$(1,811,125)
Plus Revised Software Mainframe Projected	$ 2,234,760
Plus LIDB Bellcore RTU	$ 350,000
TOTAL	$ 3,629,179

Line 2: INAC Depreciation Expense:

Depreciation Expense per 1997 Budget	$ 258,812

Line 5: Taxes:

Taxes = Return ($87,349)*
1996 Midwest Group factor of .580946

Line 7: Other Direct Cost: This cost represents buildings, and general support expenses. This is determined by multiplying the cost in 1 above by a factor determined by the Summary of Indirect Investment Related and Common Expense Factor Study for the Sprint - Florida Telephone Study for the 12 months ending December 1995. The Factor is .043954 of Direct Cost.

Line 11: 7/97 Projected Access Lines:

7/96 Actual Access Lines	6,935,381
7/97 Projection at 3% growth rate	7,143,442

43. **For purposes of the following request, please refer to Composite Exhibit No. RGF-3, page 97. The line labeled "Total Direct, Other Direct and Common Costs" equals "Total Direct Operating Costs," i.e., it does not include allocation of common costs. Are common costs supposed to be in the numerator of the cost calculation?**

Answer: The exhibit incorrectly does not add the $146,265 in common costs to the Total Direct Costs. The line "Total Direct, Other Direct and Common Costs" should be revised to a total amount of $1,149,236. The resulting rate per listing or update should be revised to $0.0548.

44. Referring to Composite Exhibit No. RGF-3, page 120:

(a) Please identify the source and account numbers for the Embedded Investment amounts shown.

(b) Please identify the source and account numbers for the Maintenance expense amounts shown.

(c) Please identify the source(s), amounts and account numbers for each of the components of Other Direct Operating Expenses.

(d) Please provide the derivation of the Common Expense Factor, indicating the individual amounts and accounts that comprise the numerator, and the individual amounts and accounts that comprise the denominator.

(e) Please identify the source for the amounts labeled "Embedded Direct Cost," and explain how they differ from embedded investment amounts.

(f) Please provide a reconciliation of the Cable and Wire Detail shown at the bottom of this exhibit with the cable amounts shown at the top.

Answer:

(a) The source is the 1995 Sprint General Ledger. The account numbers are shown on the attached two-page summary "Summary of Other Direct and Common expense Allocation," and the five-page summary "Other Direct Operating and Common Expense Allocation."

(b) See 44(a).

(c) See 44(a).

(d) The actual calculation can be found on line 32, page 2, of the two-page summary "Summary of Other Direct and Common Expense Allocation." The third column of page 1 identifies the components of "Direct," "Other Direct," "Common," and Excluded" expenses. The numerator is equal to portions of accounts 6113, 612X, 6561, 6710, and 6720. The denominator is equal to total TELRIC Cost plus Other Direct Expenses.

(e) The embedded direct costs are the result of adding embedded direct expenses, return and income taxes on embedded direct investment. This amount comes from page 2 of the attached two-page "Summary of Other Direct and Common Expense Allocation."

(f) Total Cable and Wire Facilities — $1,566,248,711
Sum of Account Detail
(from bottom of exhibit)

Cable & Wire by element
(from top of exhibit)

Loop	$1,459,140,108
Network Interface Device	$ 9,215,012
Interoffice-Cable & Wire	$96,672,275
Signaling Links	$1,221,316
Total	$1,566,248,711

These amounts can be seen on page 1, Line 24XX, of the attached two-page "Summary of Other Direct and Common Expense Allocation."

45. Referring to Composite Exhibit No. RGF-3, page 122:

(a) Please indicate the source for the capital structure ratios and costs used.

(b) Please explain how and why the Other Direct Operating Expense factors shown in column (D) differ from those shown in column (B).

(c) Please explain to what "SWIM/BCM" refers.

Answer:

(a) The capital structure is based on Sprint Florida's capital structure. Debt cost is based on weight average cost of debt. Equity is derived to arrive at 11.25% overall rate of return.

(b) Column B reflects Other Direct Operating Expense Factors associated with the interoffice transport functionality while Column D reflects loop functionality.

(c) SWIM is an acronym for Switching Model which was developed by Sprint to provide cost specifically in support of the Telecommunications Act of 1996. BCM is the acronym for the Benchmark Cost Model.

jjw\utd\230-stf.ans

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Petition by MCI Telecommunications Corporation for arbitration with United Telephone Company of Florida and Central Telephone Company of Florida concerning interconnection rates, terms, and conditions, pursuant to the Federal Telecommunications Act of 1996	DOCKET NO. 961230-TP

ATTACHMENT TO STAFF'S FIRST SET
OF INTERROGATORIES NO. 4(a)
(4 pages)

SCHEDULE 20

PERIOD ENDING: SEPTEMBER 30, 1996
RULE 25-4.0185, F.A.C.

SPRINT - UNITED OF FLORIDA
SPRINT - CENTEL OF FLORIDA

EQUAL ACCESS AND C.O.E. QUARTERLY REPORT

(1) EAEA	(2) EXCHANGE AREA	(3) CENTRAL OFFICE	(4) E.O.Q. ACCESS LINES	(5) E.A. SVC. DATE	(6) PRESENT C.O.E. EQUIPMENT	(7) PROPOSED C.O.E. EQUIP.	(8) SERVICE DATE	(9) HOST OR REM	(10) HOST OFFICE
OCAL	BELLEVIEW	BELLEVIEW	18,422	08/88	DMS-100	NONE	NONE	H	
OCAL	BEVERLY HILLS	BEVERLY HILLS	11,288	12/91	DMS-100	NONE	NONE	H	
OCAL	BUSHNELL	BUSHNELL	10,829	04/93	DSS-1210	NONE	NONE	H	
OCAL	CLERMONT	CLERMONT	12,850	11/89	DMS-100	NONE	NONE	H	
OCAL	CRYSTAL RIVER	CRYSTAL RIVER	13,311	08/90	DSS-1210	NONE	NONE	H	
OCAL	DADE CITY	DADE CITY	11,344	08/88	DMS-100	NONE	NONE	H	
OCAL	EUSTIS	EUSTIS	17,097	11/90	DSS-1210	NONE	NONE	H	
OCAL	FOREST	FOREST	6,376	12/96	DSS-1210	NONE	NONE	H	
OCAL	GROVELAND	GROVELAND	4,695	08/93	DMS-RSC	NONE	NONE	R	CLERMONT
OCAL	HOMOSASSA SPRINGS	CHASSAHOWITZKA	3,488	04/93	DSS-RSC	NONE	NONE	R	CRYSTAL RIVER
OCAL	HOMOSASSA SPRINGS	HOMOSASSA SPRINGS	9,248	12/91	DMS-100	NONE	NONE	R	BEVERLY HILLS
OCAL	HOWEY-IN-THE-HILLS	HOWEY-IN-THE-HILLS	1,480	08/88	DMS-RSC	NONE	NONE	R	LEESBURG
OCAL	INVERNESS	INVERNESS	25,528	11/89	DSS-1210	NONE	NONE	H	
OCAL	LADY LAKE	LADY LAKE	12,768	08/90	DSS-1210	NONE	NONE	H	
OCAL	LEESBURG	LEESBURG	32,676	10/87	DMS-100	NONE	NONE	H	
OCAL	MOUNT DORA	MOUNT DORA	13,869	12/91	DSS-1210	NONE	NONE	H	
OCAL	OCALA	HIGHLANDS	9,382	12/91	DMS-RSC	NONE	NONE	R	OCALA
OCAL	OCALA	OCALA	48,886	08/88	DMS-100	NONE	NONE	H	
OCAL	OCALA	SHADY ROAD	23,829	08/88	DMS-100	NONE	NONE	H	
OCAL	OCALA	SILVER SPRINGS	6,039	08/88	DMS-RSC	NONE	NONE	R	OCALA
OCAL	OKLAWAHA	OKLAWAHA	3,834	08/93	DSS-1210	NONE	NONE	H	
OCAL	SALT SPRINGS	SALT SPRINGS	1,503	08/88	DMS-RSC	NONE	NONE	R	OCALA
OCAL	SAN ANTONIO	SAN ANTONIO	3,035	11/93	DMS-RSC	NONE	NONE	R	DADE CITY
OCAL	SILVER SPGS SHORES	SILVER SPGS SHORES	6,211	03/91	DMS-RSC	NONE	NONE	R	BELLEVIEW
OCAL	TAVARES	TAVARES	13,481	08/89	DMS-100	NONE	NONE	H	
OCAL	TRILACOOCHEE	TRILACOOCHEE	3,519	10/93	DMS-RSC	NONE	NONE	R	DADE CITY
OCAL	UMATILLA	UMATILLA	7,219	05/92	DMS-RSC	NONE	NONE	R	TAVARES
OCAL	WILDWOOD	WILDWOOD	7,576	10/92	DMS-RSC	NONE	NONE	R	LEESBURG
OCAL	WILLISTON	WILLISTON	5,295	08/90	DMS-RSC	NONE	NONE	R	SHADY ROAD
WNPK	APOPKA	APOPKA	30,793	10/88	DMS-100	NONE	NONE	H	
WNPK	KENANSVILLE	KENANSVILLE	667	08/88	ATT-RSM	NONE	NONE	R	KISSIMMEE
WNPK	KISSIMMEE	BUENAVENTURA LAKES	11,444	11/93	ESS-ORM	NONE	NONE	R	KISSIMMEE
WNPK	KISSIMMEE	KISSIMMEE	40,817	10/87	5ESS	NONE	NONE	H	
WNPK	MONTVERDE	MONTVERDE	1,461	10/89	ATT-RSM	NONE	NONE	R	WINTER GARDEN
WNPK	ORANGE CITY	DELTONA LAKES	12,550	10/87	DMS-RSC	NONE	NONE	R	ORANGE CITY
WNPK	ORANGE CITY	LAKE HELEN	1,886	02/89	DMS-RSC	NONE	NONE	R	ORANGE CITY
WNPK	ORANGE CITY	ORANGE CITY	11,013	10/87	DMS-100	NONE	NONE	H	
WNPK	SAINT CLOUD	SAINT CLOUD	16,322	08/90	DSS-1210	NONE	NONE	H	
WNPK	WEST KISSIMMEE	REEDY CREEK	8,615	11/90	DMS-RSC	NONE	NONE	R	WEST KISSIMMEE

SCHEDULE 20

PERIOD ENDING: SEPTEMBER 30, 1996
RULE 25-4.0185, F.A.C.

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WNPK	WEST KISSIMMEE	WEST KISSIMMEE	12,326	11/80	DMS-100	NONE	NONE	H	
WNPK	WINDERMERE	WINDERMERE	7,276	03/83	DMS-RSC	NONE	NONE	R	APOPKA
WNPK	WINTER GARDEN	WINTER GARDEN	19,096	10/68	SESS	NONE	NONE	H	
WNPK	WINTER PARK	ALTAMONTE SPRINGS	52,797	02/69	DMS-100	NONE	NONE	H	
WNPK	WINTER PARK	CASSELBERRY	18,763	08/69	DMS-100	NONE	NONE	H	
WNPK	WINTER PARK	GOLDENROD	44,072	08/69	DMS-100	NONE	NONE	H	
WNPK	WINTER PARK	LAKE BRANTLEY	42,094	10/86	DMS-100	NONE	NONE	H	
WNPK	WINTER PARK	MAITLAND	15,011	10/87	DMS-100	NONE	NONE	H	
WNPK	WINTERPARK	WINTER PARK	45,264	10/87	DMS-100	NONE	NONE	H	
		TOTAL AL (UTF):	1,399,061						
CRVW	BAKER	537	2356	09/87	DMS10	NONE	NONE	H	
CRVW	CRESTVIEW	682	14329	09/87	DMS 100/200	NONE	NONE	H	
CRVW	DEFUNIAK SPGS	892	7784	09/87	DMS 100	NONE	NONE	H	
CRVW	FREEPORT	835	2,625	09/87	RSC	NONE	NONE	R	DFSP 892
CRVW	GLENDALE	859	743	09/87	RSC	NONE	NONE	R	DFSP 892
CRVW	PONCE DE LEON	836	1158	09/87	RSC	NONE	NONE	R	DFSP 892
FTWB	DESTIN	837/654	17105	09/87	DMS 100	NONE	NONE	H	
FTWB	FT. WALTON BEACH	243-4/581/864/833/862-	44,333	09/87	DMS 100/200	NONE	NONE	H	
FTWB	SANTA ROSA	267	3801	09/87	RSC	NONE	NONE	R	DEST 837
FTWB	SEAGROVE	231	4119	09/87	RSC	NONE	NONE	R	DEST 837
FTWB	SHALIMAR	651	8927	09/87	DMS 100	NONE	NONE	H	
FTWB	VALPARAISO	678/897	18106	09/87	DMS 100	NONE	NONE	H	
JCVL	KINGSLEY LK	533	363	12/88	REM DMS 10	NONE	NONE	R	STRK 964
JCVL	LAWTEY	782	1113	12/88	REM DMS 10	NONE	NONE	R	STRK 964
JCVL	STARKE	964	6729	12/88	DMS 10	NONE	NONE	H	
MRNN	ALFORD	579	1460	09/87	RLM	NONE	NONE	R	MRNN 526
MRNN	BONIFAY	547	4559	09/87	RSC	NONE	NONE	R	MRNN 526
MRNN	COTTONDALE	352	1307	09/87	RLM	NONE	NONE	R	MRNN 526
MRNN	GRAND RIDGE	592	2050	09/87	DMS 10	NONE	NONE	H	
MRNN	GREENWOOD	594	826	09/87	RLM	NONE	NONE	R	MRNN 526
MRNN	MALONE	569	1288	09/87	RLM	NONE	NONE	R	MRNN 526
MRNN	MARIANNA	482/526	10142	09/87	DMS 100/200	NONE	NONE	H	
MRNN	REYNOLDS HILL	956	1444	09/87	RLCM	NONE	NONE	R	MRNN 526
MRNN	SNEADS	593	1771	09/87	RLM	NONE	NONE	R	MRNN 526
MRNN	WESTVILLE	548	894	09/87	RLCM	NONE	NONE	R	MRNN 526
TLHS	CHERRY LAKE	929	1207	06/87	RSC	NONE	NONE	R	MDSN 973
TLHS	CRAWFORDVILLE	926	5802	06/87	DMS 100	NONE	NONE	H	
TLHS	GREENVILLE	948	1276	06/87	RSC	NONE	NONE	R	MDSN 973

SCHEDULE 20

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TLHS	LEE	971	962	06/87	RSC	NONE	NONE	R	MDSN 973
TLHS	MADISON	973	4457	06/87	DMS 100	NONE	NONE	H	
TLHS	MONTICELLO	997	6171	06/87	DMS 100	NONE	NONE	H	
TLHS	PANACEA	984	988	06/87	RLM	NONE	NONE	R	CFVL 926
TLHS	SOPCHOPPY	962	1036	06/87	DMS 10	NONE	NONE	H	
TLHS	ST. MARKS	925	620	06/87	RLM	NONE	NONE	R	CFVL 926
TLHS	TALLAHASSEE	222/4/298/385/6/413/42	194,458	06/87	DMS 100	NONE	NONE	H	
		TOTAL AL (Centel):	376,187						
		TOTAL COMPANY:	1,775,268						

SCHEDULE 20

PERIOD ENDING: SEPTEMBER 30, 1996
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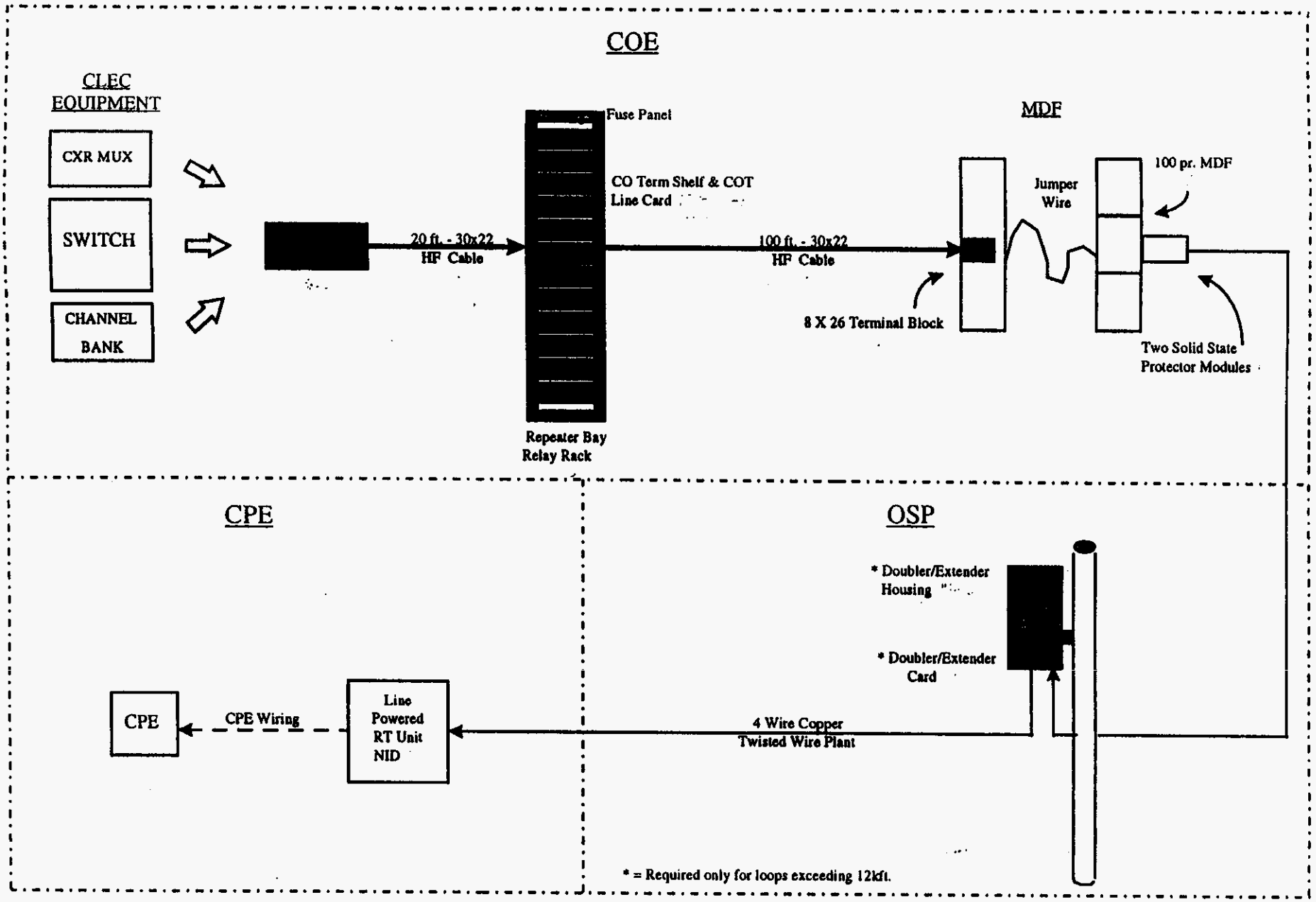
AVPK	ARCADIA	ARCADIA	12,688	11/89	5ESS	NONE	NONE	H	
AVPK	AVON PARK	AVON PARK	10,480	02/87	DMS 100/200	NONE	NONE	H	
AVPK	BOWLING GREEN	BOWLING GREEN	1,644	10/93	DMS-RSC	NONE	NONE	R	AVON PARK
AVPK	FORT MEADE	FORT MEADE	3,139	11/93	DMS-RSC	NONE	NONE	R	AVON PARK
AVPK	LAKE PLACID	LAKE PLACID	11,756	11/80	DMS-RSC	NONE	NONE	R	SEBRING
AVPK	OKEECHOBEE	OKEECHOBEE	20,690	03/91	DSS-1210	NONE	NONE	H	
AVPK	SEBRING	SEBRING	24,884	03/91	DMS100	NONE	NONE	H	
AVPK	SPRING LAKE	SPRING LAKE	4,876	05/92	DMS-RSC	NONE	NONE	R	AVON PARK
AVPK	WAUCHULA	WAUCHULA	8,259	Dec-96	DSS-1210	NONE	NONE	H	
AVPK	ZOLFO SPRINGS	ZOLFO SPRINGS	2,217	Dec-96	DSS-RLS	NONE	NONE	R	WAUCHULA
FTMY	BOCA GRANDE	BOCA GRANDE	2,313	08/94	DSS-RLS	NONE	NONE	R	SUNCOAST
FTMY	BONITA SPRINGS	BONITA SPRINGS	30,444	10/89	DSS-1210/5ESS	NONE	NONE	H	
FTMY	CAPE CORAL	CAPE CORAL	28,464	05/88	5ESS	NONE	NONE	H	
FTMY	CAPE HAZE	CAPE HAZE	9,850	07/92	DMS-100	NONE	NONE	H	
FTMY	CLEWISTON	CLEWISTON	7,990	10/92	DMS-RSC	NONE	NONE	R	LABELLE
FTMY	EVERGLADES	EVERGLADES	1,499	03/90	DSS-RLS	NONE	NONE	R	MARCO ISLAND
FTMY	FORT MYERS	ALVA	1,461	11/90	DSS-RLS	NONE	NONE	R	E FT MYERS
FTMY	FORT MYERS	EAST FORT MYERS	13,702	05/88	DMS-100	NONE	NONE	H	
FTMY	FORT MYERS	FORT MYERS	21,951	11/90	DSS-1210	NONE	NONE	H	
FTMY	FORT MYERS	REGIONAL AIRPORT	9,227	05/88	DMS-100	NONE	NONE	H	
FTMY	FORT MYERS	SOUTH FORT MYERS	32,047	05/88	DMS-RSC	NONE	NONE	R	CYPRESS LAKE
FTMY	FORT MYERS	CYPRESS LAKE	54,928	05/88	5ESS	NONE	NONE	H	
FTMY	FORT MYERS BEACH	FORT MYERS BEACH	10,991	03/92	DSS-1210	NONE	NONE	H	
FTMY	IMMOKALEE	IMMOKALEE	6,256	03/92	DMS-RSC	NONE	NONE	R	NPLS MOORINGS
FTMY	LABELLE	LABELLE	7,933	08/92	DMS-100	NONE	NONE	H	
FTMY	LEHIGH ACRES	LEHIGH ACRES	14,818	11/90	DMS-100	NONE	NONE	H	
FTMY	MARCO ISLAND	MARCO ISLAND	19,206	03/90	DSS-1210	NONE	NONE	H	
FTMY	MOORE HAVEN	MOORE HAVEN	2,430	10/92	DMS-RSC	NONE	NONE	R	LABELLE
FTMY	NAPLES	GOLDEN GATE	23,755	05/88	5ESS	NONE	NONE	H	
FTMY	NAPLES	NAPLES MOORINGS	50,093	02/89	DMS-100	NONE	NONE	H	
FTMY	NAPLES	NAPLES SOUTHEAST	29,858	05/88	5ESS	NONE	NONE	H	
FTMY	NORTH CAPE CORAL	NORTH CAPE CORAL	23,417	11/89	5ESS	NONE	NONE	H	
FTMY	NORTH FORT MYERS	NORTH FORT MYERS	32,007	11/90	DMS-100	NONE	NONE	H	
FTMY	NORTH NAPLES	NORTH NAPLES	38,318	10/89	DMS-100	NONE	NONE	H	
FTMY	PINE ISLAND	PINE ISLAND	7,692	08/94	DSS-1210	NONE	NONE	H	
FTMY	PORT CHARLOTTE	PORT CHARLOTTE	48,168	10/88	5ESS	NONE	NONE	H	
FTMY	PUNTA GORDA	PUNTA GORDA	22,881	03/90	DSS-1210/5ESS	NONE	NONE	H	
FTMY	SANIBEL-CAPTIVA IS.	SANIBEL-CAPTIVA	10,864	07/92	DSS-1210	NONE	NONE	H	
OCAL	ASTOR	ASTOR	1,353	08/89	DMS-RSC	NONE	NONE	R	TAVARES

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Petition by MCI Telecommunications Corporation for arbitration with United Telephone Company of Florida and Central Telephone Company of Florida concerning interconnection rates, terms, and conditions, pursuant to the Federal Telecommunications Act of 1996	DOCKET NO. 961230-TP

ATTACHMENT TO STAFF'S FIRST SET
OF INTERROGATORIES NO. 34
(1 page)



Typical HDSL Line Components

EXHIBIT NO. _____

DOCKET NO: 961230-TP

WITNESS: RANDY G. FARRAR

PARTY: SPRINT CENTEL/UNITED

DESCRIPTION:

12/5/96 DEPOSITION TRANSCRIPT.

LATE FILED EXHIBIT (NOS. 1-3)

SPRINT CENTEL/UNITED'S RESPONSE TO STAFF'S 1ST SET OF REQUEST FOR PRODUCTION OF DOCUMENT (NOS. 1-28 AND 31-49).

PROFFERING PARTY: STAFF

I.D. # RGF-5

FLORIDA PUBLIC SERVICE COMMISSION
DOCKET NO. 961230-TP EXHIBIT NO 25
COMPANY/ WITNESS: FARRAR / SPRINT
DATE: 12/18/96

EX25

CONDENSED

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

IN RE: Petition by MCI Telecommunications Corporation for arbitration with United Telephone Company of Florida and Central Telephone Company of Florida concerning interconnection rates, terms, and conditions, pursuant to the Federal Telecommunications Act of 1996 : DOCKET NO. 961230-TP

DEPOSITION OF: RANDY G. FARRAR

TAKEN AT THE INSTANCE OF: MCI

DATE: DECEMBER 5, 1996

TIME: COMMENCED: 2:00 P.M.
CONCLUDED: 6:15 P.M.

LOCATION: GERALD L. GUNTER BUILDING
ROOM 362
2540 SHUMARD OAK BOULEVARD
TALLAHASSEE, FLORIDA

REPORTED BY: NANCY S. METZKE, RPR, CCR
COURT REPORTER
POST OFFICE BOX 3093
TALLAHASSEE, FLORIDA 32315

C & N REPORTERS
REGISTERED PROFESSIONAL REPORTERS
POST OFFICE BOX 3093
TALLAHASSEE, FLORIDA 32315
(904) 385-5581

CONDENSED

APPEARANCES:

MARTHA BROWN, ESQUIRE, and COCHRAN KEATING, ESQUIRE, Florida Public Service Commission, 2540 Shumard Oak Boulevard, Tallahassee, Florida 32399-0850.

JOHN P. FONS, ESQUIRE, Sprint-United, Ausley & McMullen, Post Office Box 391, Tallahassee, Florida 32302.

SANDY KHAZRAEE, ESQUIRE, Sprint, 1313 Blairstone Road, Tallahassee, Florida 32301.

RICHARD D. MELSON, ESQUIRE, MCI and MCI Metro, Hopping, Green, Sams & Smith, Post Office Box 6526, Tallahassee, Florida 32302.

ALSO PRESENT:

DAVE DOWDS, FPSC Staff.
ROBIN NORTON, FPSC Staff.
MIKE REITH, FPSC Staff.
ANN SHELFER, FPSC Staff.

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INDEX

EXHIBITS

Whereupon,

RANDY G. FARRAR

was called as a witness by MCI and, after being first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. NELSON:

Q State your name and address for the record, please.

A Randy G. Farrar, F-a-r-r-a-r. Business address is 2330 Shawnee Mission Parkway, Westwood, Kansas, 66205.

Q Mr. Farrar, I'm Rick Nelson. I represent MCI and MCImetro in this proceeding. Your direct testimony indicates that you work for Sprint-United Management Company. What is the relationship of that company to the two Florida operating companies?

A They are both subsidiaries of Sprint Corporation.

Q Okay. And what is -- as a practical matter, what type of services does the management company provide to the Florida operating companies?

A We are the traditional service company for all of the local operating telephone companies of Sprint.

Q Okay. Have you been deposed before in your life?

A Once briefly here in Florida about two months

ago.

Q Okay. As I said before we went on the record, I've got questions for you today, mostly focused on your testimony and exhibits in this docket. If I ask you a question you don't understand, ask me and I'll -- let me know, and I'll try to clarify it. If during the course of the deposition we get off track and start talking past each other, or you need to go back and correct a prior answer, feel free to do that.

In reading the resume in your testimony, I see you have testified quite a bit in the past. What testimony have you given in arbitration type proceedings if any?

MR. POMS: You mean like the proceeding we are in right now?

MR. NELSON: Yes.

A The other proceedings I testified in recently have been generic proceedings so they have not really been arbitration proceeding.

BY MR. NELSON:

Q Okay. What type of proceedings have you testified in, say, within the past 12 months?

A I've testified in New Jersey on avoided costs, Pennsylvania on loop costs, and then I submitted written testimony but not oral in Illinois about a year ago.

Q Okay. Have you, are you slated to be a witness

in these types of arbitration proceedings in any other states other than Florida?

A I have filed written testimony in arbitration in North Carolina. The hearing is sometime in January.

Q Okay. So nothing that is going to go to hearing -- this will be the first arbitration hearing where you will actually get on the stand and testify in terms of timing?

A Yes.

Q My understanding of your testimony, and tell me if it's wrong, is that Sprint's position with respect to the pricing of unbundled network elements is that notwithstanding the eighth circuit stay of the FCC's order, that essentially the FCC did it right and the Florida Commission ought to follow the FCC's methodology?

A Yes.

Q Okay. And I understand it's also your position that you recommend that the Commission apply a uniform methodology to all of the Florida LECs; is that correct?

A I'm really not sure on that one.

Q Okay. Let me ask this, are you familiar with the staff recommendation that the staff made in the BellSouth and GTE arbitrations here in Florida?

A Yes.

Q Okay. In your judgment did the Commission -- did

the staff recommendations in those dockets use the type of pricing methodology that you're recommending or -- well, did they use the type of pricing methodology that you're recommending?

A I'm not sure if I am familiar enough with the details of it. I'm not really sure what they included and what they excluded. Probably the one area which I disagree with them is on deaveraging. I believe deaveraging is essential, and I notice they did not deaverage loop rates.

Q All right. When you use the term TELRIC, do you use that to refer to a costing principle or a pricing principle, or does it refer to both?

A Well, TELRIC itself is a costing methodology. The pricing methodology as set forth by the FCC is the TELRIC plus a share of common costs.

Q Okay. I will try to use the terms that way today. And when I say TELRIC, I'll try to refer to cost; and when I say TELRIC plus, I'll be referring to the TELRIC pricing principle because I don't know otherwise how to try to keep it straight.

There are a number of cost terms that you use either in your direct testimony and your supplemental testimony, and I guess I need to understand whether they are distinct categories or whether there are some overlaps, and let me just read them off and then we can come back and

do then one by one. You talk about direct costs. You talk about directly attributable costs. You talk about shared cost. You talk about common cost. And then in your supplemental testimony, you talk about other direct operating expense. Let's go back and go through those one by one. What do you mean by direct cost?

A A direct cost, that's a more generic term and simply means a cost which can be directly attributed to a particular service that you're studying.

Q Okay. Is that the same or different from directly attributable cost?

A It would be the same.

Q Same, okay. What about shared cost?

A Shared costs are costs which are direct to a group of services or products but are not directly attributable to any of the individual services, so you may have -- a perfect example is there is a software package which allows you to provide, a DMS switch allows you to provide four custom calling features. That software is a shared cost to any of the individual features, but if you remark the question, how about that entire package of features? It now becomes a direct cost to the package of features but is a shared cost to the individual features.

Q Okay. And then what is a common cost?

A A common cost is a cost which is -- I hate to use

the word "term" (sic) again, but it is shared among all services of the company.

Q Okay. In your supplemental testimony, you talked about other direct operating expense, and maybe let's turn there for a minute. Do you have your supplemental testimony?

A Yes.

Q It was on page 2 of your supplemental testimony, and I'm looking on page 2 at lines 15 through 20. You say there that the majority of expenses identified as shared in the direct testimony are now treated as other direct operating expenses. Can you tell me what type of a change that represents?

A It was really just a change in presentation of the data. It was not a change in the methodology itself. It did not really change the bottom answer.

Q Okay.

A So simply you have a group of expenses that are, typically would be considered shared, and they are certainly shared at the service level; but when you look at individual network elements, they are direct to the provision of the network elements. Now it's simply a matter of, as we are developing these cost studies, our initial approach was to define TELRIC more narrowly and have two factors, a shared factor and then a common factor,

but as the studies matured, it simply made more sense -- you know, these were shared at the service level but they were direct at the element level. So it simply made more sense to present these costs as direct costs within the TELRIC itself and have a single common factor.

Q Okay. So let me understand it. As I read your direct testimony, you had direct costs. You had a shared cost factor, and then you had a common cost factor. And essentially the change that you describe in your supplemental testimony takes those costs that were shared at the service level and attributes them back directly to elements at the element level; is that --

A Not the entire -- not all is shared costs.

Q Okay.

A But the majority of them were directly attributable to individual elements. They are shared at the service level, but they are direct at the element level.

Q Okay. What happened in your final study methodology to the shared costs that were not directly attributable at the element level?

A They are dropped out of the study. They are not included in the cost at all or the price.

Q Okay. Can you give me an example of a type of cost that might fit that description?

A Yeah. The best example is something like land and buildings. If I'm doing a TSLRIC study of a service, like a custom calling feature or even a residential service, I would never include land and buildings in that study because I don't need land and buildings to provide a residential service. I don't need land and buildings to provide a custom calling feature. I don't need additional land and buildings to be more accurate; however, you are looking at the individual network element, I'm now talking about providing something called local switching. Switching is a network element and basically consists of, you know, in our case, in most cases, a DMS-100 switch. You can't set a DMS-100 switch out in the field; it has to have land to sit on. It has to have a building to protect it from the environment.

So to provide a network element it's absolutely essential to have land and buildings. It is incremental to a network element; it is not incremental to the service. It shares the service, but it's direct to the network element.

Q Okay. Then I thought you told me that most of that pot of shared costs got directly attributed back to elements but some things did not. Can you give me an example of one of the things that fell out of the analysis, that didn't -- shared costs that didn't get attributed

back?
A Taking you back to land and buildings. The land and buildings in which a central office resides, that would be a direct cost. The land and building which I work on, being a corporate staff person, that would drop out of the study.
Q Does it drop out of the study, or is that over in your common cost factor?
A No, it drops out.
Q Drops out entirely. So while the original thought was you would have a direct cost times the shared cost factor, times the common cost factor, you now essentially have a direct cost times the common cost factor?
A That's correct.
Q Okay. Let's look --
MR. FONS: You said times the common cost factor?
MR. MELSON: Yes.
BY MR. MELSON:
Q Let's look in your exhibit to your supplemental testimony. Is there a page in there or a portion of that study that shows the derivation of the common cost factor?
A What was provided here, and under tab O, page 128 is really the summary of the -- it was a single study that calculated both the other direct as well as the common

expense factors. The derivation is not here. That is one of the items that has been asked for as part of the data request or interrogatories, whatever the proper term is, and we will be providing all the backup information that shows the derivations of the study.
Q Okay.
A I did bring, you know, copies here with me if you would like to get in that much detail.
Q Can we go off the record a minute?
(DISCUSSION OFF THE RECORD)
Q While we are on this page 128 of your exhibit RBF-3, is the other direct operating expense factor in Column E the factor that we have just been talking about that essentially took what at one point had been viewed as shared costs at a service level and directly assign them down at an element level?
A Yes.
Q Will the -- are there work papers to back up these figures, or is everything necessary to calculate them shown on this page?
A No, there are additional backup papers.
Q And is that part of the thing that we are having copied?
A Yes.
Q Okay. Is the same true of the maintenance

factors? Is there also some backup for that, or is all that, everything necessary to calculate that on this page?
A The backup I'm showing you just has the operating direct expenses and the common expense factor.
Q Okay. Let me focus then just on the maintenance factor for a minute, and let's just take the first line, loop, cable and wire. Column A is embedded investment. What is the source of the embedded investment figures in Column A?
A General ledger, that would probably -- it's year-end 1995 general ledger data.
Q Okay. And what is the source of the related maintenance expense?
A It would be general ledger, 1995 data.
Q And in the general ledger, are these amounts of maintenance expense directly associated with the related investment, or do you have to go through some analysis to make the association?
A They are direct.
Q And the maintenance factor is simply, if I understand it correctly, annual maintenance expense divided by embedded investment; is that correct?
A Yes.
Q Is the embedded investment gross, or is that net of depreciation?

A It would be gross.
Q Okay. Once you get the maintenance factor or you derive the maintenance factor on this schedule, does that get carried forward into some other factor or calculation?
A There is a maintenance factor in the annual carrying charge, and to be honest, I'm not sure if that's the same number that is being carried forward or not. These were done by two different individuals. I'm not sure.
(WITNESS REVIEWED DOCUMENTS)
A Those do not appear to be carried forward.
Q Do you know if they are carried forward into any of the other portions of the cost study?
A I don't believe so, no. All the cost studies use the annual charge factors that are shown on page 122.
Q All right. Do you have in front of you a copy of a two-page document we discussed a few minutes ago entitled "Summary of Other Direct and Common Expense Allocation?"
A Yes.
Q And is this the work paper that supports the 14.5832 percent common expense factor?
A Yeah, there are actually two. There are actually two documents that purport that -- that present this information. The two-page we are looking at now is kind of a summary, two-page summary of a much bigger study, and

that is the five very large pieces of paper which is also floating around here somewhere. They are actually two presentations of the same information, one with all the detail and one that has summarized information on it.

Q Okay. Let's wait then until we get the one with the detail.

How does the other -- The other direct operating expense factors that are shown on page 128, how do those get carried forward into subsequent pieces of the cost study?

A The other direct?

Q Yes.

A The other direct, Column E, these numbers are carried forward on to annual charge factors which are shown on page 122, and each study, so when each study -- Each cost study has an annual charge factor within it, and within that annual charge factor are these other operating direct expenses.

Q Okay. Let's take half a step back. In general, what is the purpose of calculating an annual charge factor?

A To determine the annual revenue requirement required to support an investment.

Q And what are the components of the annual charge factor?

A Well, again, it varies, depending upon the type

of study you are doing. For our TELRIC studies they included return, taxes, maintenance, depreciation, and then these other direct expenses.

Q And that annual charge factor is multiplied by an investment amount to come up with an annual charge?

A That's correct.

Q All right. Let's turn then, if we could, to page 122 which is the calculation of the annual charge factors, and let me just ask you to explain that piece of paper.

A Okay. The annual -- these are the, again, the summary of individual annual charge factor calculations, and I'll just pick out one here as an example. Under plant, the first row is switching.

Q All right.

A And what this is telling us is that our switching annual charge factor program assumed a maintenance factor of 3.3 percent of investment.

Q Which means that based on -- well, how was that maintenance factor derived?

A That would be actual 1995 experience off the general ledger.

Q In relation to the related investment?

A Right. It would be the expenses associated with switching divided by the investment associated with switching.

Q Why would that number here, the 3.39 percent, be different from the maintenance factor shown on page 128 for switching which appears to be 1.5485 percent?

A I'm really not sure. Again, two people, two different people developed this, the annual charge factor. I can speculate what the difference is, but I really don't know.

Q All right. I interrupted you. You were describing the maintenance column. After the maintenance factor has been developed, what happens next on this spread sheet?

A Okay, the second column, the results, that is really the annual charge factor before the other direct have been added. So this 24 percent includes maintenance, return, taxes, depreciation. And again, that is simply the result of the actual study; and again, the actual calculation is not shown on this page; it is simply the summary.

Q All right.

A The next column is simply showing what some of the inputs were into that derivation. For example, the M-A-C-R-S, which is the MACRS class of plant. I don't remember what the MACRS acronym stands for off the top of my head, but that is the life that is used to determine taxes for cash flow purposes. In this case switching is a

five-year class of plant. It simply means that for the calculation of taxes there is a specific defined depreciation schedule that is used to calculate the taxes, and that's the only reason that that number is in the study.

Q All right.

A The more important column is the next column, the ACF study life; and that is the economic life that we used for that class of plant. In other words, the actual investment was -- in this case, the actual switching investment is depreciated over an 11-year period.

Q So that -- I can't do the math with 11. That's about a nine-percent depreciation rate?

A Approximately, yes.

Q And the only thing the MACRS life was used for was to calculate the depreciation rate used in a sub calculation of taxes?

A Correct.

Q All right. Is the derivation of the ACFs, annual charge factors, in the column labeled A reflected in other work papers and documents? Are there work papers supporting that calculation?

A Yes, there are.

Q Okay. Is that something -- has the staff also asked for that in one of their discovery requests?

A I don't recall. They probably did, but I don't recall exactly.

MR. NELSON: John, do you know? I will confess, I have not read those.

MR. FONS: I have read them, and Randy is working on them. This is off the record.

(DISCUSSION OFF THE RECORD)

MR. NELSON: Back on the record.

BY MR. NELSON:

Q Mr. Ferrar, we were looking at page 122 of Composite Exhibit 3 and talking about the Column A which shows an annual charge factor that is the result of another calculation, and we've got now a three-page document, line 2 of the first page of which says "Carrying Charge Calculation, Digital Switching." Using that document, could you show me how one of these annual charge factors on page 122 is calculated?

A Yeah. First of all, I want to point out that the three-page document is actually, it's -- The three pages of the first one is years 1 through 5; second year's pages 6 through 10 -- years 6 through 10; third year -- third page, years 11 through 15.

Q Okay.

MR. FONS: Spread sheet.

A Yeah.

Q Okay.

A This is just a standard program we have written. It's a levelizer, and it simply allows you to -- I hate to use the word levelize again, but simply to recover a stream of investments and expenses given an assumed level of demand over any period of time with an assumed discount rate. What we are just doing here is just trying to come up with a generic annual charge factor, in this case for switching. So what we have simply done, in row 17B we have simply inserted a thousand dollars of switching investment. Again, we could have put a million or one dollar. It simply is, you know, a generic number.

Q All right.

A And some of the more important inputs, on line 25 you see 33 dollars, this is our 3.3 percent maintenance factor.

Q And that maintenance factor is --

A That's an input.

Q That's an input. And tell me, again, how that was derived. Never mind. We have been through that, and I now remember.

A Okay. Just to point out, the reason the one thousand dollars is in line 17B versus 17C or D is depending upon the MACRS class of plant. Since switching is a five-year class of plant, it appears in row 17B.

Q All right.

A And again, the model is flexible; it allows you to use different classes of plant with different types of investment.

The other maintenance inputs to the model, if you look up at the top section right here (indicates), you'll see the 11.25. We assumed the 11.25 rate of return in all of our cost calculations.

Q That is an after-tax cost of capital?

A Correct.

Q And is that the company's currently authorized interstate after-tax cost of capital?

A Well, we are on price caps, so I guess technically we don't have an authorized rate of return any more; but that is the current federal prescribed rate of return.

Q All right.

A I'm trying to think of the other major, but -- okay, and the other very major item is input line 13, where it says "Study Life, 11 years."

Q Uh-huh.

A And you'll see that we have demand of, again, one unit but it carries out for 11 years. And you'll see that in row 15 we have inputted demand. Again, it's a hypothetical one unit, years 1 through 11.

Q And what that means is that on line 28 there is a revenue requirement associated with that thousand dollars for each of the 11 years of its appreciable life?

A Correct.

Q All right.

A And again all this program does, it accumulates your expenses over an 11-year period, discounts them at 11.25 percent, does the same with demand, discounts at 11.25 percent; and it comes up with an annual revenue requirement. In this case, on line 30, it shows the annual revenue requirement of this hypothetical stream of expenses and demand of 224 dollars.

MR. FONS: Excuse me, I think it says 244.

A I'm sorry, what did I say?

MR. FONS: 224.

A I'm sorry, 244 dollars, and that is the annual -- and that is shown on line 30, and that's the annual revenue requirement required to support a thousand dollars of investment that appears in row 17B; and then we simply divide the two to come up with an annual charge factor of 24.4 percent.

Q On line 23, why does the debt and equity cost increase from year to year?

A I'm not sure. I would have to look into the bowels of the program to really figure out that

calculation.
Q And in calculating the present value of the revenue requirement, you used an 11.25 percent discount rate to match your total cost of capital; is that correct?
A Yes.
Q And is line 43 simply 244 dollars divided by 12?
A Yes.
Q Okay. So as you calculated -- back to page 122. As you calculated annual charge factors for each of the categories of plant shown at the top of the page, the inputs that really cause those ACFs to be different are the depreciable life and the maintenance factor? Are those the primary drivers?
A And to a lesser extent the MACRS life.
Q Okay.
A But the principle drivers would be the study life and the maintenance.
Q Okay. Now does the other direct operating expense factor from page 128 figure into the calculation of the annual charge factors shown in Column A?
A No.
Q I thought I had understood that the annual charge factors used in the studies did incorporate that other, or did I misunderstand?
A No, they appear later in the study. Column B,

again, looking on page 122. Column B is second from the right.
Q All right.
A That is where the other direct expenses come in. And then the very last column is the combined, and these are the actual charge factors that are then used throughout these cost studies.
Q All right. So staying with local switching, in Column B, you show 8.74 percent. That number ties back, I guess, to the switching line on page 128. And then do you simply add Column A and Column B to get the combined annual charge factor?
A That's correct.
Q And that is the number that is then carried forward and used for switching in your switching cost study?
A Yes.
Q We talked a bit about the after-tax weighted cost of capital of 11.25 percent. Do you know what Sprint's, either Sprint-United Florida or Sprint Centel Florida's last authorized after-tax weighted cost of capital was for Florida intrastate purposes?
A No, I don't.
Q Staying on page 122, the bottom of the page, can you tell me the purpose of the calculation at the bottom of

the page?
A Again, where --
Q Labeled combined OSP.
A Yeah. Ultimately, these are the -- this is the charge factor that is being developed specifically for purposes in developing the loop cost, and so what we are doing here, basically the very bottom right-hand corner here, that is the number that would be used for loop costs.
Q So you're taking the categories of plant that make up the loop and doing a weighted average type of process to get to a single annual charge factor for loops?
A That's correct.
Q And is that the reason that we've got blanks at the top of the page? For example, under the combined factors for some of the metallic cables is because they are incorporated down below in the loop cost?
A Yes.
Q Why do you start the development of the factor with a gross plant amount rather than a net plant amount?
A That's just traditionally the way annual charge factors are calculated on gross plant. You could, I suppose you could do a net plant; you would end up with the same answer. You would just come up with a different ratio, but you would come up with the same answer.
Q Why do you come up with the same answer,

conceptually?
A Well, again, if I would calculate my -- for example, if I would do a maintenance factor on net plant, it would just be a higher factor. And it would be a higher factor and a lower number, and you would end up at the same place.
Q On Exhibit RGF-3, page 122, do each of the other direct operating expense factors in Column B tie back, or intended to tie back to a number on page 128?
A Yes.
Q The one that I'm not seeing is circuit digital, 5.98 percent. Can you help me with that one?
(WITNESS REVIEWED DOCUMENTS)
A That is a -- that number is a weighted average, if you will, of other outside plant at plant elements. I'm not sure if the actual derivation shows on this page or not.
Q All right. Now let's go back again to page 128 and talk about the work papers that support the development of that 14.58 percent common expense factor, and we've now got two documents. We've got the one I referenced earlier called "Summary of Direct and Other Common Expense Allocation" and then a more detailed spread sheet entitled "Indirect Investment, Related and Common Expense Allocation." Using one or both of those, can you show me

how the 14.58 was derived?
A Well, let's start with the two pager.
Q All right.
A And you'll actually find that number on page 2, line 32.
Q All right. And if we can do the discussion without disclosing any confidential numbers, it will make it easier for us to use the deposition, so I'll try to keep that in mind. All right, I see the factor on line 32.
A And again, we can just go backwards. You can see that the calculation is actually line 22 divided by line 28 plus line 21. And, again, how much detail you want to get into here, I can just tell you on a high level what we do. We simply, we identify all the common costs in the general ledger. Those are primarily the 67 hundred accounts, plus a few others.
There is then, an allocation process occurs which we allocate -- some of those common costs are attributed or allocated, whichever verb you want to use, to non-network elements, so not all common costs are showing up in the study. And that can be shown on -- The result of that, if you look at line 26, you can see at the very far right, you see total unbundled with the 82 percent, and then the next column to the left is excluded, you see 17.59 percent. That means of all the identified common costs

17.59 percent were excluded from the study, and only 82 percent were attributed to the individual network elements.
Q And if I summed the columns on that same line, beginning with unbundled loop and running through collocation, would that come up to the 82.41 percent; is that --
A I'm not -- Yes. Yes, you would.
Q All right. Does the more detailed work paper show the allocation of specific dollars and specific accounts to these various unbundled elements?
A Well, they both do to a different -- Let me say, even though we go through the exercise of allocating common cost individual elements, the bottom line is it doesn't matter because we use the same common factor for all elements. So we go through the exercise of allocation, but it doesn't really matter, you end up with a single factor. We add them all up and come up with a single factor for all elements.
Q I'm scared to ask. Why do you do the allocation then?
A Well, the allocation is important for the indirects.
Q All right.
A Or I should say the other direct expenses. There the factor does vary by network elements, so we developed

the process for that; we just went through the math for the common. But again, it doesn't have any impact on the bottom-line answer.
Q Okay. Well, then let's, I guess then I should be looking at -- We just looked at common costs on line 26. If I look at other direct costs on line 25, that's where you took a hundred percent of the other direct cost dollars and allocated them to the various unbundled network elements and to the excluded items; is that correct? That shows the result of that allocation?
A Well, you're 98 percent correct.
Q Okay.
A This particular two-page summary excludes one column. When we start off with the entire general ledger account, the first thing we do is to eliminate all costs which have to do with marketing type functions, okay? And what we are left then with is a subset of the total GL accounts.
The first column on this two-page summary begins with the marketing expenses already excluded. So initially we eliminate a great deal of expenses by attributing them to marketing type functions. Of that remainder, we then eliminate another 28.37 percent in this process. So it's 26 percent of an already reduced amount.
Q Okay. And is this 28.37 percent going to be a

summary on a percentage basis of the accounts that are shown beginning on the top of page 1?
A Yes.
Q Okay. Just for simplicity, let's take the first line, plant specific operation expenses. You start, if I understand correctly, with a number that is not shown that is a general ledger balance for that expense area?
A That's correct.
Q You exclude the portion of that that relates to marketing, and the first column shown here labeled non-avoided expenses is the general ledger excluding marketing costs?
A Yeah, like I say, actually a better heading for that column would be non-marketing, would be a more descriptive -- we'll just say the marketing expenses don't show up in this particular group of accounts, but they show up in the 88 hundred accounts.
Q Okay. What process was used to identify the portion of the account that related to marketing expenses?
A Well, we used our avoided cost study which actually identified those marketing type expenses which are directly associated with the retail function, and again, those would be limited to product management, sales, advertising and customer services.
Q Okay. So are the same marketing dollars excluded

in this analysis that are excluded in your avoided cost study?

A Yes, they are.

Q Okay. What is the -- looking at this two-page document, "Summary of Other Direct and Common Expense Allocation," the first column is "Categories of Expense." What is the second column?

A That is simply a label, whether they are considered -- O, means other direct, C means common, D is a direct expense, and E is excluded; and that's actually defined right up there (indicates).

Q Okay. Let's take the first line, which is listed as an other direct expense. Taking the net avoided expense that appears in the first column, what process was used to spread that across the unbundled elements?

A There were various methods developed to spread these costs. Something like this -- Again, it really varied. It was really account by account basis. It may be spread on investment. It may be directly attributed to one of the accounts just based upon the definition of the account. There really are a variety of techniques that were used.

Q Is there anything that shows for each of these line items what technique was used?

A Yes, the five-page detailed report shows that.

Q All right. Focusing again on this first line, "Network Support," what does MV, SPV, OWE, GWE stand for?

MR. PONS: Motor vehicle. I think if you'll look at the five pager.

MR. NELSON: Oh, okay. Motor vehicle, special purpose vehicle, other work equipment, and garage work equipment, okay. Thank you.

BY MR. NELSON:

Q All right. Well, let's turn to the top part then of that larger spread sheet, and if you can show me how the various components of this network support account were allocated to the various functions.

A Okay, let's pick out the first one as an example. The first account is motor vehicle, account 8112. That was allocated to the various network elements based upon the allocation of the related investment account. In this case it would be the 2112 account.

Q 2112 is what?

A That is the -- 8112 is the motor vehicle expense. 2112 is motor vehicle investment.

Q Investment.

A So if we look down to wherever we find motor vehicle investment, that would be on page 4; and actually what happens first is first -- in this case the first thing we'd do would be to allocate the investment, and the

investment was allocated based upon the TELRIC investment. In other words, we have a TELRIC investment for each of our network elements that is developed in each one of our studies. It has nothing -- It is developed independently here. So if our studies ended up showing that, and these are purely hypothetical numbers --

Q Sure.

A But if 20 percent of -- If loop represented 50 percent of all our TELRIC investment, then 50 percent of motor vehicle investment would be assigned to loop. And then following that assignment, 50 percent of the motor vehicle expense would be assigned to loop.

Q Okay. So actually the first stage in the development of the other direct expense factor is to allocate the assets to the various unbundled elements as reflected on the fourth and fifth pages of this large spread sheet?

A Yeah. As far as the actual logic of the program, yeah, that would come first.

Q Okay. Let's stay on that page 4 for a minute and look at about five columns over.

MR. PONS: Which page is that, page 4?

MR. NELSON: Page 4.

MR. PONS: I wasn't sure what "that page" was.

MR. NELSON: I'm sorry.

BY MR. NELSON:

Q Page 4 which shows the allocation method and basis for allocation, we just looked at motor vehicles, and you explained that those were allocated based on the relative proportion of total TELRIC investment represented by each of the succeeding columns. Did I get that right?

A Correct.

Q Okay. The second row on this page, it says, "Allocation Method, Indirect Basis for Allocation TPIS." What does that mean?

A TPIS is an acronym for total plant in service.

Q Then excluded are asset accounts that were not -- well, that were excluded in your TELRIC cost studies?

A Correct, those are assets which are not associated with any of these unbundled network elements.

Q When we see an account number here, 2111, land, basis for allocation, account 2121, does that mean you simply allocate the land dollars in the same proportion that you've previously allocated the building dollars?

A Correct.

Q Okay. Building dollars in turn say they are allocated based on a usage analysis. Can you tell me what that was?

A Yeah, the usage analysis was a special study. It appears here on -- it's at the very bottom of page 5, and

that was simply an attempt, you know, to come up with a method of allocating building based upon -- again, there is some miscellaneous data here that the developers of this spread sheet came up with to allocate the building expenses. And what they are doing here is they are simply coming up with a single weighted average factor that can be applied to the building expense, and they are simply looking at central office, pair gain, garage, work center, microwave tower, general office, the categories listed there, and then using that to come up with a weighted average; and then that weighted average is used to spread the building investment expense.

Q Now are the numbers -- The investment numbers we start with on this page 4 of this spread sheet are labeled "Total Adjusted Regulated." First, am I correct that these are Florida specific numbers?

A Yes.

Q And does it include both United and Centel?

A Yes.

Q What is the adjustment? It says "Total Adjusted Regulated." What is the adjustment?

A In the case of Florida, I don't believe there was any adjustment. Again, this is a generic program that is used by all companies.

Q Okay.

A Since we are using 1995 data, some of our companies had extraordinary expenses that occurred in 1995, and they would be taken out of the study. I don't believe, to my -- I don't recall any adjustment being done in Florida data.

Q All right. Back to Page 1 of the big, the direct investment spread sheet, and let's look about half a dozen lines down, land and building again, 6121. The last two columns show total allocated expenses and total unbundled. Is the difference between those two figures what we were calling excluded when we were looking at the smaller summary?

A Yeah, in fact it's here. It's two columns over. There is the excluded column.

Q All right. Okay.

A And something I just want to, you know, volunteer, I guess.

MR. FONS: A clarification.

A If you look at the bottom of page 2, here you'll see the marketing expenses being physically removed from the original, basically the last half of the page. You can see the first column is the GL number. The second column are the marketing expenses which are being --

Q Where it says "Avoided Expense?"

A Correct, and again, a better heading for that

would be marketing type expense, but these are what is being avoided before we even begin this analysis.

Q All right.

A So the excluded is really -- there are actually more things that are being excluded than what are shown in the excluded column.

Q All right. So ultimately the big piece of paper allocates dollars of investment and dollars of expense to various unbundled elements, and in some cases a portion to other things which are called excluded?

A Correct.

Q Coming back then to the summary sheet, how do those allocations feed into the development of an other direct expense factor for each of the unbundled elements?

A And that calculation is shown on page 2, line 20. And again, it shows the calculation as actually line 21 divided by line 6, but that's the actual calculation there.

Q Okay. So the total other direct -- Just a minute. I lost my place. Could you answer that previous question one more time?

MR. FONS: Or have the reporter read it back.

MR. NELSON: Or have the reporter read it back.

(WHEREUPON, THE COURT REPORTER REREAD THE ANSWER)

BY MR. NELSON:

Q Okay. And let's look at each of the pieces of

that, line 21 divided by line 6. What does line 21 represent?

A Line 21 is the total other direct expenses, and as shown there that is actually the sum of line 3, line 12 and line 18. And, you know, what is really happening here is on page 1 everything that has an O in that second column is other expenses, and we are simply adding up all those rows of information and accumulating them here.

Q Okay. And then the rows on page 1 that are labeled common are the ones that are used then to derive the 14.58 percent figure?

A Yes.

Q And the ones that are labeled E for excluded are items that are -- none of which, none of the cost of which is assigned to any of the unbundled network elements being priced?

A Correct.

Q And the ones that are labeled D, and let's take central office switching for example, that's the first one that is labeled D for direct. Now is that non-avoided expense, non-marketing expense in the first column allocated out to the unbundled loop local switching, tandem switching, et cetera?

A Okay. Well, there are two things. We go through the exercise of allocating these direct expenses using the

same methodologies as we have already discussed, but those, they are not used anywhere. In the calculation of the common and of the other direct, these direct expenses are not included at all. The only purpose of including the direct expenses here by itemizing them is to make sure that we don't miss anything and also to make sure we don't double account.

Q Okay.

A But anything labeled direct is simply there to account for it, but those numbers are not showing up anywhere on the bottom line here.

Q Okay. So the ones that are labeled O for other direct show up in the bottom line in the other direct factor which varies by unbundled element?

A Correct.

Q The ones that are shown as common show up in the development of the common factor, but the way they were allocated doesn't make any difference because you are doing a single overall calculation?

A Yeah, and again that is something -- kind of as this particular model evolved, you know, at one time we were considering doing just that, coming up with a separate common factor for the different network elements; but again, that is kind of an oxymoron. By definition common is common. You can't really come up with separate factors.

It didn't make any sense intuitively.

Q I think I'm going to leave those spread sheets now. I probably spoke one moment too soon. Back on page 12B, show me for one of the items on this page in Column E, the other direct operating expense factor, where the corresponding number appears on the supporting work papers.

MR. FONS: Which number is that, Rick, that you're looking for?

Q Well, I found one of them. Let's take the top line, loop, capable and wire, other direct operating expense factor of 2.7B percent; is that --

A That will not appear on the two-page summary because the two-page summary rolls unbundled loop into one, so the detail -- you have to look at the detailed one to find those.

Q All right.

A Because the detail breaks the loop into -- well, it breaks into two, cable and the wire and circuit.

Q Okay. Then where on the two-page one will I find the 3.B425 percent which is the factor for loop total?

A That's on line 29 under the column unbundled loop.

Q All right. What is the significance of the little numbers in parentheses up at the tops of the columns on the summary, like the P3BB up above the unbundled loop?

A I don't know. It means something to the guy who put this together, but it's some sort of account code, I assume.

Q Okay. Just to make sure I understand it, page 13 of your testimony --

MR. FONS: Direct or --

Q Direct, I'm sorry. Lines 9 and 10 where you are talking about common costs, you say, "As with TSLRIC, TELRIC does not include common costs." There you mean TELRIC costing rather than TELRIC plus pricing?

A Correct.

Q Because the TELRIC plus pricing does include common costs through this 14-percent factor?

A Correct.

Q If you'd turn to page 7 of your direct testimony at line 9. Could you explain to me what is meant by that second bullet?

A That's incorrect. Where it says -- and again, as this model matured, we were varying our methodology. We are -- that should read, that last sentence where it says on a per unit basis, that should simply be on a percent basis. The word "unit" should be -- "per unit" should be "percent."

Q Okay. And that refers to the, again, to the 14-percent factor?

A Yes.

Q And again, just so I make sure I'm tying the testimony to the spread sheets, on page 10, your first principle for a TELRIC cost of service study was that prices will recover forward-looking costs directly attributable to the specified element as well as a reasonable allocation to forward-looking common costs. There you are simply citing to the FCC principle?

A Yes.

Q And in your opinion, the 14-percent factor represents that reasonable allocation?

A Yes.

Q Okay. What is the basis for saying that the 14-percent factor is based on forward-looking costs?

A Forward-looking always causes a problem to any analyst, and it always comes down, you know, the answer is my crystal ball is not working very well today. We are using the most recent information available, the 1995 data.

Sprint is an efficient company. When you compare the common expense -- the ratio of common expenses to total expenses for Sprint compared to any of the RBOCs or GTE, I believe we are the lowest if not the lowest, among the lowest compared to any other southern RBOCs or GTE. We have gone through many consolidations over the last ten

years eliminating common costs. When I started with this company 13 years ago, Sprint had nine operating regions. Centel had four. Those 13 operating regions have been reduced to four. That means we have lost nine operating companies, nine office buildings, nine presidents, multiples of nine vice presidents and directors. We have done a great deal of consolidation, and in our calculation of that factor, again, we did not put a hundred percent of common costs into that factor. We determined that a high percentage of those common costs are not attributable to network elements. So in lieu of a crystal ball, we believe this is a reasonable approximation of the common costs a forward-looking, efficient company would experience.

Q Okay. Let's go back to the spread sheet again because that is probably something I didn't ask. Show me an example where a portion of a common cost is excluded, and let's start with that. Show me one we can talk about.

A You want the total for common cost? You want an individual? What level detail do you want to look at?

Q Let's look at a line item if there is one that appears on the summary.

A Okay, on page 1, the fourth row, the general support furniture, office equipment, general purpose computers.

Q All right.

A You can see there, again, the difference between the excluded and the total -- between the total and the excluded.

Q Okay. How was the amount that went in the excluded column determined for that item?

A I'll have to check.

(WITNESS REVIEWED DOCUMENTS)

A It was based upon the sum of the TELRIC cost plus indirect cost, so the TELRIC cost and indirect cost of all the network elements, that was used to allocate common costs. Again, that was simply the broadest allocation base we could come up with.

Q I guess I understand if you've done a TELRIC cost for a series of network elements how you allocate among those elements based on their share of the whole. How does some part get allocated out to excluded, if you understand my question?

A Oh, okay. I believe it was excluded based on the percentage of the marketing expenses that were excluded in the very first step. If I recall, to the best of my knowledge, I'm not a hundred percent of this, but I believe it was based on that percentage, a percentage of expenses which were determined to be marketing related, that same percentage of common overhead costs were eliminated from the study.

MR. NELSON: Can we go off the record a minute?

(DISCUSSION OFF THE RECORD)

BY MR. NELSON:

Q Mr. Farrar, while we were off the record, we confirmed that it doesn't appear that that is simply based on the ratio of marketing to other expenses. Could we get a late-filed exhibit that indicates how the amount of expenses allocated to the excluded category was determined?

A Yes, we will.

Q And if that is different for excluded investment versus excluded expenses, if we could get both.

A All right.

Q Thank you.

On page 11 of your direct testimony, in paragraph numbered 4, is what you're describing there what has come to commonly be referred to as a scorched node approach?

A Yes.

Q And is that the approach that Sprint advocates for pricing unbundled loops?

A Yes.

Q Do you know whether Sprint's -- strike that. Let me start over again.

Is it true that the scorched node approach as reflected in the bench, the BCM 2 cost study that Sprint uses?

A Again, Mr. Dunbar is really the BCM witness. To the best of my knowledge, the answer to that question is yes, but he is really the better witness.

Q If I want to know more about scorched node, I should be talking to him?

A As far as how it is used in BCM, correct.

Q Okay. If I wanted to compare how it was used in BCM to how it was used in Hatfield, would he also be the person to talk to?

A Yes.

Q In the same paragraph on page 11, lines 9 through 11, there is reference to a reconstructed local network that employs the most efficient technology for reasonably foreseeable capacity requirements. As that was implemented in Sprint's studies, did that mean the most efficient technology for basic telecommunication services? Did it mean for a range of services, including broad band services? Can you tell me what it represented?

A Again, I would have to defer that to Mr. Dunbar.

Q Okay. On the same page, 11, item B, indicates that retailing costs such as marketing and customer billing costs are not included in the forward-looking direct cost of the element. I think I know the answer to this. Do those enter back into the calculation of cost indirectly through the common cost factor or one of the other

allocations?
A No, they do not.
Q Do you know -- I'm hopping around a little now because I'm sort of back to my list of questions.
The cost of money, the 11.25 percent after-tax weighted cost of capital, is that simply a weighted cost of debt and equity, or does it take into account any investment tax credits or other sources of, potential sources of cost-free capital?
A I don't know.
Q Is there one of the other witnesses in this proceeding who would know?
A Probably not.
Q You make reference in your testimony to the use of utilization factors or fill factors. How were utilization factors developed for use in the studies?
A They varied from study to study. The switching study used the SCIS model, and how the SCIS model does is you input, I believe it's three utilization factors at three points in time, and they are projected numbers, so they are forward-looking; and all the costs are then built upon those projected utilization factors.
For our transport model, which we are not quite done yet, but what we are doing there is we are taking existing demand and then growing it over a five-year period

or something like approximately 40 percent and then taking the mid point of that growth rate and then using that demand to recalculate fill factors. It's really not -- for things like a MID where it's a one for one type thing. You know, demand really doesn't come into play because, you know, it's one for one, you are really not forecasting anything; but you know, those are the two main examples.
Q If I wanted to look at fill factors for the components of a local loop, loop feeder, loop distribution, would that be something that I should talk to Mr. Dunbar about?
A Yes.
Q Okay. And is it your understanding that is done internal to the BCM 2 model?
A Yes.
Q What was the source of the economic lives that you used in developing your annual charge factors?
A There was a study put together by a Texas consulting company called Technologies Futures, Incorporated, and they did a study for an industry work group, I think it was last year sometime; that that was a source of our economic depreciation lives.
Q Did you take your lives directly out of that study, or did you make some adjustments to them?
A As I recall, for several of the elements, the

study gave a range of maybe like nine to eleven, and we picked a number that was in that range.
Q Back on the confidential exhibit.
MR. FONS: The two-page?
Q The two-page summary of other direct and common expense allocation. How was the decision made as to how to categorize line items as either representing common costs, other direct costs or direct costs?
A Generally, anything which was being picked up in the annual charge factor program, maintenance, for example, would be considered a direct, and again, to make sure it was not getting double counted and getting picked up in any one of these other factors. Common is pretty much just limited to the 67 hundred accounts with a few -- there are a few exceptions to that, but basically the 67 hundred accounts are common, and anything else would be other direct with some exceptions.
Q Okay. What is a 67 hundred account?
A That is a general ledger account that includes all the corporate overhead expenses.
Q I would like to ask you to take a minute and review the question and answer that begins on page 41 of your direct testimony, and what I'd like to know after you've reviewed it is what portions of this description would change because of the way you are now handling the

other direct expenses.
(WITNESS REVIEWED DOCUMENTS)
A For example, on page 43, line 4 where I say shared expenses, you know, we would now consider those other direct. On page 44, line 14 where it says, "The following investments are considered shared," most of those would just be considered direct now. A few may have ended up common, again, depending on -- I can't swear for every detail, but most of those would be, you know, most of those would be considered direct, not necessarily all of them.
Q And we could determine which ones by looking at one of these confidential spread sheets?
A Yeah.
Q Okay.
A And then beginning on line 21 of page 44 where I describe the third step, there are, you know, that step is now done twice, once for the other direct and once for the common; so there's kind of two different things going on there. And like I said before, we really -- we do allocate the other direct to individual network elements. Common is left as a single factor for all network elements.
Q So two sets of allocations are done, but the only one that makes a difference to your study results is the allocation that you do for the other direct?
A Correct.

Q Okay.
A And then the answer to the first question on page 45, that answer is no longer appropriate. The indirect is -- I'm not sure how I would word it actually, but the indirect is now a part of the TELRIC annual charge factor. That TELRIC result is then multiplied by a common factor.
Q Okay. The next question is a pricing question. I'm not sure if it's yours or not, but let me try. For the unbundled network elements for which you did cost studies, was the price proposed for each of those elements equal to your TELRIC plus your 14-percent common cost factor?
A For all those elements for which we had a TELRIC study, yes.
Q Okay. And at this point what are the -- can you tell me the elements for which you don't have a TELRIC study at this point or refer me to the --
A Yeah, at this point in time, when we filed the original document, we did not have transport done yet, and we're closing in on transport. We hope to have that done by the time of the actual hearing, so we will be submitting that. In fact, the cost studies are done; the rate development is not finished yet.
Q If you've been pricing at cost plus, plus the reasonable allocation, what pricing function is going to take place?

A Our transport methodology, which I don't believe I discussed anywhere, what we are doing is we are looking at each individual SONET ring in determining a cost for each SONET ring; and there are, I believe, in excess of one hundred rings in the State of Florida. The State of Florida is our largest operating company.
We then for each transport route have to develop a cost, which is a function of these multiple rings. In other words, an individual route may traverse multiple rings, so there are hundreds of rings and many hundreds of different transport routes, so it's a matter of simply taking hundreds of data -- hundreds of costs for each of these rings and developing rates for individual routes and then banding them or putting them into zones, so it's quite a laborious process.
Q So you are going to have geographically deaveraged rates on a -- each route is going to fall into one or another geographically deaveraged band?
A Again, you know, we are not done yet, so I don't know exactly what it is going to look like, but it will vary by various rings. How whether it is route specific or banded, I'm really not sure.
Q Okay. Do you have any idea of -- any closer idea than before the hearing when the network is going to be finished?

A I'm not doing the work, so I can't make promises for anybody else.
Q Somebody in Mr. Hunsucker's group doing the work or --
A No.
Q Okay. Who is doing the work?
A When the cost is presented, I will be the witness for the cost studies.
Q Okay. All right. Is it correct that Sprint has not done a cost study for unbundled loop distribution?
A That's correct.
Q Okay. And why is that?
A We are not opposed to loop subelement unbundling, but we simply believe that it should be done on an individual case basis.
Q Have you developed a methodology for establishing individual case basis costs or prices?
A No.
Q I've now got a series of questions that are going to go to the piece of your testimony that describes your cost study methodology for the individual unbundled elements and, hopefully, the related cost studies as we go through. I'm not going to do all of them; I'm going to do several of them. The first one though is local loop, and so there will be some questions about BCM 2 and answer them

if you can, and if Mr. Dunbar is the better one, let me know.
At the top of page 22 of the direct testimony, you say the two relatively easy modifications to BCM 2 can be made to produce the TELRIC of an unbundled loop. Why do modifications have to be made to BCM 2 to produce an unbundled loop cost?
A BCM 2 was written for universal service considerations; it was not originally written to be an unbundled element study. As a result, it uses some industry average information that is not appropriate for a TELRIC of an unbundled element. It also has switching costs included, and we are not using the BCM 2 to determine unbundled switching costs.
Q Would it be accurate to say that BCM 2 produces a cost for local service and you are modifying it to get out of it the cost of the unbundled loop component?
A Let me try to answer your question in a round about way.
Q Sure.
A Again, BCM 2 was not written originally to develop unbundled network elements. We are taking the engineering modeling portion of BCM which determines the engineering costs of loop investment and we are taking that portion of BCM and then using it to determine the TELRIC

cost of unbundled loop.
Q Okay. Would it be theoretically possible to isolate the switching cost, for example, in BCM 2 and use that as a basis for estimating the TELRIC of switching?
A Switching is a very difficult network element to cost, and both BCM and Hatfield take very high level broad stroke approaches to switched costing simply because all the switching information is proprietary and the vendors very jealously guard that information, and there is simply very little public data for either BCM or Hatfield to use. We rely upon the BellCore SCIS model to do our costing at the unbundled switching element.
Q Why did you choose to use BCM to produce unbundled loop costs rather than a Sprint Florida specific cost study?
A Well, the way we are using BCM 2 is Florida, Sprint Florida specific. We are using Sprint Florida specific loop investments as determined by BCM, and we are using Sprint Florida specific annual charge factors. I believe BCM 2 was better than any of the alternatives, and there are alternatives out there. There are several accounting models. We have one, for example. BellCore has an LCAT, but it's an accounting model; it's not an engineering model. In the sense that SCIS is an engineering model, BCM 2 is an engineering model. It

builds an efficient network. Whereas, the accounting models, you basically tell it what the cost is, it slices and dices and tells you what the cost is.
Q Does the BCM 2 use, normally use what I'm going to call nationwide type of input numbers for cables, structures, that sort of thing?
MR. FONS: I'm going to object to this line of questioning. I think it's more appropriate for Mr. Dunbar because I think he has testified as to what is included in that.
Q Okay. On page 22, you talk about it being necessary to isolate loop investment in BCM 2. If I wanted to ask about the mechanics of how that's done, would that be you or Mr. Dunbar?
A Mr. Dunbar.
Q Okay. If we could turn for a minute to your loop cost study, which is Part A of Exhibit RBF-3. Is it correct that the approach used by the loop cost study was to take the outputs of the BCM 2 model for each census block group and basically group them into rate bands and determine an average cost within each band?
A Correct.
Q And then that cost was adjusted by your common factor to develop a price?
A Correct.

Q Were the annual charge factors that we discussed earlier used in any way in the development of the loop prices for unbundled loops?
A Yes.
Q Okay. Walk me through this exhibit and show me how, please.
A The annual charge factor that was used in the loop studies appears on page 122. It's the 20.88 percent.
Q Okay.
A Now that number probably does not appear anywhere in Tab A in the sense that that is an internal input to the BCM model that was used to generate these costs.
Q Okay. So you developed the 20.88 percent in essence and gave it to Mr. Dunbar who used that as one of his inputs into BCM 2 to produce the costs that are shown beginning on page 7?
A That's correct.
Q All right. What does it mean to be -- Could you give me an executive level summary of the way you determined the eight bands for loop pricing and the way you --
A It might be easier to just draw a picture.
Q That would be fine.
A We are faced with the problem that we have hundreds in Florida, probably -- I don't know how many

thousands of CBGs, and we need to come up with a way to come up with a manageable number of bands. What we did is if you just do a little cost scale where zero cost, you know, and infinity cost. We simply determine the cost of each CBG, and basically you would plot them on this line here. And you have lots of loops within certain price ranges, and as you get out here in the Everglades you get very few but very expensive loops.
What we did then was to basically begin, and it's not a contiguous, you know, we don't see contiguous. There may be some CBGs -- in this case three CBGs lumped together have very similar costs, and then there is going to be a gap in the data, and then some more CBGs will appear.
Again, what we do is we begin grouping these CBGs into five-dollar windows, and granted, five dollars is subjective. We could have used six-dollar windows; we used five-dollar windows. And we decided to stop grouping when we reached approximately 80 percent of the loops. Simply, what that basically means is that all of these outliers become a band of their own. And then what happens occasionally is that even though you have these nice little bands here they are not contiguous, and occasionally you get kind of a lone wolf sitting here.
And what we then do is adjust these bands. If these are nice little five-dollar bands, we will simply

extend these to make them contiguous, and we now pick up the lone wolves, but then so we end up -- that's how we end up with our bands. And the number of bands, number of bands varies by state, and it varies by, you know, again, just depending upon how the cost of distribution -- depending upon the cost of distribution.

Q All right. Network interface device. On page 25 of your testimony, you describe several ways that a connection or that a NID might be unbundled. Is connecting a CLEC loop to an unused terminal in a Sprint NID one of the methods of unbundling that is described here on the bottom of page 25?

A If there was an unused terminal on a NID?

Q Correct.

A Yeah, we would, you would have access to those. Yes, you would have access to that.

Q Okay.

MR. FONS: To that terminal?

THE WITNESS: Yes.

Q On page 26 of the testimony, in describing the first step of the TELRIC methodology for NIDs, you talk about an EF&I cost includes actual equipment, vendor price, installation and engineering cost. How are the installation and engineering costs developed or estimated, and is that shown at all in the cost study?

A The engineering probably does not apply to a NID. And again, EF&I is kind of a standard acronym.

Q Okay.

A There probably is no engineering cost associated with a NID. The installation cost, again, in the case of the NID, what you'll see here under the column for labor hours, you'll see zero dollars.

Q So we are on page 53?

A Yeah, I'm looking on page 53, right. Under the column "Labor Hours," you have zero dollars. In this case you are picking up that charge through the non-recurring so we zeroed it out here to avoid double recovery.

MR. FONS: Just so the record is clear, it's page 53 of MGF-3 that he is referring to.

Q Staying on that same page for a minute, about halfway down the page there is an ACF, annual charge factor, for a weighted drop of 41.78 percent.

A Yes.

Q Does that tie back to a number shown on page 122 at all?

A Yes and no. You have to start with page 56.

Q Okay.

A And this is a weighted average of two annual charge factors. Well, you see there a 46.77 percent and a 48.98 percent, and there is actually a calculation behind

that as well. The 46.77 is a sum of 36.86 and 10.71, and those numbers will tie to that exhibit you are referring to. The 48.98 is equal to the sum of 38.27 plus 10.71. And those numbers will appear in the bottom half of the page in Columns B and in Columns D.

MR. FONS: What page are you referring to?

THE WITNESS: I'm on page 122.

A 36.86 is the third number down, and the 38.27 is the fifth number down.

Q Okay. Let's turn to the local switching cost study. How did you determine the number of rate bands to use for local switching?

A Again, a very similar approach that we just discussed was used for switching where we had the switching cost of each individual exchange in Florida, and we put them in a similar distribution, and then, again, we began banding them. And this time the rule was that we did not want to have any individual exchange to be more -- we did not want the cost of any individual exchange to be more than 18 percent of the average cost of the band that it falls within. Does that make sense?

MR. FONS: Uh-huh.

A Should I draw a picture? It might be a little easier.

Q Let me think a minute. I think I understood the

words. So that each band would have at a minimum of ten exchanges in it?

A No.

Q No. Could you draw me a picture?

A Yes. Again, the same idea, but we simply laid down all of our exchanges somewhere on this line.

Q Okay.

A And then we began to -- this is some subjective. And the idea here is we want a 18-percent window on either side, so actually you have a 28-percent window. But generally what you want to do is you come up with bands such that the average and the extreme is within 18 percent.

Q Okay.

A So you have a 18-percent window on either side, and again, it's not a -- there are a few instances where, again, because the distribution is not going to be even, you are going to have some lone wolves out here; and when you make the bands contiguous, you are going to have an occasional lone wolf that might be 12 percent or something like that, but it's the same principle.

Q Okay. This is the one I'm scared about. Could you turn to page 61 of 122, and if you don't mind, let's use Leesburg, the first appearance of Leesburg, which is about ten lines down and simply because that is the one I highlighted and tried to play with.

Can you explain to me what each of these columns show and how the calculation that runs across the Leesburg row is performed?

A Okay. First of all, I want to point out that there is a labeling error on this exhibit.

Q Okay.

A And basically all the headings, wherever you see the word "rate" it should say "cost" with the exception of the very right-hand column. So whenever you see rate, it really means cost.

Q Okay. First, what is the first column? It says In and out.

A Well, actually, we need to explain it. Actually, again, Leesburg, the first column is the name of an exchange for which we have a specific SCIS study for.

Q Okay.

A Okay, in it we have, for each exchange -- for each office we have studied we have two separate costs, a cost for the host office and any remotes which lie within the host office exchange. Do I need to draw a picture, or did that make sense?

Okay. The second cost was for remotes physically associated -- remotes physically associated with the host office but which lie in a different exchange or maybe an exchange of their own, and they have two different cost

characteristics.

What this is telling us here, the in and out simply says it's the cost -- in this case, Leesburg in means this is the cost of all the host and remote lines within that exchange. There may be, and there is, about five or six lines down on Leesburg, it says out; and this is the cost of the remotes that lie outside of the Leesburg exchange but are physically attached to the Leesburg host.

Q All right. Now you said column 1 was exchanges for which you had SCIS studies. Are there some exchanges for which you do not have?

A Yes, there are.

Q How were they treated?

A A surrogate was developed. Basically we just simply tried to find an exchanges which we did have a study which had the closest physical characteristics. There is a couple of reasons why we would not have a study. One, for example, we only have the DMS version of the SCIS model. We have several SE offices in Florida. We don't have the ability to model those. And also, prior to the merger, the United companies we had pretty much modeled all the DMS offices with a merger to Centel. There were several Centel offices which, you know, simply had never been modeled.

Q Okay. When you say you tried to find, I'm going to call it a proxy, a switch that would be a proxy for the

one you didn't have model results for, when you say the same physical characteristics, what did you mean by that?

A For example, a similar number of lines would be the one obvious thing to look at.

Q Any consideration to amounts of traffic?

A I would presume so, but again, I did not make that decision, so I really can't say.

Q Okay.

A Okay, the third column is just the four-letter CLLI code of the office. The next column is simply the total minutes of use associated with that office.

Q And for what period?

A I would presume for it to be for the calendar year '95, but it would -- well, actually, I'm not sure. It would be the most recent 12-month period available. Again, I can't swear when that was actually counted for.

Q Okay. Is that --

A And actually this is -- I'm sorry, that's probably more, that's a -- Actually it would probably be on a per month than an annual number; it's probably a per month number.

Q Okay. And I take it that number is not an input to SCIS at all?

A That's correct.

Q Okay.

A The next column is simply the number of lines. The next column, this is the port cost which comes directly out of the SCIS model.

Q Okay.

A Okay, Column E is the cost of a minute of use as developed in our switching model which we have the acronym SWIM for, and what the SWIM model does is to take the total SCIS investment and to develop a cost per minute of use based upon the SCIS investment and actual minute of use data on the switch; and those results are summarized on pages -- and these were filed under proprietary. These were filed as pages 63 and pages 64 and pages 65.

Q Okay. Just a minute. Looking at page 63 -- Let's look at page 61 which has got numbers that are not confidential.

A Well, I guess actually -- that column is actually a proprietary number.

Q Not any more.

A Oops.

Q The port cost is an output of SCIS?

A Yes.

Q Okay. And if I understood correctly, the next column, the local switching cost, was an output of the SWIM model?

A Well, yes and no.

Q Okay.
A There is -- and you don't have this, and this is something we will be submitting as part of the data request. There is an additional step that takes the SWIM model results, does some weighting and slicing and dicing to get this column here. And what that is, it's a two-page summary, and there is one for each exchange studied. And again, it takes the output of the SWIM model because the SWIM model gives you -- it breaks up the office into line side costs and trunk side costs, and then there is an intermediary step that takes the number of trunk side minutes, the number of line side minutes, does the appropriate weighting and then gives you the average cost which is in this Column E.
Q Okay.
A So actually those numbers -- they are not the exact numbers that are from that proprietary page.
Q We've got a SCIS model. We've got a SWIM model. We've got some slicing and dicing of the output of SWIM. Can you take me back to SCIS and again give me sort of an executive level summary of what type of information goes in and what type of information comes out and where does it go next? I'm trying to understand that process.
A Yeah, if you look at the five-page exhibit which begins at page 66, this is a high level summary of the SWIM

model.
Q All right.
A And what we do here is we take the --
Q These numbers are confidential, so don't say any of them out loud.
A The numbers at the top of the page, those are the actual investments that come out of the SCIS model. In this particular example I'm looking at one exchange, West Kissimmee.
Q Okay.
A And these are the investment numbers that come out of that SCIS by six or seven different investment categories.
Q And six or seven different investment categories for --
A For the switch.
Q And then subdivided into three, spread across three categories?
A Correct.
Q Okay.
A Yeah. Because, again, the model gives you separate costs for the host office and for the remotes, and then again, we are making a distinction between remotes which lie within the host exchange and those which lie outside of the host exchange.

Q Okay.
A At the bottom of that page, these are the actual number of call attempts and actual minutes which are associated with this exchange in the appropriate categories.
Q What is the difference -- You used earlier the terms "line side" and "trunk side." What is a line side minute, and what is a trunk side minute?
A Okay, the central office, this is my non-engineering description of a central office switch. The line side of the switch are those things associated, the usage associated with the access lines themselves. And then after we're talking about the equipment, we are talking about line concentration modules and -- line concentration modules and line group controllers, and then there is some DS-30 links, DS-30A links between the two. Those are the pieces of equipment we are talking about on the line side. The trunk side part of the switch is the usage associated with the trunks, the interoffice trunks.
Q Okay.
A So if I call my next-door neighbor, I'm just using the line side of the switch.
Q You are using two line side minutes?
A Exactly.
Q One going -- Okay.

A Exactly. If I call someone across town, I'm using a line side as well as a trunk side to get me to the interoffice network.
Q Okay.
MR. NELSON: The acronym on the top of this page is not highlighted, so I assume asking him what the acronym means is not confidential.
MR. FONS: Which acronym is that, BSI?
THE WITNESS: Okay, yeah. That is getting started investment.
MR. NELSON: Oh, okay.
THE WITNESS: That's a SCIS term.
BY MR. NELSON:
Q Okay. All right. What is the next sheet of this, 67?
A And this would show normally --
Q This is so secret that you can't even see it even if it's confidential.
A The trouble here are these numbers are proprietary to a third company, not us. They are proprietary to Nortel, and that is why we can't divulge them. They are not ours to divulge. But this simply shows you the number of milliseconds required to set up a different type of call. And again, on the line side, for example, this is the FULL acronym. This is -- if I call my

next-door neighbor, it requires some number of milliseconds to set up the call.

Q Okay.

A As well as, if you are going to record it, then there is some ANA associated with that as well, another -- This is simply talking processor utilization.

Q Okay. What is an octet?

A An octet is a unit of demand of the SS7 network, and it's eight bits of data or eight bits or eight bites or something like that.

Q Okay. On page 71, what does that term mean?

A At the time of this writing, we had not completed our SCIS costing of features, and I don't know if we'll have that finished by the time of the hearing or not. I didn't think to ask that question to tell you the truth. What we did, in lieu of having actual feature costs developed from the SCIS model, we came up with -- and this is purely a proxy. We simply took the average revenue per feature, that's a real number, and then we used a cost per feature that was developed for a different purpose, you know, several years ago. It was for a business case that we were doing for determining what are the cost of features, and we used those costs as a proxy of TELRIC costs. They are close, but they are not the real thing, and what we are doing here is simply coming up with looking

at all the features, coming up with a weighted ratio of cost to revenues, and in this case it's 22 percent, and we propose to use that as a proxy until we get the actual TELRIC SCIS studies done.

Q So you're saying, and this -- I have seen these numbers on another non-confidential exhibit, the 22 percent. What you are saying is that the ratio of the revenue from these features to the proxy cost, the cost from this other older study, is 22 percent?

A Yes.

Q Okay. And that's on a weighted average basis or a simple average basis?

A It would appear to be on a weighted basis.

Q Okay. All right. We are back on page 61 of exhibit REF-3, and we just talked about -- well, actually, no, we are not back there yet. We were in the middle of an executive level summary of what one inputs into SCIS and how it tracks through.

A Well, this is the SWIM model, this is an overview of the SWIM model.

Q Okay. All right.

A And we have gone through page 2. We go to page 3, which is page 88, again a confidential document; but this is the page where we simply take our investment, we factor it up for some internal engineering costs -- it's a

very small amount -- and then we take that investment, hit it with an annual charge factor; and those last three rows, these are the monthly expenses associated with each investment category.

Q And is this, is the annual cost factor on this exhibit 1 that has been developed back on page 122?

A Yes.

Q Okay.

A On page 4 or 5, page 88 of the actual document, this is where we determine the cost per call setup. And again, what we are doing is first we calculate the total number of milliseconds using the Nortel proprietary data times the number of call attempts, which is our own data, and we simply take that monthly cost which appears on page 3, and we divide monthly cost, you know, basically simplifying it. We are taking that monthly cost and dividing it by the total number of call attempts to come up with a cost per call.

Q Let me see if I understand this. You've got a total processor cost, and you're simply spreading that cost across the actual call attempts in proportion to the burden they put on the processor time?

A Correct.

Q Okay. We talked earlier about utilization factors. Does a switch utilization factor play into this

analysis?

A Implicitly, yes. As I said earlier, as you develop the model, you have -- you input three utilization factors at three different points in time. And the model uses those three points to forecast, if you will, utilization of the processor, so there is an implicit utilization in this analysis.

Q Okay. Is the processor investment based on the actual processor size in the end office that is being studied?

A No, not necessarily. No, we are assuming -- to keep our studies forward-looking, we are using current technology; and the current level of processor technology, the minimum level now supported by Nortel is called Supernode 88. And we assume a minimum of Supernode 88 in all of our offices, and in larger offices it may be greater, and it may grow.

Q So the three projection points of traffic in the office is used to decide whether you are using the minimum Supernode 88 size processor or using a larger processor or increasing processor capacity over the study period?

A Yes, and then the cost is actually a function of the average utilization based upon those three points.

Q And is that part of the calculation done in SCIS?

A Yes.

Q Okay. All right.
A Page 5 is analogous to page 4, but here we are taking the usage rather than the processor cost. We are now taking the line and trunk usage cost and again taking the monthly cost that was developed on page 3, and we are then dividing it by the appropriate number of minutes of use to come up with a cost for per minute of use.
Q Okay.
A And then the numbers, you can see they are in a box, what appears in a box on page 4 and 5. Those are what s -- we then summarize that for every exchange, and that is what you see on the three pages, I mean three- or four-page exhibit, 63 through 65.
Q Okay.
A Those are the numbers which come out of the SWIM model.
Q Do you know offhand what line number West Kissimmee is on the summary page?
A Yes, it's in the middle of the second page.
Q All right. And we've talked about page 71. Okay. Let me focus one more minute on this cost development process. What information goes into SCIS? Just by category.
A Basically all the -- you input number of lines, number of trunks, utilization; those are the main inputs.

Q Okay. And then SCIS models the operation of a particular type of switch?
A Yeah, in this case -- yeah, SCIS has a separate model for DMS offices, has a separate office for 5E offices. We only have the DMS.
Q Right. Okay. And then what outputs come out of SCIS? And if that list of outputs is confidential, then point me to something that isn't. I don't know if it is.
A I don't think -- That is basically the information you see on the top of page 66.
Q Okay.
A Those are the --
Q The total dollar -- total dollars come out of SCIS?
A Well, SCIS produces lots of outputs; this is one of the outputs.
Q Okay. This is one that you use?
A Yes.
Q Okay. Okay. Now back to page 61 of exhibit RGF-3, Column F, I guess.
A Okay, Column F is simply Column C times Column E, so this is simply the total cost.
Q It should say local switching cost?
A Yeah, should say local switching cost, right. Anywhere you see a rate of revenue, again it really should

be cost.
Q Okay.
A I'm going to Column G? That is a toughy.
Q If I were to look at West Kissimmee, would the number in Column F tie back to some number that came out of SCIS?
A No, what you would -- what comes out of our SWIM model eventually becomes Column E. Again, one more step in there.
Q Okay.
A But the SWIM model basically becomes Column E.
Q But if F is total minutes times a per minute -- total minutes times a per minute cost, why don't you come back to the same cost that came out of SCIS?
A Because SCIS is giving you costs by investment category. What we have here now is total cost per minute, so it's an aggregation of various SCIS costs.
Q But do all of -- I thought the purpose of SWIM, and maybe I'm misunderstanding, was to take investment costs and ultimately restate them on a per minute basis. Is SWIM doing something else beyond that?
A No, that's what it's doing.
Q Okay. Then I guess I don't understand why the per minute cost times the number of minutes wouldn't come back to the investment cost?

A Okay, because here we are looking at actual minutes. There are many reasons.
Q Okay.
A One reason is here we are looking at actual minutes. The SCIS costs are a function of this projected demand over a forecasted period.
Q Okay.
A So there is one of several reasons why the numbers aren't going to match up.
Q Okay. All right. Assumed MOU, how is that derived, or how was it developed?
A First of all, I want to make sure we understand what this whole page is doing. This page is developing the cost bands. I mean are we aware --
Q Right.
A Okay. What we are doing now is -- what we want to do is bill on a per minute of use basis. Okay, we do not have that ability right now; our billing system cannot do that. So in an interim we are coming up with these cost bands, and we will bill on a flat rate basis on a per monthly basis based upon average usage. Column G is that average usage, and we are saying that the average use per line -- per residential, business line is one thousand and 250 minutes.
Q And is that conversation minutes? Is that --

Define minute of use. It's a higher number than I'm accustomed to seeing, and I don't recollect the number I'm accustomed to seeing, what it represents, so I'm trying to figure out what is in 1258.

A These would be conversation minutes.

Q Okay. Local and toll?

A Not toll.

Q Not toll, just local?

A Local and -- local both intraoffice and interoffice.

Q Okay.

A And again, that number is developed on page 82 where we simply just take the minutes of all the offices, come up with an average. And then recognizing that that average includes trunks, PBX trunks and CENTREX trunks and key trunks which are higher usage, we adjust that downwards so as not to overstate the number of minutes on a typical residential or business line.

Q Now on page 82, you've got line minutes of use and trunk minutes of use. Is the 1258 a conversation minute, or is it two times conversation minutes, or is it some other number times conversation minutes? Am I making myself clear?

A I'm not sure if I understand your question, no.

Q Okay. On an interoffice call, a conversation

minute uses a line side switching minute and a trunk side switching minute.

A Correct.

Q Okay. The 1258 is in fact a conversation minute rather than some weighted average of line side minutes and trunk side minutes?

A Correct.

Q Okay. All right. Column H, combined cost, is simply the port charge?

A Yeah, that right -- let's see here. I believe that is actually D times E times G.

Q Okay. Port charge plus the minute of use cost times the assumed minutes of use?

A Correct.

Q Okay.

A And what was confusing to me the first time I went through this thing is we are including the port and the usage.

Q Okay.

A And to me they are separate, but the person who put this together combined them.

Q Okay.

A Because, again, that's the way we will be billing them in the interim.

Q Okay. And then the next three columns are just

the cumulative totals for the offices in that band?

A Yeah, again, this is where we are developing these bands trying to develop ten-percent windows, and that actual ten-percent window is shown in column -- Well, you don't --

Q Yeah.

A If you had a --

Q The column that is labeled "percent?"

A Percent D-e-v, percent deviation, to band cost, right.

Q Okay.

A And as you will see, there is an occasional line which exceeds ten percent. In fact, I only see one, I only see one exchange that exceeds the 10-percent rule. Again, this is one of those lone wolves which falls below bands and we need to throw it in somewhere.

Q Okay. And then the flat rate per band which is two columns from the right-hand side is the -- that, again, is the port charge plus the minute of use that is being converted to a flat rate?

A Correct.

Q And that then is multiplied by your common cost factor to develop a rate?

A Correct.

Q Okay. I think tandem switching is easier. Page

73, if I essentially look at the bottom of the page, is what you've done, you've taken total tandem cost divided by total minutes of use and just applied the common cost factor to that and come up with a rate?

A Yes.

Q Okay. And is the tandem cost a calculated number, or is it an accounting number?

A Again, the ultimate derivation is the SCIS model.

Q Okay. And --

A The calculation is virtually identical. That answer is not correct.

Q Okay.

A In tandem switching we are not using SCIS. In tandem switching we are using existing rates as a proxy.

Q So the first column here, tandem switching minutes of use rate, is an existing rate?

A No, my first answer was right. No, okay, we are not using proxies here.

Q Okay.

A What we are doing is we are taking the trunk rates that come out of SCIS, the same trunk rates that are used in the local switching study. We are taking the trunk side costs and using those costs to develop a tandem rate because a tandem call is by definition interoffice. It's a trunk to trunk call.

Q Okay. So the --
A Yeah, that's -- again, we have another. That should be the costs.
Q Okay.
MR. FONS: You're saying on page 73 of 122, the column that says "Tanden switching minute of use rate" should read "Tanden switching minute of use cost?"
THE WITNESS: Yes.
Q And looking at West Kissimmee, for example, that tanden switching minute of use cost, two times trunk, CCS plus trunk setup, I could calculate -- I could see the components of that by looking on page 85 or page 86?
A You'd see them on page 84.
Q Okay. Turn to page 77, which is the local switching interconnection rates. I missed something. Okay. Page 76 is called "Call Termination." What is call termination? Would you define that for me?
A Yeah, that's the reciprocal compensation between carriers.
Q Okay.
A And again, here -- well, let's see, no, wait a second. No, these are rates here. These are bands.
Q Is call termination made up of more than one element, more than one function?
A Yeah, it would be the line and trunk.

Q Are the costs for the line switching associated with call termination the same as the costs that we have just looked at for line switching?
A Yes, the cost components are the same, but the end results can be different because we are looking at different call types and different call patterns, but the cost components are identical.
Q Okay. And let's turn to page 77 through 79. Again, you grouped these into bands?
A Correct.
Q What was the -- was this, again, the no more than ten percent plus or minus standard?
A Yes.
Q Okay. On page 88, and again, I'm looking at Leesburg and simply because that is the one I had highlighted, should Column D be cost?
A Yes.
Q Okay.
A And again, all these should be cost with the exception of the final column to the right.
Q Okay. Why is the cost in Column D for Leesburg different from the cost for Leesburg in Column E on page 81?
A Because it's a different combination of call types. For example, for local switching we have

intraoffice calls from calling my next-door neighbor, so it's a different type of call from call termination. Call termination is always going to be -- it's a call coming from another carrier. We have a trunk side termination and a line side termination; that's what it is always.
Q Okay.
A Wherever there is local switching, there are many more possibilities.
Q Okay. In local switching, if you'd studied interoffice local switching -- if you'd excluded intraoffice calls, the numbers would be the same, the costs would have been the same? Can we go off the record a minute?
(DISCUSSION OFF THE RECORD)
Q Would you turn to page 88? Unless I'm mistaken, I've seen a page -- we have already talked about a page that uses this format when we were looking at levelized. Okay. Is this a levelization or levelized calculation for the SCIS switching?
A SS7?
Q SS7.
A Yes, it is.
Q Okay. But instead of doing it on a per unit basis, you are starting with an actual dollar amount or an actual dollar investment on line 17?

A Yes, and an actual demand on line 15.
Q Okay. Page 84, which is confidential, how do the numbers on this page -- do the numbers on this page feed into page 84 or 85 of the study?
A Okay, page 84 will be a stand-alone rate for the port. What is shown on page 85 is the stand alone rate for, you know, the usage portion of the trunk.
Q All right.
A Now indirectly they do feed into page 86. Specifically on line 43 where we have the total -- Is 43 proprietary?
MS. KHAZRAEE: It wasn't marked proprietary.
MR. FONS: Not anymore.
A Okay, on line 43, the one thousand 384, that is split between port and residual, and the 435 dollars you see there comes from page 84.
Q Okay. And the residual is then what feeds the per trunk per month, the usage pricing?
A Right, the residual is used to calculate the number on line 48.
Q Okay. On page 84 what is the meaning of Column D, the numbers in --
A Give me the heading. I don't have them A, B, C D; those are yours.
Q Oh, I'm sorry, the fill percent.

A Fill percent?
Q Yeah.
A Okay. This is the current average utilization of these pieces of equipment.
Q Okay. And then what is the meaning of link utilization factor which is one of your rows?
A I believe that's just a typo. I believe that is just the charge factor.
Q Oh, the annual charge factor?
A Yeah. I believe it's just the annual charge factor. I think that might be some mislabeling. Yeah, I don't know, that is just an annual charge factor. There is just an error on that form.
Q Okay. Does that come from one of the -- it's derived from other numbers on the annual charge factor page?
MR. FONS: Are you expecting an answer to that statement, or is that just commentary?
Q Does that number appear on the annual charge factor page?
A It's equal to the sum of 24.42 percent which does appear on that page and 5.8 percent.
Q And what is the 5.8?
A The 5.8 is, I think that was the same number that we couldn't find earlier, if I remember right.

Q Would it be fair to assume that the 5.8 is some sort of other direct operating expense factor?
A Yes.
Q Okay. The last cost study I want to look at is the one for directory assistance data base listing service, page 94. And if you could explain to me the calculation on page 97 of the five cent cost figure.
A Okay, and again, there are a couple of fact -- The 157 thousand, the second number there, again, this is -- The person who put together this exhibit did not show a factor, but then that is simply the other direct factor from the exhibit. And again --
Q That would tie back to a number on one of these?
A Yeah. He just has the calculation without showing what the factor is.
Q Okay.
A The same with common cost, that is just using the 14-percent factor.
Q Okay. Explain to me inward and outward movement on the bottom of the page and what their significance is for this calculation.
A That is the inward movement or new access lines, people moving into the territory. Outward movement are people disconnecting service and moving out of the territory. And we are assuming that there would be an

additional piece of information required.
Q Okay. And the five cents is essentially a per piece of information cost?
A Yes.
Q When you provide a data base listing on magnetic tape, if it contains two hundred thousand entries, it's a nickel times the two hundred thousand entries?
A Yes.
Q Okay. On page 35 of the direct testimony, a minute ago we looked at the DSV switch and looked at the levelizing program and page 36. I guess on the top of 36 is a description of that program. Am I correct that that program is used in the development of annual charge factors for the other unbundled network elements that you studied?
A Yes.
Q Okay. Have you done any comparison of the cost results of your studies to the cost results produced by the Hatfield model in this proceeding?
A No, I have not.
Q Okay.
MR. NELSON: Can we take a couple of minutes break? I've still got wholesale costs to do, I don't think it's going to take long, but I forgot that page here at the end.
(BRIEF RECESS TAKEN)

BY MR. NELSON:
Q At long last I'm going to leave the pricing of unbundled network elements and move to pricing discounts. Is it a fair characterization that you generally agree with the FCC's wholesale pricing policy but disagree with a couple of particulars as to how that policy is implemented?
A Yes.
Q On page 47 of the testimony, direct testimony, lines 5 through 8, you describe that you identified and reviewed expenses at a seven-digit sub account level to determine whether they are avoided or non-avoided. How was that judgment made on an account by account basis? What went into that? And if referring to either your user guide or your study would help, feel free?
A You know, again we looked at each seven-digit sub account, and there was a team, if you will. You know, it wasn't something I did in a vacuum. There was probably, the main core group had about eight people in.
Q How many?
A Probably around eight people. And we went through account by account. Is this something which is associated with retail activity? And if the answer was yes, then we considered it an avoided expense. If the answer was no, then it was not avoided.
Q So it was basically a judgment call by individual

members or the entire team looking at the functions that are recorded in each sub account?

A Yes.

Q You also say at page 47, and I guess this applies to accounts where there were -- accounts which were not totally avoided but an activity-based study methodology was used to identify the appropriate levels of appropriate expense. What do you mean by an activity-based study methodology?

A Well, we never -- I won't say never. We tried not to rely on broad allocators like investments or revenues to spread avoided costs. If we had an amount of dollars which was avoided and we wanted to spread it to individual products, we attempted to find an activity driver. An activity driver would be, for example, some of the obvious ones, for product management. You have, you know, a thousand dollars of avoided expenses for product management. Well, you know, you could spread it on revenues, you could spread it on expenses, but those have nothing to do -- you spend product management dollars. Expenses are not a function of revenues. They are not a function of investment. They are a function of the actual people, the actual activity of the product managers. So we actually went there and went to our marketing departments and said, you know, where are your product managers

spending their time? What products are they spending their time on?

Q Okay. And then is it fair to say that activity-based analysis was required because you were calculating different levels of discount for different groups of services?

A Yes.

Q And if you had calculated a single discount to be applied across all groups of services, this activity-based analysis wouldn't have been a part of the process?

A Yes.

Q Okay. In calculating the avoided cost, am I correct that you did a netting process where you first looked at costs that would be avoided and then added back, if you will, incremental wholesale expenses?

A Yes.

Q Okay. Now were, how was the level of incremental wholesale expenses determined?

A The summary of that is on page 19 of Exhibit RGF-2, and again, staff has requested some additional information on that and, you know, that will be provided. But basically you see here there are four main categories of expenses at the corporate level, which we analyzed. And what we did was we looked at the actual expenses which we projected or budgeted over a five-year period and then took

all those expenses and we levelized those, took five years worth of expenses, five years worth of demand and levelized it. In this case I just used ten percent as a discount rate.

Q And what is -- Let's just take year one here. System development includes what types of activities?

A This basically is the work that was required to update the various billing systems.

Q And how was that amount allocated over years one through five, or was a separate bottoms-up number developed for each year?

A Yeah, I think here we used actual budgeted numbers. I think there were budgeted numbers for, I don't remember exactly, two or three years, and then there was some extrapolation involved, not for system development though because I remember explicitly they only had -- in the budget they only had for four years, and I was told that that would be completed after four years.

Q Okay. What is system development support?

A Again, system development is the actual programming itself. The support are the people who maintain the programs.

Q And corporate staff is corporate staff performing what functions?

A That is people like me doing things like this.

Q How much of a reduction in the wholesale discount do you contribute to? Demand is in what sort of units?

A Those are access lines, and what we've done here, these are corporate access lines, and we come up with a rate per access line, and then we assign those to each individual company based upon the number of access lines in that company. And for example, Florida has approximately 1.7 million access lines, so they get the -- let me back up. The corporate expenses on a per -- we have approximately the demand where right now we are at 6.7 million access lines nationwide.

Q Okay.

A And I grew that at -- I think I used it four percent a year or something like that. Levelized it back and got back down to 91 cents per access line per year, that's for the entire seven million access lines. Since Florida has 1.7 million access lines, they get 1.7 million times the 91 cents. The dollar two, OTC -- OTC is an acronym for operating telephone company -- that is Florida specific, and that was a number developed by Florida, and that was not developed by me; that was developed by the Florida personnel.

Q Okay. Is there any backup for that Florida specific piece of the number?

A I don't have it. Again, I'll request it of a

Florida company for the interrogatory.

Q Okay.

MR. NELSON: And again, I don't know whether this was included in the staff interrogatory or not. If it wasn't and if it's not unduly burdensome --

MR. FONS: We'll just do it as a late-filed.

MR. NELSON: -- I would like to identify it as a late-filed. I guess this would be Late-filed Deposition Exhibit 2, work papers supporting the operating companies specific incremental wholesale expenses on Exhibit NGF-2, page 19.

BY MR. NELSON:

Q I take it the bottom of page 19 shows how the incremental wholesale expenses were spread amongst the various categories; is that correct?

A That's correct.

Q And what methodology was used there?

A We simply, the first column there, avoided expenses, we simply took the total avoided expenses by product and then spread the add backs based upon those avoided expenses.

Q What was the basis for, or how did you decide to divide your retail services into five categories for purposes of calculating a discount?

A When we first did the model, we tried to -- you

know, there was a trade off between how much detail you could get and, you know, the more products you investigated to the extent that you had a better study but the more detailed you got the less accurate the results. And basically we were able to identify 11 products which we could with some degree of confidence come up with individual discounts for as many as 11 different products. How many discounts we actually wanted to go forward with in the market, that was a subjective decision and, quite frankly, it was a decision that was debated between our long distance company -- our long distance division and our local division. We recognized the type of services which we were interested as a CLEC in reselling, and basically there were four -- we came down with four things which they were really interested in reselling and in which it made sense to group them together. It made sense to group R1 and B1 together; they are basically the same. It made sense to group PBX and CENTREX and key trunks together. It just made sense to do that. They are similar, similar services.

The other category, the fifth category, are simply those products in which there really was not an interest in Sprint as a CLEC in reselling. The other category is really primarily intraLATA toll. I don't know the exact number, but I'm sure in excess of 90 percent of

the revenues in other is simply intraLATA toll. There is a little bit of private line in there, a little bit of ISDN, but it's basically intraLATA toll.

Q On page 51 of your direct testimony, at the top of the page you list, I guess it's a carry over from the bottom of 50 to the top of 51, you list a number of specific account numbers that were analyzed to determine what portion would be avoided. Was the presumption in the FCC's order that all of the costs in each of those categories would be avoided, or was there some different presumption for some of those accounts?

A The presumption was they were avoided, although when they did their proxy discounts, they assumed 90 percent avoidability for the 6611, 6612, 6613 and 6623.

Q Top of page 54, the sentence at lines 3 through 6, can you tell me what you're saying there?

A Okay. There are sub accounts which we call GS&L, general service and licensing, and these are functions which the corporation does on behalf of the operating company. What we do -- what we made the assumption in this study is that, for example, let's take an example, product management. Product management at the operating company, let's say we did our study and we assumed that 90 percent of the product management at the operating company level was avoidable. We then took the corporate product

management expenses and used that same 90 percent.

Q And are there similar GS&L sub accounts in accounts other than the product management category?

A Yes.

Q And did you use the same sort of proportionate reduction in those?

A Yes.

Q Okay. On page 62 you indicate that you disagree with the FCC order that would treat a portion of some expense categories as avoided in proportion to avoided direct expenses. Is it your position that these general types of overhead, that none of those would be avoided in a resale environment?

A That's correct. You know, the definition of a common cost is something which is not -- cannot be attributed to individual products. It's a common cost to the company. That's the definition of a common cost. It cannot be attributed to individual products. The decision to resell individual products will not have any effect upon common costs.

Q Could you turn to the page of your study that deals with uncollectible revenues? Can you tell me what page it is?

A To tell you the truth, I'm not sure what you are referring to.

Q Okay. Hang on a second.
A There is a part of my testimony where I talk about it, but I don't --
Q I thought I had seen --
A On that summary there, there is -- I don't know which. On this summary here, but it's, you know, it just shows zeros. I mean I don't know what else --
Q Okay. Start from the top. What is your basis for the study assumption that no uncollectible revenues are avoided?
A The assumption is that a company acting as a reseller will still face lost revenues. The example I have in here, I made a parallel looking at Sprint long distance as a reseller. Sprint long distance as a reseller loses revenues through writeoffs, unsubstantiated billing adjustments and outright fraud. I know the CLEC argument is that we are going to pay our bills, there is no uncollectible. And yes, I'm quite confident that MCI will pay their bills as a CLEC. But the whole idea of introducing reselling into this industry is going to introduce fraud, not only at the CLEC level but at the ILEC level there will be fraud. There will be billing disagreements, there will be writeoffs.
It's something which Sprint long distance realizes as a reseller. I can only imagine that both AT&T

and MCI face that as resellers in the long distance market. And there will be small resellers, as I pointed out one here in California, there will be small resellers who go bankrupt leaving a big bill behind; that is going to happen.
Q On a percentage basis, what percentage are uncollectible revenues? What are uncollectible revenues as a percentage of total revenues?
A It varies company to company. It ranges from one half of one percent to two percent on various services in various companies.
Q Was a state -- did you use state specific numbers overall in your avoided cost study, or were they nationwide numbers?
A The avoided cost study was for --
Q Specific --
A -- Sprint Florida.
Q Specific to Sprint Florida, okay. Do you know what uncollectibles for Sprint Florida are as a percentage of revenues?
A Not off the top of my head, no.
Q Okay. If I understood your previous answer and your written testimony, it was essentially that in dealing -- Strike that.
In analyzing the uncollectible revenue issue, did

you look at level of uncollectible revenues on access services?
A No.
Q Could you explain to me the reason for translating percentage discounts into a dollar amount of discount and then fixing that dollar amount?
A When you're actually trying to set a rate, we did not want to get in a situation of every time a rate changes we have to recalculate avoided cost studies and we have to go through this, you know, every year. On a conceptual level I think it just makes sense that the -- The avoided level really has nothing to do with the revenue rate. I mean we are spending X-dollars advertising. We are spending so much money managing our products. That really is independent of the rate itself. So as the rate goes up or rate goes down, I really expect the dollars I avoid to stay the same. And if we went through this again a year from now, we would have a different percentage. Whether it would be a higher percentage and a higher rate or a lower percent and a lower rate, you would end up exactly where you are. So it just makes conceptual sense that the avoided expenses are really constant. And if we simply state that as a constant per dollar from the get-go, as competition forces rates up and forces rates down, we don't have to go through this again every year.

Q When you calculated the total dollars of avoided costs on a sub account basis, did you look at dollars which would be avoided, or did you say -- I mean did you say 20 percent of product management expense will be avoided, or did you say these specific product management functions having these dollars associated with them will be avoided?
A The dollars, the latter.
Q Okay. Can you walk me through your avoided cost exhibit, Number RBF-2?
MR. POWS: You talking about all 20 pages?
MR. NELSON: We can start at page 3. I can figure out the table of contents.
A Page 3 of Exhibit RBF-2, this is the summary page. It shows the revenues and the avoided expense associated with each of the five discounts.
BY MR. NELSON:
Q Okay. Why did you in determining -- why did you calculate a percent of revenue rather than an avoided expense over total expense?
A To me it just made more conceptual sense. The Order and the Act both refer to discount off of rates. It is the rate which the CLEC is going to be reselling. They are going to be reselling a retail service which has an existing retail rate, and it simply made more conceptual sense to state everything as a percent of revenue.

Page 4 is another summary page. This simply shows by various four-digit expense accounts which we, or at least some other parties may consider to be avoided expenses, and we simply are showing where we think the avoided expenses lie and just showing a little bit more detail than on the first page.

Q All right.

A Page 5 is what we call the cost driver page, and this is really the engine of the model. As it shows that for each account, each general ledger expense account what percent of the avoided expenses are being driven to which product. Across the top, 1 through 13 -- 1 through 14, actually, these are the individual products which we are driving expenses to. I just want to point out that 10, 11 and 14 are services which are not going to be offered at discount.

Going down the very first column, these are the various expenses. And then again, it's simply a matrix that shows what percent of what expense is going where.

Q And let's take product management and marketing administration, 6611.01X. This may repeat a question I asked earlier, but how was the hundred percent of that account spread across these 14 categories?

A Okay, the column titled "Reference Sheet," this gives you the source of the actual study which produced the

drivers, so we have a study called product management. And if you go back to --

Q Okay. Page 7?

A Yes, page 7. Page 7 up at the top here, the top of that page, these are the results of the actual study. This is a study that was done by Sprint-United Florida. It was an analysis of the marketing product management function. And according to that analysis, this would be an analysis of the actual product management function in the company; and again, it just kind of gives a sanity test. You don't really manage residential and business access very much; we've got a very low percent going to there.

What do you really manage? You know, you manage custom calling features. You manage CENTREX. And that is where you are seeing your higher percent allocations going, so you kind of give this thing a sanity check.

The bottom of the page is where I'm coming up with, this is where I'm coming up with my -- We talked about earlier the GS&L allocation. There is GS&L at the corporate level. And what I do is I take all the product management at the operating company level and come up with a weighted average, and then assign the corporate GS&L to these products based upon these percentages.

Q That was a little fast.

A Okay.

Q Let's go back to the top of the page just a minute.

A Okay.

Q The top of the page, these are in thousands of dollars?

A That's actually one of the questions on the interrogatories, what are the actual units here? The units here are probably dollars.

Q Okay.

A But, you know, I'm not a hundred percent certain of that. They look like dollars to me.

Q Okay. So the Florida group would have said of the total in the first column, the 71.181, this is how the dollars are spread across management of these various services?

A Yeah, and this specific one, it differs for complex business versus simple business versus a weighted average. No, in this case product management is a single expense item, so here we simply used a weighted average.

Q Okay.

A But again, product marketing is broken up between complex and simple product lines and we are using a weighted average of those. But this 4.00 percent is transferred to that cost drivers' page as the whole right-hand column is.

Q Okay. Now explain to me again the bottom of the page.

A Okay. Remember, we have a lump of corporate dollars, GS&L dollars.

Q Right.

A What the decision was, to spread those dollars based upon the same percentage of product management at the operating company, so these are --

Q I guess the confusion I'm having is line 1 on the page says residence access, 4.00 percent of the product management expenses, and then I look at the bottom of the page and there is a 2.29 percent for the same category at the bottom of the page. Why are those numbers different?

A Okay, because the numbers at the top only apply to the 6611.01 accounts.

Q Okay.

A Okay, when we came up with the allocator for the corporate levels, we used total product management, including things like forecasting, which, you know, may or may not be avoidable. So the corporate level product management expenses, 2.29 percent went to residence. For the company specific, 4.00 percent went to residence.

Q So did the Florida group do the spreading of the non-avoided product management expenses that then fed into the calculation you see at the bottom of the page?

A This is done automatically by the program.
Q Okay.
A And what we are weighting here are the actual expenses.
Q Okay.
MR. NELSON: Off the record.
(DISCUSSION OFF THE RECORD)
MR. NELSON: Back on the record.
Let me ask you for a Late-filed Exhibit 3 that would relate to page 7 of Exhibit RGF-2 and be an explanation of why the percentage of avoided costs allocated to the different functions for Florida specific costs is different from the percentage allocated for the corporate level cost.
MR. FONS: And that is just for product management?
MR. NELSON: Just for product management.
BY MR. NELSON:
Q Back on page 5, if I looked in your column titled "Reference Sheet," that would show me how the cost drivers were developed for each of these other -- it would refer me to the support sheet for the development of the cost drivers for each of the other expense categories?
A Yes.
Q On page 9, product advertising study, how were

the product advertising expenses allocated amongst the various service categories?
A Again, this would be a specific marketing study. This would probably -- and the only thing I see here are the results of the study. I can only assume that the study itself would be an actual analysis of where the dollars were being spent.
Q On page 12 of 20, what is the purpose of the customer perception survey? What does that mean, what customers perceive they are buying?
A Again, this is very small dollars, but there is a regular customer perception survey that is done as part of the regular routine of doing business; and I'm not sure exactly what is on the survey or what kind of questions are asked, but there is a small expense for that every year, and it is simply being attributed between residence and simple business. I don't know what is on the survey.
Q Okay. Page 17, what is the CASS study?
A CASS, that is an acronym, CASS, which is now, that acronym is no longer used. It's now --
MS. KHAZRAEE: It's CASS now.
A Is it CASS now? Well, anyhow, it's one of the billing systems.
Q Okay.
A And again, it's used to bill intraLATA services,

and this is one of these studies, although it's in the model, it has absolutely no impact on the results because all of it goes to non-discounted services, so it is totally irrelevant to the bottom line.
Q In the course of -- Let me ask this, has Sprint long distance been involved in arbitration proceedings with other incumbent LECs?
A Yes.
Q Has Sprint long distance submitted avoided cost studies in any of those proceedings?
A No.
Q Are you familiar with the position that Sprint long distance has taken in those proceedings about the manner in which the avoided -- the manner in which the discount should be calculated?
A Yes.
Q And what is that?
A There was a change in the corporate position which has matched the legal proceedings. Prior to the FCC order, the Sprint corporate policy was that overhead expenses should not be considered avoidable. When the FCC order came out, the FCC order said that avoidable overhead expenses will be avoidable in this manner, and we conformed with the FCC order, and that was the corporate policy. With the stay of the FCC order, our corporate policy has

gone back to our original position that overhead expenses are not avoidable.
Q And when you say corporate policy, are both the local operating companies and long distance company taking that same position?
A Yes, they are.
Q Have you ever testified overhead expenses should be avoidable?
A Yes, I did. My New Jersey testimony came in that window where we had an FCC order, and we were adhering to the FCC order. In the cost study that we filed in New Jersey at that time, we had overhead expenses treated as avoidable.
Q Okay. And was that on behalf of the local company or the long distance company?
A Local company.
Q Local company. But to the best of your knowledge, the long distance company has not filed its own avoided cost study, for example, of a BellSouth or of a General Telephone in an arbitration where the long distance company has been trying to get a discount established?
A Not to my knowledge, no.
MR. NELSON: Okay. I've got nothing more.
MR. FONS: I have a couple of questions.
EXAMINATION

BY MR. FONS:

Q Early in this deposition, several hours ago, you were asked about the costing standard and the fact that Sprint is proposing and recommending to follow the FCC costing standard, and Mr. Nelson asked you if it was Sprint's position that the Florida Public Service Commission should adopt the same standard for all companies in Florida, and I believe you indicated that you couldn't answer that. Can I refer you to page 6 of your direct testimony?

(WITNESS REVIEWED DOCUMENTS)

Q Were you asked a question, beginning on line 8:

"The eighth circuit court of appeal stayed the FCC order in light of this development. What is Sprint's position concerning the cost, price and unbundling requirement for network elements?"

And I believe your answer is:

"Sprint's policy in this area is unchanged."

And then on line 17, could you read what you state there?

A "It is imperative that the same cost standard be applied to

all Florida ILECs. Sprint believes the Commission should adopt a TELRIC based costing and pricing standard for all Florida ILECs. A different pricing standard for different ILECs will produce noncompetitive costs and prices among ILECs, disadvantaging some while benefitting others."

Q Okay. Late in your deposition when Mr. Nelson was asking you about your retail discount, he asked you some questions about uncollectibles, and you indicated in your answer that the reason that Sprint was not treating uncollectibles as avoided is because of Sprint's experience as a provider of resale services. You indicated several times that as a reseller Sprint incurred uncollectibles. Did you mean as a reseller or as a wholesaler of services to resellers?

A Yes, as a wholesaler to resellers.

Q And you expect the same experience to occur with Sprint, the ILEC, when it is acting as a wholesaler?

A Yes.

MR. FONS: I have no further questions.

MR. NELSON: I've got one follow up.

EXAMINATION

BY MR. NELSON:

Q To the extent the Florida Commission has not followed the FCC pricing methodology in prior arbitrations in Florida, is it more important that they be consistent from one LEC to the next, or is it more important that they adopt your proposed methodology?

A I guess that would depend upon the magnitude of the differences.

Q And I forget how you responded to this question earlier, so I will ask it again. What is your understanding of the magnitude of the differences between what the Commission has done in the BellSouth case and the FCC methodology?

MR. FONS: I'll object to the form of the question unless the witness can say he has forgotten what his answer was the first time.

Q Go ahead and answer it.

A I believe my answer was the only thing I really remember explicitly was that they did not price deaverage, and I personally think that was a big mistake from both an ILEC point of view and a CLEC point of view. Deaveraging is essential to both parties. Even as an ILEC I think we should deaverage.

MR. NELSON: No further questions. Thank you very much.

MR. FONS: I have nothing further.

(WHEREUPON, THE DEPOSITION WAS CONCLUDED)

ERRATA SHEET

DOCKET NUMBER 961230-TP
RANDY G. FARRAR
DECEMBER 5, 1996

STATE OF FLORIDA)
COUNTY OF LEON)

CERTIFICATE OF OATH

I, the undersigned authority, certify that RANDY G. FARRAR personally appeared before me and was duly sworn.

WITNESS my hand and official seal this 6th day of December, 1996.

NANCY S. METZKE
Notary Public - State of

CERTIFICATE OF DEPONENT

This is to certify that I, RANDY G. FARRAR, have read the foregoing transcription of my testimony, Page 1 through 116, given on December 5, 1996 in Docket Number 961230-TP, and find the same to be true and correct, with the exceptions, and/or corrections, if any, as shown on the errata sheet attached hereto.

RANDY G. FARRAR

Sworn to and subscribed before me this _____ day of _____, 19____

NOTARY PUBLIC
State of
My Commission Expires:

REPORTER'S DEPOSITION CERTIFICATE

STATE OF FLORIDA)
COUNTY OF LEON)

I, NANCY S. METZKE, Certified Shorthand Reporter and Registered Professional Reporter, certify that I was authorized to and did stenographically report the deposition of RANDY G. FARRAR; that a review of the transcript was requested; and that the transcript is a true and complete record of my stenographic notes.

I FURTHER CERTIFY that I am not a relative, employee, attorney or counsel of any of the parties, nor am I a relative or employee of any of the parties' attorney or counsel connected with the action, nor am I financially interested in the action.

DATED this 6th day of December, 1996.

NANCY S. METZKE, RPR, CCR

AUSLEY & MCMULLEN

ATTORNEYS AND COUNSELORS AT LAW

227 SOUTH CALHOUN STREET
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TALLAHASSEE, FLORIDA 32301
(904) 224-9115 FAX (904) 222-7560

December 16, 1996

HAND DELIVERY

Ms. Blanca S. Bayo, Director
Division of Records and Reporting
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, FL 32399-0850

Re: Late Filed Deposition Exhibits
FPSC Docket No. 961230-TP

Dear Ms. Bayo:

Enclosed for filing in the above docket are the original and fifteen (15) copies of each of the following:

1. Late Filed Deposition Exhibit Nos. 1 through 3 of Randy G. Farrar.

2. Late Filed Deposition Exhibit Nos. 1 and 2 of James D. Dunbar, Jr.

Please acknowledge receipt and filing of the above by stamping the duplicate copy of this letter and returning same to this writer.

Thank you for your assistance in connection with this matter.

Sincerely,

John P. Fons

JPF/pp
Enclosures

cc: All Parties of Record (w/encls.)

RECEIVED & FILED

FPSC-BUREAU OF RECORDS

31

CERTIFICATE OF SERVICE
DOCKET NO. 961230-TP

I HEREBY CERTIFY that a copy of the foregoing Late Filed Deposition Exhibits, filed on behalf of Sprint, has been furnished by U. S. Mail or hand delivery (*) this 16th day of December, 1996, to the following:

Martha Carter Brown*
Staff Counsel
Division of Legal Services
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, FL 32399-0850

Richard D. Melson
Hopping Green Sams & Smith
Post Office Box 6526
Tallahassee, FL 32314

ATTORNEY

HOW THE AMOUNT OF EXPENSES ALLOCATED TO THE EXCLUDED CATEGORY ARE DETERMINED

Step 1) Determine percent of direct expenses are avoided (i.e. related to retail marketing), 12.87%. Since these retail marketing expenses are not attributable to unbundled elements, the same portion of common costs are assumed to be attributed to retail marketing expenses, and are thus excluded from the common cost factor.

= Avoided Expenses / (Direct Expenses + Other Direct Expenses + Avoided Expenses)
= $74,116,397 / ($371,260,912 + $130,498,886 + $74,116,397)
= 12.8702%

Sources:
$74,116,397: RGF2, page 3, Total Avoided Expenses.
$371,260,912: Staff's First Set of Interrogatories No. 44(a), the two-page summary "Summary of Other Direct and Common Expense Allocation" (Summary), page 2, line 2.
$130,498,886: Summary, page 2, line 3.

Step 2) Determine percent of indirect expenses which are excluded from the Other Direct Expense factor. Since these expenses are excluded from that factor, the same portion of common expenses are excluded from the common cost factor.

= Excluded Other Direct Expenses / (TELRIC Expenses + Indirect Expenses)
= $45,627,362 / ($668,725,387 + $173,004,105)
= 5.4207%

Sources:
$45,627,362: Summary, page 2, line 21, column "Excluded."
$668,725,387: Summary, page 2, line 20, column "Total Unbundled."
$173,004,105: Summary, page 2, line 21.

Step 3) Apply Step (1) to common expenses to develop the avoided expense portion of the common expenses.

= (Executive&Planning + General&Administrative) * 12.8702%
= ($82,821,423 + $5,704,138) * .128702
= $ 11,393,413

Sources:
$82,821,423: Summary, page 1, row "General and Administrative."
$5,704,138: Summary, page 1, row "Executive and Planning."

Step 4) Apply Step (2) to common expenses to develop the excluded portion of the common expenses.

=((Executive&Planning + General&Administrative) - Avoided Common Expenses) * 5.4207%
= (($82,821,423 + $5,704,138) - $11,393,413) * .054207
= $4,181,078

Step 5) Add the results of Step (3) and Step (4) to develop an overall common cost factor.

= (Avoided Common Expenses + Excluded Common Expenses) / (Executive&Planning + General&Administrative)
= ($11,393,413 + $4,181,078) / ($82,821,423 + $5,704,138)
= 17.5932%

Step 6) 17.59% of common expenses are excluded from the assignment of common expenses to unbundled network elements, as shown on line 21 of Summary, page 2, line 22.

Sprint
Docket No. 961230-TP
Farrar Late Filed
Deposition Exhibit No. 2

WORKPAPERS SUPPORTING THE OPERATING COMPANIES SPECIFIC INCREMENTAL WHOLESALE EXPENSE ON EXHIBIT RGF-2, PAGE 13

See Staff's First Request for Production of Documents No. 28, and Staff's First Set of Interrogatories No. 22(b).

Sprint
Docket No. 961230-TP
Farrar Late Filed
Deposition Exhibit No. 3

EXPLANATION OF WHY THE PERCENTAGE OF AVOIDED COSTS ALLOCATED TO THE DIFFERENT FUNCTIONS FOR FLORIDA SPECIFIC COSTS IS DIFFERENT FROM THE PERCENTAGE ALLOCATED FOR THE CORPORATE LEVEL COST

See attached document. 4.09% of product management expenses (6611) are assigned to residence, as shown at the top of the attachment.

However, for account 6611.986, shown at the bottom of the attachment, only 2.09% is assigned to residence. Each value under "Residence" is equal to 4.09% of the total account. However, 6611.986 is a corporate level account which supports all activities within the 6611 accounts, not just those associated with avoided expenses. Thus the total residence portion of $146,160, is divided by the total 6611 expenses of $6,394,593, to produce the 2.09%.

Sprint
Docket No. 961230-TP
Attachment to Farrar Late
Filed Deposition Exhibit No.
Page 1 of 1

PRODUCT MANAGEMENT
Analysis of 6611.XXX
Company: Sprint Florida - Combined

	Complex Business	Consumer/ Simple Business	Total	Total %
1 Residence Access	0	4,276	4,276	4.09%
2 Simple Business Access	0	1,705	1,705	1.63%
3 Centrex Access	22,941	0	22,941	21.96%
4 Key Access	7,612	0	7,612	7.29%
5 PBX Access	6,217	0	6,217	5.95%
6 Features	0	16,870	16,870	16.15%
7 LMS/EAS Usage	0	1,479	1,479	1.42%
8 IntraLATA Toll	0	5,068	5,068	4.85%
9 Local/Toll Private Line	2,784	0	2,784	2.66%
10 Switched Access	9,264	0	9,264	8.87%
11 Special Access	10,512	0	10,512	10.06%
12 Operator/DA	8,640	3,903	12,543	12.00%
13 Other	0	0	0	0.00%
14 Non-Discounted Services	3,211	0	3,211	3.07%
	71,181	33,301	104,482	100.00%

Analysis of 6611.998

Account	Description	Residence Access	Simple Business Access	Centrex Access	Key Access	PBX Access	Features	LMS / EAS Usage	IntraLATA Toll	Local / Toll Private Line	Switched Access	Special Access	Operator / Dir. Asst.	Other	Non-Discounted Services		Total Avoided Expenses	Non-Avoided Expenses	
Avoided Expense Summary 6611.0XX																			
6611011	PRODUCT MGMT - CONSUMEI	79,210	31,584	424,884	141,006	115,165	312,504	27,397	93,881	51,571	171,608	194,727	232,349	0	59,481	N	1,935,448	0	
6611012	PRODUCT MGMT - CONSUMEI	15,745	6,278	84,476	28,030	22,893	62,120	5,446	18,662	10,252	34,113	38,708	46,187	0	11,824	N	384,734	0	
6611014	PRODUCT MGMT - CONSUMEI	51,205	20,417	274,718	91,154	74,448	202,018	17,711	60,689	33,336	110,936	125,891	150,202	0	38,452	N	1,251,169	0	
6611081	PRODUCT MGMT-FORECASTI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N	0	0	
6611082	PRODUCT MGMT-FORECASTI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N	0	0	
6611084	PROD MGMT-FORECASTING-I	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N	0	0	
6611071	PRODUCT MANAGE.-FORECA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N	0	2,046,842	
6611072	PRODUCT MANAGE.-FORECA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N	0	492,365	
6611074	PRODUCT MANAGE.-FORECA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N	0	284,035	
	Sub Total	146,160	58,279	784,158	260,190	212,506	576,642	50,554	173,232	95,161	316,657	358,310	428,738	0	109,757	N	3,571,351	2,823,241	6,394
	% Avoided	2.29%	0.91%	12.26%	4.07%	3.32%	9.02%	0.79%	2.71%	1.49%	4.95%	5.62%	6.70%	0.00%	1.72%	N	55.85%	44.15%	

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Petition by MCI Telecommunications Corporation for arbitration with United Telephone Company of Florida and Central Telephone Company of Florida concerning interconnection rates, terms, and conditions, pursuant to the Federal Telecommunications Act of 1996	)	DOCKET NO. 961230-TP

SPRINT'S RESPONSES TO STAFF'S FIRST REQUEST FOR PRODUCTION OF DOCUMENTS (NOS. 1 THROUGH 49)

Pursuant to Rule 25-22.034, Florida Administrative Code, and Rule 1.350, Florida Rules of Civil Procedure, United Telephone Company of Florida ("Sprint-United") and Central Telephone Company of Florida ("Sprint-Centel") (collectively "Sprint"), by and through their undersigned counsel, hereby respond to Staff's First Request for Production of Documents ("Staff's First POD") as set forth below.

Sprint notes that many of the documents and diskettes provided in response to this request contain what Sprint believes to be proprietary confidential business information. Such information has been filed with the Division of Records and Reporting together with a notice of intent to request confidential classification.

Specific Responses

1. **Please provide any documents or worksheets used in making the derivation referred to in Interrogatory No. 4(b).**

   Response: The Companies agree to produce the requested documents.

2. **Referring to page 33 of Mr. Farrar's direct testimony at lines 7-9, please provide the cost studies that support the interstate rates for unbundled signaling links.**

   Response: The unbundled signaling links cost study is provided.

3. **Referring to page 35 of Mr. Farrar's direct testimony at lines 6-11, please provide the levelizing program on 3½" diskette.**

   Response: The levelizing program diskette is provided.

4. **Referring to page 40 of Mr. Farrar's direct testimony at lines 17-18, please provide ACFP on 3½" diskette.**

   Response: A diskette and written documentation is provided.

5. **Please provide the documents identified in response to Interrogatory No. 10.**

   Response: The documents responsive to Interrogatory No. 10 are provided as part of the response to Document Request No. 31.

6. **Referring to page 41 of Mr. Farrar's direct testimony at lines 13-17, please provide a copy of the depreciation study referred to therein.**

   Response: The depreciation study is provided.

7. **Referring to page 42 of Mr. Farrar's direct testimony at lines 6-7, please provide a copy of the Excel workbook program, Unbundled Cost Allocation.**

Response: The Unbundled Cost Allocation diskette and a print out are provided.

8. **Referring to page 55 of Mr. Farrar's direct testimony at lines 22-25, please provide a copy of the special study conducted for account 6612.986.**

Response: The special study for account 6612.986 is provided.

9. **Referring to pages 16-20 of Mr. Farrar's Exhibit RGF-1, please provide copies of any and all documents which provide narrative descriptions of each of the accounts/subaccounts shown.**

Response: Descriptions can be found in the Sprint Accounts Manual. This manual is voluminous and will be made available for review in Sprint's Tallahassee office.

10. **Referring to note (1) on page 5 of Mr. Farrar's Exhibit RGF-2, please provide all workpapers and supporting documents that yield the allocators referred to therein.**

Response: The calculation is performed with the Excel model that is being provided on diskette.

11. (a) **Page 11, paragraph H.3., of Mr. Farrar's Exhibit RGF-1 refers to a Revenue worksheet; however, it appears there is no such worksheet included in Exhibit RGF-2. Please provide this worksheet.**

(b) **To the extent that there are any other worksheets referred to in Exhibit RGF-1 that do not appear in Exhibit RGF-2, please provide copies of them.**

Response:

(a) This Revenue worksheet can be found on Excel worksheet "Revenues" within the Excel model that is being provided on the diskette identified in the response to request number 10.

(b) All worksheets can be found within the Excel model that is being provided on the diskette identified in the response to request number 10.

12. **Please provide the Product Management study referred to on page 12, paragraph H.7., of Mr. Farrar's Exhibit RGF-1.**

Response: The Product Management study is provided.

13. **Please provide the study of the actual labor reporting associated with the sales function referred to on page 12, paragraph H.8., of Mr. Farrar's Exhibit RGF-1.**

Response: The Sales Function study is provided.

14. **Please provide the responsibility code analysis of the product advertising function referred to on page 12, paragraph H.9., of Mr. Farrar's Exhibit RGF-1, which yields the allocation percentages shown on page 9 of Exhibit RGF-2.**

Response: The Product Advertising analysis is provided.

15. **Please provide the special study of NASC activity referred to on page 13, paragraph H.11., of Mr. Farrar's Exhibit RGF-1.**

Response: The special study of NASC is provided.

16. **Please provide the Business Office time and motion study referred to on page 13, paragraph H.14., of Mr. Farrar's Exhibit RGF-1.**

Response: The Business Office study is provided.

17. **Please provide the Business Service Center time and motion study referred to on page 13, paragraph H.15., of Mr. Farrar's Exhibit RGF-1.**

Response: The Business Service Center study is provided.

18. **Please provide all workpapers and supporting documents that yield the values in the "Weighted Average" column on page 9 of Mr. Farrar's Exhibit RGF-2.**

Response: None. All calculations are performed within the Excel model being provided in response to request number 10.

19. **Please provide the customer perception survey and all workpapers that yield the values shown on page 12 of Mr. Farrar's Exhibit RGF-2.**

Response: The customer perception survey is provided.

20. **Please provide the CASS study and all workpapers that yield the values shown on page 17 of Mr. Farrar's Exhibit RGF-2.**

Response: The CASS study is provided.

21. **Please provide the worksheet identified in response to Interrogatory No. 13(a).**

Response: No worksheet is necessary to answer Interrogatory No. 13(a).

22. **Please provide the worksheet identified in response to Interrogatory No. 13(b).**

Response: No worksheet is necessary to answer Interrogatory No. 13(b).

23. Please provide the worksheet identified in response to Interrogatory No. 13(c).

Response: No worksheet is necessary to answer Interrogatory No. 13(c).

24. Please provide the source document(s) identified in response to Interrogatory No. 17.

Response: No source document exists. Data was derived from extracting raw data from the Local Message Processing System.

25. Please provide the documents identified in response to Interrogatory No. 21(a).

Response: Please see the documents being provided in response to request number 15.

26. Please provide the document or workpaper identified in response to Interrogatory No. 21(b).

Response: No worksheet is necessary to answer Interrogatory No. 21(a).

27. Please provide the document or workpaper identified in response to Interrogatory No. 21(d).

Response: There is no Interrogatory No. 21(d).

28. Please provide the document or workpaper identified in response to Interrogatory No. 22.

Response: Document identified in response to Interrogatory No. 22 is provided.

29. Referring to Exhibit JDD-2 attached to Mr. Dunbar's supplemental direct testimony, please provide a copy of the BCM2 model populated with the data used to generate this exhibit.

Response: The requested information is being provided on a CD labeled as the response to this request.

30. Referring to Exhibit JDD-2 attached to Mr.Dunbar's supplemental direct testimony, please provide the summary BCM2 output report.

Response: The requested information is being provided on a CD labeled as the response to this request.

31. Referring to Composite Exhibit No. RGF-3, page 68, please provide the workpaper which shown the detailed derivation of the annual cost factor used herein. The workpaper requested should identify all inputs used and should show each computational step which yields the annual cost factor.

Response: The requested documents are being provided. The Annual Charge Factor (ACF) reflective of TELRIC cost is comprised of the base ACF as well as a joint cost component. Composite Exhibit No. RGF-3, page 122, shows the component parts of the Annual Charge Factor. The Base ACF (24.4% for switching) is developed utilizing the Sprint LTD developed Annual Charge Factor Program, as provided in response to Document Request No. 4. The model description of the joint factor (6.74% for switching) is provided in response to Document Request No. 7. These two components add to 31.16% in reflecting Florida's annual charge factor for switching.

32. Please provide page 84 of Composite Exhibit RGF-3 without redacted values.

Response: Please see Sprint's Request for Confidential Classification, dated December 5, 1996.

33. Referring to Composite Exhibit No. RGF-3, page 73:

(a) Please provide the derivation of the tandem switching MOU rates shown herein.

(b) If applicable, please provide the summary SCIS results used in the derivation of the rates.

Response:

(a) The cost is equal to two times the Trunk CCS cost plus the Trunk Set-up cost. These values are shown on Composite Exhibit No. RGF-3, pages 63-65.

(b) The summary SCIS results can be found on Composite Exhibit No. RGF-3, page 66.

34. Referring to Composite Exhibit No. RGF-3, page 80, please provide the derivation and all supporting documents for the values shown in column D.

Response: The derivation is provided in the diskette being provided. This information also derives information in Column E on Composite Exhibit No. RGF-3, page 61.

35. Referring to Composite Exhibit No. RGF-3, page 86, please provide the underlying spreadsheet on 3½" diskette.

Response: Provided in response to Document Request No. 3.

36. Referring to Composite Exhibit No. RGF-3, page 96, please provide the derivation and source documents supporting the .18621 other direct cost factor.

Response: The value can be found on Composite Exhibit No. RGF-3, page 120, Operator Services & DA. The Model is provided in response to Document Request No. 7.

37. Referring to Composite Exhibit No. RGF-3, page 101, line 24, please provide the derivation and source documents supporting the .58107 other direct cost factor.

Response: There is an error in the exhibit. Value should be .18621. The value can be found on RGF-3, page 120, Operator Services & DA. The Model is provided in response to Document Request No. 7.

38. Referring to Composite Exhibit No. RGF-3, page 106, line 4, please provide the source and/or derivation for the 43,987,889 network investment amount.

Response: Please see the attached document. All items hand-marked with an "N" sum to the value $3,987,869, as shown in the bottom right-hand corner.

39. Referring to Composite Exhibit No. RGF-3, page 107, line 40, please provide the derivation and source documents supporting the .19604 other direct cost factor.

Response: There is an error in the exhibit. Value should be .18621. The value can be found on Composite Exhibit No. RGF-3, page 120, Operator Services & DA. The Model is provided in response to Document Request No. 7.

40. Referring to Composite Exhibit No. RGF-3, page 113, line 39a, please provide the derivation and source documents supporting the .186210 other direct cost factor.

Response: The value can be found on Composite Exhibit No. RGF-3, page 120, Operator Services & DA. The Model is provided in response to Document Request No. 7.

41. Referring to Composite Exhibit No. RGF-3, page 116, please provide the derivation and source documents supporting the 6.7523% other direct cost factor.

Response: The value can be found on Composite Exhibit No. RGF-3, page 120, local switching. The Model is provided in response to Document Request No. 7.

42. Referring to Composite Exhibit No. RGF-3, page 117, please provide reports, analyses or other documents that support the 31% utilization factor for SMUs.

Response: The 31% utilization factor is a derived from port utilization of the Leesburg, Florida 911 tandem. The low utilization is a result of the redundancy requirement of 2 SMUs with capacity of 240 trunks each, for a total capacity of 480 trunks. Currently, 50 trunks are terminated on each SMU, for a total of 100 trunks. For the purpose of pricing, CLEC demand was assumed to be an additional 50% of the current ILEC demand, which results in a total demand of 150 trunks, or 31.25% of the 480 trunk capacity. As a test of reasonableness, the 31.25% utilization is similar to the utilization on SS7 link ports which have similar redundancy requirements.

43. Referring to Composite Exhibit No. RGF-3, page 122:

(a) Please provide the detailed derivations of each of the maintenance factors shown on this exhibit, identifying the source of all data used in the derivations.

(b) Please provide the detailed workpapers that yield the annual cost factors shown on this exhibit, identifying the source for all data used in the calculations.

(c) Please provide the detailed workpapers that yield the Other Direct Operating Expense factors shown in column (B) on this exhibit, identifying the source for all data used in the calculations.

(d) Please provide the detailed workpapers that yield the Other Direct Operating Expense factors shown in column (D) on this exhibit, identifying the source of all data used in the calculations.

Response:

(a) The derivation of the maintenance factors are provided.

(b) Please see response to Document Request No. 31.

(c) Please see response to Document Request No. 31.

(d) Please see response to Document Request No. 31.

44. Please provide the source document identified in response to Interrogatory No. 34(b).

Response: There is no Interrogatory No. 34(b).

45. Please provide the source document or model identified in response to Interrogatory 37(b).

Response: Please see response to First Set of Interrogatories No. 37(b).

46. Please provide the source document or supporting workpaper identified in response to Interrogatory 37(c).

Response: Please see response to First Set of Interrogatories No. 37(c).

47. **Please provide the source document or supporting workpaper identified in response to Interrogatory 37(g).**

Response: The Factor and Circuit Traffic System (FACTS) contains the most recent usage data available for each switch. The attached document contains the dates of the usage polling for each switch.

48. **Please provide the source document or supporting workpaper identified in response to Interrogatory 37(h).**

Response: There is no Interrogatory No. 37(h).

49. **Please provide the source document and supporting workpapers identified in response to Interrogatory 38.**

Response: No other work papers exist other than BCM 2.

Dated this 12th day of December, 1996.

JOHN R. ELLIOTT and
J. JEFFRY WAHLEN
Ausley & McMullen
P. O. Box 391
Tallahassee, Florida 32302
(904) 224-9115

ATTORNEYS FOR CENTRAL TELEPHONE COMPANY OF FLORIDA AND UNITED TELEPHONE COMPANY OF FLORIDA

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true and correct copy of the foregoing has been furnished by U. S. Mail or hand delivery (*) this 12th day of December, 1996, to the following:

Martha Brown *
Cochran Keating
Charlie Pellegrini
Division of Legal Services
Florida Public Service Comm.
2540 Shumard Oak Blvd.
Tallahassee, FL 32399-0850

Richard D. Melson *
Hopping Green Sams & Smith
123 S. Calhoun Street
Tallahassee, FL 32301

Attorney

jjw\utd\230-stf.rsp

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Petition by MCI Telecommunications Corporation for arbitration with United Telephone Company of Florida and Central Telephone Company of Florida concerning interconnection rates, terms, and conditions, pursuant to the Federal Telecommunications Act of 1996	DOCKET NO. 961230-TP

DOCUMENT RESPONSIVE TO DOCUMENT REQUEST NO. 1
(4 pages)

SCHEDULE 20

PERIOD ENDING: SEPTEMBER 30, 1996
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EQUAL ACCESS AND C.O.E. QUARTERLY REPORT

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			E.O.Q.	E.A.	PRESENT	PROPOSED		HOST	
			ACCESS	SVC.	C.O.E.	C.O.E.	SERVICE	OR	
LATA	EXCHANGE AREA	CENTRAL OFFICE	LINES	DATE	EQUIPMENT	EQUIP.	DATE	REM	HOST OFFICE
AVPK	ARCADIA	ARCADIA	12,666	11/89	5ESS	NONE	NONE	H	
AVPK	AVON PARK	AVON PARK	10,450	02/87	DMS 100/200	NONE	NONE	H	
AVPK	BOWLING GREEN	BOWLING GREEN	1,544	10/93	DMS-RSC	NONE	NONE	R	AVON PARK
AVPK	FORT MEADE	FORT MEADE	3,139	11/93	DMS-RSC	NONE	NONE	R	AVON PARK
AVPK	LAKE PLACID	LAKE PLACID	11,756	11/90	DMS-RSC	NONE	NONE	R	SEBRING
AVPK	OKEECHOBEE	OKEECHOBEE	20,880	03/91	DSS-1210	NONE	NONE	H	
AVPK	SEBRING	SEBRING	24,864	03/91	DMS100	NONE	NONE	H	
AVPK	SPRING LAKE	SPRING LAKE	4,875	06/92	DMS-RSC	NONE	NONE	R	AVON PARK
AVPK	WAUCHULA	WAUCHULA	6,259	Dec-96	DSS-1210	NONE	NONE	H	
AVPK	ZOLFO SPRINGS	ZOLFO SPRINGS	2,217	Dec-96	DSS-RLS	NONE	NONE	R	WAUCHULA
FTMY	BOCA GRANDE	BOCA GRANDE	2,213	08/94	DSS-RLS	NONE	NONE	R	SUNCOAST
FTMY	BONITA SPRINGS	BONITA SPRINGS	30,444	10/89	DSS-1210/5ESS	NONE	NONE	H	
FTMY	CAPE CORAL	CAPE CORAL	28,484	05/96	5ESS	NONE	NONE	H	
FTMY	CAPE HAZE	CAPE HAZE	9,850	07/92	DMS-100	NONE	NONE	H	
FTMY	CLEWISTON	CLEWISTON	7,890	10/92	DMS-RSC	NONE	NONE	R	LABELLE
FTMY	EVERGLADES	EVERGLADES	1,489	03/90	DSS-RLS	NONE	NONE	R	MARCO ISLAND
FTMY	FORT MYERS	ALVA	1,481	11/90	DSS-RLS	NONE	NONE	R	E FT MYERS
FTMY	FORT MYERS	EAST FORT MYERS	13,702	05/88	DMS-100	NONE	NONE	H	
FTMY	FORT MYERS	FORT MYERS	21,851	11/90	DSS-1210	NONE	NONE	H	
FTMY	FORT MYERS	REGIONAL AIRPORT	9,227	05/88	DMS-100	NONE	NONE	H	
FTMY	FORT MYERS	SOUTH FORT MYERS	32,047	05/88	DMS-RSC	NONE	NONE	R	CYPRESS LAKE
FTMY	FORT MYERS	CYPRESS LAKE	54,928	05/88	5ESS	NONE	NONE	H	
FTMY	FORT MYERS BEACH	FORT MYERS BEACH	10,891	03/92	DSS-1210	NONE	NONE	H	
FTMY	IMMOKALEE	IMMOKALEE	6,255	03/92	DMS-RSC	NONE	NONE	R	NPLS MOORINGS
FTMY	LABELLE	LABELLE	7,933	08/92	DMS-100	NONE	NONE	H	
FTMY	LEHIGH ACRES	LEHIGH ACRES	14,818	11/90	DMS-100	NONE	NONE	H	
FTMY	MARCO ISLAND	MARCO ISLAND	19,206	03/90	DSS-1210	NONE	NONE	H	
FTMY	MOORE HAVEN	MOORE HAVEN	2,430	10/92	DMS-RSC	NONE	NONE	R	LABELLE
FTMY	NAPLES	GOLDEN GATE	23,756	05/88	5ESS	NONE	NONE	H	
FTMY	NAPLES	NAPLES MOORINGS	50,083	02/89	DMS-100	NONE	NONE	H	
FTMY	NAPLES	NAPLES SOUTHEAST	29,358	05/88	5ESS	NONE	NONE	H	
FTMY	NORTH CAPE CORAL	NORTH CAPE CORAL	23,417	11/88	5ESS	NONE	NONE	H	
FTMY	NORTH FORT MYERS	NORTH FORT MYERS	32,007	11/90	DMS-100	NONE	NONE	H	
FTMY	NORTH NAPLES	NORTH NAPLES	39,318	10/89	DMS-100	NONE	NONE	H	
FTMY	PINE ISLAND	PINE ISLAND	7,892	06/94	DSS-1210	NONE	NONE	H	
FTMY	PORT CHARLOTTE	PORT CHARLOTTE	46,166	10/88	5ESS	NONE	NONE	H	
FTMY	PUNTA GORDA	PUNTA GORDA	22,881	03/90	DSS-1210/5ESS	NONE	NONE	H	
FTMY	SANIBEL-CAPTIVA IS.	SANIBEL-CAPTIVA	10,884	07/92	DSS-1210	NONE	NONE	H	
OCAL	ASTOR	ASTOR	1,353	08/93	DMS-RSC	NONE	NONE	R	TAVARES

NJ.513 F002/004

(3)

SCHEDULE 20

PERIOD ENDING: SEPTEMBER 30, 1996
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EQUAL ACCESS AND C.O.E. QUARTERLY REPORT

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OCAL	BELLEVIEW	BELLEVIEW	18,422	08/88	DMS-100	NONE	NONE	H	
OCAL	BEVERLY HILLS	BEVERLY HILLS	11,208	12/91	DMS-100	NONE	NONE	H	
OCAL	BUSHNELL	BUSHNELL	10,629	04/93	DSS-1210	NONE	NONE	H	
OCAL	CLERMONT	CLERMONT	12,860	11/89	DMS-100	NONE	NONE	H	
OCAL	CRYSTAL RIVER	CRYSTAL RIVER	13,311	08/90	DSS-1210	NONE	NONE	H	
OCAL	DADE CITY	DADE CITY	11,344	08/88	DMS-100	NONE	NONE	H	
OCAL	EUSTIS	EUSTIS	17,097	11/90	DSS-1210	NONE	NONE	H	
OCAL	FOREST	FOREST	5,376	12/88	DSS-1210	NONE	NONE	H	
OCAL	GROVELAND	GROVELAND	4,595	08/93	DMS-RSC	NONE	NONE	R	CLERMONT
OCAL	HOMOSASSA SPRINGS	CHASSAHOWITZKA	3,488	04/93	DSS-RSC	NONE	NONE	R	CRYSTAL RIVER
OCAL	HOMOSASSA SPRINGS	HOMOSASSA SPRINGS	9,248	12/91	DMS-100	NONE	NONE	R	BEVERLY HILLS
OCAL	HOWEY-IN-THE-HILLS	HOWEY-IN-THE-HILLS	1,480	08/88	DMS-RSC	NONE	NONE	R	LEESBURG
OCAL	INVERNESS	INVERNESS	25,526	11/89	DSS-1210	NONE	NONE	H	
OCAL	LADY LAKE	LADY LAKE	12,758	08/90	DSS-1210	NONE	NONE	H	
OCAL	LEESBURG	LEESBURG	32,676	10/87	DMS-100	NONE	NONE	H	
OCAL	MOUNT DORA	MOUNT DORA	13,858	12/91	DSS-1210	NONE	NONE	H	
OCAL	OCALA	HIGHLANDS	8,302	12/91	DMS-RSC	NONE	NONE	R	OCALA
OCAL	OCALA	OCALA	48,886	08/88	DMS-100	NONE	NONE	H	
OCAL	OCALA	SHADY ROAD	23,829	08/88	DMS-100	NONE	NONE	H	
OCAL	OCALA	SILVER SPRINGS	6,039	08/88	DMS-RSC	NONE	NONE	R	OCALA
OCAL	OKLAWAHA	OKLAWAHA	3,834	08/93	DSS-1210	NONE	NONE	H	
OCAL	SALT SPRINGS	SALT SPRINGS	1,503	08/88	DMS-RSC	NONE	NONE	R	OCALA
OCAL	SAN ANTONIO	SAN ANTONIO	3,036	11/93	DMS-RSC	NONE	NONE	R	DADE CITY
OCAL	SILVER SPGS SHORES	SILVER SPGS SHORES	8,211	03/91	DMS-RSC	NONE	NONE	R	BELLEVIEW
OCAL	TAVARES	TAVARES	13,481	08/89	DMS-100	NONE	NONE	H	
OCAL	TRILACOOCHEE	TRILACOOCHEE	3,519	10/93	DMS-RSC	NONE	NONE	R	DADE CITY
OCAL	UMATILLA	UMATILLA	7,219	05/92	DMS-RSC	NONE	NONE	R	TAVARES
OCAL	WILDWOOD	WILDWOOD	7,575	10/92	DMS-RSC	NONE	NONE	R	LEESBURG
OCAL	WILLISTON	WILLISTON	5,295	08/90	DMS-RSC	NONE	NONE	R	SHADY ROAD
WNPK	APOPKA	APOPKA	30,793	10/88	DMS-100	NONE	NONE	H	
WNPK	KENANSVILLE	KENANSVILLE	667	08/89	ATT-RSM	NONE	NONE	R	KISSIMMEE
WNPK	KISSIMMEE	BUENAVENTURA LAKES	11,444	11/93	ESS-ORM	NONE	NONE	R	KISSIMMEE
WNPK	KISSIMMEE	KISSIMMEE	40,817	10/87	5ESS	NONE	NONE	H	
WNPK	MONTVERDE	MONTVERDE	1,461	10/88	ATT-RSM	NONE	NONE	R	WINTER GARDEN
WNPK	ORANGE CITY	DELTONA LAKES	12,660	10/87	DMS-RSC	NONE	NONE	R	ORANGE CITY
WNPK	ORANGE CITY	LAKE HELEN	1,806	02/89	DMS-RSC	NONE	NONE	R	ORANGE CITY
WNPK	ORANGE CITY	ORANGE CITY	11,013	10/87	DMS-100	NONE	NONE	H	
WNPK	SAINT CLOUD	SAINT CLOUD	18,322	08/90	DSS-1210	NONE	NONE	H	
WNPK	WEST KISSIMMEE	REEDY CREEK	8,615	11/90	DMS-RSC	NONE	NONE	R	WEST KISSIMMEE

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NPK	WEST KISSIMMEE	WEST KISSIMMEE	12,326	11/80	DMS-100	NONE	NONE	H	
NPK	WINDERMERE	WINDERMERE	7,276	03/83	DMS-RSC	NONE	NONE	R	APOPKA
NPK	WINTER GARDEN	WINTER GARDEN	18,096	10/80	5ESS	NONE	NONE	H	
NPK	WINTER PARK	ALTAMONTE SPRINGS	52,797	02/80	DMS-100	NONE	NONE	H	
NPK	WINTER PARK	CASSELBERRY	19,763	08/80	DMS-100	NONE	NONE	H	
NPK	WINTER PARK	GOLDENROD	44,072	08/80	DMS-100	NONE	NONE	H	
NPK	WINTER PARK	LAKE BRANTLEY	42,094	10/80	DMS-100	NONE	NONE	H	
NPK	WINTER PARK	MAITLAND	16,011	10/87	DMS-100	NONE	NONE	H	
NPK	WINTERPARK	WINTER PARK	45,264	10/87	DMS-100	NONE	NONE	H	
		TOTAL (UTP):	1,399,081						
NW	BAKER	537	2368	08/87	DMS10	NONE	NONE	H	
NW	CRESTVIEW	682	14329	08/87	DMS 100/200	NONE	NONE	H	
NW	DEFUNIAK SPGS	892	7784	08/87	DMS 100	NONE	NONE	H	
NW	FREEPORT	835	2,525	08/87	RSC	NONE	NONE	R	DFSP 892
NW	GLENDALE	859	743	08/87	RSC	NONE	NONE	R	DFSP 892
NW	PONCE DE LEON	836	1158	08/87	RSC	NONE	NONE	R	DFSP 892
WB	DESTIN	837/864	17105	08/87	DMS 100	NONE	NONE	H	
WB	FT. WALTON BEACH	243-6561/804/833/862-	44,333	08/87	DMS 100/200	NONE	NONE	H	
WB	SANTA ROSA	267	3801	08/87	RSC	NONE	NONE	R	DEST 837
WB	SEAGROVE	231	4119	08/87	RSC	NONE	NONE	R	DEST 837
WB	SHALIMAR	651	8827	08/87	DMS 100	NONE	NONE	H	
WB	VALPARAISO	678/897	18105	08/87	DMS 100	NONE	NONE	H	
VL	KINGSLEY LK	533	383	12/88	REM DMS 10	NONE	NONE	R	STRK 964
VL	LAWTEY	782	1113	12/88	REM DMS 10	NONE	NONE	R	STRK 964
VL	STARKE	964	6729	12/88	DMS 10	NONE	NONE	H	
NN	ALFORD	579	1480	08/87	RLM	NONE	NONE	R	MRNN 526
NN	BONIFAY	547	4558	08/87	RSC	NONE	NONE	R	MRNN 526
NN	COTTONDALE	352	1307	08/87	RLM	NONE	NONE	R	MRNN 526
NN	GRAND RIDGE	592	2050	08/87	DMS 10	NONE	NONE	H	
NN	GREENWOOD	594	826	08/87	RLM	NONE	NONE	R	MRNN 526
NN	MALONE	569	1288	08/87	RLM	NONE	NONE	R	MRNN 526
NN	MARIANNA	482/526	10142	08/87	DMS 100/200	NONE	NONE	H	
NN	REYNOLDS HILL	956	1444	08/87	RLCM	NONE	NONE	R	MRNN 526
NN	SNEADS	593	1771	08/87	RLM	NONE	NONE	R	MRNN 526
NN	WESTVILLE	548	894	08/87	RLCM	NONE	NONE	R	MRNN 526
HS	CHERRY LAKE	929	1207	08/87	RSC	NONE	NONE	R	MDSN 973
HS	CRAWFORDVILLE	926	5902	08/87	DMS 100	NONE	NONE	H	
HS	GREENVILLE	948	1276	08/87	RSC	NONE	NONE	R	MDSN 973

(44)

DOCUMENT NO.

PERIOD ENDING: SEPTEMBER 30, 1998
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			E.O.O.	E.A.	PRESENT	PROPOSED		HOST	
			ACCESS	SVC.	C.O.E.	C.O.E.	SERVICE	OR	
BASA	EXCHANGE AREA	CENTRAL OFFICE	LINES	DATE	EQUIPMENT	EQUIP.	DATE	REM	HOST OFFICE
TLHS	LEE	971	962	06/97	RSC	NONE	NONE	R	MDSN 973
TLHS	MADISON	973	4457	06/97	DMS 100	NONE	NONE	H	
TLHS	MONTICELLO	997	6171	06/97	DMS 100	NONE	NONE	H	
TLHS	PERKINS	964	966	06/97	RLM	NONE	NONE	R	CFVL 926
TLHS	SOPCHOPPY	962	1036	06/97	DMS 10	NONE	NONE	H	
TLHS	STEINHATCHEE	926	620	06/97	RLM	NONE	NONE	R	CFVL 926
TLHS	TALLAHASSEE	222/4/88/385/6/413/42	194,469	06/97	DMS 100	NONE	NONE	H	
		TOTAL ALL (Consol):	376,187						
		TOTAL COMPANY:	1,776,266						

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BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Petition by MCI Telecommunications Corporation for arbitration with United Telephone Company of Florida and Central Telephone Company of Florida concerning interconnection rates, terms, and conditions, pursuant to the Federal Telecommunications Act of 1996	DOCKET NO. 961230-TP

DOCUMENT RESPONSIVE TO DOCUMENT REQUEST NO. 6
(51 pages)

EI

DEPRECIATION LIVES FOR TELECOMMUNICATIONS EQUIPMENT

Review and Update

LAWRENCE K. VANSTON

RAY L. HODGES

TECHNOLOGY

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BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Petition by MCI Telecommunications Corporation for arbitration with United Telephone Company of Florida and Central Telephone Company of Florida concerning interconnection rates, terms, and conditions, pursuant to the Federal Telecommunications Act of 1996	DOCKET NO. 961230-TP

DOCUMENT RESPONSIVE TO DOCUMENT
REQUEST NO. 10
(4 pages)

PCC = D

OTHER DIRECT AND COMMON EXPENSE COST ALLOCATION

Description of Model

Steps taken to determine Other Direct Operating and Common Expense Allocation.

1. The Avoided Cost Model is used as the basis of determining the accounts and amounts considered other direct operating and common. The Avoided Cost Model uses general ledger detail to the 7th digit. For the Other Direct and Common Costs Model, the Non-Avoided costs are summarized to the 4 digit, FCC Part 32 account level for allocation to the elements.
   Expenses are categorized as follows:

   Other Direct Operating Expenses:
   - A/C 6112, Motor Vehicle Expense
   - A/C 6114, Special Purpose Vehicles Expense
   - A/C 6115, Garage Work Equipment Expense
   - A/C 6116, Other Work Equipment Expense
   - A/C 6121, Land & Buildings Expense
   - A/C 6512, Provisioning Expense
   - A/C 6531, Power Expense
   - A/C 6532, Network Administration Expense
   - A/C 6533, Testing Expense
   - A/C 6534, Plant Operations Administration Expense
   - A/C 6535, Engineering Expense
   - A/C 656X, Depreciation on Other Direct Operating Investments
   - A/C 661X, Marketing Expenses (Not Avoided)
   - A/C 6622, Print & Distribution portion of Alpha Director Expense
   - A/C 6623, Customer Service Expenses
   - A/C 7240, Property Taxes related to Other Direct Operating Investment

   Common Expenses:
   - A/C 6113, Aircraft Expense
   - A/C 6122, Furniture Expense
   - A/C 6123, Office Equipment Expense
   - A/C 6124, General Purpose Computer Expense
   - A/C 6710, Executive & Planning Expense
   - A/C 6720, General & Administration Expense
   - A/C 7240, Property Taxes related to Common Investment

   Where subaccounting detail could be used to obtain a more appropriate allocation to specific elements, such detail is used, e.g., Testing and Customer Service expenses.

   Revenues related to Non-Recurring Charges for service connections, and incidental revenues related to assets considered Other Direct and Common , i.e., rent revenues for pole attachments and buildings, are treated as contra-expenses to the Network Support Expenses (A/C 61XX).

   A portion of Common expenses is excluded, based on the relationship of avoided expenses to the sum of direct and other direct operating expenses.

OTHER DIRECT AND COMMON EXPENSE COST ALLOCATION
Description of Model

From the remaining Not-Avoided cost accounts, any accounts which should be excluded from unbundling are determined, i.e.:

Account 6311, Station Apparatus Expense
Account 6341, Large PBX Expense
Account 6351, Public Telephone Equipment Expense
Account 6362, Other Terminal Equipment Expense
Account 6540, Access Expense
Account 6562, Depreciation Expense - Property Held for Future Use
Account 6623.01, Customer Instruction Expense
Account 6623.7, Paystation Related Expenses
Account 2002, Telecommunications Property Held for Future Use
Account 2005, Telecommunications Plant Acquisition Adjustment
Account 2311, Station Apparatus
Account 2341, Large PBX Expense
Account 2351, Public Telephone Equipment
Account 2362, Other Terminal Equipment

2. By account, the Allocation Method is then determined, based on the properties of the expense or investment account. Similar to FCC Part 64 rules, the allocation methods used are:

Direct - Allocated directly to specific elements
Indirect - Allocated based on a cost causative linkage to another account
Generally Allocated - Allocated based on a summary of the direct and indirect allocated accounts

3. By account, the Basis of Allocation is then determined. Similar to FCC Part 36, 64 and 69 rules for allocation, the most logical allocation basis is selected. If an account is telephone plant related, the allocation basis is determined to be either the direct TELRIC investment for each element, or, in the case of support plant, such as Land and Buildings, a more general basis of TELRIC + Other Direct Operating costs is used.
As with any new allocation procedure, the "most logical allocation basis" may not be available until some historical data can be developed. Costs such as billing and order processing must await a demand or cost analysis of actual processing the new elements before a more realistic allocator can be determined. Until that time, a more general allocation basis is used, i.e., embedded cost by element.

As part of the allocation basis selection, it is also necessary to determine the specific elements to which the cost logically should be assigned. The results of this analysis are displayed in Attachment A, as an "X Chart" indicating the elements to which each account may be assigned. Such an "X Chart" was previously utilized in Interstate Access Tariff filings before the FCC.

4. It is necessary to allocate the embedded investment in order to determine the relationship of the Other Direct Operating and Common costs to the "direct" investment and to include the return and tax components on investments not included in TELRIC. The embedded investment is allocated among the elements based on the direct TELRIC investment in each element.

OTHER DIRECT AND COMMON EXPENSE COST ALLOCATION
Description of Model

a) General Support assets are segregated within the model between Other Direct Operating and Common as follows:

Other Direct Operating:
A/C 2111, Land
A/C 2112, Motor Vehicles
A/C 2114, Special Purpose Vehicles
A/C 2115, Garage Work Equipment
A/C 2116, Other Work Equipment
A/C 2121, Buildings

Common:
A/C 2113, Aircraft
A/C 2122, Furniture
A/C 2123, Office Equipment
A/C 2124, General Purpose Computers

b) A special study is performed to adjust the buildings investment for forward looking costs as follows:

1) Replacement cost of buildings is determined from the Risk Management data base for insurance purposes.
2) Buildings are classified and subsequently allocated as follows:
   - Central Office - COE Investment
   - Pair Gain - Directly Assigned to Loop
   - Garages - Allocated in relation to Motor Vehicles
   - Work Centers, Pole Yards & Warehouses - Allocated in relation to Cable & Wire Facilities
   - Microwave Towers - Directly Assigned to Inter-Office Transmission
   - General Office Space - Allocated in relation to Corporate Operations Expense
3) Central Office building investment is adjusted downward to reflect a utilization factor, based on digital switching space requirements.

This also allows for an overall view of results, embedded versus TELRIC.

5. Once all the costs are allocated to (or excluded from) the elements, the costs are summarized separately for direct (TELRIC), Other Direct Operating and Common.

6. Return is calculated at 6.75% to provide for a net profit by element.

7. Estimated income taxes were calculated based on the return (net profit) for each element separately for direct, Other Direct Operating and Common costs.

8. The Total Element Cost is then calculated for direct, Other Direct Operating and Common by adding the return (net profit), estimated income taxes required and the operating expenses (including state and local property taxes).

9. A set of Carrying Charge factors is then developed by dividing the Total Element Cost by the Direct investment (labeled Telephone Plant in Service). These factors are then applied to the TELRIC investment to determine the TELRIC costs including Other Direct Operating expenses.

10. The final Common Cost Factor is developed by dividing the costs summarized as Common by the sum of TELRIC Direct and Other Direct Operating costs. The resulting factor may not exceed 15%.

OTHER DIRECT AND COMMON EXPENSE COST ALLOCATION

Description of Model

11. Two final summary sheets are available. One reflects a summary of the allocated Other Direct Operating and Common costs as a percentage of Gross Telephone Plant in Service for each element.
    The second summary reflects the dollar amounts generated by applying the percentages from the first sheet to the TELRIC investment entered by element. The TELRIC expenses are also required input, but may be input as percentages, on sheet one, or dollars, on sheet two.

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Petition by MCI Telecommunications Corporation for arbitration with United Telephone Company of Florida and Central Telephone Company of Florida concerning interconnection rates, terms, and conditions, pursuant to the Federal Telecommunications Act of 1996	DOCKET NO. 961230-TP

DOCUMENT RESPONSIVE TO DOCUMENT
REQUEST NO. 47
(2 pages)

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EXHIBIT NO. _____

DOCKET NO: 961230-TP

WITNESS: RANDY G. FARRAR

PARTY: SPRINT CENTEL/UNITED

DESCRIPTION:

CONFIDENTIAL

SUPPLEMENTAL DIRECT TESTIMONY (PAGES 63-71 AND 84 OF RGF-3).

COMPOSITE EXHIBIT RGF-3 TO DIRECT TESTIMONY (LOCAL SWITCHING TELRIC RESULTS).

SPRINT CENTEL/UNITED'S RESPONSE TO STAFF'S 1ST SET OF INTERROGATORIES (NOS. 19, 22B, AND 44A).

PROFFERING PARTY: STAFF

I.D. # RGF-9

FLORIDA PUBLIC SERVICE COMMISSION
DOCKET NO. 961230-TP EXHIBIT NO. 36
COMPANY/ WITNESS: STAFF
DATE: 12/18/96

EXHIBIT NO. _____

DOCKET NO: 961230-TP

WITNESS: RANDY G. FARRAR

PARTY: SPRINT CENTEL/UNITED

DESCRIPTION:

CONFIDENTIAL

SPRINT CENTEL/UNITED'S RESPONSE TO STAFF'S 1ST SET OF REQUEST FOR PRODUCTION OF DOCUMENT (NOS. 2-4, 7-8, 10, 12-17, 19-20, 28, 31, 34, 38, AND 43).

PROFFERING PARTY: STAFF

I.D. # RGF-10

FLORIDA PUBLIC SERVICE COMMISSION
DOCKET
NO. 961230-TP EXHIBIT NO. 27
COMPANY
WITNESS: STAFF
DATE 12/18/96

Benchmark Cost Model 2
Methodology

Introduction

The purpose of the model is to estimate a benchmark cost of providing basic local telephone service for both business and residence customers in small geographic areas for the entire U.S. and its territories. Small geographic areas are used because the cost of providing basic telephone service varies greatly even within the geographic unit of the wire center. Thus, the use of small geographic areas allow the model to identify specific areas which are high cost to serve because of the physical characteristics of the area.

The BCM2 assumes all plant is placed at a single point in time. All facilities are created as if the entire country is a new service area. Therefore, the BCM2 reflects the costs a telephone engineer faces installing new service to existing population centers.

BCM2 is a geographically-based high level engineering model of a hypothetical local network. The basic geographic units used by the model are Census Block Groups (CBGs), as designated by the U.S. Bureau of the Census. There are over 226,000 covering the entire U.S.[1] The basic data provided by the Census Bureau are the geographic boundaries of the CBG, the geographic center (centroid) of the CBG, and the number of households in the CBG. In addition to the Census data, terrain information from the U.S. Geologic Survey (U.S.G.S.) is developed by CBG. This information includes data which impacts the cost of placing telephone plant into service. The terrain data includes water table depth, depth to bedrock, hardness of the bedrock, surface soil texture, and the slope of the terrain. Another data item developed by CBG is an estimate of the number of business lines. This number is developed based on a third party data base of employees by CBG. These preceding items contain all the CBG characteristics necessary for input to BCM2.

The BCM2 starts with the existing central office locations throughout the country. The source of the central office locations is Bellcore's Local Exchange Routing Guide (LERG). This data is input into a geographic information system where each CBG is associated with the closest central office. Once all CBGs are associated with central office locations, this information plus the relative physical locations and CBG information are input to the BCM2. This basic input information allows the BCM2 to design a local exchange network utilizing a tree and branch topology.

[1] BCM2 is capable of using any small geographic unit, such as a census block or the land Utilized by the Cost Proxy Model (CPM) developed by Pacific Telesis and [illegible].

FLORIDA PUBLIC SERVICE COMMISSION
DOCKET NO. 961230-TP EXHIBIT NO. 28
COMPANY/ WITNESS: Sprint / Dunbar
DATE: 12-18-96

BCM2 methodology is presented below in the following sections:

- Assumptions for Loop Technology
- Assumptions for Feeder Plant Architecture
- Assumptions for Distribution Plant Architecture
- Assumptions for Switch Technology
- Assumptions for Density
- Algorithms to Develop Basic Local Service Costs
- User Adjustable Inputs

Prior to addressing BCM2 methodology a brief description of the major model changes from the original BCM is provided in the following section.

Major Changes From BCM to BCM2

Based upon public comments and analyses of the BCM, a number of enhancements have been incorporated into BCM2. These enhancements are designed to more accurately reflect actual engineering practices in the development of a local exchange network. BCM2 includes all costs of basic local telephone service, whereas the BCM only included the major cost drivers that differentiated high cost and low cost areas. The major changes from BCM to BCM2 follow.

Population Distribution

The BCM2 rural CBG input data are modified by a Geographic Information System module to reduce the square mile area of the CBG to an area that reflects the clustering of households. This is done utilizing a third party road network database to identify the areas within the CBGs which have the highest probability of containing households. A 500 foot buffer is created on each side of roads in CBGs with 20 households per square mile or less. A new area is calculated by the buffer area. If road buffers overlap, the area is not double-counted.

Business Line Information

The BCM2 includes business lines, private line loops, as well as residential lines by CBG. State specific counts for reported business lines and private line loops are allocated to CBGs based on a third party data base of employees by CBG. Additional residential demand beyond a single line per household is included based on the national ratio of all residential lines reported in the end of year 1994 as a ratio of 1990 households.[2] The

[2] BCM2 has a user variable input for the number of lines per household. The default value is 1.2.

inclusion of these lines allows the realization of all economies of scale associated with loop plant within the wire center.

Engineering Assumptions

Additionally, there are four major areas where the engineering assumptions changed from BCM to BCM2: switching plant, distribution plant, feeder plant, and the placing of a cap on wireline loop investment.

The BCM2 switching module changes includes five switch sizes to more closely reflect the switch application. The new switch module uses the Local Exchange Routing Guide information for remote switch locations to place remote switches in the locations where they are currently installed. Additionally, stand alone switch sizes of up to 10,000 lines, 10,000 to 60,000 lines, 60,000 to 100,000 lines and over 100,000 lines are used.

The BCM2 distribution plant engineering has been altered to reflect the distribution demands of each CBG. Varying the distribution plant engineering assumptions in urban areas aligns the BCM2 engineering designs more closely with actual engineering practices in these areas. This is done by basing the number of distribution plant cable legs on the number of housing lots in each CBG. The original BCM utilized a simplifying assumption of a constant four distribution cables per CBG.

Another distribution plant enhancement is that no copper distribution distances exceed those specified by the user. The maximum copper distribution distance is a user input with a 12,000 foot default. The limitation of copper technology serving distance has the effect of producing multiple distribution areas within rural CBGs, which in effect extends the feeder plant facilities into the CBG. This change also aligns BCM2 more closely with actual engineering practices. The original BCM assumed all plant within the CBG was copper distribution plant and that there would always be four distribution cables.

Two other areas of distribution plant engineering changes are driven by high concentrations of business lines in a CBG. The first change is that if a CBG line count exceeds 2,016, a variable percentage of lines will be terminated at the DS1 level to reflect costs of providing service to digital PBXs and providing wideband private line services. This is a user variable input. Additionally, if line demand for a single CBG exceeds the capacity of a maximum size copper cable, fiber will be deployed to the CBG regardless of the distance.

The third major area of engineering assumption change is that the costs for feeder plant digital loop carrier (DLC) systems reflect the fixed and variable nature of the costs. This ensures that the cost for DLC equipment properly reflects the effects of the equipment loading in each CBG. This is an important change since there can now be multiple remote terminals within a CBG for two reasons. First, the inclusion of business lines can cause the line demand to exceed that which can be provided by a single remote terminal. Second, the maximum copper distribution distance can cause the deployment of multiple remote terminals.

The final major area of change is the assumption that an alternative wireless loop technology is utilized for loops requiring investment levels in excess of the cost of an alternative wireless technology. Based upon ongoing trials, a value of $10,000 per loop is used in BCM2.

Other Enhancements

There are a number of other enhancements included in the BCM2. The BCM2 includes costs of the local loop not previously reflected in the original BCM[3], slope data is included in the BCM2 input data, and new variables that impact structure costs are available for future use. Another area of change provides separate annual cost factors for cost items that are plant related and a separate annual cost factor for line-related expenses. Three separate plant related factors are utilized for cable and wire facility investment, circuit equipment investment, and switch equipment investment.

Model Methods

Assumptions for Loop Technology

Feeder cable (cable placed so that it can be supplemented at a later date) is deployed as analog copper plant where the total loop distance is less than the user-specified maximum copper cable length.[4] If the loop distance exceeds the maximum loop distance value, fiber feeder plant is deployed. Fiber Feeder may extend into the CBG to maintain the maximum copper distribution cable distance.

Distribution plant may contain analog copper technology when terminating signals at a voice grade level, or may utilize fiber loop technology or digital

[3] BCM2 includes costs for the pedestal, drop wire, network interface device, in-line terminals, splicing and engineering.

[4] The user may specify maximum copper distances of 9,000 feet, 12,000 feet, 15,000 feet or 18,000 feet.

carrier on copper, when terminations are made at the DS1 signal level for a percentage of business lines.

BCM2 uses two types of DLC equipment depending on the number of lines needed at each remote terminal location. For a remote terminal requiring line capacities greater than 240 lines, Lucent Technologies SLC Series 2000 equipment is used. For remote terminal requiring 240 lines or less capacity, Advanced Fiber Communications equipment is used. Both products are deployed in drop/add configurations, with SLC having a total capacity of 2,016 voice grade channels per four fibers and AFC having a total capacity of 672 voice grade channels per four fibers.

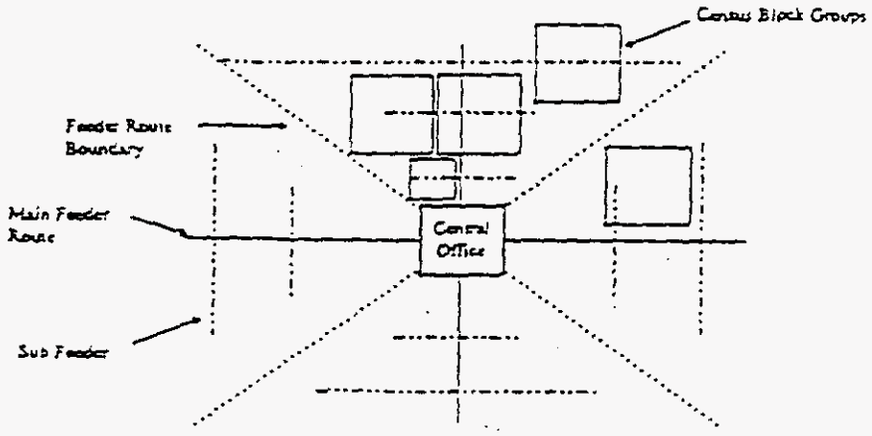
Assumptions for Feeder Plant Architecture

Feeder plant uses a tree and branch topology, with plant routes intersecting at right angles. Each feeder cable begins at the central office and generally ends at a terminal at the edge of a CBG. However, fiber feeder may extend into the CBG to ensure that the user specified maximum copper cable length is not exceeded.

Four main feeder routes leave each central office[5]: directly East (quadrant 1); directly North (quadrant 2); directly West (quadrant 3) and directly South (quadrant 4). The feeder route boundaries are at 45 degree angles to the main feeder routes.

[5] A central office may have less than four feeder routes if no CBGs are located within a feeder quadrant.

Feeder Plant Architecture



Both copper and fiber feeder cables share the structure and placement costs in the main feeder systems. As the main feeder routes move away from the central office and deploy cable capacity to the CBGs, the feeder cables taper in size to the capacity necessary for each individual segment.

Copper feeder cables range in size from 25 pair cable to 4,200 pair cable, while fiber feeder cable sizes range from 12 strand cable up to 144 strand cable. Feeder plant costs include the material cost of cable and electronics, as well as the capitalized cost of structure and placing the cable, electronics costs at the central office and remote terminals, as well as costs of in-line terminals, splicing and engineering.

Assumptions for Distribution Plant Architecture

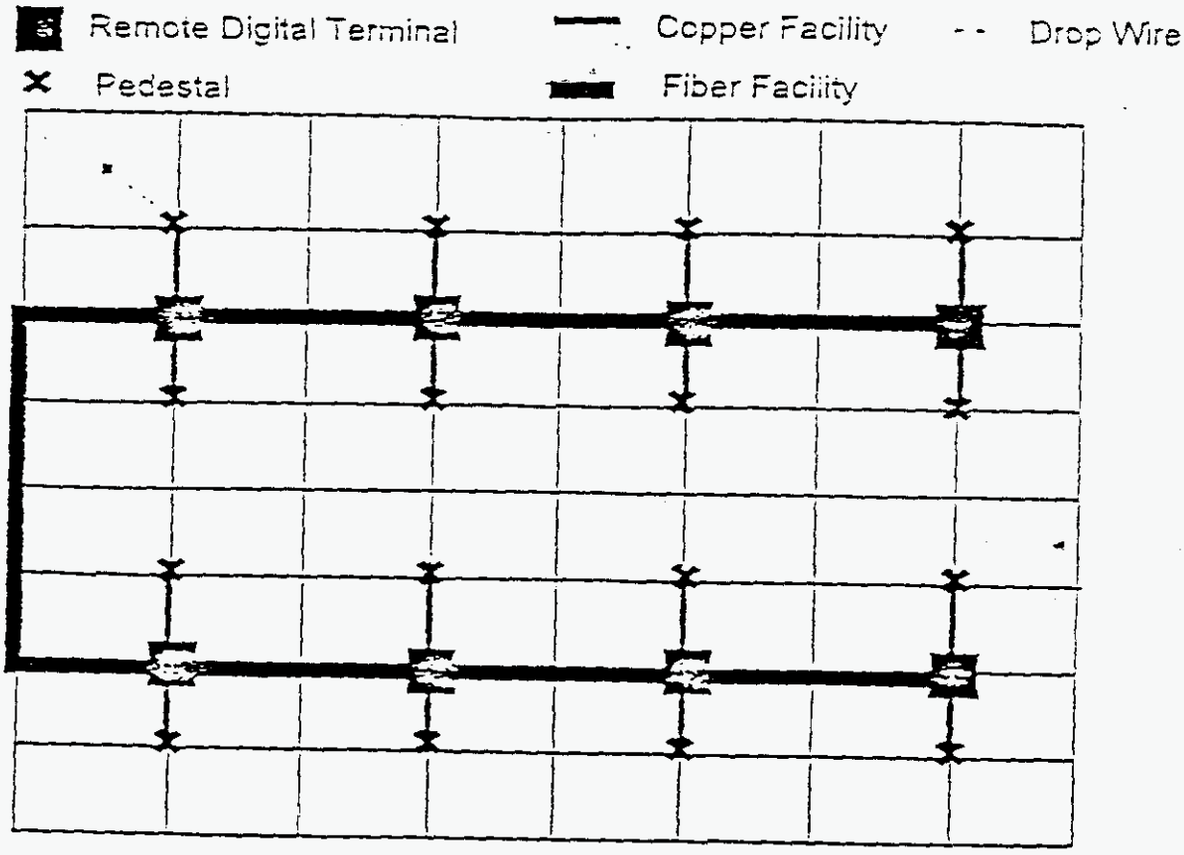
The BCM2 assumes that all households within a CBG are uniformly distributed. In rural areas, the CBG area input data has been reduced reflecting the removal of areas that do not have road access.

Distribution cable begins at the end of the feeder cable and continues to the customer premise. The distribution plant is designed to reach all households in the CBG through the placing of cables between subdivision lot lines.

BCM2 more precisely designs distribution plant for each CBG to ensure cables pass by each premise. The number of distribution cables may be as few as one for a small CBG to 20 or more cables in more densely populated CBGs.

In larger rural CBGs, it may be necessary to extend the fiber feeder into the CBG itself to maintain copper cable lengths less than the user specified maximum. An example of fiber extending into the CBG is displayed below.

Example of Distribution Plant With Fiber



Investments for distribution plant include the material cost of the cable and its cost of structure, as well as the network interface device, the drop wire, the pedestal, in-line terminals, digital terminals, splicing and engineering. Distribution cable sizes range from 12 pair cable to 3600 pair cable.

Since business lines are now included by CBG, the BCM2 distribution architecture uses fiber distribution cable in very dense CBGs that require

larger cable capacity than a maximum size copper distribution cable. Additionally, BCM2 terminates a percentage of the lines in these dense CBGs at a digital DS-1 signal level, since a percentage of businesses have digital PBXs or wideband services that utilize such capacity.

Assumptions for Switch Technology

The BCM2 uses five different size generic digital switches for calculating switch investments. Using Bellcore's LERG information, a switch is designated as a remote switch or a stand-alone switch. Stand alone switches are split by line size grouping: up to 10,000 lines; 10,000 lines to 60,000 lines, 60,000 lines to 100,000, and over 100,000 lines. Each size switch has a unique fixed or start up cost and a unique per line cost. The start up cost includes central processor frames, billing and data recording equipment and frames, miscellaneous power equipment and back-up power, the main distribution frame, frames for testing, and basic software.

Assumptions for Density

CBG densities are calculated in a three step process. First, the business lines are divided by a user input density adjustment. The default value for the density adjustment is 10 business lines occupying the physical space of one household line. In the second step, the adjusted business lines are summed with the CBG households. Finally, this sum is divided by the square miles of the CBG. This insures that the proper density characteristics are assigned to the CBG.

The BCM2 uses six different density groups to determine characteristics of the plant being used. The six density groups are as follows:

- 0 < and <= 5
- 5 < and <= 200
- 200 < and < 650
- 650 < and <= 850
- 850 < and <= 2,550
- > 2,550

The density groups determine the mixture of aerial and below ground plant, feeder fill factors, distribution fill factors, and the mix of activities in placing plant and the cost per foot to place plant. These are all user adjustable inputs.

Terrain Assumptions

U.S.G.S. data for four terrain characteristics that impact the structure and placing cost of telephone plant are included as inputs to BCM2 by CBG. These terrain variables include depth to water table, depth to bedrock, hardness of bedrock, and the surface soil texture. Combinations of these characteristics determine one of four placement cost levels. The normal placement cost for a density group occurs when neither the water table depth nor the depth to bedrock is within the placement depth for the cable and the surface soil texture does not interfere with plowing activities. The next higher level of placing cost occurs when either the surface soil texture does interfere with normal plowing activities or soft bedrock is within the cable placement depth. The third level of placing difficulty occurs when hard bedrock is within the placement depth of copper cable or fiber cable. The last level of placement cost difficulty occurs when the water table is present within the placing depth of copper or fiber cable.

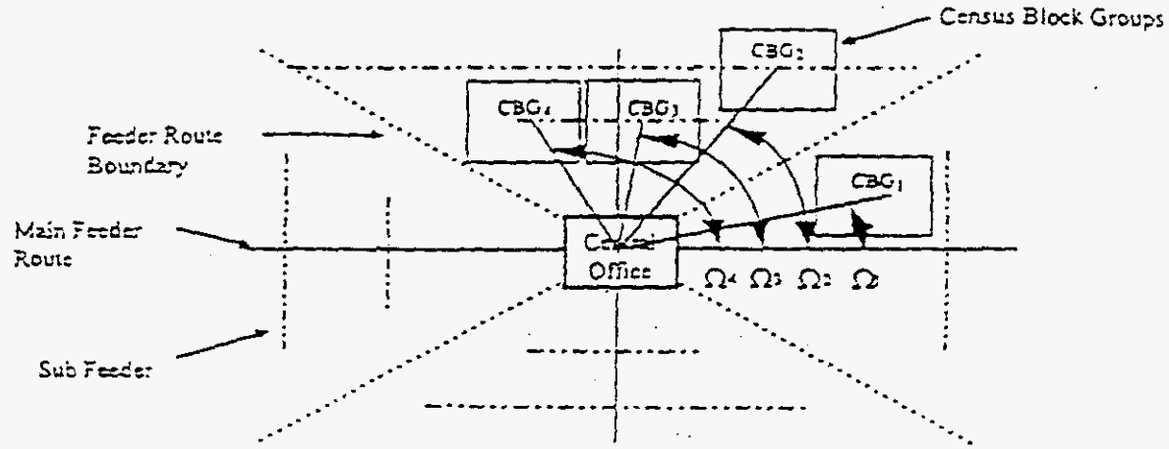
Algorithms to Develop Basic Local Service Costs

Feeder Plant Distance

Typically, each LEC central office has four main feeder routes, radiating out from the central office (BCM2 uses an East, a North, a West, and a South main feeder routes). Branching off from the main feeders are sub-feeders, typically at right angles to the main feeder, giving rise to the familiar tree and branch topology of feeder routes. Subscribers or homes are somewhat randomly spread within the route serving areas. The routes become less densely populated as the distance from the central office increases.

The geographic centers (centroids) of the CBGs may fall in any of the four feeder route serving areas. In order to determine on which of the four main feeder routes (or quadrants) a CBG is served, an angle Ω is calculated. The angle Ω represents the counter-clockwise rotational angle between a line connecting the CBG with the closest central office and a line headed directly east from the central office. This is displayed in the figure below.

Determination of Feeder Quadrant



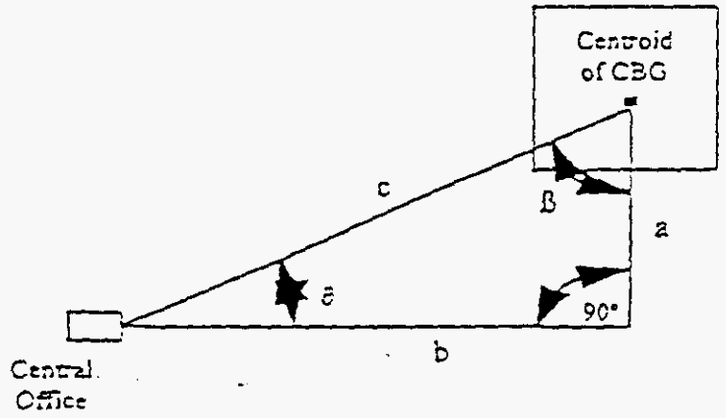
The relationship between the angle Ω and the feeder route is found in the table below:

East Feeder Route (Quadrant 1)	315°	<=	45°
North Feeder Route (Quadrant 2)	45°	<=	135°
West Feeder Route (Quadrant 3)	135°	<=	225°
South Feeder Route (Quadrant 4)	225°	=	315°

To estimate feeder plant costs for a given CBG, the length of the feeder cable from the closest central office to the CBG is approximated. For purposes of simplification, it is assumed that each CBG is square in shape, with the households within the CBG distributed uniformly. As discussed, in CBGs with less than 20 households per square mile, CBG area is reduced to eliminate non-populated areas. Additionally, it is assumed that sub-feeder cable generally ends at the edge of the CBG, unless the CBG boundary overlaps the main feeder route, in which case no sub-feeder plant is used. Thus, calculating the feeder distance becomes a two-step process.

First, an airline distance is calculated using the latitude and longitude of the closest central office and the latitude and longitude of the centroid of the CBG. Next, the airline distance is converted to an equivalent feeder plant route length. This conversion becomes a simple mathematical model.

Feeder Distance Calculation



Airline distance between the central office and CBG centroid = Line c

Angle between Main Feeder Route (Line b) and Line c = α

Main Feeder Route Distance to CBG = Line b = c * cos α

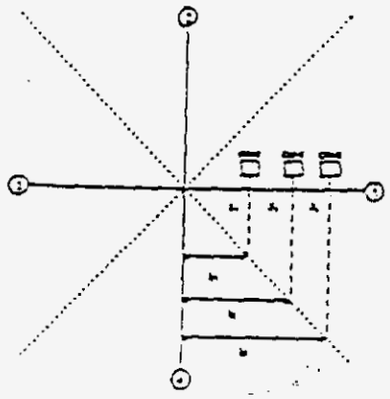
Sub-feeder route distance is calculated in a similar manner, however, the sub-feeder does not extend into the CBG.

The preceding distance calculations may be increased if the minimum or maximum slope measurements for a CBG reach the trigger values. If the slope is greater than the trigger value, then the feeder and sub-feeder distance are increased by a user specified factor.

Shared Feeder Plant Distance

CBGs that are served along a common feeder route share feeder facilities. The BCM2 calculates the distances for the shared feeder segments by calculating the Line b distance described above for each CBG in a quadrant. Once the Line b distances are calculated, the model sorts the CBG data first by central office, then by quadrant, and finally by Line b distance. An example of three CBGs in main feeder quadrant 1 is shown below.

SHARED FEEDER DISTANCE CALCULATION



In this example, there are three feeder segments in quadrant 1, main feeder segment X_1, main feeder segment X_2, and main feeder segment X_3. The formula for calculating the feeder segment distance is:

For n (the number of CBGs within a quadrant) > 1,

Main feeder segment $X_n = b_n - b_{n-1}$

The total feeder distance for a CBG is the sum of main feeder distance and sub-feeder distance.

Cable Capacity and Material Investments for Shared Feeder Plant

The required capacity of a segment of copper feeder plant is determined by the sum of the lines of all CBGs utilizing that particular segment and copper technology. Next, the sum of these lines is divided by the fill factor for the density group associated with the segment. This calculation yields the copper cable capacity required for the segment. The BCM2 then "looks up" the cable capacity in a table to determine the actual cable size available (and its associated cost per foot) to meet the segment capacity. If the required capacity is greater than the size of the largest available cable, the BCM2 determines the number of maximum size cables and the next size cable to meet the capacity needs of the segment. The copper feeder cable sizes available in the model are 25, 50, 100, 200, 400, 600, 900, 1200, 1800, 2400, 3000, 3600, and 4200 pair.

The required capacity for a segment of fiber feeder plant is determined in a similar manner, however, SLC technology and AFC technology cannot share fiber strands because of differing transmission parameters. For SLC systems, four fibers can carry up to 2,016 voice grade paths. If the segment capacity exceeds this limit, four additional fibers are required for each increment of 2,016 voice grade paths. For AFC systems, four fibers can carry up to 672 voice grade paths. Like SLC, each additional increment of 672 voice grade paths capacity requires an additional four fibers. The voice grade paths are determined by technology by summing the lines by CBG utilizing the particular technology and dividing the sum by the fill factor associated with the density group of the feeder segment.

The total capacity for a fiber feeder segment is the sum of the required SLC fiber strands and required AFC fiber strands. The BCM2 determines the number of maximum size fiber cables and the size of the additional fiber cable to meet the capacity needs of the segment. The fiber feeder cable sizes available in the model are 12, 18, 24, 36, 48, 60, 72, 96, and 144 strands.

Once each feeder segment's cable size and cost per foot is determined, a total material cost is calculated for the segment. This calculation is the material cost per foot multiplied by the number of feet of the feeder segment. Each CBG that utilizes the segment facilities shares the material cost on an equal cost per unit (per line).

Distribution Plant Distances

The design of the plant within a CBG is dependent upon the number of square miles within the CBG, as well as the number of households served within the CBG. First, the CBG is checked to determine if the width of the CBG is greater than twice the maximum copper serving distance (specified by the user). If the width is greater, then the appropriate number of feeder-type legs will be extended into the CBG to sub-divide the area into multiple distribution areas.

The vertical distribution distance per feeder-type leg within the CBG is calculated as width of the CBG divided by the number of feeder-type legs, less two base lot side lengths. The horizontal serving distances for copper facilities within the CBG are calculated as the maximum copper serving distance less one-half the width of the CBG and one base lot side length. However, if the horizontal distances are so large as to require the use of remote terminals on the horizontal legs then the horizontal copper facility distance is calculated as one half the number of base lots between remote terminals multiplied by the base lot side length. Fiber is deployed into the horizontal plant legs when remote terminals are used. In this case, the horizontal plant length is calculated as the width of the CBG, less the distance between remote terminals, less a base side lot length.

Cable Capacity and Material Investments for Distribution Plant

Copper cable and fiber cable capacities for distribution plant are determined in a similar manner as feeder plant. However, distribution plant only provides capacity to serve lines within the CBG. Thus, for distribution plant each of the horizontal plant legs serves an equal portion of the CBG line capacity as do the vertical legs. As with feeder plant the cable sizes (and their cost per foot) deployed by the model are determined by utilizing a "look up" table of the number of lines served by each cable leg (done separately for horizontal and vertical cables) divided by the fill factor for the CBG's specific density group.). The copper distribution cable sizes available in the model are 12, 25, 50,100, 200, 400, 600, 900, 1200, 1800, 2400, 3000, and 3600 pair. The fiber distribution cable sizes available in the model are 12, 18, 24, 36, 48, 60, 72, 96, and 144 strands.

The total distribution cable material investment is calculated as follows for both copper cable and fiber cable:

Distribution Cable Investment = Number of Horizontal Distribution Legs * Horizontal Distribution Distance * Horizontal Cable Cost Per Foot + Number of Vertical Distribution Legs * Vertical Distribution Distance * Vertical Cable Cost Per Foot

Structure and Placement Costs

Structure and the cost of placing plant include the costs of poles, conduit, innerduct, etc., and the capitalized costs of installing cable and wire facilities plant. The BCM2 uses a cost per foot for structure that varies by plant type, terrain, and density group. It represents the cost of structure and placing the smallest size cables. Each density group and terrain difficulty reflects a different mix of placing activities and structures. The basic structure calculations are done outside the BCM2. Following is an example of the calculations for below ground plant for the three different levels of terrain difficulty associated with the 650 to 850 Households per Sq. Mi. density group.

		650-850 Normal		
Activity	S/FT	% of Activity		
Plow	0.7		S	-
Rocky Plow	1.15		S	-
Trench & Backfill	1.95	25.00%	S	0.49
Rocky Trench	2.23		S	-
Backhoe Trench	2.04	5.00%	S	0.10
Hand Dig Trench	2.23	5.00%	S	0.11
Bore Cable	12.12	20.00%	S	2.42
Push Pipe & Pull Cable	9.8	5.00%	S	0.49
Cut & Restore Asphalt	8.23	10.00%	S	0.82
Cut & Restore Concrete	10.84	10.00%	S	1.08
Cut & Restore Sod	2.06	20.00%	S	0.41
		100.00%	S	5.93
Conduit	40	0.50%	S	0.20
				5.13

Activity	S/FT	650-850 Rock Soft % of Activity	
Plow	0.7		$ -
Rocky Plow	1.15		$ -
Trench & Backfill	1.95		$ -
Rocky Trench	2.23	25.00%	$ 0.56
Backhoe Trench	2.04	5.00%	$ 0.10
Hand Dig Trench	2.23	5.00%	$ 0.11
Bore Cable	12.12	20.00%	$ 2.42
Push Pipe & Pull Cable	9.8	5.00%	$ 0.49
Cut & Restore Asphalt	14.23	10.00%	$ 1.42
Cut & Restore Concrete	16.84	10.00%	$ 1.68
Cut & Restore Sod	4.1	20.00%	$ 0.82
		100.00%	$ 7.61
Conduit	40	0.50%	$ 0.20
			7.81

Activity	S/FT	650-850 Rock Hard % of Activity	
Plow	0.7		$ -
Rocky Plow	1.15		$ -
Trench & Backfill	1.95	5.00%	$ 0.10
Rocky Trench	10.23		$ -
Backhoe Trench	2.04		$ -
Hand Dig Trench	10.23	25.00%	$ 2.56
Bore Cable	12.12	10.00%	$ 1.21
Push Pipe & Pull Cable	14.8	10.00%	$ 1.48
Cut & Restore Asphalt	16.5	25.00%	$ 4.13
Cut & Restore Concrete	19.2	25.00%	$ 4.80
Cut & Restore Sod	11.15		$ -
		100.00%	$ 14.27
Conduit	40	0.60%	$ 0.24
			14.51

The tables above display the development of a weighted cost per foot for below ground structure. The first column shows the activity. The second column displays the cost per foot of the activity in that row. The cost per foot data used as the default values in the BCM2 are based on a national average of available

contractor prices for that activity. The third column displays the percent of the activity in the specific density group and terrain difficulty. The final column represents the multiplication of the cost per foot and the percent occurrence of the activity. The final weighted average above is the sum of specific activity prices times the percent occurrence.

The Cost Factor Table in the BCM2 includes a weighted average structure cost per foot for below ground plant and aerial plant. This table includes separate entries for distribution plant, copper feeder plant, and fiber feeder plant by density group by terrain difficulty. Structure costs are adjusted for cable size in the structure cost calculations. As copper cable sizes increase, there are additional handling costs because each cable reel holds less cable. The BCM2 structure costs recognizes these additional handling costs separately for three copper cable size groupings: 600 - 900 pair, 1200 pair, and 1800 pair and above. Additional handling costs for fiber cables are less pronounced and only occur with fiber cables of 72 fiber strands or more. The final element of the structure and placement cost is the cost to pull the largest size cables through conduit. The structure cost calculation follows:

Structure Cost = Density Group Terrain Specific Cost Per Foot * Cable Length * Cable Size Factor + Number of Maximum Size Cables * Cost Per Foot to Pull Underground Cable Through Conduit

Switch Equipment Investments

Switching investments are calculated based on current central office locations as reported in the LERG. Investments are calculated using generic digital switch investments for five sizes of switch. The BCM2 categorizes the switch at each location either as a remote (if designated as a remote switch in the LERG) or by the number of CBG lines, both residence and business associated with the switch location. The total switching plus interoffice investment per line is calculated as follows:

Location Specific Fixed Costs Per Line =

((Fixed Cost for Specific Remote/Line Size) * (NTS % of Switch + (1 - NTS % of Switch) * (% Local DEM)) / Lines at Location

Total Switch and Inter-Office Investment Per Line =

Land & Building Factor * Switch Equip Discount * Switch Engineering Factor * Switch InterOffice Investment Ratio * (Fixed Switch Cost Per Line + Switch Size Specific Per Line Cost)

Circuit Equipment Investments

The BCM2 uses SLC and AFC digital loop carrier equipment investments split between the fixed costs of the remote terminal and digital loop carrier costs that vary by line. The fixed remote terminal costs include the optical line interface units, software, cabinet, power, and the access resource manager common card kit. The per line component includes the line card and shelves at the remote terminal, as well as all the components of the central office terminal.

The circuit equipment investments by CBG are developed through the use of a "look up" table which provides the appropriate fixed terminal cost for the number of lines using the terminal, as well as the cost per line for the individual terminal size. When these investments are found in the table, the discount factor is applied, as well as the engineering and installation factor.

Annual Cost Factors

Throughout the BCM2 process, all cost calculations are derived in terms of investment. In order to determine a monthly cost for basic local service by CBG, the BCM2 uses both investment related expense factors and line related expense factors.

The investment related factors are developed separately for three plant categories: cable and wire facilities, switching equipment, and circuit equipment. For each of these three investment categories, 1995 ARMIS data is used to derive the historical ratio of certain investment related expenses to the gross investment for the plant category. The expense categories include:

Return on Investment at 11.25 %
FIT, State, and Local Taxes
Plant Specific Expenses
Plant Non-Specific Expenses
Depreciation/Amortization

Using national 1995 ARMIS data the historical booked expenses were developed. Thus, the factors reflect the historical maintenance expense to investment relationship as well as regulatory-approved depreciation lives. These factors are user adjustable. The BCM2 default values for the three plant category annual cost factors are:

Cable & Wire	.23276
Circuit Equipment	.24241
Switching Equipment	.25703

The expenses that vary based on the number of lines includes customer operations - marketing, customer operations - services, corporate operations, and other depreciation/amortization. This cost per line is also developed from 1995 ARMIS. This annual cost per line is $133.39. The BCM2 uses an allocation factor to associate non-plant related expenses to local service. Both the annual cost per line and the allocation factor are user adjustable. The BCM2 default value for the allocation factor is .75.

User Adjustable Inputs

Nearly all the variables included in the BCM2 are user adjustable. U S WEST and Sprint have set default values for the inputs at levels that they feel represent forward-looking practices for the deployment of basic local telephone service. Attachment A is a map of the User Inputs and Tables. This map indicates where specific input tables are located on the Input Tables worksheet.

Below are listed the BCM2's user inputs. Following the user input list are user adjustable tables used in the calculations of investments.

USER INPUTS TO MODEL

Variable	Value	Description
NormalUGDepth	24	Normal Placement Depth in inches for Buried/Underground Copper Cable
NormalFiberDepth	36	Normal Placement Depth in inches for Buried/Underground Fiber
CriticalWaterDepth	3	Depth in feet at which water impacts placement costs
WaterFactor	30	% Cost increase for presence of water within critical depth
ResLinesMultiplier	1.21	Residence Lines per household multiplier
MaxFiberSize	144	Maximum Fiber Cable Size
MaxFeederSize	4200	Maximum Copper Feeder Cable Size
Max DistSize	3600	Maximum Copper Distribution Cable Size
CprMaxDist	12000	Maximum length of copper cable in the CBG distribution area
NewTerrainTrigger	5	Value that triggers new terrain variable multiplier
NewTerrainFactor	1	Cost multiplier when new terrain variable exceeds trigger point
MinSlopeTrigger	12	Point at which minimum slope effects placement distance

MinSlopeFactor	1.1	Change in distance due to increased average slope
MaxSlopeTrigger	30	Point where presence of very high slope causes yet more cable distance
MaxSlopeFactor	1.05	Change in distance due to a maximum only slope presence
CombSlopeFactor	1.2	Secondary change in distance due to substantial slope presence
EngrInstall	35	Engineering and installation loading factor for electronics
ElectronicFill	0.85	Fill Factors for Electronics
HiCapFill	0.95	Fill Factors for High Capacity Optic Multiplexers
SpecAccRatio	0.13	Ratio of Special Access Lines to Business and Special Access
DensAdjUnits	10	Average Number of Business lines per location
OpticsCost	162000	Average cost for each DS-3 for CO and field DS3 to DS1 multiplexers
CopperT1	1133	Average Cost per DS-1 on copper (both terminals & repeater)
InterofficeSwRatio	1.03	Multiplier to add interoffice trunking cost
	20	Digital Switching Discount % (Enter whole %)
	20	Fiber Cable Discount % (Enter whole %)
	20	Copper Cable Discount % (Enter whole %)
	10	AFC Electronics Discount % (Enter whole %)
	20	SLC Electronics Discount % (Enter whole %)
DropCostPerFoot	0.1	Drop Cost per FT
PedestalCost	48.22	Cost of Pedestal
NidCost	30	Cost per NID
Input Variables for switching and overheads'		
SwitchEngrFactor	1.07	Loading Factor for Switch Engineering
SwitchFillFactor	0.8	Switch Fill Factor
SwLandBldgFactor	1.043	Sw Land & Building Factor
NonTrSen	70.00%	% Non Traffic Sensitive (Enter as decimal)
TrSen	73.93%	% of Traffic Sensitive that is local (Enter as decimal)
OSPEngrFactor	1.05	Loading Factor for Outside Plant Engineering
FiberSpliceRatio	0.045	Loading Factor for splicing of fiber cable (Enter as decimal)
FiberInLineRatio	0.07	Additive for in line pedestals, cross connects, etc. (fiber)
CopperSpliceRatio	0.07	Loading Factor for splicing of copper cable (Enter as decimal)
CopperInLineRatio	0.1	Additive for in line pedestals, cross connects, etc. (Copper)
CableWireFactor1	0.23276	Factor 1 for cable & Wire Facilities
ElectronicsFactor1	0.24241	Factor 1 for circuit Facilities
SwitchingFactor1	0.25703	Factor 1 for Switching facilities
OtherFactor1	133.391	Factor 1 for other loading per line served
OtherAllocRatio1	0.75	Allocation Factor 1 applied to non-plant related expenses

CableWireFactor2	0.23276	Factor 2 for cable & Wire Facilities
ElectronicsFactor2	0.24241	Factor 2 for circuit Facilities
SwitchingFactor2	0.25703	Factor 2 for Switching facilities
OtherFactor2	133.391	Factor 2 for other loading per line served
OtherAllocRatio2	0.45	Allocation Factor 2 applied to non-plant related expenses
CprSizeFac1	1.2	Structure Cost multiplier for cables 401 to 900 pr versus < 400 pr
CprSizeFac2	1.3	Structure Cost multiplier for cables 901 to 1500 pr versus < 400 pr
CprSizeFac3	1.4	Structure Cost multiplier for cables 1501 to max size versus < 400 pr
FbrSizeFac	1.2	Structure Cost Multiplier for fiber cables >60 fibers versus < 60 fibers
UGPullCost	0.77	Cost per ft to pull UG cables into conduit duct

Miscellaneous Calculations (Do not change any value!)

AfcDiscount	0.9	AFC Pricing ratio after Discount
SlcDiscount	0.8	SLC Pricing ratio after Discount
FiberCostRatio	0.8	Fiber cable cost factor
CopperCostRatio	0.8	Copper Cable Cost factor
SwitchingCostRatio	0.8	Digital Switching cost ratio after discount
OptionalBenchMark		Optional Benchmark to replace 80
LoopInvCap	10000	Loop Investment Cap
Breakpoint	12000	Fiber/Copper breakpoint

Miscellaneous Notes

1. Switching costs are entered as a fixed cost per switch plus the per line additive. Both costs must be included to accurately reflect switching costs. The fixed cost will be converted to a per line cost and added to the per line additive to determine final switching cost per line. Costs are in the switch cost matrix above and to the right. The % Non traffic sensitive is applied to the fixed cost portion of the switch.

TABLES

Surface Type	
RockH	=Hard rock above plowing depth - requires dynamite or rock saw to place
RockS	=Soft rock above plowing depth - requires more costly trenching, backhoeing, etc.
Normal	=Straight plowing with minimal surface impact

Urban Copper Cable Table		
Cost Multiplier		
Structure	Below Ground S	Aerial S

Urban Fiber Table		
Cost Multiplier		
Structure	Below Ground S	Aerial S

RockH	20.84	14.18
RockS	13.92	10.59
Normal	10.7	7.62

RockH	20.84	14.18
RockS	13.92	10.59
Normal	10.7	7.62

Rural Copper Cable Table		
Cost Multiplier		
Structure	Below Ground $	Aerial $
RockH	13.59	8.07
RockS	5.76	5.86
Normal	2.92	4.08

Rural Fiber Table		
Cost Multiplier		
Structure	Below Ground $	Aerial $
RockH	13.59	8.07
RockS	5.76	5.86
Normal	2.92	4.08

Distribution UG/Aerial Mix Table		
Density	Below Ground %	Aerial%
0-5	90	10
5-200	80	20
200-650	70	30
650-850	70	30
850-2550	80	20
>2550	90	10

Copper Feeder UG/Aerial Mix Table		
Density	Below Ground %	Aerial%
0-5	70	30
5-200	72	28
200-650	75	25
650-850	75	25
850-2550	80	20
>2550	90	10

Fiber Feeder UG/Aerial Mix Table		
Density	Below Ground %	Aerial%
0-5	95	5
5-200	85	15
200-650	70	30
650-850	70	30
850-2550	80	20
>2550	90	10

Density/Fill Table

Density	Feeder	Distribution	
0	0.75	0.4	4
5	0.8	0.45	5
200	0.8	0.55	6
650	0.85	0.65	7
850	0.85	0.75	8
2550	0.85	0.8	9

Structure Allocation Table		
Cable Size	Cable Structure %	Fiber Structure %
0	50	50
200	55	45
900	60	40
2400	65	35
4200	75	25

Cost for AFC/SLC 200/LightSpan equipment		
DigitalCarrierCost	(Non-discounted material cost only)	
0	7700	250
48	8500	250
120	10500	250
240	77330	184
672	94909	184
1334	105409	184

CO Switch Size Table
COSwitchSize
500000
100000
60000
10000

CO Switch Cost Table		
COSwitchCost	Fixed/Startup $	Per Line $
Remote	250000	100
10000	400000	100
60000	600000	100
100000	900000	100
500000	1500000	100

Voice Grade Ratio Table				
# switched lines in CBG	% switched to VG	% switched to DS1	% special to VG	% special to DS1
0	1	0	1	0
2016	0.65	0.35	0.5	0.5
10000	0.5	0.5	0.3	0.7
20000	0.75	0.25	0.1	0.9

Distribution Cable Size Table	DISTRIBUTION CABLE COST								
Cable Dist Cost	Cable Size	Cost UG/Brd	Cost Aerial	Density= 0-5	Density= 5-200	Density= 200-650	Density= 650-850	Density= 850-2550	Density >2550
	3600	22.20	21.90	17.74	17.71	17.69	17.69	17.71	17.74
	3000	18.80	18.50	15.02	14.99	14.97	14.97	14.99	15.02
	2400	14.30	14.10	11.42	11.41	11.39	11.39	11.41	11.42
	1800	12.44	12.24	9.94	9.92	9.90	9.90	9.92	9.94
	1200	10.68	10.00	8.49	8.43	8.38	8.38	8.43	8.49
	900	7.82	7.51	6.23	6.21	6.18	6.18	6.21	6.23
	600	7.13	7.05	5.70	5.69	5.69	5.69	5.69	5.70
	400	4.62	4.56	3.69	3.68	3.68	3.68	3.68	3.69
	200	2.36	2.33	1.89	1.89	1.88	1.88	1.89	1.89
	100	1.27	1.26	1.01	1.01	1.01	1.01	1.01	1.01
	50	0.68	0.67	0.54	0.54	0.54	0.54	0.54	0.54
	25	0.37	0.36	0.29	0.29	0.29	0.29	0.29	0.29
	18	0.32	0.31	0.26	0.25	0.25	0.25	0.25	0.26
	12	0.28	0.28	0.22	0.22	0.22	0.22	0.22	0.22

Feeder Cable Size Table		COPPER FEEDER COST							
Feeder Cable Cost	Cable Size	Cost UG/Brd	Cost Aerial	Density= 0-5	Density= 5-200	Density= 200-650	Density= 650-850	Density= 850-2550	Density >2550
	4200	25.70	25.40	20.49	20.49	20.50	20.50	20.51	20.54
	3600	22.20	21.90	17.69	17.69	17.70	17.70	17.71	17.74
	3000	18.80	18.50	14.97	14.97	14.98	14.98	14.99	15.02
	2400	14.50	14.10	11.39	11.40	11.40	11.40	11.41	11.42
	1800	12.44	12.24	9.90	9.91	9.91	9.91	9.92	9.94
	1200	10.68	10.00	8.38	8.39	8.41	8.41	8.44	8.49
	900	7.82	7.51	6.18	6.19	6.19	6.19	6.21	6.23
	600	7.13	7.05	5.68	5.69	5.69	5.69	5.69	5.70
	400	4.62	4.56	3.68	3.68	3.68	3.68	3.68	3.69
	200	2.36	2.33	1.88	1.88	1.88	1.88	1.88	1.89
	100	1.27	1.26	1.01	1.01	1.01	1.01	1.01	1.01
	50	0.68	0.67	0.54	0.54	0.54	0.54	0.54	0.54
	25	0.37	0.36	0.29	0.29	0.29	0.29	0.29	0.29

Fiber Cable Cost Table		FIBER CABLE COST							
Fiber Cable Cost	Cable Size	Cost UG/Brd	Cost Aerial	Density= 0-5	Density= 5-200	Density= 200-650	Density= 650-850	Density= 850-2550	Density >2550
	144	5.56	5.24	4.44	4.41	4.37	4.37	4.40	4.42
	96	3.80	3.53	3.03	3.01	2.98	2.98	3.00	3.02
	72	2.84	2.65	2.26	2.25	2.23	2.23	2.24	2.26
	60	2.41	2.23	1.92	1.91	1.88	1.88	1.90	1.91
	48	1.98	1.84	1.58	1.57	1.55	1.55	1.56	1.57
	36	1.60	1.46	1.27	1.26	1.25	1.25	1.26	1.27
	24	1.18	1.05	0.94	0.93	0.91	0.91	0.92	0.93
	18	0.98	0.85	0.78	0.77	0.75	0.75	0.76	0.77
	12	0.79	0.66	0.63	0.62	0.60	0.60	0.61	0.62

CostFactorTable

Row #	Plant Type	Urban/ Rural	Density	Surface Category	Weighted Cost Factor	Below Ground Density Adjustment	Aerial Density Adjustment
1	Distribution	Urban	>2550	RockH	23.59262	1.18	1.03
2				RockS	17.56779	1.30	1.21
3				Normal	13.31148	1.30	1.04
4	Distribution	Urban	850-2550	RockH	16.58868	0.83	0.97
5				RockS	10.07238	0.72	0.97
6				Normal	7.62624	0.72	0.96
7	Distribution	Rural	650-850	RockH	13.13253	1.07	1.22
8				RockS	7.76892	1.36	1.30
9				Normal	6.07944	2.10	1.46
10	Distribution	Rural	200-650	RockH	12.43557	1.04	1.05
11				RockS	6.43722	1.13	1.07
12				Normal	3.48428	1.01	1.16
13	Distribution	Rural	5-200	RockH	11.922	0.96	0.92
14				RockS	4.95988	0.85	0.89
15				Normal	2.45968	0.77	0.81
16	Distribution	Rural	0-5	RockH	11.95461	0.92	0.87
17				RockS	4.83508	0.84	0.82
18				Normal	1.77132	0.57	0.67
19	Feeder	Urban	>2550	RockH	23.59262	1.18	1.03
20				RockS	17.56779	1.30	1.21
21				Normal	13.31148	1.30	1.04
22	Feeder	Urban	850-2550	RockH	16.58868	0.83	0.97
23				RockS	10.07238	0.72	0.97
24				Normal	7.62624	0.72	0.96
25	Feeder	Rural	650-850	RockH	13.367325	1.07	1.22
26				RockS	7.7797	1.36	1.30
27				Normal	6.0882	2.10	1.46
28	Feeder	Rural	200-650	RockH	12.718575	1.04	1.05
29				RockS	6.44915	1.13	1.07
30				Normal	3.3951	1.01	1.16
31	Feeder	Rural	5-200	RockH	11.47224	0.96	0.92
32				RockS	4.985432	0.85	0.89
33				Normal	2.544192	0.77	0.81
34	Feeder	Rural	0-5	RockH	10.85823	0.92	0.87
35				RockS	4.82844	0.84	0.82
36				Normal	1.98516	0.57	0.67
37	Fiber	Urban	>2550	RockH	23.59262	1.18	1.03
38				RockS	17.44071	1.30	1.09
39				Normal	13.31148	1.30	1.04
40	Fiber	Urban	850-2550	RockH	16.58868	0.83	0.97
41				RockS	10.07238	0.72	0.97
42				Normal	7.62624	0.72	0.96
43	Fiber	Rural	650-850	RockH	13.13253	1.07	1.22

44						
45			RockS	7.76892	1.36	1.30
46	Fiber	Rural	200-650	Normal	6.07944	2.10	1.46
47				RockH	12.43557	1.04	1.05
48				RockS	6.43722	1.13	1.07
49	Fiber	Rural	5-200	Normal	3.48428	1.01	1.16
50				RockH	12.2031	0.96	0.92
51				RockS	4.94391	0.85	0.89
52	Fiber	Rural	0-5	Normal	2.40686	0.77	0.81
53				RockH	12.228705	0.92	0.87
54				RockS	4.83674	0.84	0.82
				Normal	1.71786	0.57	0.67

Surface Texture Table

Texture	Impact?	Description of Texture
BY	0	Blank
BY-COS	1	Bouldery
BY-FSL	1	Bouldery Course Sand
BY-L	1	Bouldery & Fine Sandy Loam
BY-LS	1	Bouldery & Loam
BY-SICL	1	Bouldery & Sandy Loam
BY-SL	1	Bouldery & Silty Clay Loam
BYV	1	Bouldery & Sandy Loam
BYV-FSL	1	Very Bouldery
BYV-L	1	Very Bouldery & Fine Sandy Loam
BYV-LS	1	Very bouldery & Loamy
BYV-SIL	1	Very Bouldery & Loamy Sand
BYV-SL	1	Very Bouldery & Silt
BYX	1	Very Bouldery & Sandy Loam
BYX-FSL	1	Extremely Bouldery
BYX-L	1	Extremely Bouldery & Fine Sandy Loam
BYX-SIL	1	Extremely Bouldery & Loamy
BYX-SL	1	Extremely Bouldery & Silt Loam
C	1	Extremely Bouldery & Sandy Loam
CB	0	Clay
CBA	0	Cobbly
CBA-FSL	1	Angular Cobbly
CB-C	1	Angular Cobbly & Fine Sandy Loam
CB-CL	0	Cobbly & Clay
CB-COSL	0	Cobbly & Clay Loam
CB-FS	0	Cobbly & Coarse Sandy Loam
CB-FSL	0	Cobbly & Fine Sand
CB-L	0	Cobbly & Fine Sandy Loam
CB-LCOS	0	Cobbly & Loamy
CB-LS	0	Cobbly & Loamy CourseSand
CB-S	0	Cobbly & Loamy Sand
CB-SCL	0	Cobbly & Sand
CB-SICL	0	Cobbly & Sandy Clay Loam
	0	Cobbly & Silty Clay Loam

CB-SIL	0|Cobbly & Silt Loam
CB-SL	1|Cobbly & Sandy Loam
CBV	1|Very Cobbly
CBV-C	1|Very Cobbly & Clay
CBV-CL	1|Very Cobbly & Clay Loam
CBV-FSL	1|Very Cobbly & Fine Sandy Loam
CBV-L	1|Very Cobbly & Loamy
CBV-LFS	1|Very Cobbly & Fine Loamy Sand
CBV-LS	1|Very Cobbly & Loamy Sand
CBV-MUCK	1|Very Cobbly & Muck
CBV-SCL	1|Very Cobbly & Sandy Clay Loam
CBV-SIL	1|Very Cobbly & Silt
CBV-SL	1|Very Cobbly & Sandy Loam
CBV-VFS	1|Very Cobbly & Very Fine Sand
CBX	1|Extremely Cobbly
CBX-L	1|Extremely Cobbly Loam
CBX-CL	1|Extremely Cobbly & Clay
CBX-SIL	1|Extremely Cobbly & Silt
CBX-SL	1|Extremely Cobbly &Sandy Loam
CBX-VFSL	1|Extremely Cobbly Very Fine Sandy Loam
CE	0|Coprogenous Earth
CIND	0|Cinders
CL	0|Clay Loam
CM	1|Cemented
CN	0|Channery
CN-CL	0|Channery & Clay Loam
CN-FSL	0|Channery & Fine Sandy Loam
CN-L	0|Channery & Loam
CN-SICL	0|Channery & Silty Clay Loam
CN-SIL	0|Channery & Silty Loam
CN-SL	0|Channery & Sandy Loam
CNV	0|Very Channery
CNV-CL	0|Very Channery & Clay
CNV-L	0|Very Channery & Loam
CNV-SCL	0|Channery & Sandy Clay Loam
CNV-SIL	0|Very Channery & Silty Loam
CNV-SL	0|Very Channery & Sandy Loam
CNX	0|Extremely Channery
CNX-SL	0|Extremely Channery & Sandy Loam
COS	0|Coarse Sand
COSL	0|Coarse Sandy Loam
CR	0|Cherty
CRC	1|Coarse Cherty
CR-L	1|Cherty & Loam
CR-SICL	1|Cherty & Silty Clay Loam
CR-SIL	1|Cherty & Silty Loam
CR-SL	1|Cherty & Sandy Loam
CRV	1|Very Cherty
CRV-L	1|Very Cherty & Loam

CRV-SIL	1|Very Cherty & Silty Loam
CRX	1|Extremely Cherty
CRX-SIL	1|Extremely Cherty & Silty Loam
DE	0|Diotomaceous Earth
FB	0|Fibric Material
FINE	0|Fine
FL	0|Flaggy
FL-FSL	0|Flaggy & Fine Sandy Loam
FL-L	0|Flaggy & Loam
FL-SIC	0|Flaggy & Silty Clay
FL-SICL	0|Flaggy & Silty Clay Loam
FL-SIL	0|Flaggy & Silty Loam
FL-SL	0|Flaggy & Sandy Loam
FLV	1|Very Flaggy
FLV-COSL	1|Very Flaggy & Coarse Sandy Loam
FLV-L	1|Very Flaggy & Loam
FLV-SICL	1|Very Flaggy & Silty Clay Loam
FLV-SL	1|Very Flaggy & Sandy Loam
FLX	1|Extremely Flaggy
FLX-L	1|Extremely Flaggy & Loamy
FRAG	0|Fragmental Material
FS	0|Fine Sand
FSL	0|Fine Sandy Loam
G	0|Gravel
GR	0|Gravelly
GRC	0|Course Gravelly
GR-C	0|Gravel & Clay
GR-CL	0|Gravel & Clay Loam
GR-COS	0|Gravel & Course Sand
GR-COSL	0|Gravel & Coarse Sandy Loam
GRF	0|Fine Gravel
GRF-SIL	0|Fine Gravel Silty Loam
GR-FS	0|Gravel & Fine Sand
GR-FSL	0|Gravel & Fine Sandy Loam
GR-L	0|Gravel & Loam
GR-LCOS	0|Gravel & Loamy Course Sand
GR-LFS	0|Gravel & Loamy Fine Sand
GR-LS	0|Gravel & Loamy Sand
GR-MUCK	0|Gravel & Muck
GR-S	0|Gravel & Sand
GR-SCL	0|Gravel & Sandy Clay Loam
GR-SIC	0|Gravel & Silty Clay
GR-SICL	0|Gravel & Silty Clay Loam
GR-SIL	0|Gravel & Silty Loam
GR-SL	0|Gravel & Sandy Loam
GR-VFSL	0|Gravel & Very Fine Sancy Loam
GRV	1|Very Gravelly
GRV-CL	1|Very gravelly & Clay Loam
GRV-COS	1|Very Gravelly & Course Sand
GRV-COSL	1|Very Gravelly & Course Sandy

	Loam
GRV-FSL	1 Very Gravelly & Fine Sandy Loam
GRV-L	1 Very Gravelly & Loam
GRV-LCOS	1 Very Gravelly & Loamy Course Sand
GRV-LS	1 Very Gravelly & Loamy Sand
GRV-S	1 Very Gravelly & Sand
GRV-SCL	1 Very Gravelly & Sandy Clay Loam
GRV-SICL	1 Very Gravelly & Silty Clay Loam
GRV-SIL	1 Very Gravelly & Silt
GRV-SL	1 Very Gravelly & Sandy Loam
GRV-VFS	1 Very Gravelly & Very Fine Sand
GRV-VFSL	1 Very Gravelly & Very Fine Sandy Loam
GRX	1 Extremely Gravelly
GRX-CL	1 Extremely Gravelly & Coarse Loam
GRX-COS	1 Extremely Gravelly & Coarse Sand
GRX-COSL	1 Extremely Gravelly & Coarse Sandy Loam
GRX-FSL	1 Extremely Gravelly & Fine Sand Loam
GRX-L	1 Extremely Gravelly & Loam
GRX-LCOS	1 Extremely Gravelly & Loamy Coarse
GRX-LS	1 Extremely Gravelly & Loamy Sand
GRX-S	1 Extremely Gravelly & Sand
GRX-SIL	1 Extremely Gravelly & Silty Loam
GRX-SL	1 Extremely Gravelly & Sandy Loam
GYP	1 Gypsiferous Material
HM	0 Hemic Material
ICE	1 Ice or Frozen Soil
IND	1 Indurated
L	0 Loam
LCOS	0 Loamy Course Sand
LFS	0 Loamy Fine Sand
LS	0 Loamy Sand
LVFS	0 Loamy Very Fine Sand
MARL	0 Marl
MEDIUM COURSE	0 Medium Course
MK	0 Mucky
MK-C	0 Mucky Clay
MK-CL	0 Mucky Clay Loam
MK-FS	0 Muck & Fine Sand
MK-FSL	0 Muck & Fine Sandy Loam
MK-L	0 Mucky Loam
MK-LFS	0 Mucky Loamy Fine Sand
MK-LS	0 Mucky Loamy Sand
MK-S	0 Muck & Sand
MK-SI	0 Mucky & Silty
MK-SICL	0 Mucky & Silty Clay Loam
MK-SIL	0 Mucky Silt

MK-SL	0|Mucky & Sandy Loam
MK-VFSL	0|Mucky & Very Fine Sandy Loam
MPT	0|Mucky Peat
MUCK	0|Muck
PEAT	0|Peat
PT	0|Peaty
RB	1|Rubbly
RB-FSL	1|Rubbly Fine Sandy Loam
S	0|Sand
SC	0|Sandy Clay
SCL	0|Sandy Clay Loam
SG	0|Sand & Gravel
SH	0|Shaly
SH-CL	0|Shaly & Clay
SH-L	0|Shale & Loam
SH-SICL	0|Shaly & Silty Clay Loam
SH-SIL	0|Shaly & Silt Loam
SHV	1|Very Shaly
SHV-CL	1|Very Shaly & Clay Loam
SHX	1|Extremely Shaly
SI	0|Silt
SIC	0|Silty Clay
SICL	0|Silty Clay Loam
SIL	0|Silt Loam
SL	0|Sandy Loam
SP	0|Sapric Material
SR	0|Stratified
ST	0|Stony
ST-C	0|Stony & Clay
ST-CL	0|Stony & Clay Loam
ST-COSL	0|Stony & Course Sandy Loam
ST-FSL	0|Stony & Fine Sandy Loam
ST-L	0|Stony & Loamy
ST-LCOS	0|Stony & Loamy Course Sand
ST-LFS	0|Stony & Loamy Fine Sand
ST-LS	0|Stony & Loamy Sand
ST-SIC	0|Stony & Silty Clay
ST-SICL	0|Stony & Silty Clay Loam
ST-SIL	0|Stony & Silt Loam
ST-SL	0|Stony & Sandy Loam
ST-VFSL	0|Stony & Sandy Very Fine Silty Loam
STV	1|Very Stony
STV-C	1|Very Stony & Clay
STV-CL	1|Very Stony & Clay Loam
STV-VFSL	1|Very Stony & Very Fine Sandy Loam
STV-FSL	1|Very Stony & Fine Sandy Loam
STV-L	1|Very Stony & Loamy
STV-LFS	1|Very Stony & Loamy Fine Sand
STV-LS	1|Very Stony & Loamy Sand

STV-MPT	1	Very Stony & Mucky Peat
STV-MUCK	1	Very Stony & Muck
STV-SICL	1	Very Stony & Silty Clay Loam
STV-SIL	1	Very Stony & Silty Loam
STV-SL	1	Very Stony & Sandy Loam
STV-VFSL	1	Very Stony & Very Fine Sandy Loam
STX	1	Extremely Stony
STX-C	1	Extremely Stony & Clay
STX-CL	1	Extremely Stony & Clay Loam
STX-COS	1	Extremely Stony & Course Sand
STX-COSL	1	Extremely Stony & Course Sand Loam
STX-FSL	1	Extremely Stony & Fine Sandy Loam
STX-L	1	Extremely Stony & Loamy
STX-LCOS	1	Extremely Stony & Loamy Course Sand
STX-LS	1	Extremely Stony & Loamy Sand
STX-MUCK	1	Extremely Stony & Muck
STX-SIC	1	Extremely Stony & Silty Clay
STX-SICL	1	Extremely Stony & Silty Clay Loam
STX-SIL	1	Extremely Stony & Silty Loam
STX-SL	1	Extremely Stony & Sandy Loam
STX-VFSL	1	Extremely Stony & Very Fine Sandy Loam
SY	1	Slaty
SY-L	1	Slaty & Loam
SY-SIL	1	Slaty & Silty Loam
SYV	1	Very Slaty
SYX	1	Extremely Slaty
UNK	0	Unknown
UWB	1	Unweathered Bedrock
VAR	0	Variable
VFS	0	Very Fine Sand
VFSL	0	Very Fine Sandy loam
WB	1	Weathered Bedrock

ATTACHMENT A

TABLES

User Inputs to Model
A1 : C60

Urban Copper Cable Table
E6 : A12

Urban Fiber Table
I7 : K12

Structure Allocation Table
M2 : O8

Rural Copper Cable Table
E14 : G19

Rural Fiber Table
I14 : K19

Cost for AFC/SLC 200 Equipment
M12 : O19

Distribution UG/Aerial Mix
E21 : G28

Copper Feeder UG/Aerial Mix Table
I21 : K28

CO Switch Cost Table
O22 : Q28

Fiber Feeder UG/Aerial Mix
E30 : G37

Density/Fill Table
I30 : K37

Voice Grade Ratio Table
N31 : R36

Miscellaneous Calculations
(Do not change any value)
A62 : C70

Distribution Cable size Table
I140 : I55

Miscellaneous Notes
A73 : C77

Feeder Cable Size Table
I159 : I73

Fiber Cable Cost Table
I176 : I86

Cost Factor Table
E88 : L143

Surface Texture Table
E145 : I405

Sprint
Docket No. 961230-TP
James D. Dunbar, Jr.
Exhibit No. JDD-1
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Census Block Group Number	Lines in CBG	Total Investment per Line
120070001001	469	2,311.82
120070001002	285	1,314.07
120070001003	1,030	977.70
120070001004	571	1,719.40
120070001005	662	1,101.61
120070002001	1,228	1,903.18
120070002002	1,239	1,325.08
120070002003	595	2,051.14
120070002005	836	1,087.06
120070003002	590	2,244.08
120070004001	661	1,918.02
120070004002	644	2,418.21
120070004003	560	2,643.69
120150101001	1,146	3,259.28
120150102001	567	1,793.71
120150102002	1,736	1,161.65
120150102003	826	1,114.30
120150103001	1,148	900.34
120150103002	3,769	293.91
120150103003	994	1,033.03
120150103004	658	955.67
120150103005	597	1,023.55
120150103006	902	1,143.42
120150104001	3,109	1,124.74
120150104002	1,642	1,112.39
120150104003	618	1,009.08
120150105001	1,176	1,634.91
120150105002	2,208	1,656.31
120150105003	401	2,739.20
120150105004	304	2,697.39
120150201001	1,011	1,154.08
120150201002	399	1,444.84
120150201003	2,128	992.57
120150201004	957	1,076.23
120150202001	389	1,312.29
120150202002	1,323	999.46
120150202003	2,162	1,092.13
120150202004	2,151	720.23
120150203001	2,913	756.62
120150203002	1,010	177.45
120150203003	2,533	657.82
120150203004	3,119	843.37
120150204001	260	1,969.81
120150204002	728	1,125.99
120150204005	539	1,595.19
120150204006	879	990.89

FLORIDA PUBLIC SERVICE COMMISSION
DOCKET NO. 961230-TP EXHIBIT NO. 29
COMPANY/ WITNESS: Sprint / Dunbar
DATE: 12-18-96

Sprint Florida

Census Block Group Number	Lines in CBG	Total Investment per Line
120150205001	1,233	985.35
120150205002	630	1,194.08
120150205003	1,510	1,341.00
120150206001	2,847	571.48
120150206002	2,448	884.02
120150207001	2,176	516.40
120150207002	1,787	526.63
120150208001	1,500	942.71
120150208002	2,134	438.86
120150209001	981	890.79
120150209002	1,675	926.69
120150209003	852	871.39
120150210001	1,937	1,077.11
120150210002	1,890	1,131.84
120150210003	805	1,075.94
120150210004	127	1,336.34
120150211985	0	0.00
120150211986	10	6,487.79
120150211987	0	0.00
120150301002	519	1,490.50
120150301003	993	1,261.49
120150301004	209	1,939.49
120150302001	1,193	946.20
120150302002	1,185	992.07
120150302003	576	1,281.42
120150304001	682	1,163.88
120150304002	843	936.61
120150304003	1,394	893.71
120150305001	698	1,752.63
120150305002	2,111	1,278.82
120150305003	2	10,000.00
120150306001	526	2,715.97
120150306002	178	2,268.54
120179801003	521	1,233.04
120179801004	669	982.01
120179801005	747	1,614.49
120179801006	2,380	1,224.72
120179801007	362	495.56
120179801008	310	538.61
120179802001	696	469.16
120179802002	524	545.53
120179802003	518	549.14
120179802004	545	560.72
120179802005	2,010	871.25
120179803003	395	1,586.64
120179803004	2,206	1,473.76

Sprint Florida

Census Block Group Number	Lines in CBG	Total Investment per Line
120179803005	2,200	858.60
120179803006	637	1,812.07
120179803007	70	2,646.43
120179803008	46	3,422.78
120179804003	830	1,387.02
120179805001	1,337	1,858.53
120179805002	323	2,327.00
120179805003	398	1,366.77
120179805004	971	410.73
120179805005	930	2,119.30
120179806001	935	725.28
120179806002	993	982.14
120179806003	1,684	1,184.11
120179806004	1,039	1,306.81
120179806005	426	1,310.79
120179807001	2,342	1,701.83
120179807002	227	1,360.84
120179807003	531	1,103.80
120179807004	921	804.35
120179807005	569	1,037.74
120179808001	486	1,961.97
120179808002	221	2,480.14
120179808003	661	990.62
120179808004	900	870.66
120179808005	237	1,665.22
120179809001	750	1,378.52
120179809002	661	1,564.72
120179809003	1,109	476.97
120179809004	434	1,042.64
120179809005	734	503.76
120179809006	336	510.29
120179810001	367	1,982.78
120179810002	348	1,705.08
120179810003	1,407	835.33
120179810004	710	1,080.56
120179810005	677	481.90
120179810006	536	707.88
120179811001	851	1,024.09
120179811002	628	888.35
120179811003	1,925	1,686.83
120179812001	963	1,225.38
120179812002	563	1,158.12
120179812003	308	1,239.02
120179812004	489	1,622.41
120179812005	177	2,635.95
120179813001	597	2,083.76

Sprint Florida

Census Block Group Number	Lines in CBG	Total Investment per Line
120179814001	1,170	730.10
120179814002	165	1,267.98
120179814003	1,918	1,261.98
120179815001	1,167	1,167.83
120179815002	1,769	1,063.25
120179815003	1,260	1,003.17
120179815004	748	1,635.04
120179816001	667	1,165.80
120179816002	1,467	1,724.76
120179816003	1,259	1,455.45
120179817001	889	975.94
120179817002	623	1,289.15
120179817003	437	1,375.60
120179817004	807	1,265.26
120179817005	482	1,340.83
120179817006	443	2,003.24
120190310001	247	3,670.49
120190310002	0	0.00
120210001001	608	681.67
120210001002	644	429.28
120210001003	906	249.56
120210001004	1,759	271.45
120210001005	691	367.12
120210001006	1,941	259.45
120210001007	762	434.70
120210001008	120	625.07
120210002001	1,791	618.00
120210002002	1,094	561.59
120210003011	2,425	577.09
120210003012	1,451	659.49
120210003013	1,237	681.57
120210003024	907	826.29
120210003025	1,052	820.89
120210004001	2,573	942.42
120210004003	639	872.86
120210004004	389	1,181.70
120210004005	290	504.95
120210005001	1,423	850.98
120210006001	212	660.38
120210006002	914	946.35
120210007001	1,969	282.48
120210101001	2,937	1,069.67
120210101002	217	1,796.70
120210101003	2,924	815.54
120210101004	454	913.17
120210101005	1,031	752.75

Sprint Florida

Census Block Group Number	Lines in CBG	Total Investment per Line
120210101006	1,439	599.70
120210101007	1,333	519.28
120210101008	1,463	633.04
120210102011	827	1,039.55
120210102012	1,868	966.20
120210102013	2,633	629.66
120210102024	1,609	839.67
120210102035	3,639	878.56
120210102037	430	1,279.00
120210103001	583	1,127.73
120210103002	933	868.92
120210103003	333	1,158.41
120210103004	1,258	787.41
120210104018	1,396	794.40
120210104019	1,347	812.31
120210104021	434	1,365.67
120210104022	1,123	817.81
120210104025	3,632	720.79
120210104031	2,127	1,698.88
120210104032	2,772	736.71
120210104033	1,528	762.39
120210104034	2,267	889.06
120210104035	416	1,412.75
120210104036	444	1,318.64
120210104037	1,268	758.95
120210104041	517	1,096.65
120210104042	2,536	1,791.11
120210105011	4,532	854.10
120210105022	1,278	873.03
120210105023	1,069	880.76
120210105024	360	1,988.77
120210106001	1,402	986.77
120210106002	1,074	406.51
120210106003	743	644.77
120210106004	927	638.87
120210106005	1,010	851.09
120210106006	1,030	1,028.19
120210106007	3,310	881.57
120210107001	520	693.98
120210107002	1,213	764.67
120210107003	2,678	361.88
120210107004	900	427.00
120210107005	1,752	1,121.11
120210108001	2,073	1,102.07
120210108002	0	0.00
120210108003	694	1,019.56

Census Block Group Number	Lines in CBG	Total Investment per Line
120210108004	828	968.11
120210108005	29	2,435.68
120210108006	970	1,289.16
120210108007	77	2,236.60
120210109001	58	2,184.78
120210109002	776	1,554.88
120210109003	316	1,569.84
120210109004	1,055	872.64
120210109005	531	443.95
120210109006	1,103	447.12
120210109007	629	654.64
120210109008	2,471	693.51
120210109009	773	1,583.29
120210110001	622	741.05
120210110002	56	871.37
120210110003	42	912.09
120210110004	140	706.69
120210110005	1,215	1,081.38
120210110006	144	1,014.76
120210111011	1,160	1,125.44
120210111012	1,416	2,077.01
120210111021	964	3,194.27
120210111022	309	1,834.20
120210111023	236	4,928.30
120210112011	359	2,045.42
120210112021	659	3,609.07
120210112031	541	1,513.08
120210112032	270	683.39
120210112033	786	586.67
120210112034	1,347	1,109.41
120210113001	624	2,109.37
120210113002	551	1,133.17
120210113003	677	993.72
120210113004	580	881.94
120210114001	840	1,814.43
120210114002	722	406.61
120210114003	863	1,348.80
120279801001	550	2,310.69
120279801002	803	2,693.58
120279801003	1,534	1,463.49
120279802001	336	1,752.44
120279802002	921	845.34
120279802003	571	554.02
120279802004	658	496.07
120279802005	617	703.57
120279803001	323	908.85

Census Block Group Number	Lines in CBG	Total Investment per Line
120279803002	535	606.77
120279803003	875	653.23
120279803004	1,412	549.95
120279803005	577	1,379.01
120279803006	367	1,411.94
120279803007	917	1,179.57
120279804001	505	3,117.82
120279804002	806	2,125.02
120279804003	792	2,096.84
120279804004	607	2,603.98
120279804005	579	2,740.80
120279804006	811	1,999.33
120390206001	447	2,042.84
120390206002	421	2,323.75
120439501001	484	1,553.95
120439501002	399	3,128.48
120439501003	603	3,546.82
120439501004	177	1,980.28
120439502001	560	4,658.26
120439502002	317	3,128.11
120439502003	502	2,464.93
120439502004	397	657.22
120439502005	396	736.12
120439502006	415	2,724.27
120499701001	773	2,806.56
120499701002	528	2,489.14
120499701003	385	1,645.06
120499701004	787	2,917.43
120499701005	281	1,903.88
120499702001	501	2,710.32
120499702002	346	695.30
120499702003	682	935.67
120499702004	561	2,757.61
120499703001	1,347	1,112.88
120499703002	633	1,280.45
120499703003	573	1,263.80
120499703004	228	975.54
120499703005	440	2,906.93
120499704001	305	998.66
120499704002	513	647.51
120499704003	750	1,222.95
120499704004	563	2,240.33
120499704005	819	2,343.66
120519601001	519	1,438.32
120519601002	534	675.74
120519601003	2,281	521.18

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Census Block Group Number	Lines in CBG	Total Investment per Line
120519601004	767	845.34
120519601005	1,213	498.58
120519602001	1,275	1,341.05
120519602002	291	606.94
120519602003	646	1,016.17
120519602004	600	707.34
120519602005	630	1,819.78
120519602006	738	3,683.20
120519603001	407	4,618.01
120519603002	739	2,212.91
120519603003	793	2,265.29
120519604001	732	1,197.42
120519604002	524	761.47
120519604003	932	692.34
120519604004	663	607.52
120519604005	750	1,082.18
120519604006	575	2,500.59
120519604007	943	1,200.21
120530001001	585	2,503.72
120530001002	742	1,056.73
120530001003	514	1,117.49
120530001004	548	1,859.54
120530001005	480	2,166.58
120530003002	680	1,872.70
120530007005	768	2,069.26
120559601001	871	2,758.62
120559601002	554	1,507.82
120559601003	885	825.15
120559601004	992	1,103.50
120559601005	692	1,409.49
120559602001	623	1,705.12
120559602002	680	1,784.37
120559602003	1,156	441.17
120559602004	713	597.07
120559603001	384	1,103.28
120559603002	755	742.57
120559603003	466	660.71
120559603004	542	492.47
120559603005	811	870.92
120559604001	1,017	731.61
120559604002	510	1,229.56
120559604003	721	1,069.95
120559604004	218	1,279.86
120559604005	380	1,197.67
120559605001	776	1,939.55
120559605003	26	2,744.36

Census Block Group Number	Lines in CBG	Total Investment per Line
120559605004	21	2,058.33
120559605005	547	1,378.81
120559605006	165	1,483.54
120559605007	808	905.66
120559606001	1,137	714.23
120559606002	412	1,054.90
120559606003	2,964	1,265.07
120559607001	662	716.15
120559607002	448	1,186.57
120559607003	419	1,107.30
120559607004	1,134	760.68
120559608001	409	784.40
120559608002	475	679.99
120559608003	588	412.95
120559608004	698	250.67
120559609001	608	2,598.66
120559609002	500	1,040.12
120559609003	970	580.16
120559610001	324	2,912.94
120559610002	354	2,179.99
120559610003	1,133	1,773.96
120559611001	577	575.80
120559611002	402	539.28
120559611003	714	636.55
120559611004	1,012	892.95
120559612001	826	962.39
120559612002	420	1,081.46
120559612003	996	1,269.82
120559612004	565	2,378.00
120559613001	2,047	663.35
120559613002	77	2,537.53
120559613003	644	975.85
120559613004	525	925.70
120559613005	2,524	1,656.46
120559614001	398	2,378.80
120559614002	1,341	1,142.05
120559614003	55	2,247.35
120559614004	15	5,760.89
120559614005	8	6,767.78
120559614006	4	10,000.00
120559614007	318	1,408.23
120559615001	291	3,924.98
120559615002	302	2,162.71
120559615003	505	1,923.76
120559615004	456	972.92
120559615005	619	1,121.84

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Census Block Group Number	Lines in CBG	Total Investment per Line
120559615006	187	1,383.21
120559616001	674	452.84
120559616002	869	1,215.43
120559616003	30	3,337.60
120559616004	238	3,860.93
120559616005	209	1,846.70
120559616006	605	3,528.82
120559616007	1,368	964.45
120559617001	418	2,595.66
120559617002	8	3,039.38
120559617003	583	1,087.60
120559617004	337	1,034.46
120559617005	1,030	1,239.59
120559617006	116	1,802.95
120559617007	212	1,725.71
120559617008	0	0.00
120599601003	517	2,423.25
120599602001	537	2,142.78
120599602002	453	2,768.90
120599602003	451	2,478.08
120599602004	361	2,511.92
120599602005	532	2,320.56
120599603001	825	1,878.77
120599603002	334	2,460.45
120599603003	510	1,984.07
120599604001	525	2,083.05
120599604002	921	1,992.33
120599604003	774	305.86
120599604004	769	454.51
120599604005	1,380	1,715.29
120639801001	495	2,596.27
120639801002	430	2,218.05
120639801003	523	2,162.80
120639802001	482	2,918.96
120639804001	788	1,279.57
120639804002	793	1,761.28
120639804003	538	2,093.08
120639805001	477	1,469.50
120639805002	591	590.08
120639805003	858	355.07
120639805004	843	432.45
120639806001	523	472.59
120639806002	920	461.43
120639806003	747	395.84
120639806004	694	1,252.67
120639806005	1,263	979.75

Census Block Group Number	Lines in CBG	Total Investment per Line
120639806006	338	2,159.63
120639807001	604	2,339.08
120639807002	751	1,550.12
120639807003	820	1,290.60
120639808001	297	3,190.31
120639808002	833	2,065.16
120639808003	494	2,335.53
120639809001	920	1,781.06
120639809002	539	1,770.40
120639809003	245	2,286.77
120639809004	698	1,871.00
120639810001	637	2,201.88
120639810002	421	2,107.79
120639810003	1,124	1,573.57
120639811001	466	1,989.56
120639811002	359	2,405.12
120639811003	165	2,886.96
120639811004	124	4,475.30
120639811006	27	6,568.04
120639811007	230	2,913.11
120659801981	643	2,799.66
120659801982	473	2,887.95
120659801983	1,045	1,068.72
120659801984	548	394.29
120659801985	453	1,952.83
120659801986	742	2,013.38
120659801987	814	1,948.00
120659802001	336	3,348.81
120659802002	574	2,172.49
120659802003	173	3,193.94
120659802004	550	4,075.19
120690301011	462	2,180.43
120690301012	638	1,771.38
120690301013	646	789.59
120690301014	1,461	847.31
120690301015	699	1,838.30
120690301016	897	1,822.57
120690301017	308	1,391.48
120690301021	345	2,379.89
120690301022	612	1,905.15
120690301023	384	2,336.54
120690301024	430	2,874.53
120690301031	947	1,870.52
120690301032	474	2,811.89
120690302011	465	611.78
120690302012	506	729.43

Census Block Group Number	Lines in CBG	Total Investment per Line
120690302013	2,346	643.62
120690302014	909	948.09
120690302015	716	1,237.53
120690302021	995	554.10
120690302022	1,170	939.26
120690302023	566	708.31
120690302024	912	909.06
120690302025	567	413.14
120690302026	481	491.88
120690302027	1,581	678.07
120690302031	370	2,093.66
120690302032	1,194	1,382.18
120690303011	1,175	1,915.92
120690303012	650	1,529.83
120690303013	1,355	895.01
120690303014	170	1,514.77
120690303015	814	890.72
120690303016	468	1,006.55
120690303017	414	1,105.35
120690303018	2,402	698.68
120690303021	356	2,139.99
120690303022	784	1,137.97
120690303023	1,109	1,047.16
120690304011	788	1,195.87
120690304012	4,533	673.89
120690304013	1,090	1,003.79
120690304014	1,065	974.25
120690304015	872	1,947.08
120690304021	644	891.81
120690304022	1,098	694.79
120690304023	708	1,332.95
120690304024	913	1,007.79
120690304025	1,152	1,272.98
120690305011	1,495	698.61
120690305012	894	676.54
120690305013	789	528.57
120690305014	996	806.34
120690305015	851	1,601.76
120690305021	646	683.14
120690305022	1,199	892.56
120690305023	696	819.74
120690305024	1,153	1,381.71
120690306013	1,770	457.88
120690306014	723	660.29
120690306015	1,043	957.38
120690306021	565	554.74

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Census Block Group Number	Lines in CBG	Total Investment per Line
120690306022	684	290.75
120690306023	658	563.51
120690306024	1,235	318.90
120690307011	400	578.10
120690307012	1,006	959.14
120690307021	532	913.70
120690307022	655	1,399.81
120690308011	927	381.29
120690308012	485	617.29
120690308013	598	594.99
120690308014	581	540.28
120690308015	833	723.12
120690308016	1,323	869.59
120690308017	578	898.35
120690308021	1,026	839.96
120690308022	886	916.98
120690308023	1,278	975.58
120690309021	335	1,149.15
120690309022	1,023	1,648.60
120690309111	1,123	437.22
120690309112	929	284.63
120690309113	865	736.16
120690309114	857	598.27
120690309115	616	798.68
120690309116	559	384.59
120690309117	797	912.20
120690309121	545	771.83
120690309122	457	1,098.71
120690309123	1,303	841.13
120690309124	1,087	905.37
120690310001	546	2,086.33
120690310002	869	1,567.57
120690310003	792	1,552.10
120690311001	623	1,375.33
120690311002	1,165	1,391.86
120690311003	755	1,229.24
120690311004	775	984.69
120690311005	1,141	1,882.13
120690311006	473	1,448.99
120690312001	442	2,539.20
120690312002	1,050	1,184.49
120690312003	300	1,696.02
120690312004	777	1,824.17
120690312005	846	2,009.65
120690312006	984	1,618.15
120690312007	789	2,375.64

Census Block Group Number	Lines in CBG	Total Investment per Line
120690313011	815	1,809.76
120690313012	762	1,928.04
120690313022	634	749.16
120690313023	1,236	630.45
120690313024	1,162	529.21
120690313025	605	703.34
120690313026	954	563.05
120690313027	955	962.56
120690313028	1,932	1,469.87
120690313032	1,173	2,449.41
120710001001	1,055	316.51
120710001002	210	102.31
120710002001	405	744.75
120710002002	1,095	333.56
120710002003	282	698.15
120710003011	980	897.86
120710003012	405	837.75
120710003013	909	606.93
120710003014	789	643.89
120710003015	0	0.00
120710003021	549	965.47
120710003022	854	915.58
120710003023	925	681.01
120710003024	651	542.78
120710004001	724	623.00
120710004002	672	897.56
120710004003	438	1,219.58
120710004004	578	501.20
120710004005	790	1,154.30
120710005011	262	1,288.81
120710005012	565	1,188.22
120710005013	761	998.92
120710005014	1,210	335.93
120710005015	1,366	1,007.01
120710005016	719	957.42
120710005021	518	522.46
120710005022	378	802.02
120710005023	409	761.78
120710005024	868	736.17
120710005025	64	821.90
120710005026	330	679.75
120710006001	632	775.62
120710006002	638	532.34
120710006003	717	955.24
120710006004	706	859.27
120710007001	733	286.10

Census Block Group Number	Lines in CBG	Total Investment per Line
120710007002	1,670	416.42
120710007003	678	544.21
120710007004	555	481.04
120710008001	1,112	636.27
120710008002	2,434	250.57
120710008003	491	770.43
120710009001	480	915.61
120710009002	802	746.08
120710009003	574	1,096.76
120710010001	544	589.70
120710010002	1,189	388.86
120710010003	271	679.15
120710010004	970	673.89
120710010005	1,157	436.92
120710010006	482	508.58
120710010007	2,066	387.28
120710011001	1,447	626.61
120710011002	2,230	242.42
120710011003	771	501.01
120710011004	1,472	395.96
120710011005	1,242	574.40
120710011006	4,006	264.42
120710012001	4,489	445.96
120710012002	1,757	1,098.63
120710013001	873	816.19
120710013002	1,116	1,113.43
120710014001	518	876.42
120710014002	732	1,072.76
120710014003	2,151	719.67
120710014004	901	409.56
120710014005	612	1,181.20
120710014006	599	974.86
120710014007	377	1,300.46
120710015001	2,200	536.61
120710015002	899	1,058.47
120710015003	363	1,063.91
120710015004	1,287	666.10
120710015005	1,537	593.87
120710015006	1,564	922.68
120710016001	481	1,203.58
120710016002	578	957.27
120710016003	1,976	704.91
120710016004	1,281	635.50
120710016005	206	1,703.42
120710016006	1,592	954.38
120710017011	715	1,003.77

Census Block Group Number	Lines in CBG	Total Investment per Line
120710017012	924	906.26
120710017013	1,163	861.61
120710017021	924	1,031.90
120710017022	977	621.13
120710017023	1,148	1,109.32
120710017024	760	1,112.55
120710017025	418	585.80
120710017026	798	755.83
120710017031	1,488	619.22
120710017032	2,016	732.62
120710017033	749	685.52
120710018001	416	1,380.75
120710018002	722	1,159.34
120710018003	695	905.34
120710018004	582	1,279.73
120710018005	756	1,103.23
120710018006	786	1,245.04
120710019011	755	1,170.42
120710019012	2,048	920.77
120710019013	1,213	895.61
120710019014	1,082	918.51
120710019015	170	1,970.33
120710019019	0	0.00
120710019021	1,394	1,018.56
120710019022	1,363	721.33
120710019023	1,111	885.34
120710019024	1,190	863.42
120710019025	1,311	875.86
120710019027	609	1,563.53
120710019028	465	2,333.03
120710101011	183	3,213.11
120710101012	0	0.00
120710101013	21	8,862.45
120710101014	0	0.00
120710101015	0	0.00
120710101016	222	1,900.80
120710101019	1	10,000.00
120710101021	1,588	2,032.10
120710101022	2	10,000.00
120710101023	10	10,000.00
120710101024	31	5,176.19
120710101025	19	6,031.15
120710101026	54	3,378.28
120710101031	34	4,128.21
120710101032	125	1,403.44
120710101033	27	3,878.34

Census Block Group Number	Lines in CBG	Total Investment per Line
120710101034	37	3,028.31
120710101035	78	2,263.06
120710101036	152	1,869.05
120710102011	56	3,200.12
120710102012	53	2,765.76
120710102013	150	1,493.80
120710102014	168	1,398.84
120710102015	213	1,486.41
120710102016	113	1,424.13
120710102017	191	1,585.61
120710102021	108	1,940.36
120710102022	0	0.00
120710102023	1,036	944.94
120710102024	76	2,361.96
120710102025	1,069	1,154.47
120710102026	151	1,485.76
120710102027	241	1,629.42
120710102028	461	1,205.79
120710102029	82	1,679.08
120710103011	1,432	625.66
120710103012	1,039	830.96
120710103013	921	798.40
120710103014	2,030	742.28
120710103021	642	959.85
120710103022	864	892.78
120710103023	634	1,167.69
120710103031	830	458.56
120710103032	793	598.32
120710103033	868	731.49
120710103034	567	1,126.58
120710103041	1,156	1,051.06
120710103042	668	1,190.97
120710103043	1,923	824.53
120710103044	548	1,221.99
120710103051	1,446	1,045.67
120710103052	1,037	1,130.01
120710104011	155	2,035.09
120710104012	282	1,315.93
120710104013	26	3,427.18
120710104014	366	1,378.93
120710104015	102	1,505.61
120710104016	235	1,359.97
120710104017	260	1,761.40
120710104018	422	1,026.34
120710104019	31	2,718.85
120710104021	633	1,042.18

Census Block Group Number	Lines in CBG	Total Investment per Line
120710104022	537	964.32
120710104023	372	688.91
120710104024	540	1,062.79
120710104025	364	1,209.89
120710104026	480	1,123.86
120710104031	229	1,463.08
120710104032	664	1,032.97
120710104033	1,479	1,038.58
120710104034	1,347	871.18
120710104035	727	594.36
120710104036	445	1,211.95
120710104037	1,909	1,117.60
120710104038	335	1,977.52
120710104039	0	0.00
120710105011	458	1,320.26
120710105012	387	861.74
120710105013	199	891.58
120710105014	408	770.05
120710105021	547	731.00
120710105022	601	856.29
120710105023	581	765.63
120710105024	626	443.94
120710105025	273	751.34
120710105026	392	638.96
120710105027	254	517.39
120710106011	660	956.95
120710106012	596	1,118.44
120710106013	666	969.95
120710106014	750	767.61
120710106021	557	590.70
120710106022	1,696	669.13
120710106023	793	475.56
120710107001	597	1,011.06
120710107002	558	1,397.02
120710107003	517	1,164.31
120710107004	1,384	930.79
120710107005	1,055	971.83
120710107006	829	861.65
120710107007	536	979.47
120710108011	413	758.56
120710108012	326	745.08
120710108013	328	879.59
120710108014	488	1,155.08
120710108015	288	1,574.10
120710108021	507	637.06
120710108022	1,491	662.39

Census Block Group Number	Lines in CBG	Total Investment per Line
120710108023	348	1,212.52
120710108024	275	1,229.86
120710108025	438	1,080.71
120710108026	346	1,324.84
120710108031	384	1,056.45
120710108032	484	1,144.77
120710108033	363	1,384.66
120710108034	476	1,289.90
120710201001	954	1,200.45
120710201002	1,816	834.87
120710201003	581	1,014.99
120710202001	568	595.82
120710202002	324	2,323.46
120710202003	652	1,970.56
120710202004	529	1,567.74
120710203001	521	707.34
120710203002	662	835.97
120710203003	1,024	577.49
120710203004	831	561.53
120710204001	391	1,019.44
120710204002	107	1,244.62
120710204003	723	1,280.29
120710205011	1,572	718.79
120710205012	939	757.62
120710205021	487	839.44
120710205022	903	630.96
120710205023	714	734.92
120710205024	998	989.57
120710206001	564	614.66
120710206002	1,061	387.32
120710206003	406	557.42
120710206004	497	564.56
120710206005	338	766.38
120710206006	611	718.20
120710207001	527	1,033.42
120710207002	1,100	988.14
120710208001	322	1,470.51
120710208002	381	1,266.85
120710208003	721	622.74
120710208004	437	1,079.33
120710208005	543	1,274.11
120710208006	468	1,125.43
120710208007	229	851.02
120710208008	234	702.47
120710301001	420	1,906.05
120710301002	535	1,295.35

Census Block Group Number	Lines in CBG	Total Investment per Line
120710301003	207	1,707.53
120710302001	463	994.11
120710302002	1,005	1,212.27
120710302003	676	1,414.85
120710302004	414	1,148.11
120710302005	655	1,239.08
120710302006	487	1,562.35
120710302007	428	1,992.38
120710303001	289	2,662.17
120710303002	440	1,216.27
120710303003	1,023	689.26
120710303004	298	1,618.86
120710303005	191	1,510.34
120710401011	347	1,442.06
120710401012	1,120	1,718.50
120710401013	0	0.00
120710401014	25	4,653.07
120710401015	0	0.00
120710401016	80	1,922.58
120710401021	655	1,003.32
120710401022	1	10,000.00
120710401023	0	0.00
120710401024	119	1,366.67
120710401025	102	1,140.09
120710401026	112	778.02
120710401027	1	10,000.00
120710401028	158	1,113.06
120710401031	169	1,531.13
120710401032	78	3,011.37
120710401033	94	2,310.19
120710401034	0	0.00
120710401041	828	1,348.98
120710401042	1,534	939.72
120710401043	677	1,722.39
120710401051	61	3,531.94
120710401052	323	2,779.12
120710401053	73	3,643.76
120710401054	0	0.00
120710402011	340	2,525.43
120710402012	119	1,379.03
120710402013	0	0.00
120710402014	0	0.00
120710402015	0	0.00
120710402017	0	0.00
120710402021	212	2,776.76
120710402022	24	3,357.59

Census Block Group Number	Lines in CBG	Total Investment per Line
120710402023	49	2,431.60
120710402024	138	2,044.93
120710402031	35	1,934.07
120710402032	0	0.00
120710402033	29	3,780.42
120710402034	121	1,747.25
120710402035	327	1,448.65
120710402036	502	1,283.80
120710402037	1,481	698.98
120710402038	693	945.00
120710402041	70	2,624.43
120710402042	64	3,356.24
120710402043	78	3,113.66
120710402044	128	2,303.53
120710402045	437	1,359.04
120710402046	471	1,317.91
120710402047	554	1,135.93
120710403011	226	1,395.51
120710403012	117	1,412.25
120710403013	103	1,239.35
120710403014	75	1,691.76
120710403015	68	1,642.51
120710403016	69	2,066.44
120710403017	68	1,939.42
120710403021	53	2,608.71
120710403022	40	2,685.19
120710403023	34	3,352.25
120710403024	12	6,290.58
120710403025	32	3,827.60
120710403031	55	1,812.71
120710403032	55	1,896.16
120710403033	17	3,749.95
120710403034	8	7,834.66
120710403035	36	2,208.37
120710403036	32	3,129.17
120710403037	21	3,892.21
120710403041	629	1,121.07
120710403042	381	1,368.50
120710403043	714	723.04
120710403044	593	700.72
120710403051	267	875.68
120710403052	288	863.05
120710403053	761	778.36
120710403054	317	897.86
120710403061	928	714.61
120710403062	850	812.77

Census Block Group Number	Lines in CBG	Total Investment per Line
120710403063	833	1,170.54
120710403064	193	509.56
120710403065	213	1,434.95
120710403066	16	4,741.95
120710403068	28	4,350.11
120710403069	1	10,000.00
120710403071	111	1,315.03
120710403072	0	0.00
120710403073	78	1,975.63
120710403074	0	0.00
120710403075	0	0.00
120710403076	11	7,404.03
120710403077	1	10,000.00
120710403078	10	7,295.36
120710403081	18	5,980.90
120710403082	45	2,677.46
120710403083	0	0.00
120710403084	0	0.00
120710403085	0	0.00
120710403086	0	0.00
120710403087	0	0.00
120710403088	0	0.00
120710403089	0	0.00
120710501001	524	1,176.06
120710501002	1,625	768.35
120710501003	703	1,328.02
120710501004	906	974.31
120710501005	965	1,351.03
120710501006	661	1,112.31
120710501009	0	0.00
120710502001	866	834.30
120710502002	1,447	1,085.97
120710502003	1,093	1,067.76
120710502004	1,088	808.87
120710502005	1,269	949.03
120710502006	1,008	1,177.85
120710503011	1,253	1,538.39
120710503012	325	1,867.90
120710503021	750	1,723.67
120710503022	475	1,337.29
120710503023	384	1,291.18
120710503031	1,006	2,435.89
120710504001	695	797.34
120710504002	617	941.92
120710504003	651	1,026.09
120710504004	414	936.67

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Census Block Group Number	Lines in CBG	Total Investment per Line
120710504005	491	1,334.39
120710505001	688	1,292.08
120710505002	838	982.57
120710505003	645	1,220.27
120710505004	340	1,484.87
120710506001	464	990.80
120710506002	455	783.21
120710506003	1,941	464.00
120710506004	550	1,223.57
120710506005	545	647.68
120710506006	210	1,608.35
120710601001	184	1,547.35
120710601002	651	894.37
120710601003	267	1,355.96
120710601004	967	512.80
120710601005	584	680.82
120710601006	318	731.49
120710601007	512	480.52
120710602001	143	1,341.33
120710602002	657	1,177.18
120710602003	173	1,195.89
120710602004	426	1,321.78
120710602005	549	1,027.66
120710602006	560	1,243.31
120710602009	0	0.00
120710602996	0	0.00
120710603001	0	0.00
120710603003	177	1,762.75
120710603004	129	1,666.65
120710603005	164	1,871.50
120710603006	240	1,528.29
120710603007	49	1,713.07
120710603009	0	0.00
120710701001	432	1,394.23
120710701002	495	1,578.64
120710701003	587	1,887.40
120710701004	797	1,309.53
120710701005	555	1,386.77
120710701009	0	0.00
120710702001	519	1,519.32
120710702002	593	1,988.89
120710702003	535	1,036.33
120710702004	311	1,413.15
120710702005	537	1,242.13
120710702009	0	0.00
120710801001	3	10,000.00

Census Block Group Number	Lines in CBG	Total Investment per Line
120710801002	23	6,316.67
120710801003	144	2,068.90
120710801004	123	2,402.91
120710801005	161	1,653.65
120710801009	0	0.00
120710802011	640	892.27
120710802012	858	1,079.74
120710802013	545	925.44
120710802014	233	1,121.39
120710802015	545	1,159.94
120710802016	717	1,353.09
120710802019	0	0.00
120710802021	294	1,070.93
120710802022	204	1,436.58
120710802023	311	880.03
120710802024	300	1,184.51
120710802025	437	1,143.72
120710802026	535	841.48
120710802027	395	966.05
120710901001	115	1,301.09
120710901002	158	758.55
120710901003	360	636.61
120710901009	0	0.00
120730001001	3,837	154.97
120730002001	1,654	321.49
120730002002	715	583.20
120730002003	1,775	228.33
120730002004	2,650	218.50
120730003001	1,357	378.05
120730003002	815	522.55
120730003003	1,871	631.41
120730003004	934	787.59
120730003005	1,846	560.56
120730004001	443	350.13
120730004002	727	563.02
120730005001	1,183	361.02
120730005002	2,557	221.61
120730006001	5,082	263.29
120730006002	499	526.99
120730006003	1,688	208.37
120730006004	631	417.76
120730007001	898	488.63
120730007002	1,241	310.42
120730007003	634	372.50
120730008001	799	412.37
120730008002	622	479.49

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Census Block Group Number	Lines in CBG	Total Investment per Line
120730008003	1,032	559.96
120730009011	838	934.52
120730009012	2,164	537.38
120730009013	771	776.21
120730009014	795	420.21
120730009015	1,334	711.98
120730009021	1,657	796.92
120730009022	1,011	448.14
120730009023	749	543.25
120730009024	1,403	793.55
120730009025	2,961	221.70
120730010011	675	545.49
120730010012	579	828.53
120730010013	623	894.00
120730010021	854	987.02
120730011011	667	830.01
120730011012	513	1,112.03
120730011013	349	887.65
120730011021	766	533.44
120730011022	420	902.74
120730011023	587	1,160.51
120730012001	1,156	711.24
120730013001	65	1,105.37
120730013002	44	471.79
120730013003	584	87.66
120730013004	4	1,846.70
120730014001	1,053	762.85
120730014002	632	627.41
120730014003	539	952.57
120730014004	539	628.71
120730014005	505	852.52
120730015001	831	516.98
120730015002	634	466.15
120730015003	2,128	324.37
120730015004	481	938.34
120730016011	1,001	298.00
120730016012	1,522	464.93
120730016013	1,594	387.06
120730016021	729	998.28
120730016022	469	894.08
120730016023	465	1,041.57
120730017001	1,492	666.88
120730017002	1,908	529.73
120730017003	901	910.11
120730017004	1,339	658.10
120730017005	507	573.26

Census Block Group Number	Lines in CBG	Total Investment per Line
120730017006	468	643.17
120730018001	434	925.37
120730018002	1,340	900.32
120730018003	597	808.45
120730018004	599	925.60
120730018005	1,089	886.35
120730018006	428	1,282.15
120730019001	1,093	760.25
120730019002	376	1,148.22
120730019003	1,000	511.49
120730019004	972	778.90
120730019005	480	686.94
120730019006	372	951.10
120730019007	1,157	783.05
120730020011	900	638.36
120730020012	985	620.23
120730020013	332	691.64
120730020014	1,149	550.66
120730020015	947	512.21
120730020021	758	795.40
120730020022	2,711	258.72
120730020023	984	620.30
120730020024	451	384.04
120730020025	1,256	475.13
120730021001	956	1,001.85
120730021002	952	859.84
120730021003	865	723.00
120730021004	742	863.17
120730021005	957	866.75
120730021006	1,193	734.29
120730021007	1,314	645.96
120730022011	1,026	772.50
120730022012	1,441	525.62
120730022013	734	1,077.03
120730022014	1,118	763.34
120730022031	1,338	850.76
120730022032	934	1,007.64
120730022041	1,049	691.62
120730022042	901	782.11
120730022043	468	995.66
120730022044	852	750.72
120730022045	713	643.10
120730022046	377	491.33
120730023011	1,283	1,263.33
120730023012	1,146	815.71
120730023013	506	1,149.79

Census Block Group Number	Lines in CBG	Total Investment per Line
120730023014	676	998.44
120730023015	331	1,176.28
120730023022	580	2,170.00
120730024021	170	3,703.57
120730024022	1,553	1,721.31
120730024023	570	1,705.32
120730024024	2,037	1,261.86
120730024031	859	948.55
120730024032	747	756.68
120730024041	1,681	918.21
120730024042	1,115	929.18
120730024043	738	828.97
120730024044	612	901.29
120730024045	1,155	650.65
120730024046	878	700.77
120730024047	1,211	966.47
120730024048	970	688.13
120730024049	2,455	682.83
120730024063	5	10,000.00
120730025021	312	2,758.39
120730025022	652	2,380.18
120730025023	666	2,047.93
120730025024	488	2,293.40
120730025025	548	2,226.34
120730025031	832	942.99
120730025032	1,060	922.62
120730025033	466	1,160.18
120730025034	1,333	1,142.88
120730025035	1,065	1,241.06
120730025041	21	2,945.89
120730025042	729	710.70
120730025043	712	1,699.42
120730025044	665	1,011.63
120730026011	979	2,066.55
120730026015	1,187	889.35
120730026021	637	2,020.16
120730026022	724	2,340.53
120730026023	629	1,629.07
120730026024	843	1,016.83
120730026025	444	1,561.13
120730027001	605	1,015.61
120730027002	766	2,028.78
120730027004	1,430	1,368.80
120730027005	0	0.00
120730027006	451	2,165.05
120730027007	569	1,020.43

Census Block Group Number	Lines in CBG	Total Investment per Line
120730028982	0	0.00
120759701001	390	2,317.70
120759705001	361	2,083.00
120759705002	829	2,067.93
120759705003	151	2,056.04
120759705005	48	5,011.40
120759705006	253	2,374.61
120759705007	163	2,850.67
120759705008	52	3,521.04
120759706001	398	1,264.57
120759706002	849	913.16
120759706003	797	771.63
120759706004	486	2,156.42
120779501003	0	0.00
120799901001	557	2,043.00
120799901002	705	1,965.27
120799901003	262	2,624.45
120799902001	429	2,957.36
120799902002	516	1,986.12
120799902003	439	2,397.97
120799902004	427	3,908.41
120799903001	1,319	1,246.85
120799903002	674	1,865.88
120799903003	661	2,101.68
120799903004	658	734.37
120799903005	892	905.72
120799903006	751	2,166.39
120799904001	361	3,007.82
120799904002	644	2,789.96
120799904003	107	5,973.14
120799904004	143	5,961.20
120830001001	767	2,629.01
120830003021	917	1,564.11
120830003022	851	1,633.85
120830004004	604	2,856.08
120830005001	683	1,009.84
120830005002	350	2,740.78
120830005003	211	3,293.64
120830006011	631	2,626.19
120830006012	407	2,707.22
120830006013	900	1,884.14
120830006014	122	4,463.35
120830006021	67	2,243.04
120830006022	811	2,181.43
120830006023	1,043	1,395.07
120830006024	592	2,025.11

Census Block Group Number	Lines in CBG	Total Investment per Line
120830006031	688	1,680.09
120830006032	416	2,328.73
120830006033	212	2,122.13
120830006034	356	2,009.91
120830006035	213	2,589.31
120830006036	706	2,641.65
120830007011	519	796.62
120830007012	625	2,158.95
120830007013	1,070	1,133.26
120830007021	792	1,037.48
120830007022	667	1,476.25
120830007023	1,012	1,322.36
120830008001	1,378	980.87
120830008002	1,914	1,544.58
120830008003	660	1,248.27
120830009011	1,422	1,224.65
120830009012	1,060	1,730.33
120830009021	659	1,060.74
120830009022	988	1,045.58
120830009023	1,216	1,766.91
120830010001	3,712	1,455.85
120830010002	202	1,741.90
120830010003	2,826	1,560.95
120830011011	2,006	319.35
120830011012	1,270	1,014.48
120830011013	2,039	1,508.60
120830011014	24	3,716.77
120830011021	331	677.20
120830011022	357	998.60
120830011023	874	941.12
120830012011	597	1,627.66
120830012021	2,183	820.72
120830012022	1,133	1,511.11
120830012023	32	3,669.23
120830012024	456	1,114.51
120830012025	433	1,246.01
120830012026	711	885.46
120830012027	905	636.82
120830012028	1,248	921.29
120830012029	1,138	896.70
120830013011	941	1,163.83
120830013012	1,218	1,029.41
120830013021	1,382	903.08
120830013022	1,181	960.05
120830014005	155	113.41
120830014011	1,717	785.82

Census Block Group Number	Lines in CBG	Total Investment per Line
120830014012	775	719.93
120830014013	1,519	764.68
120830014014	314	416.40
120830014021	4,172	630.71
120830015001	1,635	1,119.33
120830015002	339	1,111.11
120830015003	1,123	802.48
120830015004	420	855.82
120830016001	3,524	520.82
120830017001	957	827.70
120830017002	1,551	370.07
120830017003	559	534.30
120830018001	613	469.41
120830018002	519	595.24
120830018003	944	435.17
120830019001	317	280.41
120830019002	1,039	288.30
120830019003	949	125.09
120830019004	649	437.94
120830019005	641	450.34
120830019006	916	254.20
120830019007	1,180	329.77
120830020011	1,487	370.26
120830020012	618	447.66
120830020013	740	576.88
120830020021	1,635	454.46
120830020022	1,838	633.02
120830021001	805	584.01
120830021002	1,040	422.01
120830021003	1,110	743.86
120830021004	689	526.33
120830022011	1,773	721.49
120830022012	659	1,111.68
120830022021	920	659.52
120830022022	1,073	645.44
120830022031	371	758.27
120830022032	3,542	600.70
120830023011	4,011	631.34
120830023012	373	1,270.84
120830023021	2,327	738.63
120830023022	958	1,040.18
120830024011	152	463.96
120830024012	2,333	876.41
120830024021	1,939	877.96
120830024022	1,010	1,387.32
120830025011	469	1,278.53

Census Block Group Number	Lines in CBG	Total Investment per Line
120830025012	576	1,293.39
120830025013	295	1,944.35
120830025014	156	1,551.04
120830025015	2,839	687.69
120830025016	207	1,417.95
120830025017	82	1,380.96
120830025018	311	1,193.81
120830025021	3,357	685.33
120830025022	1,911	1,304.44
120830026011	944	1,928.14
120830026021	522	1,252.41
120830026022	601	946.76
120830026023	1,142	1,576.98
120830026031	3,333	1,602.37
120879701004	19	10,000.00
120879701005	0	0.00
120910201001	417	3,284.77
120910201002	665	2,017.71
120910201003	508	2,261.53
120910201004	589	2,251.27
120910201005	599	2,308.74
120910203001	1,014	1,876.27
120910203002	1,574	1,978.97
120910204001	565	958.82
120910204002	1,162	745.24
120910204003	1,173	1,287.95
120910205001	663	1,120.52
120910205002	494	589.91
120910205003	411	578.99
120910205004	924	335.66
120910205005	1,317	989.57
120910206001	216	674.97
120910206002	445	778.23
120910206003	978	1,638.86
120910207001	1,067	526.58
120910207002	1,641	1,199.74
120910208009	294	4,022.18
120910209001	523	944.54
120910209002	1,276	993.18
120910210001	1,201	962.11
120910210002	2,815	784.75
120910210009	172	763.17
120910211001	997	739.91
120910211002	979	441.16
120910211003	805	828.60
120910211004	383	1,017.72

Census Block Group Number	Lines in CBG	Total Investment per Line
120910211005	238	1,246.06
120910211006	1,041	1,137.92
120910211007	905	884.22
120910211008	895	1,165.18
120910212001	1,059	683.59
120910212002	715	502.27
120910212003	803	465.47
120910212004	611	712.12
120910212005	271	562.10
120910213009	539	1,656.50
120910214009	2,911	917.64
120910215001	2,634	726.27
120910215002	742	517.29
120910215003	595	454.99
120910215004	384	286.48
120910215005	812	474.09
120910216001	638	1,044.01
120910216002	1,175	375.08
120910217001	1,103	948.99
120910217002	699	685.94
120910218001	1,094	675.21
120910218002	2,576	459.94
120910218003	3,281	609.04
120910218004	3	10,000.00
120910219001	3,755	905.71
120910220001	1,585	285.22
120910220002	1,237	454.70
120910220003	1,167	634.55
120910220004	1,628	488.83
120910221001	419	554.08
120910221002	564	386.98
120910221003	1,118	565.76
120910222001	1,022	485.24
120910223001	605	576.50
120910223002	313	661.89
120910224001	642	387.47
120910224002	1,022	456.96
120910224003	648	621.87
120910224004	544	624.03
120910224005	561	642.42
120910225001	974	429.53
120910225002	1,663	622.08
120910225003	1,072	733.53
120910225004	436	212.89
120910226001	1,353	363.43
120910226002	1,924	221.36

Census Block Group Number	Lines in CBG	Total Investment per Line
120910226003	1,242	433.62
120910227001	1,000	969.25
120910227002	1,430	939.35
120910228001	1,577	780.32
120910229001	2,152	443.73
120910229002	1,466	831.18
120910229003	3,177	567.35
120910230009	394	2,191.37
120910231001	3,285	916.95
120910232001	1,626	1,088.45
120910232009	0	0.00
120910233001	4,645	929.80
120910233002	950	764.67
120910233003	1,888	568.86
120939901001	1,683	1,694.23
120939901002	914	1,806.39
120939901003	392	3,221.35
120939901004	610	2,004.75
120939902001	622	2,360.82
120939902002	667	1,488.29
120939902003	703	1,286.12
120939902004	1,601	975.98
120939902005	294	746.75
120939903001	525	1,023.76
120939903002	255	1,490.30
120939903003	484	1,120.03
120939904001	1,065	2,429.32
120939904002	155	1,781.26
120939904003	301	1,031.69
120939904004	180	1,734.09
120939904005	695	1,080.80
120939904006	774	1,281.07
120939904007	752	1,878.88
120939905001	813	1,010.16
120939905002	1,067	758.48
120939905003	455	1,242.19
120939905004	359	1,060.37
120939906001	638	374.26
120939906002	719	931.69
120939906003	517	1,143.36
120939906004	592	1,161.87
120939906005	1,441	1,189.36
120950125001	386	863.56
120950125002	1,475	1,057.47
120950127011	1,180	914.06
120950127021	3,415	299.23

Census Block Group Number	Lines in CBG	Total Investment per Line
120950128001	769	833.59
120950128002	600	864.13
120950128004	478	595.19
120950128005	423	829.60
120950130019	811	434.42
120950147005	3,259	659.49
120950148012	645	1,147.50
120950148013	3,148	699.87
120950148021	1,519	975.64
120950148022	85	2,153.75
120950148023	686	451.38
120950148024	1,041	898.48
120950148031	4,646	448.05
120950148032	8,007	759.67
120950149021	1,355	742.66
120950149022	361	1,042.20
120950149023	683	470.16
120950149024	1,670	732.12
120950150001	3,460	690.72
120950150002	754	1,068.63
120950150003	2,329	902.99
120950151011	3,675	651.37
120950151012	1,169	927.09
120950151013	1,904	750.13
120950152011	1,464	210.49
120950152012	1,862	432.12
120950152021	2,702	693.51
120950152022	932	648.23
120950152023	971	734.68
120950153001	913	735.40
120950153002	2,161	604.55
120950153003	1,831	633.28
120950154011	488	331.81
120950154012	1,989	685.68
120950154021	1,630	481.22
120950154022	805	439.07
120950154023	1,234	366.19
120950155011	805	769.49
120950155012	1,342	357.02
120950155013	1,444	776.69
120950155021	358	534.23
120950155022	251	554.94
120950156011	629	1,026.20
120950156012	882	601.33
120950156021	573	960.41
120950156022	752	987.06

Census Block Group Number	Lines in CBG	Total Investment per Line
120950157011	366	1,112.34
120950157012	1,102	724.44
120950157021	719	986.46
120950157022	433	919.15
120950158011	291	683.37
120950158012	640	467.38
120950158013	469	458.91
120950158021	981	747.89
120950158022	657	940.32
120950159011	1,916	317.79
120950159012	2,411	169.02
120950159013	1,602	193.10
120950159021	1,962	343.82
120950159022	1,365	298.96
120950160011	611	474.66
120950160012	632	330.20
120950160013	681	155.75
120950160021	539	850.05
120950160022	487	767.48
120950160023	1,333	263.99
120950161001	1,249	878.40
120950161002	467	619.90
120950161003	1,169	505.47
120950162001	3,300	750.08
120950162002	733	901.59
120950162003	533	1,033.82
120950162004	146	1,379.18
120950163011	3,294	657.92
120950163012	1,396	870.94
120950163021	2,105	572.09
120950164011	5,055	626.09
120950164012	4,108	558.91
120950164042	2,258	396.65
120950164051	1,797	893.27
120950164052	3,869	764.82
120950164053	1,813	1,027.91
120950168016	3,680	1,275.32
120950170013	4,112	387.58
120950170026	1,975	1,432.26
120950170037	3,630	791.60
120950171011	1,910	1,086.30
120950171012	514	1,863.02
120950171013	692	1,455.82
120950171014	15	5,534.33
120950171021	21,092	359.96
120950172001	127	1,498.01

Census Block Group Number	Lines in CBG	Total Investment per Line
120950172002	346	1,435.59
120950172003	174	1,114.00
120950172004	221	1,703.88
120950173001	943	633.91
120950173002	1,152	701.08
120950173003	1,585	978.65
120950174001	1,759	843.99
120950174002	755	472.99
120950174003	1,014	681.51
120950174004	718	1,020.28
120950174005	401	1,153.44
120950175011	982	1,032.30
120950175012	728	1,078.58
120950175013	131	1,774.11
120950175014	554	1,182.76
120950175021	1,489	522.52
120950175022	2,821	580.99
120950175023	1,824	495.89
120950175024	383	913.85
120950175025	1,280	849.09
120950176001	1,205	579.37
120950176002	1,034	474.95
120950176003	687	590.17
120950176004	455	302.15
120950177001	2,049	715.39
120950177002	353	545.29
120950177003	276	486.18
120950177004	1,615	677.44
120950178011	1,244	1,467.52
120950178012	999	2,302.60
120950178014	925	875.50
120950178021	1,537	996.51
120950178022	1,943	708.85
120950178031	1,473	901.75
120950178032	1,935	737.95
120950178033	1,585	851.09
120950179001	554	1,016.97
120950179002	546	1,017.57
120950179003	1,625	1,051.86
120950179004	69	1,991.65
120950179005	215	1,376.04
120950179006	1,365	861.50
120950179007	516	967.12
120950179008	212	2,556.79
120950179009	1,042	1,298.47
120970401011	3,706	761.24

Census Block Group Number	Lines in CBG	Total Investment per Line
120970401012	4,856	1,030.16
120970401021	441	1,000.12
120970401022	570	1,033.79
120970401023	836	1,113.16
120970401024	1,518	1,661.67
120970401025	1,844	1,164.37
120970401027	433	1,187.08
120970402021	1,482	908.71
120970402022	778	1,036.18
120970402023	1,064	1,014.89
120970402031	1,725	874.20
120970402032	1,685	714.96
120970402033	1,079	1,055.14
120970402041	1,831	775.38
120970402042	4,830	781.94
120970403011	624	518.58
120970403012	1,568	660.25
120970403013	550	701.00
120970403014	1,438	364.58
120970403015	584	608.70
120970403016	1,180	742.13
120970403021	722	728.08
120970403022	1,161	547.20
120970403023	995	672.43
120970403024	985	918.87
120970403025	392	609.55
120970404001	3,275	682.46
120970404002	1,463	962.32
120970404003	1,334	1,377.76
120970405011	760	509.97
120970405012	758	502.15
120970405013	938	985.06
120970405014	527	716.60
120970405021	759	457.20
120970405022	437	568.39
120970405023	612	727.42
120970405024	775	622.74
120970405025	1,033	561.60
120970405031	1,040	998.40
120970405032	7,410	894.80
120970405033	1,282	1,368.04
120970405041	1,248	1,210.08
120970405042	1,117	1,896.47
120970405043	793	2,279.35
120970405051	1,283	1,563.44
120970405052	1,160	1,715.38

Census Block Group Number	Lines in CBG	Total Investment per Line
120970405053	178	2,979.18
120970405054	1,512	1,463.78
120970405055	936	1,698.41
120970405056	593	1,911.57
120970406001	624	3,740.52
120970406002	444	4,013.46
120970406004	529	3,498.86
120990083011	1,114	2,238.66
121010319006	813	2,447.55
121010321021	292	2,264.43
121010322001	975	1,403.41
121010322002	662	1,160.27
121010323001	885	1,902.57
121010324001	478	2,050.75
121010324002	746	1,761.86
121010324003	422	1,075.79
121010324004	535	980.64
121010324005	726	2,362.03
121010324006	203	724.22
121010325001	356	1,149.96
121010325002	491	796.51
121010325003	511	1,156.54
121010325004	392	1,346.06
121010325006	454	1,134.91
121010326001	1,311	577.25
121010326002	751	586.29
121010326003	342	458.11
121010326004	524	350.67
121010326005	378	446.77
121010326006	889	1,108.78
121010327001	598	1,034.15
121010327002	397	1,885.81
121010327003	431	1,688.62
121010328001	797	2,141.00
121050159002	78	703.45
121050159003	683	2,241.42
121050160001	306	1,395.70
121050160002	691	587.68
121050160003	240	517.06
121050160004	149	860.98
121050160005	1,131	640.57
121050160006	697	828.50
121050160007	834	2,116.22
121079513005	65	4,483.62
121079514007	289	2,910.97
121150027026	30	4,658.58

Census Block Group Number	Lines in CBG	Total Investment per Line
121150027027	7	9,694.59
121150027028	58	3,510.06
121150027984	8	10,000.00
121150027985	0	0.00
121150027986	11	7,991.16
121150027987	0	0.00
121170210003	388	1,538.92
121170214012	1,912	538.76
121170214013	511	1,233.88
121170214014	2,294	785.31
121170214031	217	1,338.03
121170214039	1,856	1,033.35
121170214041	830	774.06
121170214042	1,206	1,063.42
121170214043	1,773	709.98
121170214049	23	1,893.08
121170215011	2,020	850.43
121170215012	1,654	767.78
121170215013	1,489	757.71
121170215021	2,572	693.70
121170215022	289	1,048.71
121170215023	704	654.20
121170215032	1,233	650.41
121170215044	2,614	444.66
121170215045	2,301	396.26
121170215046	543	935.54
121170216017	7,331	746.12
121170216046	2,140	906.90
121170216052	867	583.49
121170216053	680	738.09
121170216056	3,239	826.31
121170216064	1,696	555.52
121170216068	1,991	735.20
121170216072	5,889	513.14
121170216073	1,551	457.15
121170216081	4,986	544.31
121170217022	6,463	674.53
121170217033	2,731	725.47
121170217039	2,325	926.00
121170217044	1,215	787.26
121170217045	1,136	835.44
121170218012	4,768	391.01
121170218013	8,388	637.50
121170218021	3,493	614.49
121170218022	1,067	524.43
121170219015	3,622	600.49

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Census Block Group Number	Lines in CBG	Total Investment per Line
121170219021	668	430.02
121170219022	557	125.15
121170219023	1,495	233.67
121170219024	1,532	498.20
121170219026	1,097	327.98
121170220011	1,007	627.42
121170220012	1,121	337.77
121170220021	135	844.26
121170220022	433	424.48
121170220023	2,730	658.06
121170220044	1,127	845.47
121170220054	2,330	678.26
121170220055	2,513	669.42
121170221011	385	514.36
121170221012	2,531	763.22
121170221013	741	869.24
121170221034	5,380	758.39
121170221041	873	545.97
121170221042	1,100	804.12
121170221043	606	617.03
121170221044	1,565	460.85
121170222013	3,332	743.65
121170222019	953	725.30
121170222031	1,049	470.39
121170222032	2,788	810.51
121170222034	595	577.75
121170222043	3,676	796.75
121170222044	1,454	874.65
121199901001	538	1,949.01
121199901002	547	2,247.33
121199901003	599	2,858.63
121199901004	447	1,686.14
121199901005	729	1,388.60
121199902001	1,147	850.59
121199902002	807	572.59
121199902003	307	1,023.71
121199902004	2,570	1,263.51
121199902005	234	1,925.45
121199903001	458	2,676.47
121199903002	477	2,545.85
121199903003	560	2,132.53
121199904001	571	1,408.09
121199904002	279	1,596.42
121199904003	475	1,677.72
121199904004	493	1,405.28
121199904005	903	1,834.38

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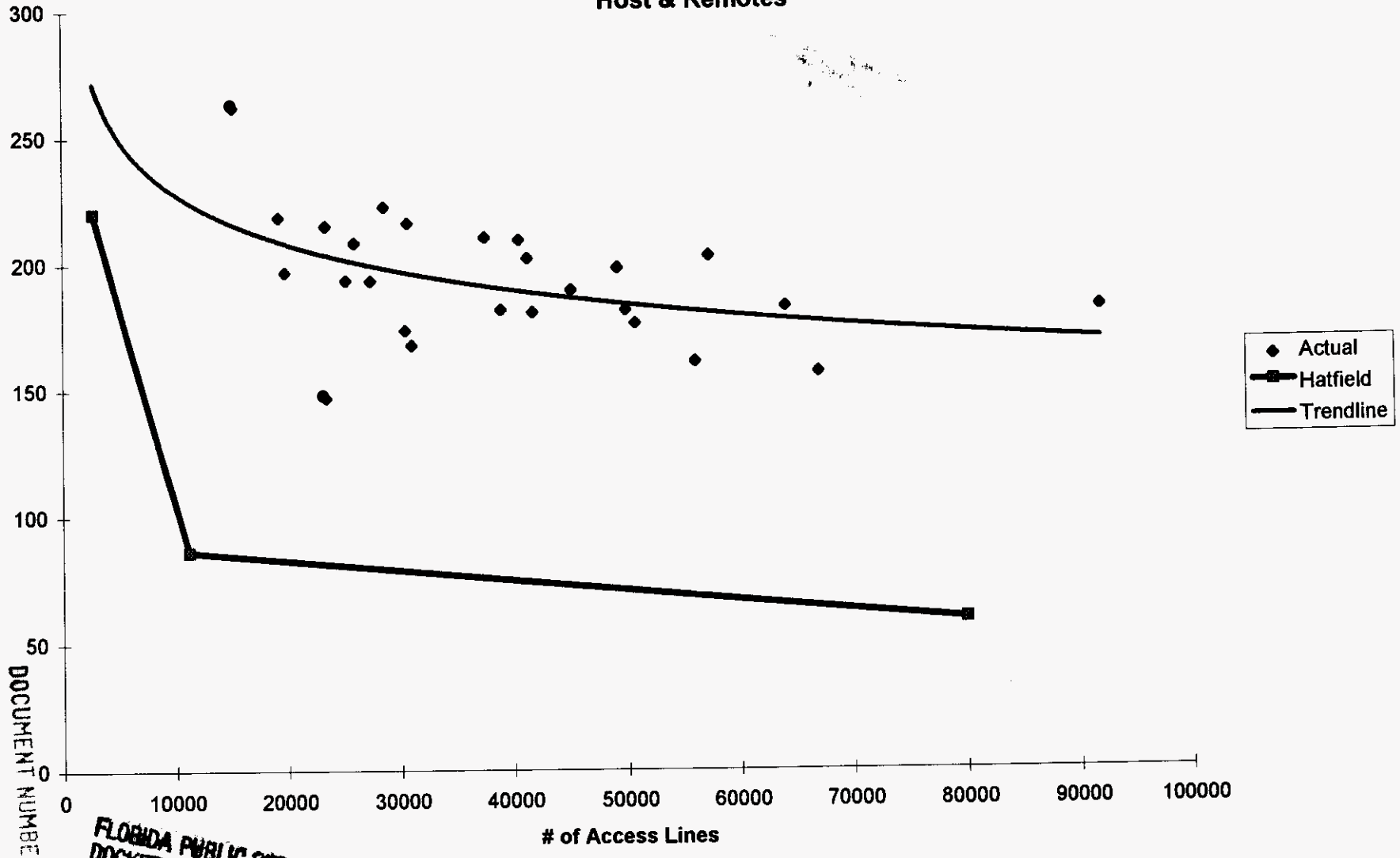
Census Block Group Number	Lines in CBG	Total Investment per Line
121199905001	370	2,585.24
121199905002	973	1,953.93
121199905003	552	2,182.71
121199906001	761	2,458.50
121199906002	590	1,221.16
121199906003	576	2,325.08
121199906004	353	2,261.91
121199906005	665	2,055.11
121199907001	582	2,198.94
121199907002	469	2,641.33
121199907003	841	2,601.15
121199907004	249	4,575.96
121239502007	77	7,421.59
121270832013	1,058	2,011.93
121270903023	1,500	1,168.70
121270908011	434	1,870.95
121270908012	1,750	928.29
121270908014	899	744.34
121270908015	498	923.61
121270908021	697	1,027.68
121270908022	659	572.21
121270908023	1,540	813.16
121270908024	416	400.94
121270908025	284	489.60
121270908026	1,622	738.83
121270910011	458	2,498.38
121270910012	785	949.21
121270910013	683	1,157.16
121270910021	655	1,465.75
121270910022	550	1,442.16
121270910023	960	873.37
121270910024	806	874.89
121270910025	1,000	967.13
121270910028	1,052	701.61
121270910031	928	1,396.70
121270910032	1,118	442.29
121270910033	663	942.79
121270910034	1,303	872.09
121270910035	968	881.36
121270910036	492	607.36
121270910037	1,175	753.36
121270910038	461	1,109.99
121270910051	230	2,188.99
121290101002	478	2,724.29
121290101003	466	2,629.32
121290101004	374	2,882.30

Census Block Group Number	Lines in CBG	Total Investment per Line
121290101005	447	1,864.76
121290101006	281	2,630.73
121290102001	456	3,505.70
121290102002	923	1,816.81
121290102003	468	2,656.28
121290102004	1,558	2,453.68
121290102005	1,605	1,326.32
121290102006	429	2,801.53
121290102007	551	2,757.14
121319501001	473	2,589.13
121319501004	400	2,463.36
121319501005	385	2,616.61
121319501007	198	2,008.76
121319502001	861	1,966.76
121319502002	792	341.46
121319502003	587	285.76
121319502004	366	668.88
121319502005	1,244	1,239.48
121319503001	703	2,006.94
121319503002	355	1,240.15
121319503003	699	931.96
121319503004	379	1,603.97
121319503005	1,381	2,442.43
121319504001	469	2,290.14
121319504002	356	2,706.45
121319504003	360	2,603.74
121319505001	591	2,773.43
121319505002	510	2,335.50
121319505003	321	1,985.40
121319505004	988	851.03
121319505005	691	2,194.92
121319505006	47	5,461.57
121319506001	2,031	804.05
121319506002	317	2,078.50
121319506003	430	2,579.59
121319506004	897	1,379.60
121319506005	739	2,615.93
121319506006	520	2,188.77
121339702001	521	1,835.18
121339702003	613	2,346.27
121339703001	710	2,466.27

Sprint - Florida
Switch Investment/Line
Host & Remotes



DOCUMENT NUMBER-DATE
12574 NOV 22 96
FPSC-RECORDS/REPORTING

FLORIDA PUBLIC SERVICE COMMISSION
DOCKET NO. 961230-TP EXHIBIT NO 30
COMPANY/WITNESS: DUNBAR/SPRINT
DATE: 12/18/96

EXHIBIT NO. _____

DOCKET NO: 961230-TP

WITNESS: JAMES D. DUNBAR, JR.

PARTY: SPRINT CENTEL/UNITED

DESCRIPTION:

SPRINT CENTEL/UNITED'S RESPONSE TO STAFF'S 1ST SET OF INTERROGATORIES (NOS. 24-27).

PROFFERING PARTY: STAFF

I.D. # JDD-4

FLORIDA PUBLIC SERVICE COMMISSION
DOCKET NO. 961230TP EXHIBIT NO 31
COMPANY/ WITNESS: STAFF
DATE 12/18/96

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Petition by MCI Telecommunications Corporation for arbitration with United Telephone Company of Florida and Central Telephone Company of Florida concerning interconnection rates, terms, and conditions, pursuant to the Federal Telecommunications Act of 1996	DOCKET NO. 961230-TP

UNITED TELEPHONE COMPANY OF FLORIDA AND CENTRAL TELEPHONE COMPANY OF FLORIDA'S ANSWERS TO STAFF'S FIRST SET OF INTERROGATORIES (NOS. 1-45)

United Telephone Company of Florida ("Sprint-United") and Central Telephone Company of Florida ("Sprint-Centel") (collectively "Sprint"), pursuant to Rule 25-22.034, Florida Administrative Code, Florida Rule of Civil Procedure 1.340, hereby provide the following answers to Staff's First Set of Interrogatories, served on November 22, 1996 ("Staff's First Set").

24. For purposes of the following request, please refer to Exhibit JDD-2 attached to James Dunbar's supplemental direct testimony.

(a) For each CBG shown on this exhibit, please identify the wire center (by name and/or CLLI code) which serves it.

(b) For each CBG shown on this exhibit, please identify which ones are in the Sprint-United service territory.

(c) For each CBG shown on this exhibit, please identify which ones are in the Sprint-Centel service territory.

(d) Please identify the source for the values in the column labeled "Lines in CBG."

(e) Please identify what types of lines are reflected in the column labeled "Lines in CBG." (E.g., do they include all local access lines? ISDN lines? Special access lines?)

Answer:

(a) See attached.

(b) See attached.

(c) See attached.

(d) The data for the values in the column labeled "Lines in CBG" are copied from Column "T" on the sheet designated Main Logic in the BCM 2 Excel Model. Column "T" is the sum of the product of Households (from Main Logic column I) times the residence line multiplier (from Table Inputs cell B7) plus business lines (from Main Logic inputs column J).

(e) The type of lines reflected in the column labeled "Lines in CBG" are all local access lines (e.g., R1, B1, Special access, etc.).

25. Referring to Exhibit JDD-2 attached to James Dunbar's supplemental direct testimony, please provide a listing of all user-specifiable inputs to the BCM2 which are specific to Sprint Florida.

Answer:

ResLinesMultiplier	1.373904	Residence Lines per household multiplier
	30	Fiber Cable Discount % (Enter whole %)
	30	Copper Cable Discount % (Enter whole %)
	20	AFC Electronics Discount % (Enter whole %)
	30	SLC Electronics Discount % (Enter whole %)
DropCostPerFoot	1	Drop Cost per FT
NidCost	0	Cost per NID
CableWireFactor1	0.2988	Factor 1 for cable & Wire Facilities
ElectronicsFactor1	0.3037	Factor 1 for circuit Facilities
SwitchingFactor1	0	Factor 1 for Switching facilities
OtherFactor1	0	Factor 1 for other loading per line served
CableWireFactor2	0.2988	Factor 2 for cable & Wire Facilities
ElectronicsFactor2	0.3037	Factor 2 for circuit Facilities
SwitchingFactor2	0	Factor 2 for Switching facilities
OtherFactor2	0	Factor 2 for other loading per line served
SwitchEngrFactor	0	Loading Factor for Switch Engineering

26. Referring to Exhibit JDD-2 attached to James Dunbar's supplemental direct testimony, please provide a listing of all user-specifiable inputs to the BCM2 which are not specific to Sprint Florida (i.e., which presumably represent the default model values).

Answer: See attached.

27. Referring to Exhibit JDD-2 attached to James Dunbar's supplemental direct testimony, please provide a description of the specific steps taken when running the BCM2 so as to yield only loop costs.

Answer: To yield only loop costs from BCM 2, the following User Inputs were set to "0" prior to the run:

a) NID

b) SwitchingFactor1

c) OtherFactor1

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Petition by MCI Telecommunications Corporation for arbitration with United Telephone Company of Florida and Central Telephone Company of Florida concerning interconnection rates, terms, and conditions, pursuant to the Federal Telecommunications Act of 1996	DOCKET NO. 961230-TP

ATTACHMENT TO STAFF'S FIRST SET
OF INTERROGATORIES NO. 24(a)
(38 pages)

CBG	CLLI Code
120639811004	ALFRFL
120639811001	ALFRFL
121339703001	ALFRFL
120639811002	ALFRFL
120639811003	ALFRFL
120639811007	ALFRFL
120639811006	ALFRFL
120910201002	BAKRFL
120910201001	BAKRFL
120910201003	BAKRFL
120910201005	BAKRFL
120910201004	BAKRFL
120599604003	BNFYFL
120599604004	BNFYFL
120599604002	BNFYFL
120599604001	BNFYFL
120599603001	BNFYFL
120599604005	BNFYFL
121290102007	CFVLFL
121290101002	CFVLFL
121290102006	CFVLFL
121290102005	CFVLFL
120799901002	CHLKFL
120799901001	CHLKFL
120799901003	CHLKFL
120910206001	CRVWFL
120910207001	CRVWFL
120910204002	CRVWFL
120910207002	CRVWFL
120910204003	CRVWFL
120910203002	CRVWFL
120910205004	CRVWFL
120910205003	CRVWFL
120910205002	CRVWFL
120910204001	CRVWFL
120910205001	CRVWFL
120910203001	CRVWFL
120910205005	CRVWFL
120910206002	CRVWFL
120910206003	CRVWFL
120639804001	CTDLFL
120639802001	CTDLFL
120639804002	CTDLFL
120639804003	CTDLFL
120910233001	DESTFL
120910233002	DESTFL
120910233003	DESTFL
121319502003	DFSPFL
121319502005	DFSPFL

121319502002	DFSPFL
121319503002	DFSPFL
121319503001	DFSPFL
121319502001	DFSPFL
121319502004	DFSPFL
121319503003	DFSPFL
121319503004	DFSPFL
121319501007	DFSPFL
121319503005	DFSPFL
121319504002	DFSPFL
120910210002	ELFDFL
120910210001	ELFDFL
121319505004	ELFDFL
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120910214009	ELFDFL
121319505001	FRPTFL
121319505002	FRPTFL
121319505003	FRPTFL
121319505005	FRPTFL
120910224005	FTWBFL
120910224004	FTWBFL
120910224003	FTWBFL
120910224002	FTWBFL
120910226001	FTWBFL
120910226002	FTWBFL
120910225004	FTWBFL
120910224001	FTWBFL
120910226003	FTWBFL
120910225003	FTWBFL
120910227001	FTWBFL
120910232001	FTWBFL
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120910221001	FTWBFL
120910221003	FTWBFL
120910220001	FTWBFL
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120910218001	FTWBFL
120910218004	FTWBFL
120910220002	FTWBFL
120910218003	FTWBFL
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120910225002	FTWBFL
120910228001	FTWBFL
120910229001	FTWBFL
120910227002	FTWBFL
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120559605005 AVPKFL

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120830009012 BLVWFL
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BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Petition by MCI Telecommunications Corporation for arbitration with United Telephone Company of Florida and Central Telephone Company of Florida concerning interconnection rates, terms, and conditions, pursuant to the Federal Telecommunications Act of 1996	DOCKET NO. 961230-TP

ATTACHMENT TO STAFF'S FIRST SET
OF INTERROGATORIES NO. 24(b)
(31 pages)

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BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Petition by MCI Telecommunications Corporation for arbitration with United Telephone Company of Florida and Central Telephone Company of Florida concerning interconnection rates, terms, and conditions, pursuant to the Federal Telecommunications Act of 1996	DOCKET NO. 961230-TP

ATTACHMENT TO STAFF'S FIRST SET
OF INTERROGATORIES NO. 24(c)
(8 pages)

CBG	CLLI Code
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BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Petition by MCI Telecommunications Corporation for arbitration with United Telephone Company of Florida and Central Telephone Company of Florida concerning interconnection rates, terms, and conditions, pursuant to the Federal Telecommunications Act of 1996	DOCKET NO. 961230-TP

ATTACHMENT TO STAFF'S FIRST SET
OF INTERROGATORIES NO. 26
(42 pages)

User Inputs

NormalUGDepth	24
NormalFiberDepth	36
CriticalWaterDepth	3
WaterFactor	30
MaxFiberSize	144
MaxFeederSize	4200
Max DistSize	3600
CprMaxDistr	12000
NewTerrainTrigger	5
NewTerrainFactor	1
MinSlopeTrigger	12
MinSlopeFactor	1.1
MaxSlopeTrigger	30
MaxSlopeFactor	1.05
CombSlopeFactor	1.2
EngrInstall	35
ElectronicFill	0.85
HiCapFill	0.95
SpecAccRatio	0.13
DensAdjUnits	10
OpticsCost	162000
CopperT1	1133
InterofficeSwRatio	1.03
PedestalCost	48.22
SwitchFillFactor	0.8
SwLandBldgFactor	1.043
NonTrfSen	0.7
TrfSen	0.7393
OSPEngrFactor	1.05
FiberSpliceRatio	0.045
FiberInLineRatio	0.07
CopperSpliceRatio	0.07
CopperInLineRatio	0.1
OtherAllocRatio1	0.75
OtherAllocRatio2	0.45
CprSizeFctr1	1.2
CprSizeFctr2	1.3
CprSizeFctr3	1.4
FbrSizeFctr	1.2
UGPullCost	0.77

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StructureAllocationTable

Cable Size	Cable Structu	Fiber Structure %
0	50	50
200	55	45
900	60	40
2400	65	35
4200	75	25

Urban Copper Cable Table
Cost Multiplier

Structure	Below Ground	Aerial $
RockH	20.84	14.18
RockS	13.92	10.59
Normal	10.7	7.62

Rural Copper Cable Table
Cost Multiplier

Structure	Below Ground	Aerial $
RockH	13.59	8.07
RockS	5.76	5.86
Normal	2.92	4.08

Distribution UG/Aerial Mix Table

Density	Below Ground	Aerial%
0-5	90	10
5-200	80	20
200-650	70	30
650-850	70	30
850-2550	80	20
>2550	90	10

Fiber Feeder UG/Aerial Mix Table

Density	Below Ground	Aerial%
0-5	95	5
5-200	85	15
200-650	70	30
650-850	70	30
850-2550	80	20
>2550	90	10

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Distribution Cable Size Table

DistrCableSize
3600
3000
2400
1800
1200
900
600
400
200
100
50
25
18
12

Feeder Cable Size Table

FeederCableSize
4200
3600
3000
2400
1800
1200
900
600
400
200
100
50
25

Fiber Cable Size Table

FiberCableSize
144
96
72
60
48
36
24
18
12

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CostFactorTable

Row #	Plant Type	Urban/RuraL	Density	Surface Category	Weighted Cost Factor	Below Ground Density Adjustment	Aerial Density Adjustment
1	Distribution	Urban	>2550	RockH	23.59262	1.18	1.03
2				RockS	17.56779	1.3	1.21
3				Normal	13.31148	1.3	1.04
4	Distribution	Urban	850-2550	RockH	16.58868	0.83	0.97
5				RockS	10.07238	0.72	0.97
6				Normal	7.62624	0.72	0.96
7	Distribution	Rural	650-850	RockH	13.13253	1.07	1.22
8				RockS	7.76892	1.36	1.3
9				Normal	6.07944	2.1	1.46
10	Distribution	Rural	200-650	RockH	12.43557	1.04	1.05
11				RockS	6.43722	1.13	1.07
12				Normal	3.48428	1.01	1.16
13	Distribution	Rural	5-200	RockH	11.922	0.96	0.92
14				RockS	4.95988	0.85	0.89
15				Normal	2.45968	0.77	0.81
16	Distribution	Rural	0-5	RockH	11.95461	0.92	0.87
17				RockS	4.83508	0.84	0.82
18				Normal	1.77132	0.57	0.67
19	Feeder	Urban	>2550	RockH	23.59262	1.18	1.03
20				RockS	17.56779	1.3	1.21
21				Normal	13.31148	1.3	1.04
22	Feeder	Urban	850-2550	RockH	16.58868	0.83	0.97
23				RockS	10.07238	0.72	0.97
24				Normal	7.62624	0.72	0.96
25	Feeder	Rural	650-850	RockH	13.367325	1.07	1.22
26				RockS	7.7797	1.36	1.3
27				Normal	6.0882	2.1	1.46
28	Feeder	Rural	200-650	RockH	12.718575	1.04	1.05
29				RockS	6.44915	1.13	1.07
30				Normal	3.3951	1.01	1.16
31	Feeder	Rural	5-200	RockH	11.47224	0.96	0.92
32				RockS	4.985432	0.85	0.89
33				Normal	2.544192	0.77	0.81
34	Feeder	Rural	0-5	RockH	10.85823	0.92	0.87
35				RockS	4.82844	0.84	0.82
36				Normal	1.98516	0.57	0.67
37	Fiber	Urban	>2550	RockH	23.59262	1.18	1.03
38				RockS	17.44071	1.3	1.09
39				Normal	13.31148	1.3	1.04
40	Fiber	Urban	850-2550	RockH	16.58868	0.83	0.97
41				RockS	10.07238	0.72	0.97
42				Normal	7.62624	0.72	0.96
43	Fiber	Rural	650-850	RockH	13.13253	1.07	1.22
44				RockS	7.76892	1.36	1.3
45				Normal	6.07944	2.1	1.46
46	Fiber	Rural	200-650	RockH	12.43557	1.04	1.05
47				RockS	6.43722	1.13	1.07
48				Normal	3.48428	1.01	1.16
49	Fiber	Rural	5-200	RockH	12.2031	0.96	0.92

50				RockS	26	4.94391	0.85	0.89
51				Normal		2.40686	0.77	0.81
52	Fiber	Rural	0-5	RockH		12.228705	0.92	0.87
53				RockS		4.83674	0.84	0.82
54				Normal		1.71786	0.57	0.67

Urban Fiber Table
Cost Multiplier

Structure	Below Ground	Aerial $
RockH	20.84	14.18
RockS	13.92	10.59
Normal	10.7	7.62

Rural Fiber Table
Cost Multiplier

Structure	Below Ground	Aerial $
RockH	13.59	8.07
RockS	5.76	5.86
Normal	2.92	4.08

Copper Feeder UG/Aerial Mix Table

Density	Below Ground	Aerial%
0-5	70	30
5-200	72	28
200-650	75	25
650-850	75	25
850-2550	80	20
>2550	90	10

Density/Fill Table

Density	Feeder	Distribution	
0	0.75	0.4	4
5	0.8	0.45	5
200	0.8	0.55	6
650	0.85	0.65	7
850	0.85	0.75	8
2550	0.85	0.8	9

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Distribution Cable Size Table — DISTRIBUTION CABLE COST

CableDistrCost	Cable Size	Cost UG/Brd	Cost Aerial	Density=0-5	Density=5-200	Density=200-650	Density=650-850	
	3600	22.2	21.9	15.519	15.498	15.477	15.477	
	3000	18.8	18.5	13.139	13.118	13.097	13.097	
	2400	14.3	14.1	9.996	9.982	9.968	9.968	
	1800	12.44	12.235	8.69365	8.6793	8.66495	8.66495	
	1200	10.68	9.99569	7.4280983	7.3801966	7.3322949	7.3322949	
	900	7.82	7.5122	5.452454	5.430908	5.409362	5.409362	
	600	7.1326	7.0505	4.987073	4.981326	4.975579	4.975579	
	400	4.61668	4.564	3.2279684	3.2243008	3.2206132	3.2206132	
	200	2.363	2.334	1.65207	1.65004	1.64801	1.64801	
	100	1.266	1.262	0.88592	0.88564	0.88536	0.88536	
	50	0.675	0.672	0.47229	0.47208	0.47187	0.47187	
	25	0.3686	0.3634	0.257656	0.257292	0.256928	0.256928	
	18	0.32	0.31	0.2233	0.2226	0.2219	0.2219	
	12	0.28	0.28	0.196	0.196	0.196	0.196	

Feeder Cable Size Table — COPPER FEEDER COST

FeederCableCost	Cable Size	Cost UG/Brd	Cost Aerial	Density=0-5	Density=5-200	Density=200-650	Density=650-850	
	4200	25.7	25.4	17.927	17.9312	17.9375	17.9375	
	3600	22.2	21.9	15.477	15.4812	15.4875	15.4875	
	3000	18.8	18.5	13.097	13.1012	13.1075	13.1075	
	2400	14.3	14.1	9.968	9.9708	9.975	9.975	
	1800	12.44	12.24	8.666	8.6688	8.673	8.673	
	1200	10.66	10	7.3332	7.34272	7.357	7.357	
	900	7.82	7.51	5.4089	5.41324	5.41975	5.41975	
	600	7.13	7.05	4.9742	4.97532	4.977	4.977	
	400	4.61668	4.564	3.2206132	3.22135072	3.222457	3.222457	
	200	2.36	2.33	1.6457	1.64612	1.64675	1.64675	
	100	1.266	1.262	0.88536	0.885416	0.8855	0.8855	
	50	0.675	0.672	0.47187	0.471912	0.471975	0.471975	
	25	0.3686	0.3634	0.256928	0.2570008	0.25711	0.25711	

Fiber Cable Cost Table — FIBER CABLE COST

FiberCableCost	Cable Size	Cost UG/Brd	Cost Aerial	Density=0-5	Density=5-200	Density=200-650	Density=650-850	
	144	5.56	5.24	3.8808	3.8584	3.8248	3.8248	
	96	3.8	3.53	2.65055	2.63165	2.6033	2.6033	
	72	2.84	2.65	1.98135	1.96805	1.9481	1.9481	
	60	2.41	2.23	1.6807	1.6681	1.6492	1.6492	
	48	1.98	1.84	1.3811	1.3713	1.3566	1.3566	
	36	1.6	1.46	1.1151	1.1053	1.0906	1.0906	
	24	1.18	1.05	0.82145	0.81235	0.7987	0.7987	
	18	0.98	0.85	0.68145	0.67235	0.6587	0.6587	
	12	0.79	0.66	0.54845	0.53935	0.5257	0.5257	

Density	*Surface Cate*	*Weighted Co*	*Below Gro*	*Aerial*	Density Adjustment

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>2550	RockH	23.59262	1.18	1.03	26
	RockS	17.56779	1.3	1.21	
	Normal	13.31148	1.3	1.04	
850-2550	RockH	16.58868	0.83	0.97	
	RockS	10.07238	0.72	0.97	
	Normal	7.62624	0.72	0.96	
650-850	RockH	13.13253	1.07	1.22	
	RockS	7.76892	1.36	1.3	
	Normal	6.07944	2.1	1.46	
200-650	RockH	12.43557	1.04	1.05	
	RockS	6.43722	1.13	1.07	
	Normal	3.48428	1.01	1.16	
5-200	RockH	11.922	0.96	0.92	
	RockS	4.95968	0.85	0.89	
	Normal	2.45968	0.77	0.81	
0-5	RockH	11.95461	0.92	0.87	
	RockS	4.63508	0.84	0.82	
	Normal	1.77132	0.57	0.67	

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>2550	RockH	23.59262	1.18	1.03
	RockS	17.56779	1.3	1.21
	Normal	13.31148	1.3	1.04
850-2550	RockH	16.58868	0.83	0.97
	RockS	10.07238	0.72	0.97
	Normal	7.62624	0.72	0.96
650-850	RockH	13.367325	1.07	1.22
	RockS	7.7797	1.36	1.3
	Normal	6.0882	2.1	1.46
200-650	RockH	12.718575	1.04	1.05
	RockS	6.44915	1.13	1.07
	Normal	3.3951	1.01	1.16
5-200	RockH	11.47224	0.96	0.92
	RockS	4.985432	0.85	0.89
	Normal	2.544192	0.77	0.81
0-5	RockH	10.85823	0.92	0.87
	RockS	4.82844	0.84	0.82
	Normal	1.98516	0.57	0.67
>2550	RockH	23.59262	1.18	1.03
	RockS	17.44071	1.3	1.09
	Normal	13.31148	1.3	1.04
850-2550	RockH	16.58868	0.83	0.97
	RockS	10.07238	0.72	0.97
	Normal	7.62624	0.72	0.96
650-850	RockH	13.13253	1.07	1.22
	RockS	7.76892	1.36	1.3
	Normal	6.07944	2.1	1.46
200-650	RockH	12.43557	1.04	1.05
	RockS	6.43722	1.13	1.07
	Normal	3.48428	1.01	1.16
5-200	RockH	12.2031	0.96	0.92
	RockS	4.94391	0.85	0.89
	Normal	2.40686	0.77	0.81
0-5	RockH	12.228705	0.92	0.87
	RockS	4.83674	0.84	0.82
	Normal	1.71786	0.57	0.67

Cost for AFC/SLC 200/LightSpan equipment

DigitalCarrierCost	(Non-discounted material cost only)	
0	7700	250
48	8500	250
120	10500	250
240	77330	184
672	94909	184
1334	105409	184

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CO Switch Size Table

COSwitchSize
500000
100000
60000
10000

CO Switch Cost Table

COSwitchCo	Fixed/Start	Per Line $
Remote	250000	100
10000	400000	100
60000	600000	100
100000	900000	100
500000	1500000	100

Voice Grade Ratio Table

# switched lines in CB	% switched to	% switched t	% special t	% special to DS1
0	1	0	1	0
2016	0.65	0.35	0.5	0.5
10000	0.5	0.5	0.3	0.7
20000	0.75	0.25	0.1	0.9

Surface Texture Table

Texture	Impact?	Description of Texture
	0	Blank
BY	1	Bouldery
BY-COS	1	Bouldery Course Sand
BY-FSL	1	Bouldery & Fine Sandy Loam
BY-L	1	Bouldery & Loam
BY-LS	1	Bouldery & Sandy Loam
BY-SICL	1	Bouldery & Silty Clay Loam
BY-SL	1	Bouldery & Sandy Loam
BYV	1	Very Bouldery
BYV-FSL	1	Very Bouldery & Fine Sandy Loam
BYV-L	1	Very bouldery & Loamy
BYV-LS	1	Very Bouldery & Loamy Sand
BYV-SIL	1	Very Bouldery & Silt
BYV-SL	1	Very Bouldery & Sandy Loam
BYX	1	Extremely Bouldery
BYX-FSL	1	Extremely Bouldery & Fine Sandy Loam
BYX-L	1	Extremely Bouldery & Loamy
BYX-SIL	1	Extremely Bouldery & Silt Loam
BYX-SL	1	Extremely Bouldery & Sandy Loam
C	0	Clay
CB	0	Cobbly
CBA	1	Angular Cobbly
CBA-FSL	1	Angular Cobbly & Fine Sandy Loam
CB-C	0	Cobbly & Clay
CB-CL	0	Cobbly & Clay Loam
CB-COSL	0	Cobbly & Coarse Sandy Loam
CB-FS	0	Cobbly & Fine Sand
CB-FSL	0	Cobbly & Fine Sandy Loam
CB-L	0	Cobbly & Loamy
CB-LCOS	0	Cobbly & Loamy CourseSand
CB-LS	0	Cobbly & Loamy Sand

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CB-S	0 Cobbly & Sand
CB-SCL	0 Cobbly & Sandy Clay Loam
CB-SICL	0 Cobbly & Silty Clay Loam
CB-SIL	0 Cobbly & Silt Loam
CB-SL	1 Cobbly & Sandy Loam
CBV	1 Very Cobbly
CBV-C	1 Very Cobbly & Clay
CBV-CL	1 Very Cobbly & Clay Loam
CBV-FSL	1 Very Cobbly & Fine Sandy Loam
CBV-L	1 Very Cobbly & Loamy
CBV-LFS	1 Very Cobbly & Fine Loamy Sand
CBV-LS	1 Very Cobbly & Loamy Sand
CBV-MUCK	1 Very Cobbly & Muck
CBV-SCL	1 Very Cobbly & Sandy Clay Loam
CBV-SIL	1 Very Cobbly & Silt
CBV-SL	1 Very Cobbly & Sandy Loam
CBV-VFS	1 Very Cobbly & Very Fine Sand
CBX	1 Extremely Cobbly
CBX-L	1 Extremely Cobbly Loam
CBX-CL	1 Extremely Cobbly & Clay
CBX-SIL	1 Extremely Cobbly & Silt
CBX-SL	1 Extremely Cobbly &Sandy Loam
CBX-VFSL	1 Extremely Cobbly Very Fine Sandy Loam
CE	0 Coprogenous Earth
CIND	0 Cinders
CL	0 Clay Loam
CM	1 Cemented
CN	0 Channery
CN-CL	0 Channery & Clay Loam
CN-FSL	0 Channery & Fine Sandy Loam
CN-L	0 Channery & Loam
CN-SICL	0 Channery & Silty Clay Loam
CN-SIL	0 Channery & Silty Loam
CN-SL	0 Channery & Sandy Loam
CNV	0 Very Channery
CNV-CL	0 Very Channery & Clay
CNV-L	0 Very Channery & Loam
CNV-SCL	0 Channery & Sandy Clay Loam
CNV-SIL	0 Very Channery & Silty Loam
CNV-SL	0 Very Channery & Sandy Loam
CNX	0 Extremely Channery
CNX-SL	0 Extremely Channery & Sandy Loam
COS	0 Coarse Sand
COSL	0 Coarse Sandy Loam
CR	0 Cherty
CRC	1 Coarse Cherty
CR-L	1 Cherty & Loam
CR-SICL	1 Cherty & Silty Clay Loam
CR-SIL	1 Cherty & Silty Loam
CR-SL	1 Cherty & Sandy Loam
CRV	1 Very Cherty

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CRV-L	1 Very Cherty & Loam
CRV-SIL	1 Very Cherty & Silty Loam
CRX	1 Extremely Cherty
CRX-SIL	1 Extremely Cherty & Silty Loam
DE	0 Diotomaceous Earth
FB	0 Fibric Material
FINE	0 Fine
FL	0 Flaggy
FL-FSL	0 Flaggy & Fine Sandy Loam
FL-L	0 Flaggy & Loam
FL-SIC	0 Flaggy & Silty Clay
FL-SICL	0 Flaggy & Silty Clay Loam
FL-SIL	0 Flaggy & Silty Loam
FL-SL	0 Flaggy & Sandy Loam
FLV	1 Very Flaggy
FLV-COSL	1 Very Flaggy & Coarse Sandy Loam
FLV-L	1 Very Flaggy & Loam
FLV-SICL	1 Very Flaggy & Silty Clay Loam
FLV-SL	1 Very Flaggy & Sandy Loam
FLX	1 Extremely Flaggy
FLX-L	1 Extremely Flaggy & Loamy
FRAG	0 Fragmental Material
FS	0 Fine Sand
FSL	0 Fine Sandy Loam
G	0 Gravel
GR	0 Gravelly
GRC	0 Course Gravelly
GR-C	0 Gravel & Clay
GR-CL	0 Gravel & Clay Loam
GR-COS	0 Gravel & Course Sand
GR-COSL	0 Gravel & Coarse Sandy Loam
GRF	0 Fine Gravel
GRF-SIL	0 Fine Gravel Silty Loam
GR-FS	0 Gravel & Fine Sand
GR-FSL	0 Gravel & Fine Sandy Loam
GR-L	0 Gravel & Loam
GR-LCOS	0 Gravel & Loamy Course Sand
GR-LFS	0 Gravel & Loamy Fine Sand
GR-LS	0 Gravel & Loamy Sand
GR-MUCK	0 Gravel & Muck
GR-S	0 Gravel & Sand
GR-SCL	0 Gravel & Sandy Clay Loam
GR-SIC	0 Gravel & Silty Clay
GR-SICL	0 Gravel & Silty Clay Loam
GR-SIL	0 Gravel & Silty Loam
GR-SL	0 Gravel & Sandy Loam
GR-VFSL	0 Gravel & Very Fine Sandy Loam
GRV	1 Very Gravelly
GRV-CL	1 Very gravelly & Clay Loam
GRV-COS	1 Very Gravelly & Course Sand
GRV-COSL	1 Very Gravelly & Course Sandy Loam

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GRV-FSL	1 Very Gravelly & Fine Sandy Loam
GRV-L	1 Very Gravelly & Loam
GRV-LCOS	1 Very Gravelly & Loamy Course Sand
GRV-LS	1 Very Gravelly & Loamy Sand
GRV-S	1 Very Gravelly & Sand
GRV-SCL	1 Very Gravelly & Sandy Clay Loam
GRV-SICL	1 Very Gravelly & Silty Clay Loam
GRV-SIL	1 Very Gravelly & Silt
GRV-SL	1 Very Gravelly & Sandy Loam
GRV-VFS	1 Very Gravelly & Very Fine Sand
GRV-VFSL	1 Very Gravelly & Very Fine Sandy Loam
GRX	1 Extremely Gravelly
GRX-CL	1 Extremely Gravelly & Coarse Loam
GRX-COS	1 Extremely Gravelly & Coarse Sand
GRX-COSL	1 Extremely Gravelly & Coarse Sandy Loam
GRX-FSL	1 Extremely Gravelly & Fine Sand Loam
GRX-L	1 Extremely Gravelly & Loam
GRX-LCOS	1 Extremely Gravelly & Loamy Coarse
GRX-LS	1 Extremely Gravelly & Loamy Sand
GRX-S	1 Extremely Gravelly & Sand
GRX-SIL	1 Extremely Gravelly & Silty Loam
GRX-SL	1 Extremely Gravelly & Sandy Loam
GYP	1 Gypsiferous Material
HM	0 Hemic Material
ICE	1 Ice or Frozen Soil
IND	1 Indurated
L	0 Loam
LCOS	0 Loamy Course Sand
LFS	0 Loamy Fine Sand
LS	0 Loamy Sand
LVFS	0 Loamy Very Fine Sand
MARL	0 Marl
MEDIUM COURSE	0 Medium Course
MK	0 Mucky
MK-C	0 Mucky Clay
MK-CL	0 Mucky Clay Loam
MK-FS	0 Muck & Fine Sand
MK-FSL	0 Muck & Fine Sandy Loam
MK-L	0 Mucky Loam
MK-LFS	0 Mucky Loamy Fine Sand
MK-LS	0 Mucky Loamy Sand
MK-S	0 Muck & Sand
MK-SI	0 Mucky & Silty
MK-SICL	0 Mucky & Silty Clay Loam
MK-SIL	0 Mucky Silt
MK-SL	0 Mucky & Sandy Loam
MK-VFSL	0 Mucky & Very Fine Sandy Loam
MPT	0 Mucky Peat
MUCK	0 Muck
PEAT	0 Peat
PT	0 Peaty

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RB	1 Rubbly
RB-FSL	1 Rubbly Fine Sandy Loam
S	0 Sand
SC	0 Sandy Clay
SCL	0 Sandy Clay Loam
SG	0 Sand & Gravel
SH	0 Shaly
SH-CL	0 Shaly & Clay
SH-L	0 Shale & Loam
SH-SICL	0 Shaly & Silty Clay Loam
SH-SIL	0 Shaly & Silt Loam
SHV	1 Very Shaly
SHV-CL	1 Very Shaly & Clay Loam
SHX	1 Extremely Shaly
SI	0 Silt
SIC	0 Silty Clay
SICL	0 Silty Clay Loam
SIL	0 Silt Loam
SL	0 Sandy Loam
SP	0 Sapric Material
SR	0 Stratified
ST	0 Stony
ST-C	0 Stony & Clay
ST-CL	0 Stony & Clay Loam
ST-COSL	0 Stony & Course Sandy Loam
ST-FSL	0 Stony & Fine Sandy Loam
ST-L	0 Stony & Loamy
ST-LCOS	0 Stony & Loamy Course Sand
ST-LFS	0 Stony & Loamy Fine Sand
ST-LS	0 Stony & Loamy Sand
ST-SIC	0 Stony & Silty Clay
ST-SICL	0 Stony & Silty Clay Loam
ST-SIL	0 Stony & Silt Loam
ST-SL	0 Stony & Sandy Loam
ST-VFSL	0 Stony & Sandy Very Fine Silty Loam
STV	1 Very Stony
STV-C	1 Very Stony & Clay
STV-CL	1 Very Stony & Clay Loam
STV-VFSL	1 Very Stony & Very Fine Sandy Loam
STV-FSL	1 Very Stony & Fine Sandy Loam
STV-L	1 Very Stony & Loamy
STV-LFS	1 Very Stony & Loamy Fine Sand
STV-LS	1 Very Stony & Loamy Sand
STV-MPT	1 Very Stony & Mucky Peat
STV-MUCK	1 Very Stony & Muck
STV-SICL	1 Very Stony & Silty Clay Loam
STV-SIL	1 Very Stony & Silty Loam
STV-SL	1 Very Stony & Sandy Loam
STV-VFSL	1 Very Stony & Very Fine Sandy Loam
STX	1 Extremely Stony
STX-C	1 Extremely Stony & Clay

STX-CL	1	Extremely Stony & Clay Loam
STX-COS	1	Extremely Stony & Course Sand
STX-COSL	1	Extremely Stony & Course Sand Loam
STX-FSL	1	Extremely Stony & Fine Sandy Loam
STX-L	1	Extremely Stony & Loamy
STX-LCOS	1	Extremely Stony & Loamy Course Sand
STX-LS	1	Extremely Stony & Loamy Sand
STX-MUCK	1	Extremely Stony & Muck
STX-SIC	1	Extremely Stony & Silty Clay
STX-SICL	1	Extremely Stony & Silty Clay Loam
STX-SIL	1	Extremely Stony & Silty Loam
STX-SL	1	Extremely Stony & Sandy Loam
STX-VFSL	1	Extremely Stony & Very Fine Sandy Loam
SY	1	Slaty
SY-L	1	Slaty & Loam
SY-SIL	1	Slaty & Silty Loam
SYV	1	Very Slaty
SYX	1	Extremely Slaty
UNK	0	Unknown
UWB	1	Unweathered Bedrock
VAR	0	Variable
VFS	0	Very Fine Sand
VFSL	0	Very Fine Sandy loam
WB	1	Weathered Bedrock

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102

103

104

105

106

Density=850-2550	Density>2550
15.498	15.519
13.118	13.139
9.982	9.996
8.6793	8.69365
7.3801986	7.4280983
5.430908	5.452454
4.981326	4.987073
3.2243008	3.2279884
1.65004	1.65207
0.88564	0.88592
0.47208	0.47229
0.257292	0.257656
0.2226	0.2233
0.196	0.196

Density=850-2550	Density>2550
17.948	17.969
15.498	15.519
13.118	13.139
9.982	9.996
8.68	8.694
7.3808	7.4284
5.4306	5.4523
4.9798	4.9854
3.2243008	3.2279884
1.6478	1.6499
0.88564	0.88592
0.47208	0.47229
0.257292	0.257656

Density=850-2550	Density>2550
3.8472	3.8696
2.6222	2.6411
1.9614	1.9747
1.6618	1.6744
1.3664	1.3762
1.1004	1.1102
0.8078	0.8169
0.6678	0.6769
0.5348	0.5439

107

108

109

113

114

Normal Placement Depth in inches for Buried/Underground Copper Cable
Normal Placement Depth in inches for Buried/Underground Fiber
Depth in feet at which water impacts placement costs
% Cost increase for presence of water within critical depth
Maximum Fiber Cable Size
Maximum Copper Feeder Cable Size
Maximum Copper Distribution Cable Size
Maximum length of copper cable in the CBG distribution area
Value that triggers new terrain variable multiplier
Cost multiplier when new terrain variable exceeds trigger point
Point at which minimum slope effects placement distance
Change in distance due to increased average slope
Point where presence of very high slope causes yet more cable distance
Change in distance due to a maximum only slope presence
Secondary change in distance due to substantial slope presence
Engineering and installation loading factor for electronics
Fill Factors for Electronics
Fill Factors for High Capacity Optic Multiplexers
Ratio of Special Access Lines to Business and Special Access
Average Number of Business lines per location
Average cost for each DS-3 for CO and field DS3 to DS1 multiplexers
Average Cost per DS-1 on copper (both terminals & repeater)
Multiplier to add interoffice trunking cost
Cost of Pedestal

Switch Fill Factor
Sw Land & Building Factor
% Non Traffic Sensitive (Enter as decimal)
% of Traffic Sensitive that is local (Enter as decimal)
Loading Factor for Outside Plant Engineering
Loading Factor for splicing of fiber cable (Enter as decimal)
Additive for in line pedestals, cross connects, etc. (fiber)
Loading Factor for splicing of copper cable (Enter as decimal)
Additive for in line pedestals, cross connects, etc. (Copper)
Allocation Factor 1 applied to non-plant related expenses
Allocation Factor 2 applied to non-plant related expenses
Structure Cost multiplier for cables 401 to 900 pr versus < 400 pr
Structure Cost multiplier for cables 901 to 1500 pr versus < 400 pr
Structure Cost multiplier for cables 1501 to max size versus < 400 pr
Structure Cost Multiplier for fiber cables >60 fibers versus < 60 fibers
Cost per ft to pull UG cables into conduit duct

120

191

136

127

128

129

EXHIBIT NO. 32

DOCKET NO: 961230-TP

WITNESS: JAMES D. DUNBAR, JR.

PARTY: SPRINT CENTEL/UNITED

DESCRIPTION:

12/6/96 DEPOSITION TRANSCRIPT.

LATE FILED EXHIBIT (NOS. 1-2).

SPRINT CENTEL/UNITED'S RESPONSE TO STAFF'S 1ST SET OF REQUEST FOR PRODUCTION OF DOCUMENT (NOS. 29-30).

PROFFERING PARTY: STAFF

I.D. # JDD-5

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Petition by MCI Telecommunications Corporation for arbitration with United Telephone Company of Florida and Central Telephone Company of Florida concerning interconnection rates, terms, and conditions, pursuant to the Federal Telecommunications Act of 1996.

DOCKET NO. 961230-TP

TELEPHONIC DEPOSITION OF: James D. Dunbar, Jr.
Located in Kansas

TAKEN AT THE INSTANCE OF: MCI Telecommunications Corporation

DATE: Friday, December 6, 1996

TIME: Commenced: 9:00 a.m.
Concluded: 10:27 a.m.

CONDUCTED FROM: Room 390A
2540 Shumard Oak Boulevard
Tallahassee, Florida

REPORTED BY: CATHY H. WEBSTER
Registered Professional Reporter
Notary Public in and for the
State of Florida at Large

C & N REPORTERS
Registered Professional Reporters
P. O. Box 3093
Tallahassee, Florida 32315-3093
Phone: (904) 926-2020

APPEARANCES:

COCHRAN KEATING, Florida Public Service Commission, Division of Legal Services, 2540 Shumard Oak Boulevard, Tallahassee, Florida 32399-0870, appearing on behalf of the Commission Staff, located in Tallahassee.

Richard D. Melson, Hopping, Green, Sams & Smith, Post Office Box 6526, Tallahassee, Florida 32301, appearing on behalf of MCI Telecommunications Corporation and MCImetro Access Transmission Services, Inc..

John P. Fons, Ausley & McMullen, 227 South Calhoun Street, Tallahassee, Florida 32301, appearing on behalf of Sprint-United.

Commission Staff Present:

David Dowds
Robin Norton
Ann Shelfer

INDEX

MISCELLANEOUS

STIPULATIONS

IT IS STIPULATED that this deposition was taken pursuant to notice in accordance with the applicable Florida Rules of Civil Procedure; that objections, except as to the form of the question, are reserved until hearing in this cause; and that reading and signing was not waived.

IT IS ALSO STIPULATED that any off-the-record conversations are with the consent of the deponent.

ERRATA SHEET

PAGE	LINE	CORRECTION	REASON

I have read my deposition in this matter and entered any changes in form or substance as reflected above.

DATE James D. Dunbar, Jr.

DEPOSITION

MS. PRESLEY: Raise your right hand.

You do swear to tell the truth, the whole truth, and nothing but the truth?

WITNESS DUNBAR: Yes, I do.

MR. MELSON: And we need to get the notary's name.

MS. PRESLEY: Okay. It's S., like Sam, period, DeLane, D-e-L-a-n-e, Presley.

REPORTER WEBSTER: Spell the last name.

MS. PRESLEY: P-r-e-s-l-e-y.

MR. MELSON: And do you have a phone number where the court reporter can fax you a little certificate of oath to sign?

MS. PRESLEY: Yes, sir. It would be 913-261-2450.

* * *

JAMES D. DUNBAR, JR.

having been first duly sworn, testified as follows:

EXAMINATION

BY MR. MELSON:

Q Mr. Dunbar, I'm Rick Melson representing MCI.

A Good morning, Rick.

Q In the room with us, we've also got Cochran Keating, a Commission Staff lawyer, and a couple of Commission Staff members: David Dowds and Robin Norton; and then, of course, Mr. Fons to vigorously defend you this morning.

MR. FONS: If such defense is necessary.

WITNESS DUNBAR: Okay.

BY MR. MELSON (Continuing):

Q Would you state your name and address for the record, please?

A It's James D. Dunbar, Jr., 4220 Shoney Mission Parkway, Fairway, Kansas 66205.

Q Mr. Dunbar, have you been deposed before in other proceedings?

A Yes, I have.

Q All right. And have you testified before in other regulatory proceedings?

A Yes, I have.

Q Have you testified previously in any arbitrations under the Telecommunications Act of 1996?

A Yes, I have.

Q And where would those be?

A In Florida, in the MFS case.

Q Have you filed testimony that is yet to be given in any arbitrations other than the docket we're here on today?

A Yes, I have. And let me back up and correct the last statement, just to make sure, because my testimony was withdrawn in the Florida case.

Q Okay.

A I have filed testimony and testified in New Jersey,

not in an arbitration but in the USF case.

Q And in that USF case did you testify about the BCM2 model?

A Yes, I did.

Q All right. Have you filed arbitration testimony in any states other than Florida?

A North Carolina's file has been deferred. I don't know what the date will be, but the testimony was filed.

Q All right. Could you describe for me in general terms the purpose of the benchmark cost model, version two? I'll refer to it throughout the deposition as BCM2.

A Okay. The general purpose is to identify the cost of the facilities applicable to any competitive carrier. The model is by default or with the defaults used on a national basis for universal service, is applicable with the appropriate adjustments and inputs for use in any state for universal service and is also intended to develop costing to identify it if you put in carrier specific inputs.

Q What does the term "benchmark" in the name of the model intended to denote?

A Well, one of the originals, and it came from the original version one, is that it would be ultimately the cost would be matched against a benchmark to determine what the level of subsidy would be in the USF proceeding.

Q And am I correct that the benchmark cost model does

not develop an actual cost for any company but develops an estimate of forward-looking costs based on the input assumptions that are put into it?

A That's correct.

Q Can I take it from the fact that Sprint is offering the results of the BCM in this proceeding as an indication that Sprint believes that the use of that type of model is an appropriate basis for setting prices?

A For the loop.

Q All right. What components other than the loop does the BCM2 produce costs for?

A Well, by components, I would say at this point it includes total switching costs and it does have a factor in there that allows us to use it for development of interoffice costs. Both of those are in lump sum and not in the level of detail you would use for unbundled elements.

Q Since, as I understand it, the BCM model at least initially was designed to estimate a total cost of local service, what do you have to do to the model, if anything, to isolate loop costs?

A Nothing. If you look at the worksheet that's in there, within the worksheet it identifies loop costs in separate columns.

Q And is that worksheet something that has been offered by you as an exhibit in this proceeding?

exactly -- was also zeroed out.

Q And when you say you put in Florida specific expense factors, are those what the model refers to as the three investment-related factors or is that something else?

A Well, it's what would normally be the three investment-related factors. In this particular case, because we zeroed out the switching factor, Florida specific cable and wire and electronic factors were used.

Q And can you give me the values for the factors that you used in your Florida run?

A Cable and wire was 29.88% and electronics were 30.37%.

Q And what are the default values for those two items?

A Bear with me. The default for cable and wire is 23.276; the default for electronics is 24.241.

Q Now the Florida specific factors that you used, what was the source of those numbers?

A They were developed in a study that our cost people here did that I believe was part of Mr. Farrar's testimony.

Q So if I look in Mr. Farrar's testimony for his annual cost factors, would I expect to find those two numbers?

A I'm not sure. I would expect they would be there. He's the one that provided the numbers.

Q All right. Do you happen to have with you a copy of Mr. Farrar's testimony and exhibits in the Florida proceeding?

A No, I don't think I do.

A The results of it have and I have described the methodology. I don't believe the total model itself was filed.

Q For purposes of the run of the benchmark model that you did for the Florida proceeding, did you use the default inputs or did you use some Florida specific inputs?

A We used some Florida specific inputs. We also zeroed out the switching factor so that no switching costs would be developed at all. We also zeroed out any of the costs for the NIDs so the loop would be strictly the pure loop itself. We put in the expense factors that were applicable to Florida.

Now, in the run that was filed, that's the only Florida specific adjustment that was made, but it is Florida expense factors against the investment that was calculated in the model.

Q All right. I'm not sure I wrote down the first thing that you gave me in that list. I did catch you zeroed out the NID; you zeroed out switching.

A Right.

Q You put in a Florida specific expense factor. Was there a fourth item that you listed?

A No, but with the expense factors, the Florida specific ratio to plant was put in. Let me look a second real quick and I'll make sure whether or not.

The factor for other loading that normally in default is $133 and some odd cents -- I don't recall the right number

Q Okay. I am looking -- I'm going to make, I believe, a late-filed, a request for a late-filed exhibit. I am looking at page 122 of Mr. Farrar's Exhibit RGF-3. And I see on that sheet what appears to be the 29.88% factor that you referred to as cable and wire. Offhand, I do not see on that sheet a factor for electronics. And if I could ask as a late-filed exhibit that you provide the source document for that factor and any work papers that would support its calculation or, if it's in something we got from Mr. Farrar yesterday, just a reference to the document where it appears will be fine.

A Okay. I will have to talk to him when he gets back in the office.

MR. FONS: And that's for the electronics?

MR. MELSON: Right.

(Late-filed Exhibit 1 identified.)

BY MR. MELSON (Continuing):

Q When I look at the census block group investment per line figures that are included on your Exhibit JDD-2 attached to your Rebuttal Testimony, are those investments before or after the application of these factors?

A That's investment. There's no factor applied as of that point.

Q All right. I'm sorry, I said -- I should have said Supplemental Direct Testimony. I'm not sure what piece of testimony I referred to just then, but the exhibit is an

attachment to your Supplemental Direct.

A Thank you.

Q Are the factors then applied to this -- Let me back up. Let me ask you. How are the factors applied to this total investment per line? For example, looking at the very first census block group on page 1 of your exhibit, there's a total investment per line of twenty-three eleven eighty-two. How would I apply those factors to come up with an annual or monthly charge?

A Well, that total investment is broken out into its piece parts that are the copper investment, the fiber investment, the electronics investment that makes up that total and each has its respective factor applied to it.

Q All right. And which factor gets applied to each of those three components that you identified?

A The cable wire factor gets applied to the copper investment and the fiber investment and the electronics factor gets applied to the electronics investment.

Q Is a schedule that breaks these investments out into those three components a document that exists today and would be readily available?

A It's part of the work -- It's part of the BCM that was run to show these costs, yes. There's columns identified right in the model.

MR. MELSON: Can we go off the record a minute?

A Don't know.

Q Okay. And when you did this Florida specific run, I take it that by zeroing out the switching, you did not even produce switch costs outputs even at the lump sum aggregate level; is that correct?

A That is correct. You would see on that same model that the switch investment per line is zero.

Q Have you done any comparison of the switch investment per line that is produced by using the default inputs in BCM2 versus the switch investments in Mr. Farrar's Florida specific switching cost study?

MR. FONS: Do you understand the question, Jim?

WITNESS DUNBAR: Well, that's just what I was going to ask, if I rephrase it correctly and make sure I understand what you are asking.

BY MR. MELSON (Continuing):

Q Okay.

A The default switching costs in the BCM matched to Mr. Farrar's switching costs?

Q Correct.

A I have not done that.

Q Okay.

A Now in this particular case I'm only developing loop costs, so I have done nothing with switching in terms of the BCM.

(Of-the-record discussion.)

BY MR. MELSON (Continuing):

Q Mr. Dunbar, based on an off-the-record discussion, I understand that Sprint will supply to MCI a copy of the BCM model that they will be supplying also to the Staff in response to a document production request. Could you tell me by column reference where in that model I would find the breakdown of the loop investment into these categories?

A Yes. If you look at the total investment, it would be in column EV, the copper investment in EX, fiber investment in EY and the electronics investment per line in EZ.

Q Now, you said that in addition to putting in the Florida specific expense factors in the model, you reduced the other loading that is by default $133 and change to zero?

A That's correct, because Mr. Farrar applies those costs to the investment that I pass to him.

Q And do you know the method by which he applies those costs?

A No, I do not.

Q Do you know whether that is included in his common cost factor?

A Yes, it is.

Q Do you know whether it is equal to his common or equivalent to his common cost factor or is it a subset of the common cost factor?

Q All right. Other than the change in these two investment-related factors, did you make any other changes to the inputs that are used to calculate loop investment?

A Yes, we did; the drop cost per foot was changed to one dollar.

Q From?

A Ten cents. And the NID costs were zeroed out.

Q Are those the only two changes that were made to --

A I'm trying to go through -- No, sir. We did put Sprint specific discount factors in there as well for fiber cable, copper cable and electronics.

Q And what do you mean by discount factors?

A Well, there are factors in the BCM that show because the prices that are listed in the tables that show purchase costs are list prices and not discounted, and then you enter in the discount factor so that it is applied against those list prices to get to your discounted costs.

So what we have done is put in -- The fiber cable discount was changed to 30%, the copper cable discount was changed to 30%. The AFC electronics discount was changed to 20 and the SLC or SLC electronics discount was changed to 30.

Q Okay. And can you give me what the default values for those four items would have been?

A Let's see. The defaults would have been: fiber cable 20, copper cable 20, AFC electronics 10 and SLC electronics 20.

Q Did you make any changes to the default fill factors that are used in the model?

A I'm looking at this point. I don't believe so. Let me just verify with the defaults.

No, sir; we did not.

Q Any other inputs beyond the ones we've just talked about that would have been changed for the Florida specific run?

A Not for the run that was filed; no, sir.

Q I'm checking off some questions here. I haven't disappeared.

A Let me back up one second from my own standpoint. The actual inputs that are listed as inputs to the model in terms of the input tables, you have all the changes that were listed. We did insure that in the data file itself that was input, that the correct number of Florida specific lines were included in the business counts and residence multiplier.

Q Okay. Do you have those specific line count numbers and multipliers readily available? I mean, can you tell me what they are?

A Yeah. The residence line multiplier was 1.37. I'm sorry; that is in the table input, also.

Q Okay. And what function does the residence line multiplier serve in the model?

A It multiplies the household per census block group to

come up with the number of residential lines per census block group.

Q All right.

A And then the business lines are part of the input file that's entered into the model.

Q How is the residence line multiplier of 1.37 derived?

A By looking at the total Sprint-United-Centel Florida residential lines and dividing it by the total households that are shown in the census data.

Q All right. And what year data are you using for Sprint residential lines?

A I believe it was 1995.

Q All right. And what vintage is the census data household information?

A 1990 census.

Q If you could turn to page 10 of your Direct Testimony, please.

A Okay.

Q Beginning at line 3 you describe the way in which BCM2 associates CBGs with central offices.

A Correct.

Q Is that method of assignment the same or different than the method of assignment used in the Hatfield Model; do you know?

A It is not. The same relationship was used in both

models, at least theoretically the same relationship because the Hatfield inputs are derived out of the BCM1 files.

Q All right. Later on that page at line 20 you talk about the manner in which BCM assigns CBGs in a quadrant to a single shared feeder. Is that the same or different than the way it's handled in the Hatfield Model?

A The assignment to the quadrants is the same. The way it sizes and prices the feeder and distribution cables and structure are different.

Q And can you tell me how they are different?

A The engineering for the distribution area and the portion of the feeder that is within the census block group are entirely different. The Hatfield Model and the development and the engineering carries the feeder one quarter of the distance into the CBG. If you were to assume for distance purposes that the CBG is square and then beyond that adds copper that's five-eighths of the distance equivalent to a side of that same square.

BCM2 turns around and looks at the area of that census block group, looks at the number of households that's in there, determines the number of lots, extends the feeder in as far as necessary to make sure that the proper loop resistance design level of copper is applied. It calculates the right number of fiber and/or copper cross connects or terminals that go into the distribution area and does all of the appropriate

engineering, accordingly, just as if you were in a subdivision, for example, and building down the rear lot lines. It counts the number of pedestals required for the houses that are in the census block group, calculates the length of the drop up to 500 feet and does the specific engineering necessary to get the plant to each customer location and does not use an arbitrary number of cables or length of cable or size as Hatfield does.

MR. NELSON: I'm sitting here trying to remember something he said in the first part of the answer. I was going to follow up on it; I forgot to jot down.

Let me ask the court reporter to read back the first part of that answer.

REPORTER WEBSTER: (Reading) "The engineering for the distribution area and the portion of the feeder that is within the census block group are entirely different. The Hatfield Model and the development and the engineering carries the feeder one quarter of the distance into the CBG. If you were to assume for distance purposes that the CBG is square and then beyond that adds copper that's five-eighths of the distance equivalent to a side of that same square."

MR. NELSON: Okay. I remember what my question is.

MR. FONS: Lucky us.

REPORTER WEBSTER: Lucky me.

BY MR. NELSON (Continuing):

Q It's a simple question. Mr. Dunbar, in BCM2, what is the default, maximum default length of copper facilities, I guess is the best way to say it?

A If you're talking about within the census block group itself, the default is 12,000 feet.

Q All right. Was that default used for purposes of the Florida study?

A Yes.

Q Okay. I'm going to turn to Exhibit JDD-1, which was attached to your Direct Testimony.

A Okay.

Q On page 1 of that exhibit, toward the end of the large paragraph in the middle of the page, there's a discussion of developing an estimate of the number of business lines by CBG and indicates that it's developed based on a third party database. What is that third party database?

A The Dun and Bradstreet databases employed by census block group.

Q And how is the information in that database used to assign business lines by CBG?

A There is a ratio developed of the default that we use for a total state is the total number of business lines and special access lines in the state divided by the total employees in the database for the state. In the runs we did for this proceeding, that is the number of Sprint lines that

the total area of the census block group.

And let me relate to one specific, not within our territory, but one of the census block groups in Florida is the Everglades. There is one road through it. There are five houses on it. This would be one of the census block groups that falls within that process of what you wind up with is an area bounded by 500 foot on either side of the road that goes through the Everglades. And that's the area that's then used to build the distribution and feeder plant within that census block group. That way you're not putting cable out into the swamp land.

Q All right. Also on that page, and I think we've just talked about this, the business line information.

A Right.

Q There's a footnote 2; do I understand correctly that you substituted for Florida value of 1.37 for the 1.2 value?

A That's correct. And in actuality it's 1.373904.

Q In case I get out my calculator and try to calculate something.

MR. FONS: Please don't, Rick.

MR. MELSON: Thank you.

MR. FONS: We went through that yesterday.

MR. MELSON: But it eliminated some questions.

MR. FONS: Just because you happened to get the right number.

are business and special access divided by the number of employees the database shows in the Sprint census block groups.

Q And for this purpose were the Sprint-United and Sprint-Centel operations combined and analyzed as a single company?

A Yes.

Q On Page 2 of your exhibit, under the subheading "Population Distribution," you talk about an adjustment that is made in rural CBGs. Could you describe the purpose for that adjustment in a little more detail?

A Okay. In very rural CBGs there tends to be a portion of the area that is not populated. And that was one of the criticisms of the first version of BCM that came out because it placed distribution facilities throughout the unpopulated area.

What we have done with the data files, it's not part of the model but it is part of the changes made to the data input files by census block group, is to go into the census block groups that are 20 households per square mile or less and overlay that census block group with a geographical road map. It's done in a mapping system. And then a 500 foot buffer on both sides of any road. By road, it goes all the way down to jeep trails, mining trails, that type of thing. That buffer creates a new area so that the area outside that buffer generally tends to be non populated. And this gives us an approximation of what the populated area is rather than using

BY MR. MELSON (Continuing):

Q On page 4 of Exhibit JDD-1, under the heading "Other Enhancements," and I'm looking at footnote 3, I guess, which lists some additional items that are now included in BCM2 and were not in the original BCM.

A Correct.

Q With the exception of the network interface device, which were zeroed out, were all of those included in your Florida specific study?

A Yes.

Q On page 6 you refer to the BCM2 assumption that households within a CBG are uniformly distributed. Is that the same distribution assumption used in the Hatfield Model?

A Yes, except the Hatfield doesn't apply the 500-foot buffer restriction in the rural that we do.

Q Does Hatfield make a different adjustment in the low density CBGs?

A The only adjustment that's in there is the number of cables. The number of cables within the CBG are adjusted but there is no adjustment for area.

Q On page 8 under the subheading "Assumptions for Density," it talks about the model's use of six density groups. Is that feature of the model important in any way for the results that you produced for Florida on a CBG-by-CBG basis?

A Well, density impacts a number of the cost factors

including the placement costs of a facility because by density group the placement cost changes. For example, in a rural area you can do a lot of plowing, put your facility in. In downtown Tallahassee you're not going to do any plowing, not down the street. You're going to have to cut asphalt, remove concrete, that type of thing. So your placement cost will be different by density group.

It also affects the percent of your facility that's above or below ground. It affects your fill factors. So there are a number of places like that that it does affect it. And that last paragraph on that page tries to address or at least list out what the items are that density affects.

Q All right. Let's jump forward to page 15.

A Okay.

Q Under the caption "Structure and Placement Costs," the discussion says the basic structure calculations are done outside the BCM2. Can you tell me what that means?

A That means that if you look at the activity chart that's listed on that page, that is not an embedded part of the model. The model uses in that example, what's at the bottom of page 15, the model uses a weighted average that includes that $6.13 per foot as placement costs.

Q So you develop the 6.13 and then you put it into some sort of a look-up table?

A Yes. It goes in there; there's an average that's

cost factor discussion applies to the way that you used annual cost factors in producing your Florida specific numbers?

A I can't answer that for certain because I know that Mr. Farrar in developing or having the annual cost factors developed used a process that I believe had all of these elements included but was attempting to do it on a TELRIC basis or a TSLRIC basis and not the normal way we had in the model. That's why he developed the factors instead of this normal process.

Q All right. So, if I wanted to understand the annual cost factor, I should talk to Mr. Farrar and basically should ignore the writeup on the bottom of 18 and the top of 19?

A That's correct, because that only applies to the defaults.

Q All right. Conceptually, does the BCM2 use what has gotten to be referred to in the industry as a scorched node approach?

A Generally speaking, yes. It starts with the existing office location and builds plant out as the quad groups exist, non exist.

Q And in that respect is that the same basic approach used by the Hatfield Model?

A To that limited extent of discussion, yes.

Q Okay. You'd indicated in your rebuttal testimony that you had not -- at that time did not have access to the Hatfield

done, but in the end result you would go in and you would find it in the placement cost. That's -- Let me see what the name -- It's the table that's called "Cost Factor Table" in the table inputs.

Q While we're on the bottom of 15 looking at that table, would you tell me how to interpret the percent of activity figures in the middle column?

A Yes. The percent of activity is the percent of the time that you would expect that cost element to occur for each foot of cable that's placed in there. So on an average if you looked at a 650 to 850 census block group that was normal placement, not soft or hard rock, but normal placement, this is the ratio. In other words, 25% of the time you would be trenching and backfilling, 5% of the time you would have to back hoe the cable in.

Q So if I was laying a thousand feet of cable on average, 25% would be trenched and back filled?

A That's correct. And then down towards the bottom, one half of one percent would be placing conduit.

Q At the bottom of 16, you indicate the costs per foot data used as default values in BCM are based on national average contractor prices. Were those default values used in your Florida specific calculations?

A Yes, they were.

Q Now on page 18, what portion, if any, of this annual

Model and inputs. Do you have a Hatfield Model and Florida inputs at this time?

A Yes, I do.

Q Do you at this point expect to file or attempt to file any additional testimony reflecting an analysis of that model?

MR. FONS: I object to the form of the question, attorney/client.

MR. MELSON: I'm asking what he expects, not what his lawyer expects.

Can we go off the record a minute?

MR. FONS: Yeah.

(Off-the-record discussion.)

MR. FONS: You're withdrawing the question, I take it?

MR. MELSON: I will withdraw the question.

MR. FONS: Okay.

BY MR. MELSON (Continuing):

Q To date, have you performed any additional analysis of the Hatfield results for Florida?

A Very little so far.

Q At page 5 of your Rebuttal Testimony, at the very top of the page, you say "Current switch investments assume 59% of the processors used for basic service." What is the significance of that assumption?

A How much of a fixed cost is assigned to local service. So it makes a big difference in terms of what's assigned to

local service versus what would be assigned to toll services.

Q Okay. Well, let me back up I guess then to the bottom of page 4. This entire question and answer goes, as I understand it, to a comparison of switching investment produced by Hatfield versus switching investment produced by BCM2; is that correct?

A Switching investment produced by Hatfield versus switching investment for Florida.

Q As shown on your Exhibit JDD-3?

A Yes. That switch investment is not produced in BCM. That's actual Florida.

Q And do the data points on that graph that are labeled "actual," does that represent all of Sprint's switches in Florida?

A Yes.

Q And what is the source of the switch investment per line data that underlies this graph?

A The actual cost that was booked for the switching based on studies that one of our cost engineers did for each of those switches.

Q Is that information something that would appear in any of Mr. Ferrar's cost studies; do you know?

A I do not know.

Q At page 7 of your Rebuttal Testimony, you address at line 20 the sharing ratio in the Hatfield Model.

A Yes.

Q What sharing assumption, if any, is made in BCM2?

A There is no sharing in BCM2.

Q In Florida is there any sharing of facilities, actual sharing of facilities for Sprint Florida?

A There are for some poles.

Q And they're shared with what?

A The power company and/or the cable company.

Q Okay. Beyond poles, is there any sharing of other facilities or structures with cable companies?

A Not to my knowledge.

Q On line 24 you say, "Furthermore, sharing of the duct trench is not possible." I think I can figure out what it means, but tell me what a "duct trench" is.

A When you place the ducts in the ground, you have to trench them in and dig the trench in order to place the ducts in the ground. When you place the ducts in, you do not share that trench and there's only enough ducts that are in there also to use normally for our own use. There has not been any sharing and electrically certainly you can't share with anybody like a power company in that trench or in that duct space.

Q You make the statement sharing of the duct trench is not possible. And I'm wondering is that a physical limitation that it could not be shared with cable, for example, and if so why, or is it just a statement that it generally is not shared?

A Well, I don't believe physically it would be. The only way it would even be possible would be if new facilities were placed and all competitive areas, whether it be cable company or who would physically place facilities in the ground, their own ducts in the same trench at the very same time. That's the only way it is even theoretically possible. The probability of that happening is almost zero.

Q Would you turn to page 12 of your rebuttal. And I'm looking at two bullets at line 16 and 18. Can you tell me what each of those two numbers represents, the 24.77 and the 24.86?

A Okay. The 24.77 was the monthly rate that comes out of the BCM if you use the BCM factors as they were listed in the inputs. And the 24.86 is the same number with about 80% of the inputs changed to Sprint Florida specific inputs.

Q What do you mean "about 80% of the inputs"?

A Well, there are a few, for example, like engineering assumptions, the maximum fiber cable size doesn't need to be changed because that's the same size whether it's a default or whether it's applicable to Sprint Florida. So it didn't need to be changed; same thing with things like the maximum feeder size, maximum distribution cable size, the 12,000 feet. So many of those inputs, slope input, for example, don't need to be changed because they're equally applicable to Florida as they are in the default relationship.

Q Okay. Which of these two runs, the one represented by

the first bullet or the one represented by the second bullet is the run that produced the numbers, the line investments by census block group that are shown on your Exhibit JDD-2?

A It's the one that's $24.77.

Q All right. Although that says "National Defaults," that actually had some Florida specific items in it; is that correct?

A That's correct.

Q The ones we talked about earlier?

A That's correct.

Q And then since then you have done another run that makes additional thing Florida specific; is that correct?

A That's correct; like all of the cable costs, all of the placement costs, all of those, the aerial/below ground mix, all of those data items were changed to Florida specific.

MR. NELSON: I think that's all I've got, but I'd like to take a five-minute break and get a Coke and read through my notes to make sure, if that is suitable to everybody.

MR. FONS: That's fine with me.

(Brief recess.)

MR. FONS: Mr. Nelson, have you decided whether you have more questions?

MR. NELSON: I'd like to hear Staff's first. I think the answer is still no. I invariably will have something to follow up on Staff's.

EXAMINATION

BY MR KEATING:

Q Mr. Dunbar, are you still there?

A Yes.

Q Okay. Can you hear me clearly?

A Yes.

Q My name is Cochran Keating. I'm an attorney with the Public Service Commission Staff and we just have a few additional questions that Mr. Nelson didn't cover. He may have covered them, so bear with me.

Now, looking at page 19 of your Exhibit JDD-1, it shows the user inputs to the model and the default model values?

A Right.

Q Were all of the default values used to derive the runs submitted in this proceeding?

A No, there were a number of them that I had discussed earlier that were changed, like the residence line multiplier and the cable and wire factors, the electronics factors, the drop costs was changed to a dollar, the NID cost was changed to zero.

Q We'll move on from that page then.

Are you familiar with the Supplemental Rebuttal Testimony of Don Wood in this proceeding?

A I have seen it, I think.

Q I'm just going to ask a couple of questions about some things that appear in Mr. Wood's Supplemental Rebuttal Testimony.

A Okay. I have it.

Q Okay. In that testimony he points out the various criticisms of the BCM2 model. Let's see; it's page 1, last lines 24 and 25, and at the top of Page 2.

A Right.

Q Mr. Wood states that "BCM2 assumes that feeder cable generally ends at the edge of the census block groups. This assumption arbitrarily inflates capital costs. Substituting feeder cable for distribution cable within the CBG boundary would be a more economical alternative."

A Right.

Q Is Mr. Wood correct that under BCM2, feeder cable extends only to the edge of the CBG?

A No, he's not. That was true in BCM1 but not in BCM2 and certainly not in the copy of BCM2 that was filed in this proceeding. Feeder cable does go in as far as necessary into the census block group to maintain the 12,000 foot copper loop that is behind the fiber.

Q Okay. Looking at page 2 of that testimony, on lines 4 through 8.

A Okay.

Q Mr. Wood asserts that BCM2 assumes that all digital

loop facilities use non-integrated technology; is this correct?

A Well, to the extent that we did not remove the line cards from the switch for any of the digital loops, by the normal definition of non-integrated, I would say yes.

Q Why is this assumption reasonable?

A Well, there's two differences in the way it's applied. You can use the line card in the switch and go out on a voice grade basis to the multiplexer that changes from voice grade to the fiber optic light signal or you can turn around and go out of the switch at a DS1 level and go into transceivers that are used to go from a DS1 or high capacity type signal to the fiber optic signal.

We did not change it because based on the information we had within the model the line card costs plus the voice grade to fiber optic multiplexers were very close in costs to the DS1 costs in total. When you look at the total switch costs plus the multiplexer, there was not a significant difference in the cost no matter which way you went. You still needed multiplexing to get to the fiber signal in a central office terminal.

Q Okay. If you can look down that same page, line 13 and 15, Mr. Wood contends that BCM2 uses multipliers to estimate structure costs as a function of cable costs.

A That is not correct. BCM2 uses a cost per foot applied times the number of feet of cable that are being

placed. So it counts the trench feet or the placement feeder that are required -- let me call it route feet, if I may. So if we need to place a thousand feet of cable, it is not a multiplier of the cable costs. It is just X costs per foot for that thousand route feet that we need to place.

Q Okay. That same page, the testimony on line 17 and 19, Mr. Wood states that the BCM2 overstates costs by failing to assume that ILEC structures are shared with other utility providers. Does Sprint specifically share its supporting structures with other providers?

A It shares poles and on occasion it may, and I'm not familiar enough with Florida to know absolutely as to whether any of the manholes might be shared. I'm not aware that any are. So as far as the sharing goes, I believe it only applies to the aerial.

Q Do you know what percentage of Sprint Florida's poles are shared with other utilities?

A No, I don't. I do know in terms of the sharing that although we did not adjust the investment per sharing of the annual expense factors that were developed, it's my understanding recognize the rent expense and rent revenues net that are involved with the rental in either direction of the appropriate poles. So that in terms of the development of a final cost, there is a recognition that poles are rented either by Sprint or from Sprint, but we did not make the specific

adjustment in the investment.

I might mention just to make sure that at least my position would be clear is if you make the expense adjustment to recognize the level of expense and the level of revenues, then it's inappropriate to make the investment adjustment because you would be double counting. You do one or the other but not both.

MR. DOWDS: Can we go off the record?

MR. FONS: Sure, let's go off the record, Jim.

WITNESS DUNBAR: Okay.

(Off-the-record discussion.)

MR. KEATING: We'll go back on the record. If we could get a late-filed exhibit.

MR. FONS: You want a late-filed exhibit showing how the rent expenses and revenues were netted in the development of the annual charge factor?

MR. KEATING: Yes.

(Late-filed Exhibit 2 identified.)

MR. KEATING: I believe that's all the questions that Staff has for you.

MR. MELSON: Mr. Dunbar, I've got one more, I think.

FURTHER EXAMINATION

BY MR. MELSON:

Q It relates to depreciation. Did depreciation enter the calculation of the loop costs only through Mr. Farrar's

annual cost factor?

A Yes.

MR. MELSON: Okay. Thank you.

MR. FONS: I have one follow-up question.

EXAMINATION

BY MR. FONS:

Q And it has to do with Mr. Dunbar's Rebuttal Testimony and some questions that Mr. Melson asked. Jim, when Mr. Melson was asking you some questions, he referred to page 12 of your Rebuttal Testimony. Do you have that there?

A Yes.

Q And you'll recall that he asked you to explain on lines 16 through 19 the two figures there, the $24.77 and $24.86?

A Yes.

Q And he asked you if those were the numbers that were produced in the studies and which one was the one that you filed and that I believe you indicated was the number on line 17, which is the $24.77?

A Correct.

Q Now, the $24.77, did that number use the default annual charge factor or did it use the annual charge factors that were developed by Mr. Farrar?

A We used the annual charge factors that were developed by Mr. Farrar in both cases, the 29.88 and the 30.37.

MR. FONS: I have no further questions.

(Deposition concluded at 10:27 a.m..)

CERTIFICATE OF OATH

STATE OF KANSAS

COUNTY OF _____

I, the undersigned authority, certify that James D. Dunbar, Jr., personally appeared before me and was duly sworn.

WITNESS my hand and official seal this 11th day of December, 1996.

_____

AFFIDAVIT

STATE OF)
COUNTY OF)

I, James D. Dunbar, Jr., being first duly worn, do hereby acknowledge that I did read a true and certified copy of my deposition which was taken in the case of Petition by MCI Telecommunications Corporation for arbitration with United Telephone Company of Florida and Central Telephone Company of Florida concerning interconnection rates, terms, and conditions, pursuant to the Federal Telecommunications Act of 1996, taken on December 6, 1996, and the corrections I desire to make are as indicated on the attached Errata Sheet.

Done and signed this _____ day of December, 1996.

James D. Dunbar, Jr.

CERTIFICATE

STATE OF)
COUNTY OF)

Before me personally appeared James D. Dunbar, Jr., to me well known and known to me to be the person described in and who executed the foregoing instrument and acknowledged to and before me that he executed the said instrument in the capacity and for the purpose therein expressed.

Witness my hand and official seal, this _____ day of December, 1996.

Notary Public

REPORTER'S DEPOSITION CERTIFICATE

STATE OF FLORIDA

COUNTY OF LEON

I, Cathy H. Webster, Registered Professional Reporter, certify that I was authorized to and did stenographically report the deposition of James D. Dunbar, Jr.; that a review of the transcript was requested; and that the transcript is a true and complete record of my stenographic notes.

I further certify that I am not a relative, employee, attorney, or counsel of any of the parties, nor am I a relative or employee of any of the parties' attorney or counsel connected with the action, nor am I financially interested in the action.

DATED this 12th day of December, 1996.

Cathy H. Webster
Registered Professional Reporter

Sprint
Docket No. 961230-TP
Dunbar Late Filed
Deposition Exhibit No. 1

ELECTRONICS FACTOR SOURCE DOCUMENT

The 30.37% value was derived from a earlier version of the Annual Charge Factor Program. The updated value is 33.28% as shown on RGF3, page 122, row "Circuit Digital," column "Combined."

Sprint
Docket No. 961230-TP
Dunbar Late Filed
Deposition Exhibit No. 2

RENT EXPENSES/REVENUES NETTED IN ANNUAL CHARGE FACTOR

Rent and service connection revenue is netted in the Other Direct Expenses factor, which is a portion of the annual charge factor. The following refers to the response to Staff's First Set of Interrogatories No. 44(a), the five-page summary "Other Direct Operating and Common Expense Allocation." On page 1, under account 6124, are three revenue accounts which are used to "net" Other Direct Expenses.

Rent Revenue - Cable & Wire	$ 605,025
Rent Revenue - Buildings	$ 2,983,208
Service Connection Revenues	$ 32,625,103
Total	$ 36,213,336

29. Referring to Exhibit JDD-2 attached to Mr. Dunbar's supplemental direct testimony, please provide a copy of the BCM2 model populated with the data used to generate this exhibit.

Response: The requested information is being provided on a CD labeled as the response to this request.

30. Referring to Exhibit JDD-2 attached to Mr.Dunbar's supplemental direct testimony, please provide the summary BCM2 output report.

Response: The requested information is being provided on a CD labeled as the response to this request.

31. Referring to Composite Exhibit No. RGF-3, page 68, please provide the workpaper which shown the detailed derivation of the annual cost factor used herein. The workpaper requested should identify all inputs used and should show each computational step which yields the annual cost factor.

Response: The requested documents are being provided. The Annual Charge Factor (ACF) reflective of TELRIC cost is comprised of the base ACF as well as a joint cost component. Composite Exhibit No. RGF-3, page 122, shows the component parts of the Annual Charge Factor. The Base ACF (24.4% for switching) is developed utilizing the Sprint LTD developed Annual Charge Factor Program, as provided in response to Document Request No. 4. The model description of the joint factor (6.74% for switching) is provided in response to Document Request No. 7. These two components add to 31.16% in reflecting Florida's annual charge factor for switching.

Copy in Docket File

FLORIDA PUBLIC SERVICE COMMISSION
DOCKET NO. 961230-TP EXHIBIT NO 33
COMPANY/ WITNESS: DUNBAR (BCM2 CD-Rom)
DATE: 12/18/96