BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

REBUTTAL TESTIMONY OF

JOHN C. DONOVAN

ON BEHALF OF

AT&T COMMUNICATIONS OF THE SOUTHERN STATES, INC.

And

MCI WORLDCOM, INC.

Docket No. 990649A-TP

December 10, 2001

NH 3-6-07 (entire DN)

DECLASSIFIED

CONFIDENTIAL

PROPRIETARY VERSION

appeal

I. INTRODUCTION

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is John C. Donovan. I am President of Telecom Visions, Inc., a telecommunications consulting company. My business address is 11 Osborne Road, Garden City, NY 11530.

Q. PLEASE DESCRIBE YOUR BACKGROUND.

A. I received a Bachelor of Science degree in Engineering from the United States Military Academy at West Point, NY, and a MBA degree from Purdue University. I have also completed the Penn State Executive Development Program. I have more than 30 years of telecommunications experience. My last employment before forming Telecom Visions, Inc. was with the NYNEX Corporation, also recently known as Bell Atlantic-North, and subsequent to the merger with GTE, as Verizon. I retired as a General Manager under an early retirement offer from NYNEX after 24 years of experience in a variety of line and staff assignments, primarily in outside plant engineering and construction. That experience included everything from personally splicing fiber and copper cables to heading an organization responsible for the procurement, warehousing, and distribution of approximately $1 million per day in telecommunications equipment. I have had detailed hands-on experience in rural, suburban,

and high-density urban environments. I spent several years on the corporate staff of NYNEX responsible for the development of all Methods and Procedures for Engineering and Construction within that company, including methods used to determine material and labor costs associated with building outside plant infrastructure. To summarize, I have planned outside plant, I have designed outside plant, I have purchased telecommunications materials and contract labor, I have personally engineered and constructed outside plant, and I have designed methods for those who do such functions. I have also performed other functions, or have supervised those who do, in installing, connecting, repairing, and maintaining the various parts of the telecommunications network.

I have also taught undergraduate students as an Adjunct Professor of Telecommunications at New York City Technical College, and have attended numerous courses in telecommunications technologies, methods and procedures. For the past five years, I have submitted affidavits, written testimony, and appeared as an expert telecommunications witness in proceedings before state regulatory commissions in Alabama, Arizona, California, Colorado, Connecticut, Florida, Georgia, Hawaii, Kansas, Louisiana, Maine, Maryland, Massachusetts, Michigan, Missouri, Nevada, New Jersey, New York, Oklahoma, Pennsylvania, Texas, Washington, and before the Federal Communications Commission ("FCC").

Attachment JCD-1 to this testimony provides further detail concerning my qualifications and experience.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS COMMISSION?

A. Yes, I previously testified in this proceeding on July 31, 2000 and August 28, 2000, and appeared to present testimony before this Commission on September 21, 2000.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. I have been asked by AT&T Communications of the Southern States, Inc. (AT&T) and MCI WorldCom ("WorldCom") to review and comment on the revised BellSouth Telecommunications Loop Model© ("BSTLM") as filed in this proceeding in response to this Commission's May 25, 2001 Order No. PSC-01-1181-FOF-TP ("*FL UNE Order*"). I will also respond to the direct testimony of BellSouth Telecommunications, Inc. ("BellSouth") witness D. Daonne Caldwell. My testimony will primarily focus on outside plant input values to the model, the inconsistent "pick and choose" methods BellSouth has used to supposedly justify its unreasonably high outside plant input values, errors in alleged "support data" calculations that BellSouth claims supports its outside plant input values, those areas where BellSouth has ignored this Commission's order to change the methods of determining outside plant input values, how BellSouth has simply ignored features of the BSTLM that could have been used to meet this Commission's Order, and in some cases the ways in which the internal structure of the BSTLM handles outside plant.

Q. HOW IS YOUR TESTIMONY ORGANIZED?

A. **In Section II**, I identify the requirements of the *FL UNE Order*.

In Section III, I explain how BellSouth's continued use of linear Engineering Factors fails to satisfy the Commission's requirements put forth in the *FL UNE Order*. Further, I explain how the factors proposed by BellSouth are unreasonably high, are unsupported within its filed evidence, and are far beyond generally accepted industry opinion.

In Section IV, I discuss the inputs used in BSTLM to determine outside plant structure costs (aerial poles/anchors/guys, buried trenching/plowing/boring, and underground conduit/manholes) as well as costing methodologies that have been used by BellSouth in this filing for outside plant structure. I explain how BellSouth's proposed inputs for outside plant structure are fraught with correctable errors and fail to satisfy the requirements set forth in the *FL UNE Order*.

In Section V, I discuss the inputs used in BSTLM to determine outside plant copper cable costs and the costing methodologies proposed by BellSouth in its filing. I explain how BellSouth fails to satisfy the requirements set forth in the *FL UNE Order* and show that inputs proposed by BellSouth for outside plant copper cable are unreasonably high and unsupported by fact or generally accepted industry opinion.

In Section VI, I discuss the same issues discussed in Section V; however, in this section I do so in regards to outside plant fiber optic cable.

In Section VII, I summarize my testimony and explain why the BSTLM and the BellSouth Cost Calculator ("BSCC"), with proper modifications, can be used to generate bottoms-up UNE results for the outside plant portion of the local telephone network.

A Summary of each input category, identified issues, recommended changes, and general impacts of changes on UNE costs is included as Attachment JCD-8 to this testimony.

II. REQUIREMENTS OF THE COMMISSION'S MAY 25TH ORDER

Q. WHAT DID THE COMMISSION ORDER IN ITS MAY 25TH DECISION?

A. In its May 25th Order, the Commission required BellSouth to re-file its cost studies. The new cost studies were to "explicitly" model "all cable and associated supporting structure engineering and installation placements" (*FL UNE Order*, page 234), as opposed to utilizing ratios to develop engineered, furnished and installed costs – as was done in BellSouth's initial application of the BSTLM in this proceeding.

The Commission gave BellSouth 120 days to refile the model using a "bottoms up approach," including "all BellSouth assumptions used

in developing cable placements, the basis and source data for the revised input values, and a clear identification and listing of all input values."

Regarding my specific areas of outside plant engineering and construction expertise, I find the following excerpts from the *FL UNE Order* most important to this proceeding.

> Upon review, it appears that BellSouth's use of linear loading factors, while easy for BellSouth to apply, can generate questionable results, especially in light of deaveraged rates ... no economies of scale for exempt material, engineering, or labor, for example, ever occur. It seems very unlikely that there are no economies generated as cable sizes grow larger. (*FL UNE Order* at 282).

> [E]specially recognizing the capability of the model and the fact that loops and loop type items are being deaveraged, it is disconcerting that BellSouth did not avail itself of the model's flexibility. Additionally, we are concerned that BellSouth could not provide any evidence demonstrating that installation costs are directly proportional to material prices or that the relationships for land and building factors or pole and conduit loadings would be representative of the future forward-looking study period as its factors imply. (*FL UNE Order* at 283).

> [I]n order to determine the magnitude of discrepancies between using a loading factor approach as opposed to a "bottoms up" approach for placements of plant directly related to the loops and loop type items, we shall require BellSouth to refile the BSTLM within 120 days from the issuance of this order explicitly modeling all cable and associated supporting structure, engineering, and installation placements ... The refiling shall include all BellSouth assumptions used in developing cable placements, the basis and source data for the revised input values, and a clear identification and listing of all input values. (*FL UNE Order* at 284; see also *FL UNE Order: Loading Factors Summary and Conclusion* at 306-307).

When questioned if the structure cost results would be more accurate and representative if the BSTLM were utilized to directly place structures rather than using loading factors, [BellSouth] witness Caldwell responded that she did not know. While the BSTLM has the ability to accurately build and calculate poles and conduit, witness Caldwell asserts that BellSouth chose to use pole and conduit loading factors because the information was more readily available. This choice was made even though BellSouth recognizes that we have rejected the use of loadings in previous cases. (*FL UNE Order* at 287-288).

Upon consideration, we note that we share Sprint's witness Dickerson's concern that the pole and conduit loading factors, because they are based on statewide average relationships and applied to unit material prices, will distort the costs of wire centers in high density areas and understate the costs in low density areas. In a proceeding where deaveraging loops and loop type items are at issue, this is particularly troublesome. In principle, we expect that modeling cable and conduit structure costs bottoms-up would be preferable and more accurate. (*FL UNE Order* at 294).

Loading Factors Summary and Conclusion: As set forth herein, we find some of the loading factors BellSouth has recommended are appropriate for use in setting UNE rates. However, recognizing the capability of the BSTLM to model placements and structures, a "bottoms up" approach is preferable [and] it appears that such an approach would tend to be more accurate. We are concerned with BellSouth's use of linear in-plant factors and agree with AT&T and WorldCom and Sprint that linear loadings are particularly disconcerting in a proceeding where rates are being deaveraged. We have not lost sight of the fact that linear factors will distort the cost relationships between rural and urban areas ... We are also concerned that BellSouth did not provide any evidence demonstrating that installation costs are directly proportional to material prices or that relationships for land and building factors or pole and conduit loadings would be representative of the future forward-looking study period, as its factors imply. (*FL UNE Order* at 305).

> [R]ecognizing that engineering and installation costs should vary depending on the specific plant, soil and environmental conditions of the installation, we are unable to determine based on this record what would be a fair adjustment to make to reflect these things. Further, the basic problem with BellSouth's loading factors is that they are linear. Therefore, adjusting each factor may not correct the problems we have defined. (*FL UNE Order* at 306).

Q. WHY DID THE COMMISSION ORDER BELLSOUTH TO REFILE ITS COST MODELS?

A. The Commission ordered the use of a "bottoms up approach" because it was "troubled by BellSouth's use of linear in-plant factors" which "will distort the costs of wire centers in high density areas and understate the costs in low density areas." (*FL UNE Order*, page 294) The Commission also noted that, "BellSouth could not provide any evidence demonstrating that installation costs are directly proportional to material prices." (*FL UNE Order*, page 283).

III. BELLSOUTH'S CONTINUED USE OF AN ENGINEERING FACTOR VIOLATES THE COMMISSION'S ORDER AND IS UNREASONABLE

Q. IN ITS UNE ORDER, WHAT DID THIS COMMISSION DIRECT BELLSOUTH TO DO ABOUT ENGINEERING COSTS?

A. This Commission ordered BellSouth to refile its cost models using a bottoms-up approach to engineering costs, rather than using a linear Engineer, Furnish & Install ("EF&I") factor. Specifically, the *FL UNE Order* stated,

> Upon review, it appears that BellSouth's use of linear loading factors, while easy for BellSouth to apply, can generate questionable results, especially in light of deaveraged rates ... no economies of scale for exempt material, **engineering**, or labor, for example, ever occur. It seems very unlikely that there are no economies generated as cable sizes grow larger. (*FL UNE Order* at 282, Emphasis Added).

> we shall require BellSouth to refile the BSTLM within 120 days from the issuance of this order explicitly modeling all cable and associated supporting structure, **engineering**, and installation placements. (*FL UNE Order* at 284, Emphasis Added).

It is clear that the Commission recognized that it does not take 42 times as long to engineer the placement of one thousand feet of 4200-pair cable as it does to engineer the placement of one thousand feet of 100-pair cable.

Q. WHAT METHOD HAS BELLSOUTH USED TO CAPTURE ENGINEERING COSTS IN THE REFILING OF ITS COST MODEL?

A. BellSouth has ignored the Commission's *FL UNE Order*, and has filed costs using a linear Engineering Factor. BellSouth's witness, Ms. Caldwell, suggests in her November 8, 2001 direct testimony that BellSouth has complied with the *FL UNE Order* because it changed its Engineering Factor from being a factor applied to material to a factor applied to material plus installation labor. In my opinion, that does not comply with the *FL UNE Order*.

Q. HOW SHOULD ENGINEERING COSTS BE CALCULATED?

A. In my opinion, based on decades of personal experience in performing outside plant engineering, teaching others how to engineer, and in writing corporate methods on how to engineer, engineering costs should ideally be broken down into three components in order to accurately estimate total engineering costs.

First, for sheath feet of cable or structure engineered, a linear engineering cost is appropriate. An engineer normally performs a records check and field survey for cable or structure work being engineered, and designs appropriate details associated with an engineering work order. Therefore, one component is a "feet per day engineered" cost.

Second, for cable splicing, a fixed component is appropriate. An engineer must review records and dedicate an amount of time to establishing a splice location at a fixed point. Therefore, another component is a "minutes of engineering time per splice" location.

Third, for groups of copper pairs spliced and units of fibers spliced, a linear engineering cost is appropriate. Since engineers do not engineer the splicing of individual copper pairs or fiber strands, the appropriate cost would be based on "minutes of engineering time per 300 pairs spliced," or "minutes of engineering time per 12 fibers spliced."

BellSouth has not filed costs based on any such approach to engineering costs.

Q. CAN BELLSOUTH'S MODEL BE MODIFIED TO CORRECTLY CALCULATE BOTTOMS-UP ENGINEERING COSTS?

A. Unfortunately, no. The method I described above cannot be implemented without performing some level of "surgery" on BellSouth's model. Mr. Pitkin has not attempted what is expected to be a complex modification to BellSouth's model.

Q. IF ONE TYPE OF FACTOR COULD BE USED, WHAT WOULD BE THE MOST APPROPRIATE FACTOR?

A. Opinions in the industry vary, but several knowledgeable parties filed comments during the *FCC's Inputs Order* activities advocating the position that engineering cost probably correlates best with linear sheath feet of cable:

> §166. Sprint contends that we should calculate the loadings for LEC engineering on a flat dollar basis rather than on a fixed percentage of the labor and material costs of cable. We find persuasive Sprint's contention that LEC engineering costs do not vary with the size of the cable and therefore do not vary with the cost of the cable. Accordingly, we find it reasonable to apply the loading for LEC engineering in the manner that Sprint recommends. [*FCC Final Inputs Order*. Original footnotes omitted].

Given the fact that one of the most import aspects of detailed engineering is to instruct construction technicians on how to physically build outside plant across a piece of geography, I would agree that a factor based on sheath feet is one appropriate way.

Q. DID THE FCC EXAMINE USING AN ENGINEERING FACTOR BASED ON TOTAL OUTSIDE PLANT INVESTMENT?

A. Yes. Many parties filed comments advocating engineering cost as a percent of total installed outside plant cost. In fact, during the *Inputs Order* proceedings at the FCC in the FCC's Universal Service proceeding, BellSouth appeared before the FCC as a co-sponsor of the BCM2/BCPM

model, advocating an engineering component of 5% of outside plant cost. AT&T/WorldCom appeared before the FCC sponsoring the HAI Model. Part of the HAI Model used discrete engineering costs that accounted for economies of scale, and part of the HAI Model used engineering costs as 15% of copper cable costs for cables smaller than 400 pairs. The FCC concluded that engineering costs at 10% of material and labor cost of cable is reasonable. In its *Final Inputs Order*, the FCC stated:

> §164. LEC Engineering. The second adjustment we proposed to the regression equations used to estimate cable costs was to account for LEC engineering costs, which were not included in the RUS data. As we noted, the BCM2 default values include a loading of five percent for engineering. In contrast, the HAI sponsors claimed that engineering constitutes approximately 15 percent of the cost of installing outside plant cables. This percentage includes both contractor engineering and LEC engineering. The cost of contractor engineering already is reflected in the RUS cable cost data. In the *Inputs Further Notice*, we tentatively concluded that we should add a loading of 10 percent to the material and labor costs of cable (net of LEC engineering and splicing costs) to approximate the cost of LEC engineering.
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> §165. We affirm our tentative conclusion to add a loading of 10 percent to the material and labor for the cost of cable (net of LEC engineering and splicing costs) to approximate the cost of LEC engineering. [original footnotes not shown].

Q. HAS BELLSOUTH PROVIDED ANY VALID EVIDENCE SUPPORTING ITS ENGINEERING COSTS?

A. No. BellSouth's witness, Ms. Caldwell, alludes to substantiation of engineering factors by stating, "Engineering costs were obtained from the OSPCM system." (Caldwell November 8, 2001 direct testimony at page 16). Elsewhere in her testimony, Ms. Caldwell alludes to the fact that OSPCM information is contained in BellSouth's Attachment 4 in Appendix B of its November 8, 2001 filing. I have reviewed the materials filed by BellSouth, and find no adequate substantiation of its engineering factors of 35.72% for fiber cable and 27.07% for all other outside plant items such as copper cable and structures. Based on my experience, those percentages are so far out of the realm of reality, that they are absurd.

For example, using these inflated factors I calculate the engineering costs generated by BSTLM would represent 73% as much to engineer as it takes to place and splice a 24-fiber underground cable, and 107% as much to engineer as it takes to place and splice a 144-fiber cable (Attachment 8-B to Mr. Pitkin's testimony indicates BellSouth's engineering cost per foot at Line 21, compared to the sum of placing and splicing costs on Lines 18 and 19). This would mean that if placing and splicing installation costs were $10,000 on a 144 pair underground fiber project, the engineering cost alone would be another $10,700. Incredibly, BellSouth is suggesting that it spends much more time and money engineering fiber cable than it does actually building it. Engineering fiber

cable is extremely easy - I have taught many engineers to design fiber cable systems - it is one of the easiest tasks in outside plant engineering. The cable is lightweight, up to 35,000 feet of cable can be delivered on a single placing reel, and its placement is drawn as a long single line on an Engineering Work Order.

Q. WHAT DO YOU RECOMMEND?

A. To move forward with this proceeding, this Commission should order BellSouth to refile its cost model using the 10% engineering factor that the FCC found reasonable. Given that BellSouth in late 1998 supported a 5% engineering factor in BCM2/BCPM, a 10% engineering factor is more than reasonable here.

IV. BELLSOUTH'S STRUCTURE INPUTS FAIL TO SATISFY THE COMMISSION'S REQUIREMENTS AND ARE FRAUGHT WITH CORRECTABLE ERRORS

Q. WHAT IS THE PRIMARY METHOD USED BY BELLSOUTH TO JUSTIFY THE INPUT VALUES THAT IT PROPOSES FOR OUTSIDE PLANT STRUCTURE?

A. BellSouth claims that its input values for outside plant structures are supported by its outside plant contractor costs for each district in Florida.

This claim is based on data submitted in Attachment 3 of Appendix B of BellSouth's cost study details (Caldwell direct at pg. 7). Even if one were to assume that these data are accurate, the calculations performed by BellSouth on these data are fraught with errors. Although I take issue with some of the data, the Commission should accept the BellSouth data for now, but should order corrections to how the inputs derived from this data are used within BSTLM. I recommend specific input value modifications based on my analysis of BellSouth's Attachment 3 data, which I have included as Attachment JCD-2 to this testimony. My recommendations are also reflected in the attachments to Brian Pitkin's testimony.

Q. HOW WOULD YOU CHARACTERIZE MANY OF BELLSOUTH'S ERRORS IN USING ITS CONTRACTOR DATA?

A. In general, many of BellSouth's errors involve a mismatch between numerator and denominator. For example, there is a mismatch between the number of manholes and the number of manhole covers and collars. BellSouth disregarded the fact that cost data for manhole covers & collars involved many more installations than the data for its number of manholes. BellSouth's manhole cost calculations equate to an average of 30 manhole covers per manhole. This is obviously an absurd result.

After discussing an overarching issue of spreading miscellaneous costs over all structure accounts, I will address each of the structure issues

in the same order as did BellSouth's witness Ms. Caldwell, starting at page 8 of her November 8, 2001 direct testimony.

Q. WHAT IS THE MAJOR CAUSE FOR BELLSOUTH FAILING TO MEET THE COMMISSION'S ORDER REGARDING OUTSIDE PLANT STRUCTURE COSTS?

A. For structure costs, BellSouth fails to meet the Commission's order regarding a bottoms-up approach, primarily because of its treatment of "Miscellaneous Contractor Charges."

BellSouth data includes a potpourri of charges for "stuff" for which BellSouth could find no home. Therefore, in an attempt to recoup these non-TELRIC embedded base expenditures, BellSouth created a "closing factor" to spread these costs over all structure costs as a 25.43% miscellaneous markup to actual contractor costs for modeled TELRIC items. These charges should be disallowed by the Commission and removed across the board. The details of BellSouth's data for this category are shown at pages 1 and 2 of Attachment JCD-2. This miscellaneous loading applies to each category of structure cost; I will not bring this up repeatedly although the issue applies to every item discussed below, opting instead to ask this Commission to have the charges uniformly removed.

Q. PLEASE DESCRIBE IN DETAIL ALL OF THE ERRORS YOU HAVE UNCOVERED TO DATE IN BELLSOUTH'S CLAIM OF USING CONTRACTOR BILLING DATA.

A. I describe below, by category, each of the errors I have uncovered to date in BellSouth's use of contractor billing data. My approach is to correct BellSouth's errors to allow this proceeding to move forward using BellSouth's data, rather than applying any other method, such as arguing about unreasonableness. Although I may not agree with BellSouth's data, it is important to move forward to achieve a reasonable approximation of TELRIC-based UNE rates.

Aerial Structure Contract Labor:

BellSouth's calculations involving contract labor costs for placing poles are flawed. BellSouth includes costs for placing power company poles without taking credit for the number of poles placed. Because the objective is to determine the installed cost per pole, it is inaccurate to divide the costs of installing two poles (one telco pole + one power pole) by only a single (telco) pole. In similar fashion, BellSouth includes costs for placing "Carry-In" poles without taking credit for the number of poles placed. These pole placements without pole counts must be excluded to balance the numerator and denominator. Details of this correction, using BellSouth's data, are included at page 3 of Attachment JCD-2.

Aerial Structure Material:

No issues or recommendations are being presented in this testimony.

Buried Excavation Contract Labor:

BellSouth's witness Caldwell claims that buried excavation contract labor costs do not vary by type of excavation because BellSouth's agreements with its contractors do not vary with terrain type. I believe this to be a misleading statement. Although BellSouth contracts with excavators may not list different costs for different soil types with differing levels of difficulty, there are differences available in BellSouth's actual Attachment 3 data. There are 12 types of buried excavation and restoration available in BSTLM as follows:

Type	BellSouth Assumption
1. Rocky Plow	(0% Occurrence)
2. Rocky Trench	(0% Occurrence)
3. Trench Provide by Developer at no charge	(0% Occurrence)
4. Trench & Backfill	(Equal Cost Item)
5. Backhoe Trench	(Equal Cost Item)
6. Hand Dig Trench	(Equal Cost Item)
7. Cut & Restore Asphalt	(Equal Cost Item)
8. Cut & Restore Concrete	(Equal Cost Item)
9. Cut & Restore Sod	(Equal Cost Item)
10. Plow Cable	(Equal Cost Item)
11. Bore Buried Cable	(Unique Cost Item)
12. Push Pipe/Pull Cable	(Unique Cost Item

Of the seven types of excavation that BellSouth uses in BSTLM (e.g. types 4 through 12), BellSouth combines seven of them together as equal cost items and only distinguishes higher costs for Bore Buried Cable and Push Pipe/Pull Cable. I will address errors in calculating the last two later in this section of testimony.

Plowing Cable:

BellSouth's contractor data simply lists Place [Buried] Cable 12, 18, 24, 30, 36, 42, and 48 inches deep. Based on BellSouth testimony and level of cost, this cost appears to reflect only trenching operations. As such there appears to be a notable category missing from the data. BellSouth has omitted any data for plowing cable even though it assumes such a method will be used 78% of the time in the rural density zone, and 15.75% of the time in the Suburban density zone. I find it extraordinarily difficult to believe that contractors have the right to decide whether they want to trench or plow, at their option, without regard to direction from BellSouth engineers, or that BellSouth is willing to pay backhoe trenching prices for cable plowing operations. During my career, in every instance of which I am aware, a contractor hired to install cable was specifically directed to install that cable in a particular manner, as directed by the engineer. This allows the engineer to specify the exact type of construction, and allows the economical use of much less expensive plowing where appropriate. The cost difference between low cost cable plowing and much higher backhoe trenching for cable placements is so substantial that it is

unreasonable to expect a procuring and contracting organization to lump those two functions together.

Given the soil types in Florida, I am not surprised that there would be a significant amount of cable plowing being performed. In fact, Florida conditions make for easy plowing, and I find BellSouth's high plowing percentage in rural areas to be reasonable. Also, based on my experience in negotiating contracts for hundreds of miles of cable placement, plowing is a very inexpensive alternative. Although not Florida-specific, my experience with plowing cable in the much more difficult Adirondack Mountains of New York State cost me only $0.60/ft. to $0.80/ft. The FCC examined thousands of Rural Utility Service ("RUS") contracts, and concluded that even lower costs than mine are reasonable. In fact, the FCC's Synthesis Model generated an overall average cost of buried structures of all types (including the higher costs of trenching) in the rural density zones of only $0.77 per foot. BellSouth, on the other hand, uses its across-the-board buried structure input value of ***BEGIN **PROPRIETARY** $5.18 **END PROPRIETARY*****per foot for costs of plowing in buried cable. This level of cost disparity is beyond reason.

I recommend this Commission order the cable plowing input be set at no more than $0.80 per foot.

Buried Restoration:

BellSouth has taken a conglomeration of costs, declared them restoration activities, and has spread them uniformly, on a per foot basis, onto Buried Cable (BurCa) and Bore Buried Cable (BORECA) costs. Worthy of note is that performing Boring Cable operations is done to avoid the need to cut and restore the ground surface; therefore, surface restoration costs are inappropriate for Boring Cable. Plowing Cable also requires no appreciable surface restoration activities.

BellSouth's restoration cost allocation is incorrect for several additional reasons. First, in BellSouth Attachment 3 there is significant contractor data for the costs of Cut & Restore Asphalt, Cut & Restore Concrete, and Cut & Restore Sod, even though BellSouth claims that it cannot break out those items separately. As I indicate at page 4 of Attachment JCD-2, I recommend that buried excavation inputs be revised to reflect restoration costs under the proper categories, rather than spreading that cost arbitrarily across all categories as BellSouth has proposed.

Second, costs such as Furnish & Place 12", 15", 18", 24", and 30" diameter Corrugated Pipe should not be included in calculating buried cable restoration costs, because, by definition, buried cable involves cable in contact with dirt, not in pipe.

> §65. Outside plant consists of a mix of aerial, underground, and buried cable. Aerial cable is strung between poles above ground. Underground cable is placed underground within conduits for added support and protection. Buried cable is placed underground but without any conduit. A significant portion of outside plant investment consists of the poles, trenches, conduits, and other structure that support or house the copper and fiber cables. In some cases, electric utilities, cable companies, and other telecommunications providers share structure with the LEC and, therefore, only a portion of the costs associated with that structure are borne by the LEC. Outside plant investment also includes the cost of the SAIs and DLCs that connect the feeder and distribution plant. [FCC Tenth Report and Order, FCC99-304, October 21, 1999 {"*FCC Final Inputs Order*"}]

Third, restoration costs do not apply to cable boring and plowing operations. Therefore, it is improper to spread restoration costs to these inputs as BellSouth has done.

I have removed inappropriate buried structure charges, segregated the costs for Asphalt, Concrete, and Sod, and have applied them to the appropriate categories in the BSTLM inputs. I have performed calculations on using my segregation versus BellSouth's arbitrary spreading method, and overall contractor buried placing cost increases by $1.27/ft. in the Urban density zone, increases by $0.47/ft. in the Suburban density zone, and decreases by $0.31/ft. in the Rural density zone, as opposed to BellSouth's allocations of such costs. I believe this is a fair

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[1] The phrase "plant mix" refers to the ratio of outside plant that is aerial, underground, or buried in a network or particular area.

method of cost allocation and will result in costs that more accurately reflect geographic differences.

Buried Splice Pits:

BellSouth has taken contractor costs for buried splice pits (see Attachment JCD-2, page 5) and evenly distributed them across buried structure categories. Splice pits are not needed for normal buried splicing operations because such splices are routinely placed in above ground pedestal closures (See Attachment JCD-3 for pictures of typical above-ground closures). Since costs for such closures are already cared for with the Exempt Material Loading Factor, these costs should be excluded from TELRIC calculations.

Bore Buried Cable:

Boring for buried cable involves using a drilling type of device, or a mechanical "Mole" that bores a hole in soil under pavement. After the hole is bored, a cable is pulled through the hole in the dirt. BellSouth's calculations for this contractor activity involve a mismatch of numerator and denominator because BellSouth inappropriately adds the cost of steel pipe, PVC pipe, and Flex-pipe into the bore buried cable contractor costs (see Attachment JCD-2, page 6), and then divides by the feet of contractor Boring performed (different footages). Costs for pipe should be excluded, because Boring Buried Cable does not normally use pipe. Such pipe is best included under the category "Push Pipe/Pull Cable", which is

addressed next. I recommend the Commission correct the inputs based on my recommendations listed in Attachment JCD-2.

Push Pipe/Pull Cable:

BellSouth is completely in error regarding its calculated costs for Push Pipe/Pull Cable, because its costs are based on a single line of contractor data that has nothing to do with Push Pipe/Pull Cable. I have been able to construct what I believe is a fair input value for the Commission's consideration, based on more appropriate BellSouth contractor cost data.

As indicated on page 7 of Attachment JCD-2, BellSouth made a mistake in designating "Place Cable or Wire in Conduit" as representing "Push Pipe/Pull Cable" ("PPPC"). Placing cable or wire in conduit has nothing to do with PPPC.

A more appropriate method for developing such costs is to use the cost per foot for Bore Buried Cable discussed above, and add the cost of pipe on a per foot basis. This information is available under BellSouth data that it incorrectly categorized under Bore Buried Cable. By adding those two per foot costs together, I arrived at my recommendation in Attachment JCD-2, page 7.

Buried Cable:

The primary base number for buried cable (before BellSouth's inappropriate spreading of costs) was incorrectly calculated by BellSouth

and should be corrected based on BellSouth-supplied contractor data. BellSouth's numerator does not match its denominator because it includes inappropriate costs and, even if deemed appropriate, it excludes matching footages from the denominator. (See Attachment JCD-2, page 8). These inappropriate "Buried Cable" costs included by BellSouth consist of placing of conduit (not a "Buried Cable" item), extra cables in the same trench, and other inappropriate costs. Only contractor costs labeled as Placing Buried Cable, along with associated footages, should be used to calculate buried cable placing costs per foot. I have included those calculations in my recommended input values listed in Attachment JCD-2, page 8.

Underground Excavation Contract Labor:

Similar to Buried Excavation Contract Labor, Ms. Caldwell's testimony oversimplifies the methods used by BellSouth, and is not completely accurate. There are eight types of underground excavation and restoration available in BSTLM as follows:

Type	BellSouth Assumption
1. Rocky Trench	(0% Occurrence)
2. Trench & Backfill	(Equal Cost Item)
3. Backhoe Trench	(Equal Cost Item)
4. Hand Dig Trench	(Equal Cost Item)
5. Cut & Restore Asphalt	(Equal Cost Item)
6. Cut & Restore Concrete	(Equal Cost Item)
7. Cut & Restore Sod	(Equal Cost Item)

8. Bore Underground Cable (Unique Cost Item)

Of the eight underground conduit placing input categories available in BSTLM, BellSouth used the same input for seven of them (one of the seven, Rocky Trench, has zero percent usage). The single non-uniform category is Bore Underground Cable. BellSouth's overall combined weighted input costs for underground conduit placing per foot vary significantly between Rural, Suburban, and Urban density zones. One might ask, if excavation costs are the same regardless of the excavation method, then why are the costs by density zone not the same? The answer is simple. BellSouth inappropriately used an extremely high Bore Underground Cable cost, and then applied varying percentages of use by density zone as a "fudge-factor" to make the cost per density zone vary.

Although boring cable under the surface may be used sparingly for Buried Cable, it is even more unusual to build duct banks of multiple 4-inch diameter plastic cable ducts between manholes using subsurface boring methods - in fact, it is rare. In my experience, such a rare occurrence would only take place to cross under an Interstate Highway or railroad line where no overpass or underpass is available for several miles. BellSouth's own data shows this to be true, in that it only used this type of construction for only ***BEGIN PROPRIETARY** 160 feet **END PROPRIETARY*** ok out of ***BEGIN PROPRIETARY** 33,991 feet **END PROPRIETARY*** of underground construction activity. In fact,

the percentage of this type of construction was less than one half of one percent, or 0.47% of underground feet of excavation activity (see Attachment JCD-2, pages 9 and 10). However, allegedly based on BellSouth management opinion, BellSouth allocated BSTLM percentages for this rare, and extremely high cost type of construction, as 2.67% in Rural, 5.75% in Suburban, and 12.5% in Urban density zones, even though BellSouth experiences only 0.47% of this type of underground excavation activity in its entirety. I recommend adjusting these BSTLM input percentages, based on underground route feet produced by BSTLM, to result in an overall average of 0.47%, but varying by density zone based on sheath feet differences. This method reflects highest use in Urban, less in Suburban, and the smallest amount in Rural density zones.

I also recommend re-allocating restoration costs for Asphalt, Concrete, and Sod discretely to appropriate underground excavation categories, rather than spreading them inappropriately across all types of excavation. Results are the same as for Buried Structure, with increases of $1.27/ft. in the Urban density zone, increases of $0.47/ft. in the Suburban density zone, and decreases of $0.31/ft. in the Rural density zone, as opposed to BellSouth's allocations of such costs. Once again, I believe this is fair treatment to all parties, and results in a more accurate calculation of cost by geographic area.

Conduit Material:

BellSouth's input value for conduit material is another case of mismatching the numerator and denominator. The conduit material input should reflect the cost of 4-inch PVC conduit pipe, and should not contain any placing labor. However, BellSouth has included one line of contractor cost that inappropriately includes labor. This line of data, which is captioned, "This is conduit placed by contractor," should therefore be excluded from the average material cost of PVC conduit. In addition, and as noted on page 11 of Attachment JCD-2, I was unable to determine how BellSouth went from its proposed conduit material cost per foot plus 25.43% miscellaneous loading (***BEGIN PROPRIETARY** $1.58/ft. + $0.40/ft. = $1.98/ft. **END PROPRIETARY***) to its input value of (***BEGIN PROPRIETARY** $2.77/ft. **END PROPRIETARY***), or an unexplained additional increase in material cost of another 50% of material. I therefore recommend that the Commission order a conduit material cost based on my correction to BellSouth data as indicated in Attachment JCD-2. This input value is slightly higher than my experience of $0.60/ft. and the FCC's decision in its USF proceeding adopting an input value of $0.72/ft.

Manholes:

BellSouth attempted to use contract data to compute an average manhole cost per cubic foot. It then applied that cost to BSTLM manholes designated as Type-1, Type-2, Type-3, and Type-5. The BSTLM *Input Table - Underground Labor* describes manhole Type-1, Type-2, and

Type-3 as "Contract Labor installation cost of one vault/manhole that accomodates [sic] three or four cables. This is the minimum size manhole available." (see Attachment JCD-4). Although all three manholes are identical, BellSouth uses costs for 72 cubic-foot manholes for Type-1 and Type-2, but 224 cubic-foot manholes for Type-3. In addition, for manhole Type-5 BellSouth assumes a huge 703 cubic-foot manhole to allow capacity for just one more cable, described in the BSTLM Input Table as "Contract Labor installation cost of one vault/manhole that accomodates [sic] five cables." Because Type-1, Type-2, and Type-3 manholes should be identical, with a capacity of 3 to 4 cables, a cost for a 72 cubic-foot manhole should suffice. Because Type-5 manholes only need to be slightly larger to accommodate 5 cables (such as a 4 ft. wide by 8 ft. long by 7 ft. high manhole), a 224 cubic-foot manhole should suffice. This size manhole is more reasonable and should be used in the BSTLM inputs.

For manhole costs, BellSouth once again mismatches numerator and denominator by using its contractor costs (see Attachment JCD-2, page 12). I believe BellSouth has provided Attachment-3 costs for only 7 large legacy-sized manholes, such as the classic 20 cable capacity Type-A manhole which measures 6 ft. wide by 12 ft. long by 7 ft. high. It is a 504 cubic foot manhole. BellSouth's contractor data appears to reflect six Type-A manholes at a cost that is above normal, based on my experience. However, absent additional data, I will accept BellSouth's costs. In addition, however, BellSouth has included the cost of one exceptionally

high-cost Type-A manhole that is almost 3 times the cost of the other 6 manholes in its sample. Because the sample size consists of only seven manholes, I recommend excluding the cost of the one extreme case from the average as an aberration. Using the average per cubic-foot cost for the 6 manholes in the sample, and using manhole sizes of 72 cu. ft. for BSTLM Type-1, Type-2, and Type-3 manholes, and 224 cubic feet for Type-5 manholes, I have calculated recommended costs as shown in Attachment JCD-2, page 12.

In addition, BellSouth claims that it incurs separate costs for manhole covers & collars. BellSouth, on the other hand, distributed all of the costs for 207 manhole covers & collars to the 7 manholes in its sample, creating the equivalence of 5 manhole covers per manhole Type-1 and Type 2, 16 manhole covers for manhole Type-3, and 52 manhole covers for manhole Type-5, or an average of 30 manhole covers per average manhole due to the mismatch between numerator and denominator. In addition, manhole covers & collars should be assigned on a one-per-manhole basis, rather than BellSouth's method of calculating these costs on a per cubic foot basis. This is because manhole covers do not get bigger as manholes get bigger, they stay the same standard 30-inch diameter size. Contrary to BellSouth, I have used the average cost per manhole cover & collar and added that to my basic cost per manhole in reaching my recommendations.

Q. DO YOU HAVE ADDITIONAL CRITICISMS REGARDING BELLSOUTH'S PROPOSED UNDERGROUND AND BURIED STRUCTURE INPUTS?

A. Yes. Besides the engineering factor issue addressed in the earlier section of this testimony, I believe BellSouth's position regarding forward looking opportunities for structure sharing are short-sighted, do not reflect emerging competitive realities, and reflect violation of FCC structure sharing rules.

The Telecommunications Act of 1996 and the FCC's implementation of that Act make it clear that Competitive Local Exchange Carriers ("CLECs") should have unfettered equal access to structure space. BellSouth's claim that other parties are leasing only 129,754 feet of conduit space, or an average of 0.07% of the space is highly suspect. Whereas Verizon claims that more than 30 different companies occupy its conduits in Manhattan, it appears that BellSouth is either monopolizing access to its own ducts and creating severe barriers to entry, or is mistaken in its forward looking structure sharing projections. If competition comes to Florida, then either Florida streets will be dug up time and time again, as CLECs build their own underground conduit systems, or else significant amounts of structure sharing will take place. I recommend a forward-looking telco share of 50% in the rural density zone, and 33% in the suburban and urban density zones.

For buried structures, BellSouth has assumed that it never encounters cases where housing development contractors provide free trenches for BellSouth. In addition, BellSouth claims that joint buried trenching only occurs 6% of the time. Based on my experience, this is an extremely low number. Again, it appears that BellSouth is engaging in barrier to entry practices and making no effort to encourage joint trenching, or is mistaken about forward looking structure sharing opportunities. Once again, if competition takes place in Florida, there will either be extensive buried structure sharing, or repeated excavations of streets will take place.

For these reasons, I believe this Commission should reject BellSouth's almost non-existent structure sharing percentages, and encourage competition by advocating 50% structure sharing between power companies and BellSouth in the Rural density zone, and 33% structure sharing between power companies, BellSouth, and any number of competitors and cable TV companies making up the third 33% in Suburban and Urban density zones.

Q. IN A FORWARD LOOKING ENVIRONMENT, IF FEEDER AND DISTRIBUTION CABLE WERE PLACED ALONG THE SAME ROUTE, WOULD AN ENGINEER DESIGN THE NETWORK TO SHARE FACILITIES?

A. Yes. Good planning engineers have been taught that structures are a high cost limited resource, and all efforts should be made to share that investment not only with other service providers, but to use that resource for both feeder and distribution cables. It makes no sense economically, and is environmentally unsound, to build multiple structures along a cable route. An engineer in a forward-looking environment would certainly not construct duplicate feeder and distribution structures along the same route. Instead, an engineer would design the network to take advantage of the shared facilities where available, and I am sure that BellSouth engineering practices encourage this approach.

Q. HAS BELLSOUTH APPROPRIATELY ACCOUNTED FOR FACILITY SHARING IN ITS MODEL?

A. No. In its model, BellSouth assumes that feeder and distribution cable laid along the route only share the distribution cable structure with the feeder cable structure 25% of the time; according to BellSouth's inputs to BSTLM feeder would require its own unique structure 75% of the time. In a forward-looking environment, such as TELRIC, I would expect facility sharing to occur frequently, and recommend changing this input to

reflect the fact that feeder facilities ride on or in structures already built by distribution plant 75% of the time.

Q. FOR AERIAL STRUCTURE, HAS BELLSOUTH USED A REASONABLE AVERAGE DISTANCE BETWEEN POLES?

A. No. BellSouth claims that it used data it filed with the FCC, as reflected in ARMIS reports, to calculate its average span length between poles. BellSouth's witness, Ms. Caldwell suggests that if what she deems to be a reasonable average of 1.5 cable sheaths per pole line were considered, then a realistic actual average aerial span length between poles in Florida would be only 75 feet. BellSouth then claims that it is offering a very conservative number at 120 feet between poles for Rural, Suburban, and Urban density zones. Although BellSouth purports to support its input value with (ARMIS) numbers, it does not appear to pass the "red-face" test. One of the easiest things to observe is the nature of aerial plant because it is readily visible to anyone. My observations during visits to Florida are that span lengths are much longer than 75 feet or even 120 feet. This is consistent with other opinions around the country. Even BellSouth agreed with BCPM inputs supported by it before the FCC in 1998. In its *Final Inputs Order*, the FCC stated:

> §214. … We proposed to use the following values for the distance between poles: 250 feet for density zones 1 and 2; 200 feet for zones 3 and 4; 175 feet for zones 5 and 6; and 150 feet for zones 7, 8, and 9. For the most part, these

values are consistent with both the HAI and BCPM defaults.

Since there is no FCC, BCPM, or HAI distance less than 150 feet between poles, BellSouth's claim of 75 feet, 112 feet, and even 120 feet average span length between poles in far out of line. A simple average of the generally accepted span lengths equals 189 feet. Mr. Pitkin performed an average based on sheath feet of cable produced by BSTLM, and the weighted average came out to be 184 feet. Therefore, I propose 184 feet be used in the BSTLM inputs for this case.

Q. WHAT COMMON TEST CAN BE PERFORMED TO CHECK ON SPAN DISTANCES BETWEEN POLES?

A. An easy observation is to go into one or more areas of Florida that have pole lines. Using the odometer in an automobile, one can count the number of poles per mile. It is then simple to divide 5,280 feet per mile by the number of aerial spans between poles observed. For example, an average of 184 feet between poles would equate to observing approximately 30 poles in a mile (29 spans). By contrast, Ms. Caldwell's claim of 75 feet between poles would mean one would have to observe 71 poles in a mile (70 spans).

Q. HAS BELLSOUTH PROPOSED APPROPRIATE INTERVALS FOR DOWNGUYS AND ANCHORS?

A. No. In order to stabilize pole lines, anchors are sunk into the ground and downguys are attached from the earth anchor to the cable point of connection at the end of a run of poles (there may also be an infrequent occasion where a sharp bend in the road requires downguy/anchor stabilization). In my experience, downguys and anchors should be expected to occur about every 1,000 to 1,200 feet. In fact, developers of BellSouth's BSTLM agree with that, and included a default value of 1,200-foot spans. The BSTLM Methodology Manual states the following at page 72:

> The Investment Process calculates anchors, guys, and poles on a per foot basis. Per foot development assumes an average span of 1200 feet to determine the number of anchors and guys needed. For poles, it is assumed that one pole is on each end of the span with poles spaced in between based on values in the aerial spacing table. Once the investment is determined for an average span, it is divided by 1200 to put it on a per foot basis. This per foot value is then applied to each foot of aerial distance.

Even in the face of common industry knowledge, BellSouth elected to change this input value to 500 feet, from a reasonable value of 1,200 feet. BellSouth does not offer any evidence to support the change. In testimony, Ms. Caldwell makes the statement (at page 15), "Anchor and guy spacing is estimated to be every 500 feet (roughly every 4 poles) and manhole spacing is assumed to be every 625 feet based on subject matter

expert estimates." BellSouth does not identify the expert, nor does it offer the expert up for cross-examination. There is no evidence or validation provided by BellSouth for changing this 1200-foot anchor/guy span length, and this Commission should order BellSouth to return this input to 1200 feet.

Q. PLEASE SUMMARIZE YOUR POSITION ON STRUCTURE COSTS:

A. In general, I believe this Commission can use most of BellSouth's Attachment 3 raw data, exclude inappropriate items, fix BellSouth errors, and reach conclusions about reasonable bottoms-up inputs on most structure items. BellSouth attempts to recover its non-TELRIC embedded costs by spreading inappropriate costs across categories, and by applying inappropriate costs within a category (what I have described as a mismatch between numerator and denominator). Those costs can be readily removed, as I suggest in this testimony. Costs for Aerial Structures (Poles) and costs for manholes can also be fixed in that manner. In addition, BellSouth claims that it cannot distinguish between types and kinds of structure excavation costs for Buried, Underground Conduit, and Manhole costs. This is not correct. By including a reasonable cost for the plowing of cable, which BellSouth has omitted, and by properly allocating individual discrete Cut & Restore costs for Asphalt, Concrete, and Sod, different costs can be determined by density zone in a valid logical

method. This is in stark contrast to using BellSouth's high cost Underground Boring costs as a "fudge factor" to cause differences by density zone. There is enough information in this case to justify the Commission adopting my bottoms-up structure input recommendations, primarily using BellSouth's own data, as defined by this testimony.

V. BELLSOUTH'S COPPER CABLE INPUTS FAIL TO SATISFY THE COMMISSION'S REQUIREMENTS AND REFLECTS UNACCEPTABLY POOR PRODUCTIVITY

Q. IN ITS UNE ORDER, WHAT DID THIS COMMISSION DIRECT BELLSOUTH TO DO ABOUT COPPER CABLE COSTS?

A. This Commission ordered BellSouth to refile a cost model that includes a bottoms-up approach to copper cable costs, rather than using a linear EF&I factor. Specifically, the *FL UNE Order* stated,

> Upon review, it appears that BellSouth's use of linear loading factors, while easy for BellSouth to apply, can generate questionable results, especially in light of deaveraged rates ... no economies of scale for exempt material, engineering, or labor, for example, ever occur. It seems very unlikely that there are no economies generated as cable sizes grow larger. (*FL UNE Order* at 282).

> [E]specially recognizing the capability of the model and the fact that loops and loop type items are being deaveraged, it is disconcerting that BellSouth did not avail itself of the model's flexibility. (*FL UNE Order* at 283).

> [I]n order to determine the magnitude of discrepancies between using a loading factor approach as opposed to a "bottoms up" approach for placements of plant directly related to the loops and loop type items, we shall require BellSouth to refile the BSTLM within 120 days from the issuance of this order explicitly modeling all cable and associated supporting structure, engineering, and installation placements (*FL UNE Order* at 284).

Q. WHAT METHOD HAS BELLSOUTH USED TO CAPTURE COPPER CABLE PLACING COSTS IN THE REFILING OF ITS COST MODEL?

A. BellSouth has ignored the Commission's *FL UNE Order*, has failed to avail itself of BSTLM's flexibility, and has filed costs using a linear Cable Placing Factor. Although BellSouth filled in a few of the BSTLM placing inputs, its failure to populate placing setup times with forward looking (or any) values ignores the model's capability to perform a bottoms-up approach, and results in a linear loading factor.

Q. HOW CAN FAILURE TO POPULATE ONE OF THE COPPER CABLE PLACING INPUTS END UP RESULTING IN A LINEAR LOADING FACTOR?

A. I was surprised to see that BellSouth did not follow the typical industry standard *Fixed Setup Time plus Cable Feet Placed Per Day* method of estimating outside plant costs - a method built into BSTLM. In my

opinion, it is reasonable to expect BellSouth to encounter 15 minutes of travel time, and 30 minutes of setup time for cable placing operations, using a 2-technician crew size for underground placing and a 1-technician crew size for buried and aerial placing. I would expect an underground placing crew to place approximately 3,000 feet of cable per day, a buried crew to place approximately 8,000 feet of cable per day, and an aerial crew to place approximately 5,000 feet per day.

As indicated in Attachment JCD-5, I believe that BellSouth's manipulated costs for copper cable placing reflect ***BEGIN PROPRIETARY one hour END PROPRIETARY*** of travel and setup, and a placing rate of ***BEGIN PROPRIETARY 2,800 feet per day. END PROPRIETARY*** (It may be noted that BellSouth does not populate cable placing inputs for buried cable because it contends that cable placing is performed as part of the excavation contractors costs). Such a productivity figure for placing underground and aerial cables is less than I would expect of a competitive, well managed company, but is still not totally unreasonable if such setup and feet per day productivity inputs were actually used via the proper inputs to the model, which they are not.

The reason why BellSouth's method fails is simple. The result of BellSouth combining setup costs into a Cable Feet Placed per Day productivity figure is equivalent to BellSouth assuming that its technicians will travel to the work site, place 100 feet of cable, and stop work. The

work crew would then travel to another work site, place 100 feet of cable, and stop work. It would then travel to a third work site, place 100 feet of cable, and return to the garage. Alternatively, the result would be that a work crew would travel to a work site, perform setup operations, place only ***BEGIN PROPRIETARY 640 END PROPRIETARY*** feet of cable, and quit for the day. That level represents absurdly poor productivity, and equates to placing only***BEGIN PROPRIETARY one manhole-to-manhole section END PROPRIETARY*** of underground cable, or less than ***BEGIN PROPRIETARY one half of one 1200-foot long Suburban block END PROPRIETARY*** of aerial cable for the day. This is inconsistent with TELRIC principles and inconsistent with my experience.

Q. WHAT DO YOU RECOMMEND?

A. This Commission should compel BellSouth to comply with its *FL UNE Order* and file a bottoms-up cable placing inputs with reasonable productivity numbers.

Q. WHAT METHOD HAS BELLSOUTH USED TO CAPTURE COPPER CABLE SPLICING COSTS IN THE REFILING OF ITS COST MODEL?

A. As it did in the copper cable placing portion of the model, BellSouth failed to utilize the travel and setup time in its copper cable splicing portion of the model. The result of BellSouth combining setup costs into a Copper Cable Pairs Spliced per Hour productivity figure is equivalent to the creation of a linear Loading Factor.

In the case of any copper cable larger than 100 pairs, such as splicing a 200-pair cable, BellSouth's model creates costs equivalent to traveling to the job location, preparing the splice, splicing 100 pairs, closing up the splice case, driving around the block, opening up the same splice case, splicing 100 more pairs, closing up the splice case, and then going home for the day. In the case of a 4200-pair copper cable, the example is simply 42 iterations of the 100-pair splice operation. I illustrate this issue in Attachment JCD-5.

Q. IS BELLSOUTH'S WIREWORK RATE FOR SPLICING INDIVIDUAL COPPER PAIRS ADEQUATE?

A. No. As prescribed by BellSouth, the wire work splicing rate of pairs per hour works out to a consistent ***BEGIN PROPRIETARY 76 END

PROPRIETARY* pairs per hour, which is unacceptable because it indicates extremely poor productivity.

Q. WHAT COPPER SPLICING RATE SHOULD BE USED IN THE BSTLM?

A. I recommend a conservative rate of 250 pairs per hour be used.

Q. ARE YOU QUALIFIED TO RENDER AN OPINION ON COPPER SPLICING RATES, AND IF SO, WHAT IS YOUR OPINION REGARDING AN ACCEPTABLE RATE OF PAIRS SPLICED PER HOUR, EXCLUSIVE OF TRAVEL, SETUP, AND CLOSURE TIMES?

A. Yes, I am very qualified to address copper cable splicing rates. The technology of performing modular splicing in 25-pair increments has existed since approximately 1970, and is a mature technology still being used every day. Splicing copper cable involves sorting out color-coded wires into a color coded "comb" that separates the wires in a standard 25-pair group prior to splicing. When all 25-pairs are sorted by color, then a pneumatic press seats the wire pairs into a 25-pair connector and cuts off the unnecessary ends of the wires flush with the connector, leaving the pairs terminated in a connector. The same function is performed on the wires to be matched to the first 25 pairs. The connectors are then snapped

together. I personally can continuously perform wire-splicing operations at a rate in excess of 500 pairs per hour using standard modular splicing methods.

Q. DO YOU HAVE ANY DOCUMENTATION TO SUPPORT SUCH HIGH SPLICING RATES?

A. Yes. Attachment JCD-6 is a letter from the AMP Corporation - one of the manufacturers of such modular cable splicing equipment and modules. In that letter, AMP indicates that a rate of 300 pairs per hour is readily achievable, and that it is not unusual to observe rates in excess of 500 pairs per hour.

Q. WHAT DID THE FCC DECIDE IN ITS FINAL INPUT ORDER?

A. During the FCC's USF deliberations, I introduced a retired splicing instructor to the FCC Staff. That instructor performed a splicing demonstration, taught members of staff to splice, and told them that when teaching copper splicing, he would not graduate a student who could not demonstrate a sustained splicing rate of at least 300 pairs per hour. The FCC found that rate to be reasonable, but in consideration that splicing conditions may not always be optimal, decided that a rate of 250 pairs per hour was a reasonable input value. The FCC's *Final Input Order* states:

§218. We also conclude that the record demonstrates that a splicing rate of 250 pairs is reasonable, and adopt it accordingly. As we explained in the *Inputs Further Notice*, the HAI sponsors proposed a splicing rate of 300 pairs per hour, while Sprint argued for a splicing rate of 100 pairs per hour. We believed that HAI's proposed rate was a reasonable splicing rate under optimal conditions, and therefore, we tentatively concluded that Sprint's proposed rate was too low. We noted that the HAI sponsors submitted a letter from AMP Corporation, a leading manufacturer of wire connectors, in support of the HAI rate. We recognized, however, that splicing under average conditions does not always offer the same achievable level of productivity as suggested by the HAI sponsors. For example, splicing is not typically accomplished under controlled lighting or on a worktable. Having accounted for such variables, we proposed a splicing rate of 250 pairs per hour.

I am prepared to make the same demonstration to this Commission during this hearing.

Q. WHAT IS YOUR OPINION REGARDING BELLSOUTH'S COSTS RELATED TO THE USE OF COPPER CABLE STUBS IN UNDERGROUND COPPER CABLE CONSTRUCTION?

A. For underground copper cable, BellSouth doubles the cost of copper cable splicing at every splice point to allegedly account for copper cable stubs. A copper splice case is limited to four entrance/exit holes. A copper stub cable is required only if more than four entrance/exit holes are needed. This is a very unusual situation. Please see Attachment JCD-7 to view a diagram representing proper use of cable stubs.

Normally, one cable enters a splice case, and if the splice is a simple straight-splice (because the length limit for a particular size cable on one reel has been reached), then one cable exits the splice case, which requires use of two holes.

If the splice point is a branch point, then one cable enters the splice case from the central office, one cable exits the splice case to serve a side-leg branch off the main cable path, and one cable exits the splice case to continue on down the main cable path, which requires use of three holes. BSTLM never requires more than this 3-way splice configuration, so a cable stub is never required. BSTLM documentation states the following:

> The model will place a splice at each point at which the cable changes size. Splicing can occur at any plant locations (DTBT, FDI, and DLC). In addition to these plant locations, the model will place a splice at each junction point of the network. A junction point typically represents a road intersection where the cable splits into two directions. This would occur where a road segment intersects a perpendicular road segment forming a "T." Junction points are noted in the data as JCTN. [BSTLM Methodologies Manual, pages 61-62]

Because no more than 3 cables exist at any splice point in BSTLM, therefore copper cable stubs are unnecessary, and the Commission should order BellSouth to remove any cable stub costs.

For information only, the following is provided to explain why a cable stub might be required, even though BSTLM does not construct outside plant in such a way.

If the splice point is unusual by having a double branch point, then one cable enters the splice case, two side-leg branch cables exit the splice case, and one cable exits the splice case to continue on down the main cable path.

If, for some reason, more than four holes are required, such as, for example bridged tapping pairs (which should not be done in a forward-looking construct), then a method is required to allow more than four splice case entrance/exit points. That is accomplished by having one splice case contain the entering cable (from the central office), two branch cables, and the fourth hole contains a short piece of cable called a cable stub that contains the remaining unused cable pairs. The other end of that short cable stub becomes the entrance cable for another splice case in the same manhole, so that up to two more branch cables can sprout from the one location, while the final remaining pairs continue straight on. This very complex arrangement is seldom used, has no place in a TELRIC model, and in fact is completely unnecessary in BSTLM because there are never more than three holes used in any one splice case.

Q. WHAT DO YOU RECOMMEND?

A. The Commission should re-order BellSouth to file a bottoms-up cable splicing model, using reasonable travel, setup and closure inputs for which I recommend 2 hours for splice setup and closure. In addition, the Commission should require BellSouth to use an input representing a

splicing rate of 250 pairs per hour, which would be 0.40 hours per 100 pairs, and to remove all cable stub costs.

Q. WHAT OTHER ISSUES HAVE YOU FOUND WITH BELLSOUTH'S COPPER CABLE SPLICING COSTS?

A. As stated in the Engineering Section of this testimony, BellSouth's inputs should be adjusted to reflect a 10% Engineering Loading Factor. In addition, there are also several issues involving miscellaneous material related costs.

In his testimony, Mr. Pitkin identifies several model coding errors associated with the application of Material Loading Factors. I will address several inputs-related issues. BellSouth's Material Loading Factor includes the following categories:

1. Miscellaneous Material Rate
2. Other - Plant Labor - Indirect Salaries, Benefits, and Other
3. Other - Interest During Construction Items
4. Right-of-Way Items
5. Supply Expense Rate
6. Tax Rate
7. Inflation

I will address issues with the first three items.

Q. WHAT IS THE MISCELLANEOUS MATERIAL RATE AND HOW IS IT NORMALLY HANDLED BY MAJOR TELEPHONE COMPANIES?

A. The Miscellaneous Material Rate represents what is normally called Exempt Material. The FCC System of Accounts requires major telephone companies to do "cradle to grave" tracking of certain investments, such as telephone poles, feet of cable, and manholes. Other less expensive items are tracked in a less detailed manner. These "nuts & bolts" items are known as Exempt Material, because they are exempt from being tracked individually in telephone company's Continuing Property Records. For decades, major telephone companies, with the FCC's approval, have found it most appropriate to track exempt material as a component of the technician's fully loaded labor rate. The exempt material load on labor is normally computed by conducting an audit of technician Exempt Material usage every two years. During the study period, a sample group of technicians keeps track of every single item of material that they use over the course of one to two weeks - down to the nut and bolt level in many companies. That data is then related to the hours expended, and an exempt material clearing rate is established. As a major telephone company purchases minor items of material, the cost is kept in a holding account. Dollars are cleared out of the holding account, and into Final Plant Accounts, such as Aerial Copper Cable, on the basis of the number

of hours charged to each particular Final Plant Account. In that manner, costs for minor materials are cleared to the final books of account.

I have observed the exempt material component of fully loaded labor rates for many years in my work, and among a variety of major telephone companies. That labor load component normally varies between ***BEGIN PROPRIETARY $6.00 and $10.00 END PROPRIETARY*** per hour for cable splicing technicians and cable placing technicians.

Q. HOW HAS BELLSOUTH INCLUDED EXEMPT MATERIAL IN ITS COST MODEL?

A. BellSouth has included Exempt Material/Miscellaneous Material as a percentage loading on Non-Exempt Material. This is not the manner in which major telephone companies handle this cost. In fact, the testimony of BellSouth's witness, Ms. Caldwell, indicates that this is not the method used to account for Exempt Material by BellSouth (Mr. Pitkin explicitly cites Ms. Caldwell's Reply Affidavit before the FCC in the Georgia 271 proceeding as providing substantial evidence in this regard).

In addition, on its surface, the Miscellaneous Material Rate filed by BellSouth in this proceeding appears to be unreasonably high. However, I have not been able to do a direct analysis against a labor loading rate method, because by improperly treating Exempt Material as a load on

Non-Exempt Material, BellSouth has created an "apples to oranges" problem. In addition, BellSouth has failed to comply with this Commission's order to create a bottoms-up approach to address the Commission's concern that BellSouth's use of linear loading factors reflects no economies of scale for exempt material.

I believe that Exempt Material is already included in the fully loaded labor rate proposed by BellSouth, and that the Miscellaneous Material Rate proposed by BellSouth should be disallowed as double counting.

In the alternative, if Exempt Material can be proven by BellSouth to have been excluded from its proposed fully loaded labor rate with adequate supporting evidence, then I recommend that this Commission adopt a reasonable Exempt Material load on labor not to exceed 20% of direct labor costs (***BEGIN PROPRIETARY** Use of 20% represents the high end of the $6.00 and $10.00 per hour when added to BellSouth's fully loaded labor rate as used in its filed costs. **END PROPRIETARY***).

Q. WHAT CONCERNS DO YOU HAVE WITH BELLSOUTH'S USE OF A FACTOR FOR "OTHER - PLANT LABOR - INDIRECT SALARIES, BENEFITS, AND OTHER"?

A. It is unacceptable to include other plant labor, indirect salaries, benefits, and other expenses as a load on Non-Exempt Material. First, direct supervision and other indirect expenses are already components of BellSouth's fully loaded labor rate, and including them as another loading on Non-Exempt Material results in double counting and over-recovery. Second, these costs are not part of the material procurement organization, because large telephone companies book those costs as part of Supply Expense, which is already an uncontested loading being applied by BellSouth as a separate component. Therefore, I conclude that any application by BellSouth of Other-Plant Labor-Indirect Salaries, Benefits, and Other is a double count of expenses that would result in over-recovery, and this Commission should disallow this loading.

Q. WHAT CONCERNS DO YOU HAVE ABOUT BELLSOUTH'S PROPOSED LOADING OF "INTEREST DURING CONSTRUCTION" ONTO NON-EXEMPT MATERIAL?

A. As Mr. Pitkin indicates in his testimony, we have elected to not alter some of BellSouth's proposed Material Loading Factor items. In particular, I believe that BellSouth has included Interest During Construction in an improper manner. Interest During Construction has unique application to

large regulated telecommunications companies under FCC Uniform System of Accounts practices. I believe that BellSouth inputs have misapplied such a charge in this case. I urge this Commission to require BellSouth to produce all necessary information to determine exactly what items are included in its Interest During Construction Factor, including the source of this cost, how interest during construction is calculated, and what it is applied to, on a detailed basis.

VI. BELLSOUTH'S FIBER CABLE INPUTS FAIL TO SATISFY THE COMMISSION'S REQUIREMENTS

Q. PLEASE IDENTIFY YOUR CRITICISMS REGARDING BELLSOUTH'S FIBER CABLE INPUTS IN GENERAL.

A. BellSouth's inputs for fiber optic cable generally suffer from the same problems as BellSouth's copper cable inputs. Specifically, BellSouth does not have separate cable placing setup and cable placing productivity parameters; there are no separate splicing setup and fiber splicing productivity parameters; the Miscellaneous Material loading on Non-Exempt Material is inappropriate; Other-Plant Labor-Indirect Salary, Benefits, and Other loading on Non-Exempt Material is inappropriate, Interest During Construction is inappropriate, and BellSouth's 35.72% Engineering linear loading factor absurdly high.

Q. WHAT DO YOU RECOMMEND?

A. I recommend the following:

1) Reduce the Engineering Linear Loading Factor to 10%;

2) Remove Miscellaneous Material loading on Non-Exempt Material. If BellSouth adequately demonstrates, with hard evidence, that Exempt Material is not included in its fully loaded labor rate, it should be ordered to provide a rate not to exceed 20% of direct labor hour costs.

3) Disallow Other-Plant Labor-Indirect Salary, Benefits, and Other loading on Non-Exempt material, and order BellSouth to produce all necessary information to determine exactly what items are included in its Interest During Construction Factor, including the source of this cost, how interest during construction is calculated, and what it is applied to, on a detailed basis.

4) Direct BellSouth to use the appropriate BSTLM inputs for fiber cable placing, splicing and productivity minutes. BellSouth should be directed to utilize the inputs available in BSTLM to populate separate costs for setup under fiber cable placing and under fiber cable splicing, as well as productivity costs based on Minutes per Fiber Spliced (i.e., Hours per Fiber Strand Spliced). Absent BellSouth data, I recommend Fiber Cable Placing values of 45 minutes for Travel and Setup; a Fiber Cable Placing rate equivalent to 3,000 feet per day for Underground, 8,000 feet

per day for Buried, and 5,000 feet per day for Aerial; a Fiber Travel and Setup of 2 hours, and a Fiber Splicing productivity rate of 5 minutes per fiber strand spliced.

Interestingly, my recommendation for fiber splicing results in a higher cost per fiber splice than recommended by BellSouth. However, my estimate of 2 hours plus 6 minutes per fiber is a fair representation of industry norms regarding the splicing of fiber optic cables.

Q. DO YOU HAVE ANY OTHER UNIQUE FIBER OPTIC CABLE RELATED CONCERNS WITH BELLSOUTH'S SUBMISSION?

A. Yes. A few days ago, BellSouth provided AT&T/WorldCom with a method, via discovery in the current Georgia UNE case, on how to determine the average distance between copper splices and the average distance between fiber cable splices produced by BSTLM. Mr. Pitkin has applied that method to the BSTLM filed in Florida, and results indicate an absurdly short distance between fiber cable splices. Because the outcome is so unusual, we will be going back to BellSouth to question the methodology that it has provided to determine distance between splices. I believe it would be more equitable to give BellSouth a chance to re-examine this method, and I would like to reserve the opportunity to address average distance between fiber splices, at a later date, if it is truly a significant issue.

Q. DOES THAT CONCLUDE YOUR TESTIMONY?

A. Yes.

Miscellaneous

Orig Order 1	CWI TOTAL DOLLARS TABLE - OSPCM DATA Usage time Price CWI	State Description	Sec	Title	CostCode	State CountCode	FL FLTotal	FL FLUsage	FL FLPrice	Notes
552	E108A	1 TON TRUCK - LC	10	"B" Equip	Misc		$309.60	18	$17.20	BellSouth notes all of these line items with, "Distribute to all items." This is an obvious attempt at a "Closure Factor" to load up costs with non-TELRIC miscellaneous embedded costs that have no direct correlation with infrastructure construction, and may likely be used for maintenance and other operations not part of investments.
494	E001A	1 TON TRUCK OR LESS	10	"B" Equip	Misc		$941,435.73	113,308	$8.31	
495	E004A	1-1/2 TO 2 TON TRUCK	10	"B" Equip	Misc		$225,083.93	22,669	$9.93	
499	E012A	2 TO 3" WATER PUMP	10	"B" Equip	Misc		$27,086.48	4,555	$5.95	
496	E006A	2 TON < TRUCK W/WINCH	10	"B" Equip	Misc		$389.68	28	$13.92	
548	E101A	2 TON TRUCK - LC	10	"B" Equip	Misc		$998.34	26	$38.40	
500	E014A	4" WATER PUMP	10	"B" Equip	Misc		$4,147.88	405	$10.24	
501	E016A	6" WATER PUMP	10	"B" Equip	Misc		$15,074.19	429	$35.14	
498	E010A	AIR COMPRESSOR	10	"B" Equip	Misc		$132,848.35	6,999	$18.98	
514	E042A	ASP/CONCRETE SAW	10	"B" Equip	Misc		$3,752.79	250	$15.01	
538	E088A	ASPHALT ROLLER	10	"B" Equip	Misc		$305.86	3	$101.95	
507	E028A	BACKHOE RUBBER	10	"B" Equip	Misc		$551,303.52	15,893	$34.69	
522	E056A	BLOWER	10	"B" Equip	Misc		$5,147.25	1,306	$3.94	
504	E022A	BORING MACHINE	10	"B" Equip	Misc		$1,663.78	73	$22.79	
505	E024A	BULLDOZER	10	"B" Equip	Misc		$612.08	10	$61.21	
549	E102A	BUSH CHIPPER - LC	10	"B" Equip	Misc		$235.54	22	$10.71	
518	E050A	CABLE PLOW	10	"B" Equip	Misc		$123.96	4	$30.99	
524	E060A	CHAIN SAW	10	"B" Equip	Misc		$522.85	64	$8.17	
491	L012B	CLIMBER HELPER	9	"B" Labor	Misc		$126.60	4	$31.65	
490	L012A	CLIMBER HELPER	9	"B" Labor	Misc		$679.58	34	$19.99	
489	L010B	CLIMBER/WKING LDER	9	"B" Labor	Misc		$94.96	2	$47.48	
488	L010A	CLIMBER/WKING LDER	9	"B" Labor	Misc		$448.16	21	$21.34	
537	E086A	CONCRETE BARRIER	10	"B" Equip	Misc		$13,083.04	252	$51.92	
517	E048A	CRAWLER BACKHOE	10	"B" Equip	Misc		$16,610.07	308	$53.93	
534	E079A	DIRECT BORING MACHINE	10	"B" Equip	Misc		$8,267.22	43	$192.26	
527	E066A	DUCT RODS/SET	10	"B" Equip	Misc		$855.87	9	$95.10	
519	E052A	DUMP UP TO 2-1/2 TON	10	"B" Equip	Misc		$8,438.31	447	$18.88	
526	E064A	ELEC SAW/DRILL	10	"B" Equip	Misc		$335.09	64	$5.24	
528	E068A	ELECTRIC HAMMER	10	"B" Equip	Misc		$4,486.95	51	$87.98	
486	L004A	FLAGGER	9	"B" Labor	Misc		$24,614.10	1,254	$19.63	
493	L014B	FLAGGER TREE TRIM	9	"B" Labor	Misc		$105.52	4	$26.38	
492	L014A	FLAGGER TREE TRIM	9	"B" Labor	Misc		$1,108.10	70	$15.83	
487	L004B	FLAGMAN	9	"B" Labor	Misc		$4,310.68	161	$26.77	
520	E054A	FORK LIFT	10	"B" Equip	Misc		$794.43	21	$37.83	

Note: Line items with zero cost and zero quantity have been removed by AT12:45 PM and WorldCom for clarity.

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Orig Order 1	CWI TOTAL DOLLARS TABLE - OSPCM DATA Usage time Price CWI	State Description	Sec	Title	CostCode	State CountCode	FL FLTotal	FL FLUsage	FL FLPrice	Notes
482	L001B	FRM/OPER/WKING LDER	9	"B" Labor	Misc		$653,429.00	21,510	$30.38	
481	L001A	FRM/OPER/WKING LDER	9	"B" Labor	Misc		$2,299,841.54	111,452	$20.64	
515	E044A	FRONT END LOADER	10	"B" Equip	Misc		$12,621.54	243	$51.94	
513	E040A	GENERATOR > 2000W	10	"B" Equip	Misc		$744.98	53	$14.06	
512	E038A	GENERATOR 2000W <	10	"B" Equip	Misc		$911.47	160	$5.70	
532	E076A	HIGH INTENSITY LIGHT	10	"B" Equip	Misc		$2,595.05	86	$30.18	
531	E074A	HIGHWAY SIGNAL	10	"B" Equip	Misc		$17,284.24	2,121	$8.15	
525	E062A	HOE RAM ATTACH	10	"B" Equip	Misc		$184.45	7	$26.35	
550	E104A	HYD DUMP TRUCK - LC	10	"B" Equip	Misc		$77.84	8	$9.73	
509	E032A	HYD POLE TRUCK	10	"B" Equip	Misc		$77,891.86	1,540	$50.58	
484	L002B	LABORER	9	"B" Labor	Misc		$432,939.04	18,117	$23.90	
483	L002A	LABORER	9	"B" Labor	Misc		$1,450,110.19	89,946	$16.12	
516	E046A	MANTA RAY ANCHOR	10	"B" Equip	Misc		$87.60	4	$21.90	
508	E030A	MINI BACKHOE	10	"B" Equip	Misc		$139,410.93	4,856	$28.71	
546	E097A	None	10	"B" Mach	Misc		$15,726.00	91	$172.81	
547	E097B	None	10	"B" Mach	Misc		$37,111.25	300	$123.70	
543	E094A	PLATE SPLICE PIT	10	"B" Equip	Misc		$2,372.52	698	$3.40	
502	E018A	POLE/CA TRAILER	10	"B" Equip	Misc		$2,391.72	446	$5.36	
485	L003A	POLICE OFFICER	9	"B" Labor	Misc		$18,171.37	533	$34.09	
497	E008A	RD TRACTOR W/SEMI TRAILER	10	"B" Equip	Misc		$1,183.22	49	$24.15	
541	E092A	SAFETY LIGHT	10	"B" Equip	Misc		$235,685.86	63,886	$3.69	
544	E096A	SHORE PIT 80 CUFT OR <	10	"B" Equip	Misc		$2,070.93	9	$230.10	
545	E096B	SHORE PIT ADD 25 CUFT	10	"B" Equip	Misc		$1,672.92	44	$38.02	
539	E090A	SPLICE PIT PROTECTION	10	"B" Equip	Misc		$354,148.26	30,341	$11.67	
540	E090B	SPLICE PIT PROTECTION ADD	10	"B" Equip	Misc		$1,316.73	151	$8.72	
553	E110A	STUMP GRINDER - LC	10	"B" Equip	Misc		$1,582.08	26	$60.85	
510	E034A	TAMPER	10	"B" Equip	Misc		$2,238.00	404	$5.54	
503	E020A	TRENCHER	10	"B" Equip	Misc		$5,537.33	178	$31.11	
535	E080A	WELL POINT 20 OR <	10	"B" Equip	Misc		$33,284.16	91	$365.76	
536	E082A	WELL POINT ADD PT	10	"B" Equip	Misc		$53.77	1	$53.77	
							$7,798,076.34			

Note: Line items with zero cost and zero quantity have been removed by AT12:45 PM and WorldCom for clarity.

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Pole Labor

Orig Order	CWI TOTAL DOLLARS TABLE - OSPCM DATA Usage time Price									
1	CWI	State Description	Sec	Title	CostCode	State CountCode	FL FLTotal	FL FLUsage	FL FLPrice	Notes
8	P110A	PL POLE/POWER	1	Poles	PoleLab		$39,385.27	0		ERROR IN USE OF DATA: BellSouth Includes these pole installation costs of $137,927.86 without pole counts into the total calculation of Pole Labor.
9	P112A	PL CARRY-IN POLE	1	Poles	PoleLab		$98,542.59	0		
6	P003A	PLACE POLE	1	Poles	PoleLab	PoleLab	$1,735.30	2	$867.65	PoleLab [Pole Labor] correct calculation should be based on this data of $532,862.43 divided by 3,608 Poles = $147.69/Pole, rather than BellSouth's incorrect calculation of $137,927.86 + $532,862.43 = $670,790.29 divided by only 3,608 Poles = $185.92 (as shown in the 'Summary' tab to this Excel Workbook file.
4	P002A	PLACE POLE	1	Poles	PoleLab	PoleLab	$7,297.44	39	$187.11	
5	P002B	PLACE POLE	1	Poles	PoleLab	PoleLab	$50,566.04	255	$198.30	
3	P001B	PLACE POLE	1	Poles	PoleLab	PoleLab	$172,384.97	1,321	$130.50	
2	P001A	PLACE POLE	1	Poles	PoleLab	PoleLab	$300,878.68	1,991	$151.12	

Note: Line items with zero cost and zero quantity have been removed by AT12:45 PM and WorldCom for clarity.

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Restoration

Org Order 1	CWI	State Description	Sec	Title	CostCode	State CountCode	FL FLTotal	FL FLUsage	FL FLPrice	Notes
CWI TOTAL DOLLARS TABLE - OSPCM DATA Usage time Price										
400	R004A	REMOVE ASPHALT	7	Rest	Restore		$49,857.22	89,756	$0.56	*BellSouth notes all of these line items with, "This should be applied to all."*
401	R004B	RESTORE ASPHALT	7	Rest	Restore		$233,080.77	84,538	$2.76	This potpourri of costs (that even includes "corregated pipe", and applies
435	RG01A	REST ASPHALT DRIVE	7	Rest	Restore		$436,277.07	73,309	$5.95	'Restoration' to Boring which is done to avoid the need for restoration)
436	RG02A	REST ASPHALT STREET	7	Rest	Restore		$643,922.04	95,463	$6.75	provides some data that can be useful to BSTLM for identifying the
437	RG03A	REST ASPHALT ST. ROAD	7	Rest	Restore		$9,785.16	960	$10.19	incremental cost of cutting and restoring Asphalt, *cutting and restoring*
438	RG03B	REST ASPHALT ST. ROAD	7	Rest	Restore		$26,751.69	2,189	$12.22	Concrete, and cutting and restoring Sod. In addition, it is inappropriate to
412	R024A	F&P ASPHALT 1-3000'	7	Rest	Restore		$11,718.91	4,971	$2.36	simply smear the dollars over costs, rather than allocating costs on a per
413	R024B	F&P ASPHALT 3001' OR >	7	Rest	Restore		$51,417.83	32,223	$1.60	footage basis. *Therefore, AT&T/WorldCom recommends the following costs*
							$1,462,810.69	383,409	$3.82	be used on a per foot basis:
402	R006A	REMOVE 4" CONCRETE	7	Rest	Restore		$62,935.35	83,199	$0.76	Remove & Restore Asphalt = $3.82
403	R006B	REMOVE 6" CONCRETE	7	Rest	Restore		$12,551.96	12,837	$0.98	
404	R007A	REMO ADDL 2" CONCRETE	7	Rest	Restore		$291.32	721	$0.40	Remove & Restore Concrete = $2.56/ft.
419	R032A	F&R 4" CONCRETE	7	Rest	Restore		$362,255.05	86,829	$4.17	
420	R032B	F&R 6" CONCRETE	7	Rest	Restore		$69,777.36	14,717	$4.74	Remove & Restore Sod = $0.79/ft.
414	R026A	F&R ADDL 2" CONCRETE	7	Rest	Restore		$441.24	156	$2.83	
							$508,252.28	198,459	$2.56	
434	R044A	F&P SOD	7	Rest	Restore		$592,309.82	747,041	$0.79	
424	R040C	F&P CONC PIPE 18"	7	Rest	Restore		$2,798.08	32	$87.44	Extra miscellaneous charges.
426	R040E	F&P CONC PIPE 30"	7	Rest	Restore		$4,753.20	40	$118.83	
428	R042A	F&P CORR PIPE 12"	7	Rest	Restore		$1,583.16	48	$32.98	
429	R042B	F&P CORR PIPE 15"	7	Rest	Restore		$4,358.56	92	$47.38	
430	R042C	F&P CORR PIPE 18"	7	Rest	Restore		$7,811.34	249	$31.37	
431	R042D	F&P CORR PIPE 24"	7	Rest	Restore		$1,499.20	40	$37.48	
398	R002A	F&P SEED/MULCH	7	Rest	Restore		$2,474.07	19,260	$0.13	
399	R003A	F&P FILL DIRT	7	Rest	Restore		$57,680.55	2,159	$26.72	
409	R011A	F&P GRAVEL	7	Rest	Restore		$92,971.14	124,814	$0.74	
410	R011B	F&S GRAVEL	7	Rest	Restore		$9,628.33	15,006	$0.64	
411	R020A	F&P 1-10 FILL	7	Rest	Restore		$300,019.71	25,302	$11.86	
407	R008B	REMO COB/SLATE/BRICK	7	Rest	Restore		$363.39	209	$1.74	
397	R001A	F&R COB/SLATE/BRICK	7	Rest	Restore		$2,669.61	233	$11.46	
405	R007B	REMO CONCRETE CURB	7	Rest	Restore		$1,164.69	384	$3.03	
406	R008A	REMO MON CONC CURB	7	Rest	Restore		$1,442.23	523	$2.76	
417	R030A	F&P CONCRETE CURB	7	Rest	Restore		$6,439.49	378	$17.04	
418	R030B	F&P MON CONC CURB	7	Rest	Restore		$15,587.72	612	$25.47	
							$3,053,813.72	1,517,789	$2.01	

Note: Line items with zero cost and zero quantity have been removed by AT12:45 PM and WorldCom for clarity.

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Buried Splice Pits

Org Order 1	CWI TOTAL DOLLARS TABLE - OSPCM DATA Usage time Price CWI	State Description	Sec	Title	CostCode	State CountCode	FL FLTotal	FL FLUsage	FL FLPrice	Notes
253	S006A	SHORING SPLICE PIT	4	Pits	BurSplice		$17,990.84	390	$46.13	ERROR IN USE OF DATA:
254	S006B	SHORING SPLICE PIT	4	Pits	BurSplice		$24,555.38	1,042	$23.57	BellSouth took the entire cost of $6,490,486.71 and distributed it over its
249	S002C	D&B PIT ADDL CUFT	4	Pits	BurSplice		$44,535.56	737	$60.43	claimed distance footage for BORECA [Bore Buried Cable] and BurCa
252	S005A	SPLICE PIT PROTECTION	4	Pits	BurSplice		$459,783.43	111,997	$4.11	[Buried Cable] operations to claim an additional miscellaneous 'adder' to
246	S001C	D&B PIT ADDL CUFT	4	Pits	BurSplice		$728,265.29	21,643	$33.65	those incorrectly calculated operations. These splice pits are not needed for
243	S000A	DIG ONLY	4	Pits	BurSplice	BurSplice	$0.00	51	$0.00	normal buried splicing operations, as such splices are routinely placed in
247	S002A	D&B SPLICE PIT NEW	4	Pits	BurSplice	BurSplice	$2,808.85	8	$351.11	above ground pedestal closures rather than burying them in the mud. Splice
248	S002B	D&B SPLICE PIT EXISTING	4	Pits	BurSplice	BurSplice	$23,271.93	72	$323.22	pits are normally used to repair cables, not in building infrastructure. These
244	S001A	D&B SPLICE PIT NEW	4	Pits	BurSplice	BurSplice	$386,877.46	2,299	$168.28	costs should be excluded from TELRIC calculations.
245	S001B	D&B SPLICE PIT EXISTING	4	Pits	BurSplice	BurSplice	$4,802,397.97	30,050	$159.81	
							$6,490,486.71			

Note: Line items with zero cost and zero quantity have been removed by AT12:45 PM and WorldCom for clarity.

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Bore Buried Cable

Orig Order	CWI TOTAL DOLLARS TABLE - OSPCM DATA Usage time Price									
1	CWI	State Description	Sec	Title	CostCode	State CountCode	FL FLTotal	FL FLUsage	FL FLPrice	Notes
195	C220A	BORE HOLE	3	Bur Ca	BORECA	BORECA	$425,441.63	35,659	$11.93	BORECA [Buried Bore Cable] correct calculation should be based on this
196	C220B	BORE HOLE	3	Bur Ca	BORECA	BORECA	$470,077.35	33,312	$14.11	data of $7,006,280.37 divided by 498,514 ft. = $14.05/ft., rather than
197	C221A	BORE DRIVEWAY	3	Bur Ca	BORECA	BORECA	$358,566.94	25,980	$13.80	BellSouth's incorrect calculation of $1,580,383.42 + $7,006,280.37 =
198	C221B	BORE DRIVEWAY	3	Bur Ca	BORECA	BORECA	$1,047,968.65	41,505	$25.25	$8,586,663.79 divided by only 498,514 ft. = $17.22/ft.
199	C221C	BORE ROADWAY	3	Bur Ca	BORECA	BORECA	$248,733.52	28,240	$8.81	
200	C221D	BORE ROADWAY	3	Bur Ca	BORECA	BORECA	$998,319.47	85,280	$11.71	
201	C221E	BORE HIGHWAY	3	Bur Ca	BORECA	BORECA	$2,325.60	195	$11.93	
202	C221F	BORE HIGHWAY	3	Bur Ca	BORECA	BORECA	$15,264.35	975	$15.66	
203	C221G	BORE HIGHWAY W/MED	3	Bur Ca	BORECA	BORECA	$2,730.97	200	$13.65	
204	C221H	BORE HIGHWAY W/MED	3	Bur Ca	BORECA	BORECA	$59,263.39	4,300	$13.78	
205	C221I	BORE ADD LANE 1 TO 21/4"	3	Bur Ca	BORECA	BORECA	$2,348.44	225	$10.44	
206	C221J	BORE ADD LANE > 2 1/4" DI	3	Bur Ca	BORECA	BORECA	$14,794.79	990	$14.94	
222	C260A	DIRECTIONAL BORE	3	Bur Ca	BORECA	BORECA	$350,465.88	31,059	$11.28	
223	C260B	DIRECTIONAL BORE	3	Bur Ca	BORECA	BORECA	$97,039.17	9,975	$9.73	
224	C260C	DIRECTIONAL BORE	3	Bur Ca	BORECA	BORECA	$137,020.54	13,388	$10.23	
225	C261A	DIRECTIONAL BORE	3	Bur Ca	BORECA	BORECA	$1,814,615.37	118,261	$15.34	
226	C261B	DIRECTIONAL BORE	3	Bur Ca	BORECA	BORECA	$459,728.39	31,657	$14.52	
227	C261C	DIRECTIONAL BORE	3	Bur Ca	BORECA	BORECA	$501,575.92	37,313	$13.44	
207	C222M	F STEEL PIPE	3	Bur Ca	BORECA		$16,246.04	2,187	$7.43	ERROR IN USE OF DATA:
208	C223M	F STEEL PIPE	3	Bur Ca	BORECA		$2,204.56	392	$5.62	$1,580,383.42 cost of 550,476 ft. of pipe $2.87/ft. of pipe material) does not
209	C224M	F STEEL PIPE	3	Bur Ca	BORECA		$221,753.39	57,837	$3.83	belong in a Buried Bore Cable operation. However, BellSouth incorrectly
210	C225M	F SCH 40 PVC PIPE	3	Bur Ca	BORECA		$19,244.42	17,777	$1.08	included the dollar cost of the pipe (without any associated footage) into the
211	C226M	F SCH 40 PVC PIPE	3	Bur Ca	BORECA		$1,492.52	1,084	$1.38	cost of Buried Bore Cable operations. These dollars should be excluded
212	C227M	F SCH 40 PVC PIPE	3	Bur Ca	BORECA		$190,583.12	107,984	$1.76	from the Bore Cable calculation.
213	C228M	FURNISH 2" FLEX PIPE	3	Bur Ca	BORECA		$108,248.90	62,906	$1.72	
214	C229M	FURNISH 4" FLEX PIPE	3	Bur Ca	BORECA		$1,020,491.67	300,301	$3.40	
215	C240A	F&P U-CONDUIT, 3-INCH	3	Bur Ca	BORECA		$118.80	8	$14.85	

Note: Line items with zero cost and zero quantity have been removed by AT12:45 PM and WorldCom for clarity.

Contains Information Alleged by BellSouth to be Proprietary

Push Pipe-Pull Cable

Org Order 1	CWI TOTAL DOLLARS TABLE - OSPCM DATA Usage time Price CWI	State Description	Sec	Title	CostCode	State CountCode	FL FLTotal	FL FLUsage	FL FLPrice	Notes
179	C212A	P CA/WIRE IN CONDUIT	3	Bur Ca	PPPC	PPPC	$394,419.58	601,922	$0.66	BellSouth incorrectly designates this function of Place Cable or Wire in Conduit as representing "Push Pipe Pull Cable" ("PPPC"), which is completely incorrect. A more appropriate cost for PPPC can be made by using the cost per foot for Bore Cable (not "Directional Boring") of $14.19/ft. plus the cost of Pipe at $2.87/ft. = $17.06.

Note: Line items with zero cost and zero quantity have been removed by AT12:45 PM and WorldCom for clarity.

Contains Information Alleged by BellSouth to be Proprietary

Buried Cable

Orig Order	CWI TOTAL DOLLARS TABLE - OSPCM DATA Usage time Price									
1	CWI	State Description	Sec	Title	CostCode	State CountCode	FL FLTotal	FL FLUsage	FL FLPrice	Notes
120	C127A	F&P MARKER TAPE	3	Bur Ca	BurCa		$12,679.40			ERROR IN USE OF DATA: $4,000,591.82 cost of 224,254 ft. of material and non-Buried Cable related activities does not belong in a Buried Cable cost calculation. BellSouth incorrectly included the dollar cost of the material and activities (without any associated footage) into the cost of Buried Cable operations. These dollars should be excluded from the Buried Cable calculation.
119	C126A	F&P SAND CUSHION	3	Bur Ca	BurCa		$189,391.55			
138	C166A	F&P STUB POLE NEW	3	Bur Ca	BurCa		$4,622.03	35	$132.06	
183	C216A	P 1 COND 12" MINIMUM	3	Bur Ca	BurCa		$2,973.19	512	$5.81	
184	C216B	P 1 COND 24" MINIMUM	3	Bur Ca	BurCa		$121,043.94	19,180	$6.31	
185	C216C	P 1 COND 30" MINIMUM	3	Bur Ca	BurCa		$440,950.97	71,509	$6.17	
186	C216D	P 1 COND 36" MINIMUM	3	Bur Ca	BurCa		$233,506.18	39,321	$5.94	
187	C216E	P 1 COND 48" MINIMUM	3	Bur Ca	BurCa		$30,537.71	3,156	$9.68	
188	C217A	P 1 COND ADDL DEPTH	3	Bur Ca	BurCa		$504.64	1,152	$0.44	
189	C218A	P 2 COND 12" MINIMUM	3	Bur Ca	BurCa		$482.95	65	$7.43	
190	C218B	P 2 COND 24" MINIMUM	3	Bur Ca	BurCa		$136,704.28	17,132	$7.98	
191	C218C	P 2 COND 30" MINIMUM	3	Bur Ca	BurCa		$171,147.12	20,264	$8.45	
192	C218D	P 2 COND 36" MINIMUM	3	Bur Ca	BurCa		$303,916.55	34,337	$8.85	
193	C218E	P 2 COND 48" MINIMUM	3	Bur Ca	BurCa		$10,728.07	840	$12.77	
194	C219A	P 2 COND ADDL DEPTH	3	Bur Ca	BurCa		$129.00	60	$2.15	
111	C120A	PL ADDL RANDOM <2000 FT	3	Bur Ca	BurCa		$329,931.78			
112	C120B	PL ADDL RANDOM >1999 FT	3	Bur Ca	BurCa		$267,443.36			
113	C122A	PL ADDL W/SEP	3	Bur Ca	BurCa		$108.09			
118	C125A	PL APPARATUS	3	Bur Ca	BurCa		$134.42			
110	C110A	PL CABLE >48 INCHES	3	Bur Ca	BurCa		$1,820.52	1,996	$0.91	
135	C161A	PL FLUSH MOUNT CLOSURE	3	Bur Ca	BurCa		$114,861.41	13,573	$8.46	
115	C123A	PL WIRE ADDL RANDOM	3	Bur Ca	BurCa		$870,074.53			
116	C123B	PL WIRE ADDL W/SEP	3	Bur Ca	BurCa		$276.15			
131	C153M	F CONCRETE HANDHOLE	3	Bur Ca	BurCa		$123,788.53	47	$2,633.80	
128	C151M	F PRE-CAST HANDHOLE	3	Bur Ca	BurCa		$114,290.91	119	$960.43	
130	C153A	PL CONCRETE HANDHOLE	3	Bur Ca	BurCa		$245,862.24	70	$3,512.32	
127	C150A	PL FIBER HANDHOLE	3	Bur Ca	BurCa		$272,305.93	885	$307.69	
126	C149A	PL Precast HH up to 25 CF	3	Bur Ca	BurCa		$376.37	1	$376.37	
78	C012B	PL CABLE 12 INCHES	3	Bur Ca	BurCa	BurCa	$6,062.41	4,700	$1.29	BurCa [Buried Cable] correct calculation should be based on this data of $12,564,136.34 divided by 5,701,517 ft. = $2.20/ft., rather than BellSouth's incorrect calculation of $4,000,591.82 + $12,564,136.34 = $8,586,663.79 divided by only 5,701,517 ft. = $2.91/ft.
82	C018C	PL CABLE 18 INCHES	3	Bur Ca	BurCa	BurCa	$48,449.37	36,396	$1.33	
79	C012C	PL CABLE 12 INCHES	3	Bur Ca	BurCa	BurCa	$45,201.39	28,809	$1.57	
88	C030C	PL CABLE 30 INCHES	3	Bur Ca	BurCa	BurCa	$2,256,118.36	1,289,089	$1.75	
87	C030B	PL CABLE 30 INCHES	3	Bur Ca	BurCa	BurCa	$1,379,648.31	692,229	$1.99	
94	C042C	PL CABLE 42 INCHES	3	Bur Ca	BurCa	BurCa	$31,290.92	15,600	$2.01	
85	C024C	PL CABLE 24 INCHES	3	Bur Ca	BurCa	BurCa	$4,541,788.98	2,196,777	$2.07	
91	C036C	PL CABLE 36 INCHES	3	Bur Ca	BurCa	BurCa	$827,974.34	368,196	$2.25	
84	C024B	PL CABLE 24 INCHES	3	Bur Ca	BurCa	BurCa	$1,121,460.37	447,449	$2.51	
81	C018B	PL CABLE 18 INCHES	3	Bur Ca	BurCa	BurCa	$18,301.06	6,512	$2.81	
97	C048C	PL CABLE 48 INCHES	3	Bur Ca	BurCa	BurCa	$4,286.32	1,455	$2.95	

Note: Line items with zero cost and zero quantity have been removed by AT12:45 PM and WorldCom for clarity.

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Buried Cable

Orig Order 1	CWI TOTAL DOLLARS TABLE - OSPCM DATA Usage time Price CWI	State Description	Sec	Title	CostCode	State CountCode	FL FLTotal	FL FLUsage	FL FLPrice	Notes
90	C036B	PL CABLE 36 INCHES	3	Bur Ca	BurCa	BurCa	$351,924.31	114,530	$3.07	
77	C012A	PL CABLE 12 INCHES	3	Bur Ca	BurCa	BurCa	$15,154.43	4,349	$3.48	
86	C030A	PL CABLE 30 INCHES	3	Bur Ca	BurCa	BurCa	$752,127.99	214,110	$3.51	
80	C018A	PL CABLE 18 INCHES	3	Bur Ca	BurCa	BurCa	$7,778.58	2,117	$3.67	
83	C024A	PL CABLE 24 INCHES	3	Bur Ca	BurCa	BurCa	$879,153.90	223,640	$3.93	
93	C042B	PL CABLE 42 INCHES	3	Bur Ca	BurCa	BurCa	$11,859.37	2,953	$4.02	
89	C036A	PL CABLE 36 INCHES	3	Bur Ca	BurCa	BurCa	$239,907.42	48,142	$4.98	
96	C048B	PL CABLE 48 INCHES	3	Bur Ca	BurCa	BurCa	$14,497.38	2,648	$5.47	
92	C042A	PL CABLE 42 INCHES	3	Bur Ca	BurCa	BurCa	$4,435.03	760	$5.84	
95	C048A	PL CABLE 48 INCHES	3	Bur Ca	BurCa	BurCa	$6,716.10	1,056	$6.36	

Note: Line items with zero cost and zero quantity have been removed by AT12:45 PM and WorldCom for clarity.

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Underground Conduit

Org Order 1	CWI TOTAL DOLLARS TABLE - USPCM DATA Usage time Price CWI	State Description	Sec	Title	CostCode	State CountCode	FL FLTotal	FL FLUsage	FL FLPrice	Notes
274	U006D	PLACE 6 CONDUIT	5	Conduit	UGCOND	UGCOND	$400.00	25	$16.00	
269	U004D	PLACE 4 CONDUIT	5	Conduit	UGCOND	UGCOND	$524.35	43	$12.19	
273	U006C	PLACE 6 CONDUIT	5	Conduit	UGCOND	UGCOND	$664.44	49	$13.56	
282	U012B	PLACE 12 CONDUIT	5	Conduit	UGCOND	UGCOND	$1,456.26	78	$18.67	
275	U006E	PLACE 6 CONDUIT	5	Conduit	UGCOND	UGCOND	$1,686.09	49	$34.41	
281	U012A	PLACE 12 CONDUIT	5	Conduit	UGCOND	UGCOND	$3,795.75	175	$21.69	
268	U004C	PLACE 4 CONDUIT	5	Conduit	UGCOND	UGCOND	$5,374.02	449	$11.97	
264	U003D	PLACE 3 CONDUIT	5	Conduit	UGCOND	UGCOND	$9,219.52	613	$15.04	
270	U004E	PLACE 4 CONDUIT	5	Conduit	UGCOND	UGCOND	$14,940.49	719	$20.78	
263	U003C	PLACE 3 CONDUIT	5	Conduit	UGCOND	UGCOND	$14,981.68	1,354	$11.06	
271	U006A	PLACE 6 CONDUIT	5	Conduit	UGCOND	UGCOND	$21,968.64	1,982	$11.08	
272	U006B	PLACE 6 CONDUIT	5	Conduit	UGCOND	UGCOND	$29,616.82	2,842	$10.42	
266	U004A	PLACE 4 CONDUIT	5	Conduit	UGCOND	UGCOND	$30,759.75	3,167	$9.71	
262	U003B	PLACE 3 CONDUIT	5	Conduit	UGCOND	UGCOND	$43,195.56	5,222	$8.27	
261	U003A	PLACE 3 CONDUIT	5	Conduit	UGCOND	UGCOND	$59,823.35	7,028	$8.51	
267	U004B	PLACE 4 CONDUIT	5	Conduit	UGCOND	UGCOND	$97,917.66	10,196	$9.60	
								33,991	ft.	
288	U016A	F&P 4" STEEL PIPE	5	Conduit	UGCOND		$579.00	60	$9.65	BellSouth spreads the cost of conduit encasement over the length of regular conduit, which is reasonable, since it is not always required (e.g., here only 24.6% of the time). Recommend accepting BellSouth's value (absent other miscellaneous loadings).
320	U056A	PL 4" SPLIT CONDUIT	5	Conduit	UGCOND		$626.24	103	$6.08	
310	U036B	ENCASEMENT CONC	5	Conduit	UGCOND		$1,378.30	212	$6.50	
304	U033B	ENCASEMENT CONC	5	Conduit	UGCOND		$1,741.30	70	$24.88	
302	U032B	ENCASEMENT CONC	5	Conduit	UGCOND		$3,398.57	255	$13.33	
292	U021B	F&P STANDARD TOP	5	Conduit	UGCOND		$3,560.40	460	$7.74	
289	U020A	F&P STANDARD BASE	5	Conduit	UGCOND		$4,600.52	692	$6.65	
308	U035B	ENCASEMENT CONC	5	Conduit	UGCOND		$5,820.08	88	$66.14	
286	U014A	PL CONDUIT ADDL 12"	5	Conduit	UGCOND		$6,620.20	714	$9.27	
298	U030B	ENCASEMENT CONC	5	Conduit	UGCOND		$11,627.95	4,829	$2.41	
300	U031B	ENCASEMENT CONC	5	Conduit	UGCOND		$12,561.86	885	$14.19	

Note: Line items with zero cost and zero quantity have been removed by AT12:45 PM and WorldCom for clarity.

Contains Information Alleged by BellSouth to be Proprietary

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Underground Boring

Org Order	CWI TOTAL DOLLARS TABLE - OSPCM DATA Usage time Price									
1	CWI	State Description	Sec	Title	CostCode	State CountCode	FL FLTotal	FL FLUsage	FL FLPrice	Notes
323	U062A	F&P STEEL CASING	5	Conduit	UGBORE	UGBORE	$1,549.00	10	$154.90	This is the entire extent of Underground Boring data. This highly unusual activity involved only 160 ft. of structure vs. 33,991 ft. of regular conduit = 0.47%.
324	U062B	F&P STEEL CASING	5	Conduit	UGBORE	UGBORE	$27,187.50	150	$181.25	
								160	ft.	

Note: Line items with zero cost and zero quantity have been removed by AT12:45 PM and WorldCom for clarity.

Contains Information Alleged by BellSouth to be Proprietary

Conduit Material

Orig Order	CWI TOTAL DOLLARS TABLE - OSPCM DATA Usage time Price									Notes
1	CWI	State Description	Sec	Title	CostCode	State CountCode	FL FLTotal	FL FLUsage	FL FLPrice	
332	U071M	F B-HEAVY W CONDUIT	5	Conduit	CondMat	CondMat	$992.00	785	$1.26	ERROR IN USE OF DATA: BellSouth notes that one line of data includes both contractor placing labor as well as conduit material, rather than just the material itself. Since there is no breakout of material, that item must be excluded. Correct calculation for Conduit Material then becomes $53,192.78 divided by 64,893 ft. = $0.82/ft. rather than BellSouth's $1,035,915.60 divided by 656,459 ft. = $1.58/ft. I have been unable to determine how BellSouth increased this $1.58/ft. plus $0.40/ft. in inappropriate miscellaneous loadings ($1.98) to reach its BSTLM input value of $2.77/ft. for conduit duct material.
331	U070M	F B-THIN W CONDUIT	5	Conduit	CondMat	CondMat	$3,932.00	3,924	$1.00	
335	U074M	F DB-120-2" CONDUIT	5	Conduit	CondMat	CondMat	$48,268.73	60,184	$0.80	
							$53,192.73	64,893	$0.82	
333	U072M	F C-4" CONDUIT	5	Conduit	CondMat	CondMat	$982,722.87	591,566	$1.66	
		BellSouth data notes this last item as, "This is conduit placed by contractor."								

Note: Line items with zero cost and zero quantity have been removed by AT12:45 PM and WorldCom for clarity.

Contains Information Alleged by BellSouth to be Proprietary

Manholes

CWI TOTAL DOLLARS TABLE - OSPCM DATA Usage time Price

Orig Order 1	CWI	State Description	Sec	Title	CostCode	State CountCode	FL FLTotal	FL FLUsage	FL FLPrice	Notes
381	M051C	ADD PC COLLAR 9"	6	Manhole	Mholes		$82.63	1	$82.63	ERROR IN USE OF DATA:
369	M046A	P PC COLLAR 3"	6	Manhole	Mholes		$97.54	1	$97.54	BellSouth notes these costs with, "These are an additional Collar charge to
373	M046E	P PC COLLAR 15"	6	Manhole	Mholes		$131.97	1	$131.97	Manhole Cubic foot charge." BellSouth takes 207 manhole covers and
379	M051A	ADD PC COLLAR 3"	6	Manhole	Mholes		$415.97	5	$83.19	collars and distributes the cost to the per cubic foot cost of 7 manholes in its
368	M045E	F&P PC COLLAR 15"	6	Manhole	Mholes		$422.07	1	$422.07	data sample (for an average of 29.6 manhole covers per manhole). Average
364	M045A	F&P PC COLLAR 3"	6	Manhole	Mholes		$523.22	3	$174.41	cost per manhole cover and collar in this sample is $246.48 for each
380	M051B	ADD PC COLLAR 6"	6	Manhole	Mholes		$650.71	8	$81.34	manhole, not an adder of $14.45 per cu. ft. as incorrectly calculated by
388	M056M	FURN PC COLLAR 15"	6	Manhole	Mholes		$672.43	4	$168.11	BellSouth. In any case, manhole covers & collars should not be allocated on
382	M051D	ADD PC COLLAR 12"	6	Manhole	Mholes		$691.92	4	$172.98	a per cubic foot basis - the result is that manhole covers get larger than the
386	M054M	FURN PC COLLAR 9"	6	Manhole	Mholes		$763.23	5	$152.65	standard 30" diameter as manholes get larger, which is absurd.
366	M045C	F&P PC COLLAR 9"	6	Manhole	Mholes		$1,056.59	4	$264.15	
385	M053M	FURN PC COLLAR 6"	6	Manhole	Mholes		$1,060.76	9	$117.86	In addition, costs for smaller manholes called "handholes" have not been
365	M045B	F&P PC COLLAR 6"	6	Manhole	Mholes		$1,327.98	6	$221.33	used, opting instead to incorrectly include the costs on a per foot basis into
384	M052M	FURN PC COLLAR 3"	6	Manhole	Mholes		$2,190.34	23	$95.23	buried cable.
387	M055M	FURN PC COLLAR 12"	6	Manhole	Mholes		$3,329.64	16	$208.10	
376	M050C	PL COLLAR 9"	6	Manhole	Mholes		$3,336.00	10	$333.60	
377	M050D	PL COLLAR 12"	6	Manhole	Mholes		$6,482.97	18	$360.17	
375	M050B	PL COLLAR 6"	6	Manhole	Mholes		$6,567.12	24	$273.63	
378	M050E	PL COLLAR 15"	6	Manhole	Mholes		$10,265.02	23	$446.31	
374	M050A	PL COLLAR 3"	6	Manhole	Mholes		$10,953.36	41	$267.16	
							$51,021.47	207	$246.48	
360	M031A	F&P PRE-CAST MH	6	Manhole	Mholes	Mholes	$24,320.28	506	$48.06	BellSouth notes these two line items with, "Use this as a cost per Cubic foot."
361	M031B	F&P PRE-CAST MH	6	Manhole	Mholes	Mholes	$51,115.68	3,024	$16.90	It is believed that this cost represents the cost of one Class A Manhole @
							$246.48			$24,320.28 and six Class A Manholes @ $8,519.28 (a Class A Manhole is a
							$51,362.16	3,024	$16.98	standard 6' x 12' x 7' manhole = 504 cu. ft., with a capacity up to 20 copper
										cables and 20 splices.). BellSouth incorrectly includes one extraordinarily
										expensive manhole in with six others, and adds the total cost for 207
										manhole covers and collars into the total.

BellSouth Method

No. Cables	Cu. Ft.	$/cu. ft.	MH Cost	Cover & Collar	Total MH	
3 to 4	72	$26.80	$1,929.72	$1,305.44	$3,235.16	$1,305.44 = 5 ea. $246.48 manhole covers per manhole.
3 to 4	72	$26.80	$1,929.72	$1,305.44	$3,235.16	$1,305.44 = 5 ea. $246.48 manhole covers per manhole.
3 to 4	224	$26.80	$6,003.58	$4,061.37	$10,064.95	$4,061.37 = 16 ea. $246.48 manhole covers per manhole.
5	703	$26.80	$18,834.04	$12,741.09	$31,575.13	$12,741.09 = 52 ea. $246.48 manhole covers per manhole.

Correct Method

No. Cables	Cu. Ft.	$/cu. ft.	MH Cost	Cover & Collar	Total MH
3 to 4	72	$16.90	$1,216.88	$246.48	$1,463.36
3 to 4	72	$16.90	$1,216.88	$246.48	$1,463.36
3 to 4	72	$16.90	$1,216.80	$246.48	$1,463.28
5	224	$16.90	$3,785.60	$246.48	$4,032.08

Note: Line items with zero cost and zero quantity have been removed by AT12:45 PM and WorldCom for clarity.

Contains Information Alleged by BellSouth to be Proprietary

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Developer Provided Trench

Orig Order 1	CWI TOTAL DOLLARS TABLE - OSPCM DATA Usage time Price CWI	State Description	Sec	Title	CostCode	State CountCode	FL FLTotal	FL FLUsage	FL FLPrice	Notes
181	C214B	P CA/WIRE IN TRENCH	3	Bur Ca	FREE	FREE	$6,310.08	7,089	$0.89	BellSouth claims that the cost of placing a cable in a Developer-provided
180	C214A	P CA/WIRE IN TRENCH	3	Bur Ca	FREE	FREE	$37,295.16	40,925	$0.91	free trench averages $0.91/ft. but BSTLM inputs zero percent occurance.

Note: Line items with zero cost and zero quantity have been removed by AT12:45 PM and WorldCom for clarity.

Contains Information Alleged by BellSouth to be Proprietary

Pole Material

Org Order 1	CWI	State Description	Sec	Title	CostCode	State CountCode	FL FLTotal	FL FLUsage	FL FLPrice	Notes
	CWI TOTAL DOLLARS TABLE - OSPCM DATA Usage time Price									
26	P307M	POLE MATERIAL	1	Poles	PoleMat	PoleMat	$103.75	1	$103.75	BellSouth correctly computes this average as $319,170.69 divided by 3,841
18	P257M	POLE MATERIAL	1	Poles	PoleMat	PoleMat	$128.44	2	$64.22	Poles = $239.31 per Pole for material.
29	P352M	POLE MATERIAL	1	Poles	PoleMat	PoleMat	$234.02	1	$234.02	
20	P301M	POLE MATERIAL	1	Poles	PoleMat	PoleMat	$239.36	1	$239.36	
49	P504M	POLE MATERIAL	1	Poles	PoleMat	PoleMat	$359.86	1	$359.86	
22	P303M	POLE MATERIAL	1	Poles	PoleMat	PoleMat	$367.86	2	$183.93	
54	P554M	POLE MATERIAL	1	Poles	PoleMat	PoleMat	$410.60	1	$410.60	
30	P353M	POLE MATERIAL	1	Poles	PoleMat	PoleMat	$436.43	2	$218.22	
57	P603M	POLE MATERIAL	1	Poles	PoleMat	PoleMat	$507.74	1	$507.74	
50	P505M	POLE MATERIAL	1	Poles	PoleMat	PoleMat	$1,090.50	3	$363.50	
16	P255M	POLE MATERIAL	1	Poles	PoleMat	PoleMat	$1,204.92	13	$92.69	
59	P653M	POLE MATERIAL	1	Poles	PoleMat	PoleMat	$1,270.70	2	$635.35	
15	P254M	POLE MATERIAL	1	Poles	PoleMat	PoleMat	$1,497.12	12	$124.76	
25	P306M	POLE MATERIAL	1	Poles	PoleMat	PoleMat	$2,231.90	20	$111.60	
42	P452M	POLE MATERIAL	1	Poles	PoleMat	PoleMat	$2,796.24	7	$399.46	
23	P304M	POLE MATERIAL	1	Poles	PoleMat	PoleMat	$3,080.86	19	$162.15	
36	P402M	POLE MATERIAL	1	Poles	PoleMat	PoleMat	$3,651.94	11	$331.99	
31	P354M	POLE MATERIAL	1	Poles	PoleMat	PoleMat	$4,674.71	22	$212.49	
53	P553M	POLE MATERIAL	1	Poles	PoleMat	PoleMat	$6,458.28	14	$461.31	
37	P403M	POLE MATERIAL	1	Poles	PoleMat	PoleMat	$9,651.71	33	$292.48	
47	P502M	POLE MATERIAL	1	Poles	PoleMat	PoleMat	$12,706.57	30	$423.55	
44	P454M	POLE MATERIAL	1	Poles	PoleMat	PoleMat	$14,433.14	48	$300.69	
45	P455M	POLE MATERIAL	1	Poles	PoleMat	PoleMat	$21,228.67	78	$272.16	
52	P552M	POLE MATERIAL	1	Poles	PoleMat	PoleMat	$23,807.35	46	$517.55	
24	P305M	POLE MATERIAL	1	Poles	PoleMat	PoleMat	$30,912.24	248	$124.65	
38	P404M	POLE MATERIAL	1	Poles	PoleMat	PoleMat	$52,981.14	194	$273.10	
48	P503M	POLE MATERIAL	1	Poles	PoleMat	PoleMat	$57,562.57	150	$383.75	
32	P355M	POLE MATERIAL	1	Poles	PoleMat	PoleMat	$135,857.17	844	$160.97	
43	P453M	POLE MATERIAL	1	Poles	PoleMat	PoleMat	$194,176.48	579	$335.37	
39	P405M	POLE MATERIAL	1	Poles	PoleMat	PoleMat	$335,108.42	1,456	$230.16	

Note: Line items with zero cost and zero quantity have been removed by AT12:45 PM and WorldCom for clarity.

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Anchors

Orig Order	CWI TOTAL DOLLARS TABLE - OSPCM DATA Usage time Price									
1	CWI	State Description	Sec	Title	CostCode	State CountCode	FL FLTotal	FL FLUsage	FL FLPrice	Notes
60	A001A	PL PAT/EXP ANCHOR	2	Anchors	AnLab	AnLab	$133.42	2	$66.71	
61	A001B	PL PAT/EXP ANCHOR	2	Anchors	AnLab	AnLab	$301.36	4	$75.34	
62	A002A	PL SCREW ANCHOR	2	Anchors	AnLab	AnLab	$67,567.32	1,000	$67.57	
63	A002B	PL SCREW ANCHOR	2	Anchors	AnLab	AnLab	$93,639.55	1,366	$68.55	
64	A004A	PL ROCK/PLANK ANCHOR	2	Anchors	AnLab	AnLab	$4,298.90	28	$153.53	
65	A004B	PL ROCK/PLANK ANCHOR	2	Anchors	AnLab	AnLab	$4,762.98	30	$158.77	
66	A020A	PL MANTA RAY ANCHOR	2	Anchors	AnLab	AnLab	$140,501.34	1,493	$94.11	
67	A020B	PL MANTA RAY ANCHOR	2	Anchors	AnLab	AnLab	$123,472.23	1,545	$79.92	
68	A022M	F MANTA RAY ANCHOR MR1	2	Anchors	AnMat	AnMat	$241,861.66	2,354	$102.74	
69	A023M	F MANTA RAY ANCHOR MR2	2	Anchors	AnMat	AnMat	$51,270.30	576	$89.01	
70	A024M	F MANTA RAY ANCHOR MR3	2	Anchors	AnMat	AnMat	$843.32	11	$76.67	
71	A025M	F MANTA RAY ANCHOR MR4	2	Anchors	AnMat	AnMat	$0.00	0		
72	A026M	F MANTA RAY ANCHOR MKB	2	Anchors	AnMat	AnMat	$1,856.88	8	$232.11	

Note: Line items with zero cost and zero quantity have been removed by AT12:45 PM and WorldCom for clarity.

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Org Order	CWI TOTAL DOLLARS TABLE - OSPCM DATA Usage time Price									
1	CWI	State Description	Sec	Title	CostCode	State CountCode	FL FLTotal	FL FLUsage	FL FLPrice	Notes
133	C160A	PL PED/CLOSURE	3	Bur Ca	DTBT	DTBT	$191,051.84	15,188	$12.58	

Note: Line items with zero cost and zero quantity have been removed by AT12:45 PM and WorldCom for clarity.

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Org Order 1	CWI	State Description	Sec	Title	CostCode	State CountCode	FL FLTotal	FL FLUsage	FL FLPrice	Notes
CWI TOTAL DOLLARS TABLE - OSPCM DATA Usage time Price										
142	C171C	F & P SLAB-CIP EA. ADD 1'	3	Bur Ca	FDI	FDI	$886.30	370	$2.40	
145	C172C	F & P SLAB-PCAST E ADD 1'	3	Bur Ca	FDI	FDI	$7,690.18	3,481	$2.21	
140	C171A	F & P SLAB-CIP 1 TO 4"	3	Bur Ca	FDI	FDI	$9,206.54	594	$15.50	
141	C171B	F & P SLAB-CIP >4 TO 6"	3	Bur Ca	FDI	FDI	$109,663.10	6,326	$17.34	
143	C172A	F & P SLAB-PCAST 1 TO 4"	3	Bur Ca	FDI	FDI	$118,127.03	5,681	$20.79	
144	C172B	F & P SLAB-PCAST >4 TO 6"	3	Bur Ca	FDI	FDI	$741,036.12	47,360	$15.65	

Note: Line items with zero cost and zero quantity have been removed by AT12:45 PM and WorldCom for clarity.

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Clearance (not used by BST)

Orig Order	CWI TOTAL DOLLARS TABLE - OSPCM DATA Usage time Price									
T	CWI	State Description	Sec	Title	CostCode	State CountCode	FL FLTotal	FL FLUsage	FL FLPrice	Notes
466	T022B	BUSH HOG 10' WIDE	8	Line Clrnc	Clearance		$74.40	240	$0.31	Not used in BellSouth Calculations.
465	T022A	BUSH HOG 5' WIDE	8	Line Clrnc	Clearance		$287.58	408	$0.70	
467	T022C	BUSH HOG 15' WIDE	8	Line Clrnc	Clearance		$310.30	290	$1.07	
452	T012A	CL ROW 10 - 50'	8	Line Clrnc	Clearance		$353.05	35	$10.09	
458	T016A	CL ROW 10 - 50'	8	Line Clrnc	Clearance		$831.00	75	$11.08	
449	T010A	CL ROW 10 - 50'	8	Line Clrnc	Clearance		$1,705.90	245	$6.96	
463	T020C	CUT TREE 21" TO 30"	8	Line Clrnc	Clearance		$1,720.56	4	$430.14	
453	T012B	CL ROW 51 -500'	8	Line Clrnc	Clearance		$2,501.43	397	$6.30	
455	T015A	CL ROW 10 - 50'	8	Line Clrnc	Clearance		$2,965.19	302	$9.82	
464	T020D	CUT TREE 31" TO 40"	8	Line Clrnc	Clearance		$3,642.28	5	$728.46	
457	T015C	CL ROW OVER 500'	8	Line Clrnc	Clearance		$4,482.08	872	$5.14	
451	T010C	CL ROW OVER 500'	8	Line Clrnc	Clearance		$4,966.49	1,292	$3.84	
454	T012C	CL ROW OVER 500'	8	Line Clrnc	Clearance		$5,019.08	1,037	$4.84	
461	T020A	CUT TREE UP TO 10"	8	Line Clrnc	Clearance		$5,025.58	26	$193.29	
460	T016C	CL ROW OVER 500'	8	Line Clrnc	Clearance		$5,646.36	892	$6.33	
456	T015B	CL ROW 51 -500'	8	Line Clrnc	Clearance		$7,889.06	1,067	$7.39	
450	T010B	CL ROW 51 -500'	8	Line Clrnc	Clearance		$12,325.37	2,378	$5.18	
462	T020B	CUT TREE 11" TO 20"	8	Line Clrnc	Clearance		$58,790.53	165	$356.31	

Note: Line items with zero cost and zero quantity have been removed by AT12:45 PM and WorldCom for clarity.

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Misc Items Not Used

Org Order	CWI TOTAL DOLLARS TABLE - OSPCM DATA Usage time Price									
	State					State	FL	FL	FL	
1	CWI	Description	Sec	Title	CostCode	CountCode	FLTotal	FLUsage	FLPrice	Notes
359	M030B	PL PRE-CAST MH	6	Manhole			$16,236.24	1,200	$13.53	
362	M040A	P MH EXISTING COND	6	Manhole			$16,968.59	6	$2,828.10	
255	S007A	BURY ABOVE GROUND SPLICE	4	Pits			$29,242.41	116	$252.09	
134	C160B	RM PED/CLOSURE	3	Bur Ca			$420.15	17	$24.71	
136	C162A	PL MARKER POST EXISTING	3	Bur Ca			$1,410.64	56	$25.19	
139	C166B	F&P STUB POLE EXISTING	3	Bur Ca			$1,554.44	11	$141.31	
235	FC260A	None	3	Bur Ca			$2,107.20	120	$17.56	
230	FC024A	None	3	Bur Ca			$2,337.92	416	$5.62	
238	FC261A	None	3	Bur Ca			$3,634.92	207	$17.56	
147	C182A	REMOVE CABINET	3	Bur Ca			$7,274.06	36	$202.06	
234	FC158A	None	3	Bur Ca			$11,167.20	376	$29.70	
146	C173A	REMOVE SLAB ONLY	3	Bur Ca			$13,207.89	1,346	$9.81	
149	C183A	REMOVE CABINET W/O SLAB	3	Bur Ca			$16,299.79	80	$203.75	
228	C262A	DB PULLBACK - CABLE/WIRE	3	Bur Ca			$30,081.80	3,518	$8.55	
233	FC115A	None	3	Bur Ca			$35,609.12	11,140	$3.20	
132	C154A	EXPOSE FO HANDHOLE	3	Bur Ca			$58,256.06	336	$173.38	
178	C210A	DRILL HOLE IN MH	3	Bur Ca			$75,353.48	413	$182.45	
237	FC260C	None	3	Bur Ca			$105,864.60	7,251	$14.60	
232	FC024C	None	3	Bur Ca			$267,051.67	81,957	$3.26	
240	FC261C	None	3	Bur Ca			$272,849.68	17,998	$15.16	
229	C262B	DB PULLBACK - 4" CONDUIT	3	Bur Ca			$398,259.83	38,878	$10.24	
150	C186A	PL CABINET 101 TO 800 LB	3	Bur Ca			$71,349.83	199	$358.54	
151	C186B	PL CABINET 801 TO 1700 LB	3	Bur Ca			$159,154.07	287	$554.54	
152	C186C	PL CAB. 1701 TO 4000 LB	3	Bur Ca			$280,534.95	370	$758.20	
319	U055A	PL CABLE WITH CONDUIT	5	Conduit			$147.90	162	$0.91	
318	U052A	EXT ADD CONDUIT	5	Conduit			$2,294.79	53	$43.30	
314	U043A	MANDREL CONDUIT	5	Conduit			$2,710.89	3,003	$0.90	
317	U050A	EXT EXIST CONDUIT	5	Conduit			$32,803.55	124	$264.54	
313	U041A	RODDING	5	Conduit			$97,837.67	120,326	$0.81	
312	U040A	PNEUMATIC RODDING	5	Conduit			$315,137.10	866,618	$0.36	
316	U045A	PLACE INNERDUCT/ W ROD	5	Conduit			$2,047.11	543	$3.77	
315	U044A	PLACE INNERDUCTROD	5	Conduit			$98,506.43	46,723	$2.11	

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Misc Items Not Used

Orig Order	CWI TOTAL DOLLARS TABLE - OSPCM DATA Usage time Price					State	FL	FL	FL	
1	CWI	State Description	Sec	Title	CostCode	CountCode	FLTotal	FLUsage	FLPrice	Notes
554	IFT04A	None	12	IFITL			$1,197,740.64	112,148	$10.68	
439	T001A	MAIN/TRIM 10- 50'	8	Line Clrnc			$8,341.44	1,060	$7.87	
440	T001B	MAIN/TRIM 51-100'	8	Line Clrnc			$11,201.93	1,838	$6.09	
441	T001C	MAIN/TRIM 101-200'	8	Line Clrnc			$12,468.38	2,853	$4.37	
442	T001D	MAIN/TRIM 201-500'	8	Line Clrnc			$19,793.70	5,830	$3.40	
443	T001E	MAIN/TRIM OVER 500'	8	Line Clrnc			$21,523.82	7,566	$2.84	
444	T004A	MAIN/TRIM 10- 50'	8	Line Clrnc			$47,363.15	4,383	$10.81	
445	T004B	MAIN/TRIM 51-100'	8	Line Clrnc			$51,140.40	7,592	$6.74	
446	T004C	MAIN/TRIM 101-200'	8	Line Clrnc			$78,058.80	16,367	$4.77	
447	T004D	MAIN/TRIM 201-500'	8	Line Clrnc			$101,201.28	25,847	$3.92	
448	T004E	MAIN/TRIM OVER 500'	8	Line Clrnc			$83,203.44	33,728	$2.47	
396	M073B	MH SITE BREAK-DOWN	6	Manhole			$419.37	3	$139.79	
363	M041A	P MH EXISTING CABLE	6	Manhole			$2,478.20	1	$2,478.20	
395	M073A	MH SITE SET-UP	6	Manhole			$2,990.82	10	$299.08	
391	M060A	ADD EXTEN RING(S)	6	Manhole			$3,078.24	32	$96.20	
390	M059A	REMOVE EXISTING MH	6	Manhole			$7,356.30	210	$35.03	
392	M062A	OPEN/WALL PT-UP	6	Manhole			$29,770.22	65	$458.00	
556	IFT03A	NO	NO	NO			$0.00	45,378	$0.00	
555	FC157A	NO	NO	NO			$2,255.00	110	$20.50	
260	S013B	PLATE SPLICE PIT	4	Pits			$5,626.30	310	$18.15	
259	S013A	PLATE SPLICE PIT	4	Pits			$10,855.96	96	$113.08	
251	S004A	DIG & BF PIT - EMERGENCY	4	Pits			$102,563.86	686	$149.51	
257	S009B	BACKFILL SPLICE PIT	4	Pits			$139,068.33	5,045	$27.57	
256	S009A	BACKFILL SPLICE PIT	4	Pits			$869,320.37	10,125	$85.86	
10	P113A	DELIVER POLE	1	Poles			$891.51	7	$127.36	
13	P123A	STRAIGHTEN/MOVE POLE 50<	1	Poles			$3,736.57	27	$138.39	
12	P120B	REMOVE POLE	1	Poles			$148,751.73	1,668	$89.18	
11	P120A	REMOVE POLE	1	Poles			$199,263.42	2,143	$92.98	

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Underground Contract Labor								
Structure	Type or Size	Softrock Contract Labor Cost	Normal Contract Labor Cost	Hardrock Contract Labor Cost	Water Contract Labor Cost	District	Description	Source
Duct	CU	2.77	2.77	2.77	2.77		This value includes Contractor material.	
Duct	FO	2.77	2.77	2.77	2.77		This value includes Contractor material.	
Inner Duct	1"	0	0	0	0			
Inner Duct	1.25"	0	0	0	0			
Manholes	1	3235.16	3235.16	3235.16	3235.16		Contract Labor Installation cost of one vault/manhole that accomodates three or four cables. This is the minimum size manhole available.	
Manholes	2	3235.16	3235.16	3235.16	3235.16		Contract Labor Installation cost of one vault/manhole that accomodates three or four cables. This is the minimum size manhole available.	
Manholes	3	10064.95	10064.95	10064.95	10064.95		Contract Labor Installation cost of one vault/manhole that accomodates three or four cables. This is the minimum size manhole available.	
Manholes	5	31575.1288	31575.1288	31575.1288	31575.1288		Contract Labor Installation cost of one vault/manhole that accomodates five cables.	

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Analysis of BellSouth Copper Cable Splicing Rates

Copper Cable Placing Rate to place 100 feet of cable			
	Underground	Buried	Aerial
Crew Size	2	1	1
Setup Clock Hours	**1.00**	**1.00**	**1.00**
Setup Timesheet Hours	2.00	1.00	1.00
BellSouth Placing Labor per 100 ft.	2.50	1.25	1.25
Time for placing cable sheath	0.25	0.25	0.25
Placing Rate (sheath ft./day)	2800	2800	2800

Copper Cable Placing Rate to place 200 feet of cable			
	Underground	Buried	Aerial
Crew Size	2	1	1
Setup Clock Hours	**1.00**	**1.00**	**1.00**
Setup Timesheet Hours	2.00	1.00	1.00
BellSouth Placing Labor per 100 ft.	5.00	2.50	2.50
Time for placing cable sheath	1.50	1.50	1.50
Placing Rate (sheath ft./day)	933	933	933

Copper Cable Placing Rate to place 640 feet of cable			
	Underground	Buried	Aerial
Crew Size	2	1	1
Setup Clock Hours	**1.00**	**1.00**	**1.00**
Setup Timesheet Hours	2.00	1.00	1.00
BellSouth Placing Labor per 100 ft.	16.00	8.00	8.00
Time for placing cable sheath	7.00	7.00	7.00
Placing Rate (sheath ft./day)	640	640	640

Copper Cable Splicing Rate to splice one 100-pair cable			
	Underground	Buried	Aerial
Crew Size	2	1	1
Setup Clock Hours	**2.00**	**1.75**	**2.00**
Setup Timesheet Hours	4.00	1.75	2.00
BellSouth Splicing Labor per 100 pairs	5.32	3.07	3.32
Time for wirework (hrs.)	1.32	1.32	1.32
Splicing Rate (pairs/hour)	76	76	76

Copper Cable Splicing Rate to splice one 200-pair cable			
	Underground	Buried	Aerial
Crew Size	2	1	1
Setup Clock Hours	**4.00**	**3.50**	**4.00**
Setup Timesheet Hours	8.00	3.50	4.00
BellSouth Splicing Labor per 200 pairs	10.64	6.14	6.64
Time for wirework (hrs.)	2.64	2.64	2.64
Splicing Rate (pairs/hour)	76	76	76

Copper Cable Splicing Rate to splice one 4200-pair cable			
	Underground	Buried	Aerial
Crew Size	2	1	1
Setup Clock Hours	**84.00**	**73.50**	**84.00**
Setup Timesheet Hours	168.00	73.50	84.00
BellSouth Splicing Labor per 200 pairs	223.44	128.94	139.44
Time for wirework (hrs.)	55.44	55.44	55.44
Splicing Rate (pairs/hour)	76	76	76

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