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May 18, 2001

Ms. Blanca S. Bayó, Director
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Florida Public Service Commission
2540 Shumard Oak Boulevard
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Re: Docket No. 990649-TP Sprint's Direct Testimony

Dear Ms. Bayó:

Enclosed for filing is the original and fifteen (15) copies of Direct Testimony of: Kent W. Dickerson, Talmage O. Cox, III, Daniel R. Gordon, Terry D. Talken, Michael R. Hunsucker, and Brian K. Staihr. Copies have been served on the parties pursuant to the attached Certificate of Service.

Please acknowledge receipt and filing of the above by stamping the duplicate copy of this letter and returning the same to this writer.

Sincerely,

DN 06291-01
thru 06293-01

Susan S. Masterton

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CERTIFICATE OF SERVICE

Docket No. 990649-TP

I HEREBY CERTIFY that a copy of Sprint's Testimony has been furnished by overnight delivery, on this 17th day of May, 2001, to the following:

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Sprint – Florida, Incorporated

Investigation into Pricing
Unbundled Network Elements

Docket No. 990649-TP

Volume I of III

Testimony and Methodology

REDACTED

Restricted - Proprietary Information

DOCUMENT NUMBER-DATE

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FPSC-RECORDS/REPORTING

1 **BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION**

2 **DIRECT TESTIMONY**

3 **OF**

4 **KENT W. DICKERSON**

5 **Q. Please state your name, business address, employer and current**
6 **position.**

7 A. My name is Kent W. Dickerson. My business address is 6360 Sprint
8 Parkway, Overland Park, KS 66251. I am employed as Director - Cost
9 Support for Sprint/United Management Company.

10
11 **Q. Please summarize your qualifications and work experience.**

12 A. My qualifications and work experience are summarized in Exhibit KWD-1.

13
14 **Q. What is the purpose of your Testimony?**

15 A. My testimony sponsors the TELRIC cost studies for the following list of
16 unbundled network elements (UNEs):

17 Loop (all types)

18 Loop Sub-Elements

19 Dark Fiber (Loop and Interoffice)

20 Loop, Switch and Transport Combinations

21 Enhanced Extended Links

22 Network Interface Devices

23 Inside Wire

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Annual Charge Factors
Expense Studies

My testimony, in concert, with Sprint's cost study filing will describe how Sprint's UNE cost studies for the items listed above are developed to be forward-looking, deaveraged, and specific to the markets served by Sprint in Florida.

Q. Please describe the responsibility assignments of Sprint's witnesses in this docket.

A. My testimony addresses the deaveraged cost studies listed above. In addition, I will provide a description of Sprint's TELRIC study process.

Mr. Michael Hunsucker provides testimony on the appropriate prices for all UNEs. His testimony provides Sprint's positions on the price deaveraging issues in this docket.

Mr. Talmage Cox's testimony addresses unbundled dedicated and common transport and elements for local switching.

Mr. Dan Gordon's testimony addresses the non-recurring charges for all UNEs.

1 Mr. Terry Talken provides testimony on unbundled Signaling and Call
2 Related Databases.

3

4 Mr. Brian Staihr presents testimony on the appropriate cost of capital inputs
5 utilized in Sprint's TELRIC studies.

6

7 **Q. Could you identify which witnesses support each section of the cost**
8 **study filing?**

9 A. I have included Exhibit KWD-2 as an attachment to my testimony that
10 identifies the sections of Sprint's cost study filings and the Sprint witness that
11 supports that section.

12

13 **Q. Please describe Sprint's position on an appropriately developed**
14 **TELRIC cost of service study.**

15 A. Sprint believes that the major characteristics of an appropriately developed
16 TELRIC cost of service study are as follows:

17

18 1. The ILEC's prices for interconnection and unbundled network elements
19 will recover the forward-looking costs directly attributable to the
20 specified element, as well as a reasonable allocation of forward-looking
21 common costs. (FCC Order, para. 682.)

22

23 2. Per-unit costs will be derived from total costs using reasonably accurate
24 "fill factors" (estimates of the proportion of a facility that will be "filled")

1 with network usage); that is, the per unit costs associated with a
2 particular element must be derived by dividing the total cost associated
3 with the element by a reasonable projection of the actual total usage of
4 the element. (FCC Order, para. 682.)

5
6 3. Directly attributable forward-looking costs will include the incremental
7 costs of shared facilities and operations. Those costs will be attributed
8 to specific elements to the greatest extent possible. Certain shared
9 costs that have conventionally been treated as common costs (or
10 overheads) will be attributed to the individual elements to the greatest
11 extent possible. (FCC Order, para. 682.)

12
13 4. The forward-looking pricing methodology for interconnection and
14 unbundled network elements should be based on costs that assume
15 that wire centers will be placed at the ILEC's current wire center
16 locations, but the reconstructed local network will employ the most
17 efficient technology for reasonably foreseeable capacity requirements.
18 (FCC Order, para. 685.)

19
20 5. Only forward-looking, incremental costs are included in a TELRIC study.
21 (FCC Order, para 690.)

22
23 6. Retailing costs, such as marketing or customer billing costs associated
24 with retail services, are not attributable to the production of network

1 elements that are offered to interconnecting carriers and are not
2 included in the forward-looking direct cost of an element. (FCC Order,
3 para. 691.)
4

5 **Q. Please describe the generic approach used by Sprint in performing**
6 **TELRIC studies.**

7 A. Sprint uses a consistent approach in performing TELRIC studies for the
8 unbundled network elements. The TELRIC study methodology can be
9 generally described by the following steps:

10 A. Determine Network Design. The study begins with a determination of
11 the forward-looking, most efficient network architecture. The network
12 design is based on existing wire center locations as directed in the FCC
13 Order, and reflects currently available technology which is appropriate
14 and efficient for current and reasonably foreseeable demand levels.
15

16 B. Determine Forward-Looking Installed Cost. Using Sprint's current
17 vendor material costs and labor rates specific to Sprint's serving area,
18 the incremental installed costs for all investment required to build a
19 functioning unbundled network element are determined. The
20 investments considered are those meeting the incremental cost
21 causative standard laid out in the FCC Order. Determination of the
22 incremental investments is based on the long run as defined in FCC
23 Order, Paragraph 692 and total element demand quantities.
24

1 C. Develop Capital and Expense Costs. Capital and Expense Costs
2 reflect the total cost of owning and operating a specific type of asset.
3 They are developed at the FCC account level and include the annual
4 cost of depreciation, a return on investment, income taxes,
5 maintenance expenses, network operations expense (testing,
6 monitoring), and other taxes.

7
8 Related to the depreciation and return on investment components of
9 these factors, the FCC provides clear direction in paragraph 703 of the
10 First Report and Order in Docket No. 96-98 as follows:

11
12 "We conclude that an appropriate calculation of TELRIC will include
13 a depreciation rate that reflects the true changes in economic value
14 of an asset and a cost of capital that appropriately reflects the risks
15 incurred by an investor."

16
17 Accordingly, as addressed in the testimony of Mr. Brian Staihr, Sprint's
18 cost of capital complies with the FCC's directives and reflects a "risk-
19 adjusted cost of capital."

20
21 The forward-looking, efficient levels of direct maintenance, network
22 operations expense and other taxes were developed using Sprint's
23 actual experience with owning and operating the associated forward-

1 looking technologies in Florida. Costs associated with obsolete
2 technologies were excluded from the forward-looking TELRIC results.

3

4 D. Determine Reasonable Contribution to Common Costs. The FCC
5 Order provides clear direction that the price of unbundled elements
6 should include a reasonable allocation of common costs. In
7 accordance with this direction, Sprint includes a contribution to common
8 costs in its TELRIC study results. This is accomplished by calculating a
9 percentage-loading factor which is applied uniformly to all unbundled
10 element TELRIC results.

11

12 **Issue 3**

13 **What are xDSL capable loops?**

14 **Q. Will you please address issue 3?**

15 A. As a general and practical matter, xDSL capable loops are copper loops that
16 are 18,000 feet in length or shorter. To be xDSL capable, a loop must not
17 contain any devices that impede the xDSL frequency signaling such as
18 repeaters, load coils or excess bridged tap. Copper loops which contain any
19 of these three will require loop conditioning to remove the repeaters, load
20 coils or excess bridged tap. The associated non-recurring charges for this
21 loop conditioning work is explained in the testimony of Sprint witness Mr.
22 Dan Gordon.

23

1 To be technically correct, it should be noted that some fiber fed NGDLC
2 vendors have recently developed plug-in cards, which can be used at the
3 NGDLC location to provide xDSL service to customers served by the
4 NGDLC. However, at this point in time neither the FCC, nor the Florida
5 Public Service Commission have designated these plug-in cards as subject
6 to UNE unbundling. Therefore, the current practical result in Florida, is that
7 unbundled xDSL capable loops will be copper or copper distribution loop
8 sub-elements.

9
10 **Q. Do some CLECs request xDSL capable loops in excess of 18,000 feet in**
11 **length?**

12 A. Yes. In those cases Sprint will provide any available copper loop in excess of
13 18,000 feet at the ALEC's request. Sprint will perform any loop conditioning
14 requested by the ALEC and the ALEC will be charged for that loop
15 conditioning work. As a loop length in excess of 18,000 feet is beyond the
16 generally accepted industry standard limit for xDSL, Sprint will accept no
17 responsibility for the xDSL capabilities of conditioned copper loops longer
18 than 18,000 feet.

19
20 **Q. Should a cost study for xDSL capable loops make distinctions based**
21 **on loop length and/or the particular DSL technology to be deployed?**

22 A. Other than the 18,000 feet distinction described above, No. As described
23 above, copper loops 18,000 feet and shorter that contain no repeaters, load

1 coils or excess bridged tap require no further cost study distinctions. As
2 described more fully in the testimony of Mr. Dan Gordon, Sprint makes
3 logical distinctions in the NRCs for loop conditioning depending on whether
4 the loop is longer or shorter than 18,000 feet. Sprint's recurring charges,
5 however, require no distinction in the underlying loop cost other than for
6 standard issues of loop length, terrain, customer density, plant mix, etc. that
7 are already reflected in Sprint's unbundled loop cost studies.

8

9 **Issue 7 - Appropriate Assumptions**

10 **What are the appropriate assumptions and inputs for the following items to**
11 **be used in the forward-looking recurring UNE cost studies?**

12 **Depreciation**

13 **Q. Please describe the Depreciation inputs used to develop Sprint's**
14 **forward-looking cost of UNEs.**

15 A. The FCC's TELRIC pricing requirement for unbundled network elements
16 requires the depreciation component of TELRIC be based on forward-looking
17 economic lives of the underlying UNE asset categories (Paragraph 703 of
18 FCC First Report and Order 96-98). Accordingly, Sprint has developed
19 forward-looking economic lives for all UNE asset categories and normally
20 utilizes these lives in its UNE cost studies. In this filing, however, Sprint has
21 made what it hopes the Commission will find to be an appropriate and
22 practical concession, and has used the depreciation lives ordered by this
23 Florida Commission in the Universal Service Fund Docket No. 990696-TP.

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Tax Rates

Q. What tax rates were utilized in Sprint’s UNE cost studies?

A. Sprint's filing utilizes the Federal income tax, state ad valorem tax, and the Regulatory Assessment Fee tax rates currently in effect in Florida. The Federal income tax and state ad valorem tax are reflected in the specific inputs utilized in Sprint's annual charge factor development, which are contained in the ACF section of the cost study documentation. The Regulatory Assessment Fee Tax is included in the common cost factor development and application.

Structure Sharing

Q. Please describe the structure sharing input.

A. Structure sharing refers to the portion of aerial structure (poles), and buried cable and conduit excavation costs, that are shared with other companies. The structure sharing inputs are expressed in terms of the percent of costs assigned to telephone, which equates to the percentage of the structure cost that is borne by the ILEC. The reciprocal of this input factor represents the portion of the structure cost that is borne by companies other than the ILEC, such as power and/or cable companies. The model inputs are segregated between feeder and distribution sub-loop components, by aerial, buried and underground plant mix and by each of the nine customer density zones. Sprint’s inputs are located in tab labeled “Loop”. The structure sharing inputs are also discussed in section III.B.4 of the Loop documentation.

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The structure sharing inputs for underground and buried feeder and distribution cables were set at 85% and 80%, respectively, for the majority of the customers served by Sprint. This level of cost sharing of 15% and 20% exceeds the degree of structure cost sharing currently experienced by Sprint in Florida and thus allows for some forward-looking increase in structure sharing opportunities. The structure sharing inputs for the plowing construction technique used for placing buried feeder and distribution cables were set at 100% to reflect the reality that when plowing, the trench is closed over during the placement of the cable, thus eliminating the possibility of other entities placing cables in the same trench.

The structure sharing input for poles was set at 34% for all density zones. This input is based on an analysis of Sprint's experience specific to Florida, with both renting pole space from other entities and with allowing other entities to rent space on Sprint owned poles. Workpaper 9 in the loop documentation, details the Florida-specific analysis supporting this model.

Q. Why are the opportunities to share below-ground construction costs with power and cable companies limited?

A. In addition to the considerable difficulty in scheduling simultaneous cable placements among diverse utilities, there are work coordination, safety, and available space considerations which make significant sharing of buried and underground construction costs unlikely.

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For example, the National Electric Safety Code requires a minimum of 12 inches of well-tamped earth fill separating power and telephone cables placed in the same trench. This is necessary to protect persons working on telephone cables that are not equipped or qualified to work with the voltage levels of power company cables. This critical precaution, requiring that any trenches shared with power companies be dug at least 12 inches deeper or wider, significantly increases the cost of creating the trench and reduces the savings opportunities for sharing trenches with power companies.

Further, the locations for telephone company central offices, power company sub-stations and cable company head-ends often do not correspond.

Therefore, it is not possible to share a common trench because the feeder routes for each company's facilities do not originate from the same geographic locations.

The structure sharing opportunity for buried cable is limited to the single point in time when the trench is initially opened. Trenches must be backfilled prior to cable being placed into service. Therefore, in order to share the cost of the trench, companies must be willing to place cable at a specific location, at the same point in time. This limits the sharing with other companies to those instances where the timing of each companies' need for facility construction is perfectly aligned. This reality further limits structure-sharing opportunities.

1 **Structure Costs**

2 **Q. Please describe the structure cost input.**

3 A. Structure costs are the costs for structures (conduit systems, trenches,
4 poles) supporting copper and fiber feeder and distribution cable. The
5 structure cost inputs fall into two basic categories, the type of construction
6 activity, (e.g. trench and backfill, cut and restore sod, plowing, bore cable
7 etc.) and the percent of construction done using the various construction
8 activities, (e.g. buried distribution cable construction done using plowing 37%
9 of the time and boring 59% of the time). Sprint's inputs are filed in the Loop
10 section of the documentation, and described in section III.B.4.

11
12 Sprint's Florida-specific structure cost inputs were developed based on an
13 analysis of the entire 1999 and 2000 contractor construction costs and
14 activities as tracked in Sprint's Network Construction Activity Program
15 (NETCAP). As such, it provides the most current, verifiable and pertinent
16 data available for predicting the forward-looking costs of construction in the
17 same markets from which the data was drawn. The workpapers supporting
18 the structure cost inputs are located in the loop documentation.

19

20 **Fill Factors**

21 **Q. Could you please describe the term fill factor?**

22 A. Yes. Fill factors are the percentage of available network capacity utilized.

23 Utilization is due to the following three factors:

1

2

Anticipation of future needs: When engineering and building

3

telecommunications facilities, local exchange companies ("LECs"), both

4

ILECs and alternative LECs ("ALECs"), attempt to anticipate future needs.

5

For example, it is more cost-effective to dig a trench once and install facilities

6

necessary to meet additional forecasted demand, than to dig up the trench

7

and install new facilities every time a new loop is required.

8

9

Capacity Acquired in "Blocks": Telecommunications plant capacity is

10

acquired in large blocks. For example, towards the high end, copper cable is

11

only available in step increments that increase by 600 pairs for the next

12

larger size (2400, 3000, 3600, 4200). Therefore, unused capacity will exist

13

while demand grows into the available capacity.

14

15

Construction Time: An engineering interval (the period of time necessary to

16

plan and construct facilities) is required when replacing or expanding

17

capacity.

18

19

Efficient deployment of cable balances the cost-benefit relationship of

20

unused capacity and the cost of installation. Inadequate capacity results in

21

the Company's inability to meet its customers' expectations for new service

22

installation intervals. The current levels of cable fill in Sprint's Florida

23

network today allows our customers to generally enjoy a service level of 3

24

days or less for new service installation. The same cable fill is needed to

1 meet ALECs' expectations for parity in the provisioning of new service
2 installations for unbundled local loops.
3

4 **Q. Please describe Sprint's cable fill factors used in this filing.**

5 A. Sprint's cable fill factor inputs are located in the Loop section of the
6 documentation in the Density Cable Sizing Factor Table. A full description of
7 these model input development is contained in section III.B.4 of the loop
8 documentation. The associated workpapers may also be found with the loop
9 documentation.
10

11 Sprint's feeder cable fill factors were developed based on Florida wire –
12 center-specific data for feeder cable fills. The feeder cable fill inputs were
13 adjusted to reflect the reality that the cost model must select the ultimate
14 cable size from the available cable sizes which results in some additional
15 unutilized cable pairs. The distribution cable fill inputs were set at 100% in
16 concert with a model input of two distribution pairs per household. The
17 assumption of two distribution pairs per household reflects the actual and
18 forward-looking, least-cost practice of placing two distribution cable pairs at
19 each house at the point of initial construction. This practice is the least cost
20 method of meeting customer demand for multiple lines to a household and
21 avoids costly inefficient construction to place second lines at a later date.
22
23

1 **Manholes**

2 **Q. How were Sprint's cost model inputs for Manholes/Handholes**
3 **developed?**

4 A. Sprint's cost model inputs for manholes are located in the loop
5 documentation. The associated workpaper is located in the loop
6 documentation. Sprint's Florida-specific material and labor costs and
7 manhole/handhole spacing was used to develop these inputs. The structure
8 sharing inputs for manholes were set at a conservative level in excess of
9 Sprint's actual experience to allow for some possible increase in structure
10 sharing for manholes and handholes on a forward-looking basis. The
11 sharing input for conduit is set at 100% consistent with the fact the model
12 places no conduits in excess of those necessary for underground telephone
13 cables and thus there is no spare conduit (or associated cost) to sell to an
14 outside party.

15
16 **Fiber and Copper Cable**

17 **Q. Please describe Sprint's inputs for Fiber and Copper cable.**

18 A. Sprint's cost model inputs for fiber and copper cable are filed in Loop section
19 of the documentation. A full description of the process used to develop
20 these inputs is contained in the Section III.B.4 of the loop documentation
21 along with work papers showing the development of the inputs for SLCM. A
22 summary description of the cable cost input development is provided below.

23

1 The material cost portion of Sprint's inputs for fiber and copper cable were
2 developed using Sprint's current vendor cost for purchasing cable and
3 adding Florida-specific sales tax due on those purchases. The cost of
4 exempt and other materials, such as splice enclosures and cable mounting
5 hardware, were added to the cable material costs to account for those
6 necessary costs. An analysis of Sprint's cable installations in Florida for
7 1998-2000 was done to develop the exempt and other material cost loadings
8 to ensure they were accurate, Florida-specific and current. The cable
9 placement, splicing and engineering costs were also developed based on an
10 analysis of cable placement, splicing and engineering costs experienced by
11 Sprint in Florida for its entire 1998-2000 cable placement construction. The
12 data analyzed for this Florida-specific cost input was obtained from Sprint's
13 Project Administration and Costing System (PACS).

14

15 **Drops**

16 **Q. Please describe Sprint's cost model inputs related to Drop wires and**
17 **terminals.**

18 A. Sprint's cost model inputs for drop wire and terminals are filed in the Loop
19 documentation. The process and workpapers used to develop these inputs
20 is described in the loop documentation. A summary description of these
21 inputs is provided below.

22

23 The drop wire and terminal inputs reflect Sprint's current vendor material
24 costs and applicable Florida-specific sales tax and exempt material loadings.

1 The placement cost portion of the inputs for aerial drops and both aerial and
2 buried terminals are based on Florida-specific labor hour costs and labor
3 hour estimates provided by Sprint outside plant experts working in Florida.
4 The placement cost for buried drops is based on Sprint's Florida-specific
5 contractor cost for buried drop placement.

6

7 **Network Interface Devices (NIDs)**

8 **Q. Please describe Sprint's cost study process and associated inputs for**
9 **NIDs.**

10 A. The cost study, narrative description and results for NIDs is contained under
11 the tab labeled "NID" of the cost study. Sprint has provided the cost for 6-
12 line and 25-line NIDs suitable for POTS applications and the cost for a
13 Smartjack for DS1 applications. The material cost portion of these UNEs
14 reflects Sprint's current vendor purchase cost for the three respective NID
15 types. Installation of NIDs and Smartjack devices is included in the non-
16 recurring charge cost study.

17

18 **Digital Loop Carrier (DLC)**

19 **Q. Please describe the DLC cost inputs.**

20 A. The DLC cost inputs are filed in the loop documentation. A complete
21 description of the DLC cost model inputs with supporting workpapers is filed
22 in the inputs section of the loop documentation. A summary description of
23 the DLC inputs is provided below.

1 The DLC inputs reflect the combined material cost and engineering, outside
2 plant and central office installation labor costs for an installed DLC. The
3 inputs include the cost of DLC site preparation including obtaining permits
4 and concrete pad site engineering and installation. The material costs reflect
5 Sprint's current vendor purchase prices and Florida-specific labor rates for
6 engineering and installation. The labor hours for engineering and installation
7 were provided by Sprint employees responsible for DLC engineering and
8 installation.

9
10 As explained and illustrated in Section III.B.4 of the loop documentation,
11 Sprint's DLC inputs for stand-alone unbundled loops reflect the additional
12 equipment requirements necessary to deliver dedicated unbundled loops to
13 ALEC customers collocated at the central office. This additional equipment
14 is the Central Office Terminal and DS-0 level line card. As further explained
15 in the UNE-P (combined loop and local switching), the DLC inputs are
16 appropriately modified to reflect a lower cost GR-303 Integrated DLC (IDLC)
17 configuration. This IDLC configuration can be utilized in UNE-P applications
18 because the link between the DLC and the switch can be combined with
19 other customers served by the DLC and integrated straight into the switch on
20 a common path. This reduces the cost of the DLC inputs by removing the
21 central office equipment and DS-0 level line card costs necessary in stand-
22 alone UNE loop applications.

1 **Expenses**

2 **Q. Please explain how expenses are considered in Sprint's UNE cost**
3 **study process.**

4 A. The incorporation of forward-looking expense estimates in Sprint's UNE cost
5 study process falls into four basic categories and/or processes: 1. The direct
6 maintenance associated with capital investments underlying the various
7 UNEs, e.g. buried copper cable maintenance, digital circuit equipment
8 maintenance etc.; 2. Other Direct Expenses associated with capital
9 investments underlying UNEs, e.g. circuit engineering, cable pair record
10 maintenance, trunk engineering, etc.; 3. Forward-looking common cost
11 loadings; and 4. Expenses avoided when selling wholesale level UNEs vs.
12 retail sales costs, e.g. billing and postage costs. I will address each of these
13 expense categories and processes.

14
15 **Direct Maintenance**

16 The direct maintenance expenses associated with UNE capital investments
17 are applied in the UNE cost study process by including a direct maintenance
18 expense component in the Annual Charge Factor. The Annual Charge
19 Factor (ACF) development is explained in detail in the ACF section of the
20 documentation. Using the relationship of Florida-specific 2000 direct
21 maintenance to the associated gross capital investment, the direct
22 maintenance expense loadings shown in the Annual Charge Factor Module
23 Input Worksheet were developed. By applying these Florida-specific direct
24 maintenance loadings to the corresponding forward-looking capital

1 investment, an estimate of forward-looking direct maintenance is included in
2 the UNE cost study.

3

4 **Other Direct and Common Expenses**

5 In the UNE cost study process it is necessary to consider forward-looking
6 direct expenses beyond the direct maintenance expenses described above.
7 Sprint has developed the Other Direct and Common (ODC) cost study model
8 and process. This model and process is described in detail in the ODC
9 section of the documentation. This study identifies the additional forward-
10 looking direct expenses such as traffic engineering or assignment functions
11 and develops loading relationships to the applicable UNE. The loading
12 relationships for each Other Direct Expense account is based on four basic
13 approaches explained in the ODC cost study narrative. Within the ODC
14 study, the Assignment Driver provides the basis for each direct expense
15 assignment to the various UNEs. The forward-looking TELRIC UNE
16 investments are used to develop the other direct expense loading
17 percentages thus assuring a forward-looking level of expense estimate.

18

19 Common costs such as furniture, office equipment, general purpose
20 computers and corporate operations are also developed in the ODC study
21 process. This portion of the ODC study process is also explained in detail in
22 the narrative and study workpapers supporting the ODC study.

23

24

1 **Avoided Cost Study**

2 An integral part of the Other Direct and Common Cost study process is the
3 consideration of expenses that can be avoided when selling UNEs on a
4 wholesale basis versus sales of services on a retail basis. Sprint's expense
5 study processes identify these "avoided costs" using its Avoided Cost model
6 and study process (ACS) which is explained in detail in the ACS section of
7 the documentation. The result of the ACS is fed into the ODC cost study
8 described above. The ACS is an activity-based cost study process that
9 identifies the avoided expense by expense category (subaccount) and
10 assigns these expenses to service groups, based on an activity driver. The
11 use of the ASC study process assures that Sprint's UNE cost study results
12 properly exclude retail expenses that can be avoided when selling UNEs on
13 a wholesale basis.

14

15 **Issue 9**

16 **What are the appropriate recurring rates (averaged or deaveraged as the**
17 **case may be) and non-recurring charges for each of the following UNEs?**

18

19 **Q. How does the FCC define an unbundled loop?**

20 A. Paragraph 167 of FCC 99-238 states:

21

22 "We modify the definition of the loop network element to include all features,
23 functions, and capabilities of the transmission facilities, including dark fiber

1 and attached electronics (except those used for the provision of advanced
2 services, such as DSLAMs) owned by the incumbent LEC, between an
3 incumbent LEC's central office and the loop demarcation point at the
4 customer premises.”

5

6 **2-Wire Voice Grade Loop**

7 **Q. Please describe the UNE Loop TELRIC study process.**

8 A. Sprint's forward-looking wire-center specific costs of unbundled 2-wire loops
9 are filed in the Loop section of the documentation. Contained in this
10 documentation is a narrative description of the UNE loop cost study process,
11 the UNE Loop cost results for every Sprint Wire Center in Florida, and the
12 cost model inputs used to generate those forward-looking cost estimates. Mr.
13 Hunsucker's testimony addresses the prices for UNE loops resulting from the
14 wire center UNE loop costs in the study and sponsored by this testimony.

15

16 The UNE loop cost study process follows the UNE cost study process
17 outlined in the introduction of my testimony. As explained in the narrative
18 filed in the loop section, Sprint utilized SCLM to develop the forward-looking
19 capital investments for unbundled loops. The individual inputs used in SCLM
20 are provided in the loop documentation. The forward-looking capital
21 investments generated by SLCM were fed into Sprint TELRIC UNE model,
22 which combines the results of forward-looking investment and expense
23 studies and generates wire center level monthly costs. The associated

1 expense studies utilized within the Sprint TELRIC UNE model are also
2 explained in detail in the documentation and elsewhere in this testimony.

3
4 Sprint's UNE loop cost studies are based on inputs developed using current,
5 Florida-specific data where possible, so as to best predict the cost of serving
6 specific wire centers within Florida. SLCM utilizes very granular customer
7 density information in conjunction with the Sprint Florida-specific inputs so as
8 to produce the best possible deaveraged UNE Loop cost estimates upon
9 which to base pricing decisions.

10

11 **Q. What factors affecting deaveraged UNE loop costs were considered in**
12 **Sprint's UNE Loop TELRIC study?**

13 A. The cost of unbundled local loops varies more on a geographic basis than
14 any other UNE defined by the FCC's 96-325 Order. Under the broad
15 category of physical geography, numerous factors affect the cost of providing
16 loops to a specific customer location.

17 1. Customer Density - Customer density is the single largest factor
18 impacting the cost of local loops. Customer density is commonly
19 expressed in terms of customers or access lines per square mile. The
20 density of customers impacts loop cost in an inverse manner: the higher
21 the customer density, the lower the cost of the local loop. This
22 relationship is linked to a few fundamental issues, the first being a
23 trench, conduit or aerial pole route is required regardless of whether a
24 25 pair or 2400 pair cable is placed. From this it is obvious the greater

1 the customer density the more customers that can be served along a
2 feeder or distribution cable route. Therefore, customer density ultimately
3 determines how many customers or loops there are over which to
4 spread the cost of digging the trench, and or placing conduit or placing
5 aerial pole line.

6
7 Customer density also drives the unit cost of other equipment
8 components associated with loops. Loop components such as Serving
9 Area Interfaces (SAIs) (the point of interconnection between feeder and
10 distribution cables), Digital Loop Carrier (DLC) devices, Drop Terminals
11 for example, are all similarly impacted by customer density and exhibit
12 lower per unit costs as customer density increases.

13

14 2. Distance - The distance of a given customer location from the central
15 office increases loop costs as the distance increases. This relationship
16 between customer location compared to central office location results
17 from the obvious need to place more cable, trenches, conduit and or
18 aerial pole lines as the distance or length of the loop increases. As
19 distance increases it generally increases the need for, and overall cost
20 of, maintenance. Assuming constant customer density, longer cables
21 have more splice points and resulting exposure to risk. Greater number
22 of splice points means there are more areas for possible failure due to
23 lightning, water, rodents, vandalism, and accidents.

24

- 1 3. Terrain - The type of terrain in which cable is placed impacts both the
2 cost of the initial cable placement and the maintenance of the cable.
3 The cost of below-ground cable construction increases as the presence
4 and hardness of rock increases. Terrain factors such as the water table,
5 trees, and mountains all affect the initial construction cost of loops and
6 subsequent maintenance expense.
7
8 4. Weather - The extremes of weather affect the cost of maintaining cable
9 and therefore significantly influences the type of cable placed (buried,
10 aerial or underground). The cost of maintaining aerial plant in
11 geographic areas that frequently experience ice storms or hurricanes is
12 certainly greater than those areas that seldom encounter these
13 conditions.
14
15 5. Local Market Conditions - Issues such as local zoning laws requiring
16 below-ground plant, screening and landscaping around SAI and DLC
17 sites, construction permits and restrictions, heavy presence of concrete
18 and asphalt, traffic flows, and local labor costs, all impact the
19 construction and maintenance costs of loop plant and will vary between
20 locations.

21
22
23
24

Sprint's use of SLCM in conjunction with Sprint-Florida-specific inputs allows
the wire –center-specific cost estimates to reflect the geographic specific
impacts of all of the issues discussed above.

1 **4-Wire Analog Loop**

2 **Q. How were the costs of 4-wire analog loops developed?**

3 A. The wire –center-specific monthly recurring costs for unbundled 4-wire
4 analog loops is contained in documentation included with this filing. As
5 explained in the narrative provided, the 4-wire loop cost is developed using
6 the 2-wire loop cost study results explained above. To account for the
7 increased cost of two copper pairs for those 4-wire loops served on copper,
8 the 2-wire copper outside plant investment was doubled along with CO
9 Termination, and fiber bandwidth requirements. No other adjustments were
10 necessary. The 4-wire analog loop cost study results, descriptive narrative
11 and workpapers are filed in the documentation.

12
13 **2-Wire ISDN/IDSL Loop**

14 **Q. Does the cost of unbundled 2-wire ISDN/IDSL loops vary from 2-wire**
15 **voice grade loops?**

16 A. Yes. The cost of DLC line cards needed for 2-wire ISDN/IDSL loops is
17 greater than those required for 2-wire voice grade loops. Additionally, for
18 those loops served on fiber fed DLCs there is increased bandwidth
19 requirements for the 2-wire ISDN/IDSL loops over that required for 2-wire
20 voice grade loops. Sprint has acknowledged these two necessary cost
21 impacts through the development of a BRI-ISDN/IDSL loop. This loop cost is
22 filed in the cost study along with a narrative description and calculations.

23
24

1 **2-Wire xDSL-Capable Loop**

2 **Q. Does the cost of 2-wire xDSL-Capable loops differ from the cost of 2-**
3 **wire voice grade loops?**

4 A. No. The forward-looking network design used within SLCM to develop the 2-
5 wire voice grade loop is also capable of supporting xDSL service for those
6 loops served on copper. The forward-looking network design is free from
7 any load coils, repeaters or excess bridged taps that would otherwise inhibit
8 xDSL technology on those copper loops. The 2-wire xDSL capable loop
9 monthly recurring costs are identical to the 2-wire voice grade costs.

10 However, as explained in Mr. Gordon's testimony, the FCC has allowed
11 ILECs to charge for the conditioning of copper loops in the embedded
12 network so as to enable their use for xDSL technology. In accordance with
13 the FCC Order's directive, Mr. Gordon's testimony sponsors the loop
14 conditioning non-recurring charges that may apply on 2-wire xDSL-capable
15 loops.

16

17 **4-Wire xDSL-Capable Loops**

18 **Q. How were the costs for these 4-wire loop types developed?**

19 A. As explained for 2-wire xDSL capable loops above, the forward-looking
20 network design used for 4-wire analog loops requires no further adjustment
21 for these additional 4-wire loop types (4-wire xDSL assumed to be
22 provisioned on copper only). The monthly recurring costs for these 4-wire
23 loop types is the same as the cost of the 4-wire analog loops and therefore

1 no separate cost study is necessary. As with 2-wire xDSL loops, some loop
2 conditioning NRCs may apply as explained in Mr. Gordon's testimony.

3

4 **DS-1 Loops and DS-0 56K/64K Loops**

5 **Q. How were the costs for DS-1 loops developed?**

6 A. The costs for DS-1 and DS-0 loops were developed in a similar fashion as
7 described for the 2-wire ISDN/IDSL loop above. The cost study reflects the
8 additional investment to provide DS-1 functionality in the form of additional
9 electronics needed at the central office and any remote terminal, and
10 customer premises. The additional bandwidth required by a DS-1 loop is
11 accounted for within the DS-1 calculations found within SLCM. The
12 calculation of this DS-1 loop cost is explained and shown in the Loop
13 documentation.

14

15

16 **High Capacity Loops (DS-3, OC-3, OC-12, OC-48)**

17 **Q. Please describe the cost study process for High Capacity DS-3**
18 **unbundled loops.**

19 A. The cost study results, narrative and workpapers for DS-3 unbundled loops
20 are filed under the tab named High Capacity Loops. A full description is
21 contained in that documentation and I will summarize here. In order to
22 model the cost of fiber facilities associated with DS3 loops, the existing DS-3
23 customers in Florida were geo-coded into Sprint's Loop Cost Model (SLCM).

1 This allowed SLCM to model the fiber cable in the feeder and distribution
2 cable plant associated with DS-3 customer locations. All of the necessary
3 SLCM inputs related to installed fiber cable costs are the same as previously
4 discussed for other loop types. The deaveraged fiber costs by wire center
5 are shown in the High Capacity Loop study. The High Capacity Loop
6 documentation and SLCM documentation describe the SLCM network
7 design and model calculations created for this purpose.

8

9 **Q. Please describe the cost study process for High Capacity OC-3, OC-12**
10 **and OC-48 unbundled loops.**

11 A. The cost study results, narrative and workpapers for DS-3 unbundled loops
12 are filed the tab named High Capacity Loops. A full description is contained
13 in that documentation and I will summarize here. The cost of fiber cable
14 facilities for unbundled OC-3, OC-12 and OC-48 loops is the same as used
15 for the unbundled DS-3 loop study described above. The corresponding OC-
16 n level terminal costs for each OC-n level unbundled loop are broken out
17 between common terminal costs and plug-in DS-3 level card costs. This will
18 allow the ALEC customers to manage their card costs to best match their
19 bandwidth needs.

20

1 **Dark Fiber – Loop and Transport**

2 **Q. How was the dark fiber – loop cost study performed?**

3 A. The dark fiber – loop cost study results, narrative and workpapers are filed in
4 the Dark Fiber section of the documentation. A full description is contained
5 in that documentation and I will summarize here. The cost of fiber cable was
6 developed in SLCM using the same inputs as described for all previous
7 unbundled loop types. The dark fiber documentation and SLCM
8 documentation describe the SLCM network design and model calculations
9 created for this purpose. The dark fiber – loop costs are calculated in two
10 distinct components--feeder and distribution.

11
12 The dark fiber – loop feeder result by wire center is calculated based on the
13 per fiber cost of feeder routes created in SLCM to service existing DS-3
14 customer locations and forward-looking DLC sites. The dark fiber – loop
15 distribution cost is the same as calculated by wire center for DS-3 unbundled
16 loops and described above.

17
18 **Q. Please describe the dark fiber – interoffice facilities.**

19 A. The dark fiber – interoffice facilities cost study results, narrative and
20 workpapers are under the tab named Dark Fiber. A full description is
21 contained in that documentation and I will summarize here. The cost of fiber
22 cable was developed in SLCM using the same inputs as described for all
23 previously described unbundled loop types. The dark fiber documentation

1 and SLCM documentation describe the SLCM network design and model
2 calculations created for this purpose.

3
4 The first step in the dark fiber – interoffice facilities cost study was to analyze
5 Sprint's Florida-specific interoffice transport routes to determine the number
6 of fiber strands required to provide the bandwidth requirements on any given
7 route. A minimum fiber cable size of 36 fibers was assumed based on
8 Sprint's network planning practices.

9
10 Using actual DS-3 demand as inputs to SLCM, the number of lit fiber strands
11 necessary to meet that route's bandwidth requirements in accordance with
12 the 6, 10 and 26 breakpoints just described. At this point, the fiber cable
13 strands for interexchange bandwidth requirements is added in SLCM. The IX
14 fiber routes follow existing DLC fiber feeder and DS-3 fiber distribution to the
15 full extent possible so as to result in maximum degree of cable structure
16 sharing between loop and interoffice facilities. These calculations are
17 performed for each wire center to determine a statewide weighted average of
18 interoffice dark fiber costs.

19

20 **Sub-Loop Elements**

21 **Q. How was the sub-loop cost study performed?**

22 A. The sub-loop cost study results, narrative and workpapers are filed in loop
23 documentation. A full description is contained in that documentation and I
24 will summarize here. Given the infancy and uncertainty of sub-loop

1 unbundling, Sprint proposes the sub-loop elements of feeder and distribution
2 as the appropriate level of initial sub-loop unbundling. Should significant
3 demand materialize for further unbundling it may be appropriate to establish
4 even smaller sub-loop elements in the future. Due to still developing industry
5 standards, practices and experience with sub-loop unbundling, it is not
6 possible to predict the forward-looking costs of establishing ALEC
7 interconnection to these sub-loop elements with any certainty. Therefore,
8 the interconnection costs to access sub-loop elements should be handled on
9 an individual case basis until such time as standard network arrangements,
10 ordering and provisioning practices have developed.

11
12 The cost of the sub-loops' feeder and distribution is taken straight from the
13 same SLCM runs used to generate the cost for all other unbundled loop
14 types. The associated models, process and model inputs are the same as
15 previously described.

16

17 **Inside Wire**

18 **Q. How was the Inside Wire cost study performed?**

19 A. The cost study results, narrative and work papers for unbundled inside wire is
20 filed under the tab Inside Wire. A full description is contained in that
21 documentation and I will summarize here. The cost study accounts for two
22 scenarios where Sprint might own inside wire. The scenarios include
23 interbuilding cable, where the cable is part of a campus or office park and

1 connects the buildings; and intrabuilding cable, which includes riser and
2 plenum cable. Riser cable is the cable running vertically within a building
3 and plenum cable runs horizontally within a building.

4

5 Given that the demand for inside wire as unbundled network element is
6 unknown and the variability between locations where Sprint owns inside
7 wire, Sprint developed building block costs for the elements associated with
8 inside wire. The building block costs include per foot prices for various cable
9 sizes and serving area interfaces. By location, a price will be built based on
10 the amount of cable the ALEC wishes to purchase as a UNE.

11 **Packet Switching**

12 **Q. Does Sprint's filing contain a cost study for unbundled packet**
13 **switching?**

14

15 A. No. Sprint's filing in this proceeding does not include a cost study or
16 proposed rate for the packet switching unbundled element. Section
17 51.319(c)(3)(B) requires an incumbent LEC to provide unbundled packet
18 switching only if the following conditions are satisfied:

19 "(i) The incumbent LEC has deployed digital loop carrier systems,
20 including but not limited to, integrated digital loop carrier or
21 universal digital loop carrier systems; or has deployed any other
22 system in which fiber optic facilities replace copper facilities in the

1 distribution section (e.g., end office to remote terminal, pedestal or
2 environmentally controlled vault);
3 (ii) There are no space copper loops capable of supporting the
4 xDSL services the requesting carrier seeks to offer;
5 (iii) The incumbent LEC has not permitted a requesting carrier to
6 deploy a Digital Subscriber Line Access Multiplexer in the remote
7 terminal, pedestal or environmentally controlled vault or other
8 interconnection point, nor has the requesting carrier obtained a
9 virtual collocation arrangement at these subloop interconnection
10 points as defined by 51.319(b); and
11 (iv) The incumbent LEC has deployed packet switching capability
12 for its own use."
13

14 To date, Sprint has not deployed DSLAMs at its DLCs locations. Therefore,
15 it cannot, and has no obligation under the FCC's rules, to provide packet
16 switching as a UNE. When and if Sprint deploys a DSLAM at a DLC and
17 the additional 3 criteria listed above are met, Sprint will develop and make
18 available to requesting carriers the packet switching unbundled network
19 element.
20
21

1 **Issue 12 - UNE Combinations**

2 **Without deciding the situations in which such combinations are required,**
3 **what are the appropriate recurring and non-recurring rates for the following**
4 **UNE combinations:**

5
6 **“UNE platform” consisting of: loop (all), local (including packet, where**
7 **required) switching (with signaling), and dedicated and shared transport**
8 **(through and including local termination);**

9
10 **UNE-P**

11 **Q. Please describe Sprint's cost study for combined loop, switch and**
12 **transport (UNE-P).**

13 A. Sprint's cost study, detailed narrative and workpapers for UNE-P 2-wire
14 loops and switch ports are filed in the UNE-P section of the documentation.
15 Sprint's UNE-P cost study reflects the network economies available through
16 use of integrated DLC (IDLC) that is possible when loop and switch UNEs
17 are sold on a combined basis. Sprint's UNE-P cost study adjustments
18 reflecting the cost reducing effects of IDLC are explained in detail in the cost
19 study narrative. The SLCM inputs are the same as for UNE 2-wire loop with
20 the exception of the DLC inputs as mentioned above; a second run of SLCM
21 was done solely for determining the cost of loops using IDLC. Sprint
22 witness, Mr. Cox addresses in his testimony the switch port cost reductions
23 possible under an UNE-P arrangement. Mr. Gordon addresses the non-

1 recurring charge for switch translations work necessary to meet ALEC
2 specific trunk routing requests.

3
4 The dedicated or common transport component of UNE-P is not reflected in
5 Sprint's cost study output because it is not possible to predict where the
6 ALEC will request its traffic to be routed (Sprint's dedicated transport cost
7 study has approximately 500 point-to-point routes). However, both the
8 dedicated transport and common transport UNE options are available as part
9 of UNE-P and the cost of the transport ordered by the ALEC would simply be
10 added to the cost of UNE-P in Sprint's cost study filing. The testimony of Mr.
11 Gordon addresses the non-recurring charges associated UNE-P.

12

13 **UNE-P 2-Wire ISDN/ISDL**

14 **Q. Are there similar adjustments need to reflect the cost of combined 2-**
15 **wire ISDN loops and switch ports?**

16 A. Yes. The integrated GR303 switch and DLC network configuration that
17 yields cost savings for combined POTS loop and switch ports is available for
18 ISDN-BRI. An additional ISDN-BRI loop and port combination is also
19 provided. UNE-P IDSL is not currently available as IDSL is only a data
20 service and does not include any switching functionality.

21

22

23

24

1 **Enhanced Extended Link (EEL)**

2 **Q. Please describe Sprint's cost study for Enhanced Extended Link (EEL).**

3 A. Sprint's cost study, detailed narrative and associated workpapers for EEL are
4 filed under the tab named EEL. Depending on the transport routes requested
5 by the ALEC, there are hundreds of possible combinations of loop and
6 transport routes possible. Sprint has not attempted to list all of these
7 possible combinations, but has simply shown the additional costs for
8 multiplexing equipment that are needed for DS-0 to DS-1 and DS-1 to DS-3
9 EEL combinations in the EEL Monthly Recurring Charges table. The
10 development of these simple multiplexing cost additives is provided in the
11 cost study filing along with illustrative drawings and descriptions. Mr.
12 Gordon's testimony addresses any applicable non-recurring charges
13 associated with EELs.

14
15 **Q. Is Sprint's loop cost study developed using a methodology that is**
16 **reasonably consistent with the Commission's decisions in BellSouth**
17 **Phase II of this docket?**

18 A. Because BellSouth does not have final approved UNE loop rates in Florida
19 and no final Commission order has been issued in Phase II of this docket,
20 this cannot be determined with certainty. However, based on the Staff
21 recommendation requiring BellSouth to recreate certain loop structure cost
22 loadings, and the Commission's decision to disallow BellSouth's material and
23 expense increases for alleged inflation, I believe that a reasonable level of
24 parity will result. Due to the uncertainty of this determination, Sprint must

1 reserve the right to alter its studies as needed however pending the final
2 methodology and outcome in the BellSouth Phase II of this docket.

3

4

5

Q. Does this conclude your testimony?

6

A. Yes.

KENT DICKERSON

QUALIFICATIONS

I received a Bachelor of Science degree from the University of Missouri - Kansas City in 1981 with a major in Accounting. In 1984, I passed the national exam and am a Certified Public Accountant in the State of Missouri.

From 1981 to 1983, I was employed as a Corporate Income Tax Auditor II for the Missouri Department of Revenue. From 1983 to 1985, I worked for Kansas Power and Light (now Western Resources) in the Tax and Internal Audit areas. I joined United Telephone Midwest Group in September, 1985 as a staff accountant in the Carrier Access Billing area. Thereafter, I moved through a progression of positions within the Toll Administration and General Accounting areas of the Finance Department.

In 1987, I was promoted into the Carrier and Regulatory Services group as a Separations/ Settlement Administrator performing Federal and Intrastate access/toll pool settlement, reporting and revenue budgeting functions. I was promoted to Manager - Pricing in June, 1989 where I performed FCC regulatory reporting and filing functions related to the United Telephone - Midwest Group Interstate Access revenue streams.

In 1991, I was promoted to Senior Manager - Revenue Planning for United Telephone - Midwest Group. While serving in this position my responsibilities

consisted of numerous FCC regulatory reporting and costing functions. In 1994, I accepted a position within the Intrastate Regulatory operations of Sprint/United Telephone Company of Missouri where my responsibilities included regulatory compliance, tariff filings, and earnings analysis for the Missouri company's intrastate operations.

Since December 1994, I have set-up and directed a work group which performs cost of service studies for retail services, wholesale unbundled network elements cost studies, and state and federal Universal Service Fund cost studies. Over the last 5 years I have been charged with developing and implementing cost study methods which conform with Total Service Long Run Incremental Cost ("TSLRIC") and Total Element Long Run Incremental Cost ("TELRIC") methodologies. I am responsible for written and oral testimony, serving on industry work groups, and participating in technical conferences related to TSLRIC/TELRIC costing methodology, filing of studies within individual 18 states that comprise Sprint's Local Telephone Division (LTD) and providing cost expertise to Sprint's participation in regulatory cost dockets outside of the LTD territories. I have testified in Florida, Nevada, North Carolina, Texas, Kansas, Missouri, Georgia, and Wyoming regarding TSLRIC/TELRIC cost matters.

SPRINT FLORIDA, Inc.
Docket No. 990649-TP
Issues/Witness List

Volume	Issue/Cost Study Tab	Witness
I	Testimony	
	Loop (Sub-loop, Dark Fiber, High Cap Loops), Inside Wire, NID, ACFs, Expenses	Dickerson
	EELS, UNE-P	Dickerson/Cox
	Transport, Switching	Cox
	Nonrecurring Charges	Gordon
	Signalling Databases	Talken
	Policy and Pricing	Hunsucker
	Cost of Capital	Stahr
I	Narratives	
	I. Overview	Dickerson
	II. Input Module	Dickerson
	III. Loop	Dickerson
	A. SLCM	Dickerson
	B. Loop	Dickerson
	C. Dark Fiber	Dickerson
	D. High Cap Loop	Dickerson
	E. Inside Wire	Dickerson
	IV. Switching	
	A. SCIS	Cox
	B. Switching (UNE-P)	Cox
	V. Transport	
	A. Transport	Cox
	B. Multiplexing	Cox
I	Narratives (continued)	
	VI. Miscellaneous UNEs	
	A. NID	Dickerson
	B. SS7	Talken
	C. UNE-P	Dickerson/Cox
	D. EEL	Dickerson/Cox
	E. E911	Talken
	VII. Expense Factors	
	A. OD&C	Dickerson
	B. ACF	Dickerson
	C. ACS	Dickerson
	VIII. NonRecurring Costs	Gordon
	IX. Cost Summary	Hunsucker

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

DIRECT TESTIMONY

OF

TALMAGE O. COX, III

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Q. Please state your name, business address, employer and current position.

A. My name is Talmage O. Cox, III. My business address is 6360 Sprint Parkway, Overland Park, Kansas, 66251. I am employed as Senior Manager Network Costing for Sprint/United Management Company.

Q. What is your educational background?

A. I received an Associate in Arts Degree from National Business College, Roanoke, Virginia, in 1977 with a major in Business Administration -- Accounting. Subsequently, I received a Bachelor of Science Degree from Tusculum College -- Greeneville, Tennessee, in 1986 with a major in Business Administration.

Q. What is your work experience?

A. I have worked for Sprint since 1978. Prior to my current position, I have held several positions with Sprint in costing. I developed cost studies and methodology associated with various services and special projects for

1 state jurisdictional filings in Tennessee and Virginia. While working in this
2 position, I was the Telecordia Switching Cost Information System (SCIS)
3 Administrator for ten years responsible for coordinating model questions
4 with Telecordia and assisting other users when needed. For the past five
5 years, in my current position I have primary responsibility for developing
6 the costing methodology and the module for interoffice transport
7 associated with Sprint's Unbundled Network Element (UNE) transport
8 cost. In addition to transport, I also currently have responsibility for
9 developing the costing methodology and the module for switching
10 associated with Sprint's UNE switching cost.

11

12 **Q. On whose behalf are you testifying?**

13

14 A. I am testifying on behalf of Sprint-Florida, Inc. (hereafter referred to as
15 "Sprint").

16

17 **Q. Have you previously testified before other Public Utility
18 Commissions?**

19

20 A. Yes. I have previously testified before state regulatory commissions in
21 Kansas and Texas.

22

23 **Q. What is the purpose of your Testimony?**

24

25 A. My testimony will be two fold:

1 First, I will respond to the following:

2 Issues 7(o), 7(p), 7(r), 9(a)(13), 9(a)(15), and 9(a)(16).

3 **Issue 7. What are the appropriate assumptions and inputs for the**
4 **following items to be used in the forward-looking recurring UNE**
5 **cost studies?**

6 (o). switching networks and associated variables

7 (p). traffic data

8 (r). transport system costs and associated variables

9 **Issue 9. (a) What are the appropriate recurring rates and non-**
10 **recurring charges for each of the following UNEs?**

11 (13). Circuit switching (where required)

12 (15). Shared interoffice transmission

13 (16). Dedicated interoffice facilities

14 My responses will be from a perspective of how the underlying costs of the
15 transport and switching related UNEs relate to specific issues raised in
16 this docket. Sprint's witness Mr. Michael R. Hunsucker will provide
17 testimony regarding the appropriate method to develop the pricing of
18 transport and switching. Sprint's witness Mr. Daniel R. Gordon will
19 provide testimony addressing the non-recurring charges associated with
20 transport and switching.

21

22 Second, my testimony will also support Sprint's recurring cost studies
23 associated with unbundled network elements in the following categories:

24 I. Transport

25 II. Switching

1 For purposes of clarity, I will address each of the specific issues under the
2 transport and switching categories. Unless otherwise identified, all non-
3 recurring charges for the above will be addressed by Sprint's witness, Mr.
4 Daniel R. Gordon.

5

6 **Q. Which portions of Sprint's cost study filing are you supporting?**

7

8 A. In addition to my testimony, Exhibit KWD-2 to the testimony of Sprint
9 witness, Mr. Kent W. Dickerson identifies the portions of Sprint's cost
10 study filings that I support.

11

12 **I. Transport**

13

14 **Q. How does the FCC define unbundled interoffice transmission**
15 **facilities?**

16

17 A. FCC Rule 51.319 (d) defines unbundled Interoffice Transmission Facilities
18 "... as incumbent LEC transmission facilities dedicated to a particular
19 customer or carrier, that provide telecommunications between wire
20 centers owned by incumbent LECs or requesting telecommunications
21 carriers, or between switches owned by incumbent LECs or requesting
22 telecommunications carriers."

23

24 The unbundled Interoffice Transmission Facilities element, or simply
25 "transport", is composed of the two basic network components: terminals

1 and fiber cable. Terminals are the equipment housed at the central office
2 locations and serve as entry and exit points for telecommunications traffic
3 to be moved between interoffice points in the network. In the majority of
4 today's transport networks and certainly in a forward-looking network,
5 these interoffice terminals will be optically capable. Additionally, the fiber
6 transport routes in a forward-looking network are constructed in ring
7 design, which provides diverse routing capability in the event of a fiber
8 cable cut, or terminal node failure. This forward-looking transport network
9 design is commonly referred to as survivable SONET ring technology.

10
11 **Q. What does the FCC 96-325 First Report and Order state regarding the**
12 **unbundling of transmission facilities?**

13
14 **A.** FCC 96-325, First Report and Order, Paragraph 440, states,
15 "We require incumbent LECs to provide unbundled access to
16 shared transmission facilities between end offices and the
17 tandem switch. Further, incumbent LECs must provide
18 unbundled access to dedicated transmission facilities
19 between LEC central offices or between such offices and
20 those of competing carriers. This includes, at a minimum,
21 interoffice facilities between end offices and serving wire
22 centers (SWCs), SWCs and IXC POPs, tandem switches
23 and SWCs, end offices or tandems of the incumbent LEC,
24 and the wire centers of incumbent LECs and requesting
25 carriers. The incumbent LEC must also provide, to the

1 extent discussed below, all technically feasible transmission
2 capabilities, such as DS1, DS3, and Optical Carrier levels
3 (e.g. OC-3/12/48/96) that the competing provider could use
4 to provide telecommunications services. We conclude that
5 an incumbent LEC may not limit the facilities to which such
6 interoffice facilities are connected, provided such
7 interconnection is technically feasible, or the use of such
8 facilities. In general, this means that incumbent LECs must
9 provide interoffice facilities between wire centers owned by
10 incumbent LECs or requesting carriers, or between switches
11 owned by incumbent LECs or requesting carriers. For
12 example, an interoffice facility could be used by a competitor
13 to connect to the incumbent LEC's switch or to the
14 competitor's collocated equipment."

15
16 The Transport Cost Module (TCM) was developed to meet the
17 requirements of the Florida Public Service Commission's Docket, utilizing
18 the Act and FCC 96-325 as a methodology guideline. The Transport Cost
19 Module determines the TELRIC of interoffice transport for DS0, DS1, DS3,
20 OC3, and OC12 in support of unbundled elements.

21
22 **(r) Transport System Costs and Associated Variables:**

23

24 **Q. What are the network components that Sprint includes in the**
25 **development of transport system costs?**

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A. The development of interoffice transport system costs for UNEs should include all of the direct cost components required for the service to be fully functional. The transport system cost inputs should utilize/recognize the following items:

- Fiber optic cable
- Fiber tip cable
- Fiber patch panel
- Fiber optic terminals (OC-3, OC-12, and OC-48)
- OC-3 cards
- OC-12 cards
- DS-3 cards
- DS-1 cards
- Installation cost
- Capacity
- Utilization factors
- Pole and conduit factors
- Annual charge factors
- Aerial, buried, underground mix

All of these components are included in Sprint's transport costing process as shown in Volume I, Section "Transport".

1 **Q. Should traffic volume (Associated Variables) be considered in the**
2 **development of transport costs?**

3
4 A. Yes. The largest single determinant in the unit cost of a DS0, DS1, DS3,
5 OC3 or OC12 transport circuit, is the volume of telecommunications traffic
6 transmitted over a specific transport route. This volume of traffic, or
7 demand, determines both the appropriate capacity sizing of the terminal
8 equipment and fiber cable. Additionally, it defines the units over which
9 these costs are spread. In cost determination, this basic principle is
10 referred to as utilization. As volumes of traffic vary across specific
11 transport routes, so do the sizing and utilization of terminals and fiber
12 cable, and ultimately the resulting unit costs.

13
14 **Q. Should terminal bandwidth OC3, OC12, OC48 (Associated Variables)**
15 **be considered in the development of transport costs?**

16
17 A. Yes. As traffic volumes or demand increases, larger terminals with
18 increased capacity are used. Use of larger terminals associated with
19 increased traffic volume results in greater economies and lower unit costs.

20
21 A basic characteristic of fiber cable is that the volume of traffic is a
22 function of the optical terminal's bandwidth/capacity (OC3, OC12, and
23 OC48) placed on the fiber ring. From this basic principle, it follows that the
24 same traffic volume that drives the unit cost of the terminals is also a
25 major determinant in the transport unit cost of the fiber. The same

1 relationship exists for fiber as terminals, in that the more traffic that a
2 specific transport route carries the lower the unit cost of DS0, DS1, DS3,
3 OC3 or OC12 on that route.
4

5 **Q. Should distance (Associated Variables) be considered in the**
6 **development of transport costs?**

7
8 A. Yes. It is obvious that as the distance around a transport ring increases,
9 more fiber cable must be placed, thereby increasing the cost of bandwidth
10 on that ring. Related to the impacts of distance on transport unit costs is
11 the fact that as distance increases, the likelihood for needing multiple
12 survivable SONET rings to connect the two network end points increases.
13 The potential use of multiple rings to transport traffic between certain end
14 offices is unavoidable due to ultimate capacity constraints of terminal
15 equipment and the need to construct fiber rings that link the predominant
16 communities which originate and terminate the largest volumes of traffic
17 on any given ring. Two communities with a relatively smaller need (i.e.
18 volume) for transporting traffic between themselves would normally not
19 exist on the same ring. Therefore, in order to transport the relatively lower
20 volumes of traffic between these two communities having lower volumes
21 of traffic, multiple rings are required to establish the circuit. For example
22 when two remotes that are homed off of two different host switches have
23 local calling to each other, each remote is on a different ring back to its
24 host switch.
25

1 **Q. What are Sprint's assumptions associated with the development of**
2 **transport terminal cost inputs?**

3
4 **A. The transport terminal cost inputs should recognize the following key**
5 **assumption items:**

- 6
- 7 • Transport Terminal Cost is Based on Sprint-Florida Specific
 - 8 Data
 - 9 • Utilizes Forward Looking Technology
 - 10 • Includes Optical Based Transmission Equipment Costs Only
 - 11 • Capable of Costing OC3, OC12, and OC48 Transport Rings
 - 12 Individually
 - 13 • Reflects the Use of LEC's Existing Wire Centers

14
15 More specifically, the terminal cost should be developed by terminal
16 bandwidth (OC3, OC12, and OC48) and should include all of the common
17 components required to make it operational. This would include the
18 following components: relay racks, shelves, line interface, common shelf
19 processor, tributary shelf processor, receive/transmit access module,
20 tributary transceiver, line shelf power supply, common shelf power supply,
21 ring controller, synchronizer card, USI-LAN interface, software, cables,
22 cover, DS3 switch, transmitters, craft interface equipment and software,
23 and common complement of spare equipment. In addition to the above
24 common equipment, additional line or drop interface equipment will be
25 required for the hand off of DS0's, DS1's, DS3's, OC3's and OC12's.

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Q. What is the appropriate method for the development of Sprint's terminal cost inputs?

A. Sprint's cost model inputs for terminals are filed in Volume II, under the Transport section. The interoffice transport terminal cost inputs reflect Sprint's current vendor material costs and applicable Florida specific sales tax. The engineering/installation labor inputs were developed by Sprint Engineering as typical work durations considered appropriate for this cost study. Florida specific labor rates were also utilized.

ISSUE 9: (a) What are the appropriate recurring rates (averaged or deaveraged as the case may be) and non-recurring charges for each of the following UNEs?

(15) Shared interoffice transmission

Q. What does the FCC say about the rates for transport?

A. FCC 96-325, First Report and Order, Paragraph 822, states,
"Typically, transmission facilities between tandem switches and end offices are shared facilities. Pursuant to our rate structure guidelines, states may establish usage-sensitive or flat-rated charges to recover those costs."

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Sprint agrees, and has calculated its TELRIC for dedicated transport on a monthly recurring, flat-rated basis. Sprint also has calculated common transport TELRIC on a recurring per minute of use (MOU) basis. A study summary titled "Transport Cost Module" is included behind the "Transport" tab in Volume I. The testimony of Mr. Daniel R. Gordon addresses the non-recurring charges associated with transport.

Q. Please describe your transport TELRIC methodology for shared interoffice transport (Common Transport).

A. Sprint calculated a weighted average common transport element on a per minute of use basis. This common transport element represents a weighted average cost per DS1 of all the extended area service (EAS) routes associated with Sprint's local exchanges, divided by 216,000 MOU. Sprint's witness Mr. Michael R. Hunsucker will provide testimony regarding the appropriate method to develop the pricing of common transport.

The 216,000 MOU per DS1 is equal to 9,000 MOU per DS0 times 24 voice-grade circuits per DS1, as assumed by the FCC 96-325 First Report and Order, paragraph 822, which states:

"Specifically, when the transport rate restructure was implemented, the initial levels of tandem-switched transmission rates were presumed reasonable if they were based on a weighted per-minute equivalent of

1 direct-trunked transport DS1 and DS3 rates that
2 reflects the relative number of DS1 and DS3 circuits
3 used in the tandem to end office links, calculated
4 using a loading factor of 9,000 minutes per month per
5 voice-grade circuit."

6

7 **(16) Dedicated interoffice transmission**

8

9 **Q. What does the FCC state regarding the rates for transport?**

10

11 A. FCC 96-325 First Report and Order, Paragraph 820 states,

12

13 "Our rule that dedicated facilities shall be priced on a
14 flat-rated basis applies to dedicated transmission links
15 because these facilities are dedicated to the use of a
16 specific customer."

17

18 Sprint agrees, and has calculated its TELRIC for dedicated transport on a
19 monthly recurring flat-rated basis. A study summary titled "Transport Cost
20 Module" is included behind the "Transport" tab in Volume I. The testimony
21 of Mr. Daniel R. Gordon addresses the non-recurring charges associated
22 with transport.

23

24 **Q. Please describe the transport TELRIC methodology for dedicated**
25 **transport.**

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A. The TELRIC methodology is similar for both dedicated and common transport. Sprint created its own Transport Cost Module (TCM), which exists as an Excel workbook. TCM determines the TELRIC of interoffice transport, individually for each fiber optic transmission ring. The cost study narrative and results for transport is contained in Volume I, Tab "Transport".

Q. What is the difference between point-to-point and fiber ring transmission systems?

A. Fiber ring technology represents the current state-of-the-art transport design. The most significant characteristic is the use of fiber rings, rather than point-to-point connections, which provide route diversity. Should the cable making up part of the ring be broken, traffic is automatically rerouted over the remainder of the ring. Ring technology has become the industry standard technology, such that asynchronous point-to-point systems can no longer be purchased from vendors.

Q. What percent of Sprint's transmission network in Florida did Sprint model?

A. Sprint modeled 100% of its transmission systems in Florida.

1 **Q. Please describe the TCM.**

2

3 **A.** An example of the TCM for a single transmission ring, Ocala - Belleview1
4 (OCAL-BLVW1, Ring # 31a), is included in Volume II, Section "Transport".

5

6 The TCM has three input sheets, and several calculating worksheets. The
7 first input sheet is "TransInputs." The user inputs the following material,
8 engineering and installation cost data by component.

9

10 Component Description:

- 11 • Fiber optic cable
- 12 • Fiber tip cable
- 13 • Fiber patch panel
- 14 • Fiber optic terminals (OC-3, OC-12 and OC-48)
- 15 • OC-3 cards
- 16 • OC-12 cards
- 17 • DS-3 cards
- 18 • DS-1 cards
- 19 • Installation cost
- 20 • Capacity
- 21 • Utilization factors
- 22 • Pole and conduit factors
- 23 • Annual charge factors
- 24 • Aerial, buried, underground mix

25

1 The second input sheet is "Trans_Rings." The user inputs each transport
2 ring's characteristics, redesigned as necessary using least cost, forward-
3 looking technology. For example, a current transport system between
4 three locations may be provided through three separate, point-to-point
5 transmission systems. TCM, in most cases, reflects this network as a
6 single fiber ring with three fiber optic terminals. The following is a listing of
7 the Trans_Rings - Ring Characteristic inputs.

8

9 Trans_Rings - Ring Characteristics Inputs:

- 10 • Ring Name
- 11 • Ring Number
- 12 • Segment Name
- 13 • Ring Type
- 14 • Segment Actual Miles
- 15 • Number of Repeaters
- 16 • Terminal Size
- 17 • Number of DS1 Terminations
- 18 • Fiber Tip Cable (Per Fiber) Util.
- 19 • Fiber Patch Panel (Per Fiber) Util.
- 20 • SONET Terminal Shelf (OC3, OC12 and OC48) Util.
- 21 • OC12 Card Util.
- 22 • OC3 Card Util.
- 23 • DS3 Card Util.
- 24 • DS1 Card Util.

- 1 • DSX3 Cross Connect Shelf
- 2 • DSX3 Cross Connect Card
- 3 • DSX1 Cross Connect Jack Field
- 4 • Channel Bank Shelf
- 5 • Channel Bank Card
- 6 • Aerial Fiber (Per Fiber) Util/Sharing
- 7 • Underground Fiber (Per Fiber) Util/Sharing
- 8 • Buried Fiber (Per Fiber) Util/Sharing
- 9 • OC3 Card (For Ded. OC3 Service)

10

11 The third input sheet is the "Trans_Routes." The user inputs each of the
12 transport routes for the development of a route specific common and
13 dedicated transport cost for DS0, DS1, DS3, OC3, and OC12. In addition
14 to the route, the user will input the appropriate rings that the route will
15 utilize. The following is a listing of the Trans_Routes inputs.

16

17 Trans_Routes Inputs:

- 18 • Route Originating
- 19 • Route Terminating
- 20 • Non Sprint Node
- 21 • 1st - 8th Ring Number Utilized

22

23

24

25

- 1 **Q. Please describe the calculations performed by the TCM worksheets.**
- 2
- 3 **A.** There are four basic steps to the TCM calculations for dedicated (DS0,
- 4 DS1, DS3, OC3 and OC12) transport. The first step is performed by
- 5 Worksheet A of the TCM, which converts the total utilized capacity of each
- 6 type of transmission equipment into a cost per DS1.
- 7
- 8 The second step is performed by Worksheet B, which calculates the costs
- 9 of each of six types of interconnections. The six interconnection types are
- 10 OC12 termination, OC3 termination, DS3 termination, DS1 termination,
- 11 terminal pass-through, and fiber pass-through.
- 12
- 13 The third step is performed on Worksheet C, which calculates the cost per
- 14 route mile of fiber facilities, or transit. This cost includes the costs of
- 15 providing route diversity, or protection.
- 16
- 17 The fourth step is performed by Worksheet D. The termination and transit
- 18 costs of each fiber ring are determined using the information in
- 19 Worksheets A, B, and C. The end result is the termination and transit
- 20 costs of dedicated DS0, DS1, DS3, OC3, and OC12 transport.
- 21
- 22 The common cost factor, which is added to the results to develop the
- 23 forward-looking economic cost, takes place on each of the individual DS0,
- 24 DS1, DS3, OC3 and OC12 Summaries.
- 25

1 **Q. What does the FCC Order state regarding fill factors?**

2

3 **A. FCC 96-325, First Report and Order, Paragraph 682 states,**

4

5 “Per-unit costs shall be derived from total costs using
6 reasonably accurate “fill factors” (estimates of the
7 proportion of a facility that will be “filled” with network
8 usage); that is, the per-unit costs associated with the
9 element must be derived by dividing the total cost
10 associated with the element by a reasonable
11 projection of the actual total usage of the element.”

12

13 **Q. Please describe what is meant by “reasonably accurate fill factors”**
14 **(FCC Order Paragraph 682).**

15

16 **A. Fill or utilization factors are the percentage of available network capacity**
17 **actually used. Utilization is due to three factors.**

18

19 1. When engineering and building telecommunications facilities,
20 LECs attempt to anticipate future needs. For example, it is
21 more cost-effective to dig a trench once and install additional
22 facilities, than to dig a trench and install new facilities every time
23 a new loop is required.

- 1 2. It is the nature of the telecommunications industry that capacity
2 is acquired in large blocks. Additional available capacity will
3 exist while demand grows into the available capacity.
- 4 3. An engineering interval, a period of time necessary to plan and
5 construct facilities, is required when replacing or expanding
6 capacity.

7

8 Efficient deployment balances the cost-benefit relationship of unused
9 capacity and the cost of installation. Not enough capacity results in
10 inefficient rework (e.g. digging new trenches every month); while too much
11 capacity is an inefficient use of resources (e.g., burying plant that will
12 never be used).

13

14 **Q. Is the use of a theoretically high, optimal utilization factor**
15 **appropriate for telephone companies such as Sprint-Florida?**

16

17 A. No. With certain sections of Sprint-Florida being rural it does not have
18 sufficient traffic to maintain a high utilization factor. This is in large part
19 due to the nature of transmission capacity. For example, an OC-3 system
20 has the capacity of 3 DS3s, and OC-12 system has the capacity of 12
21 DS3s. When an OC-3 system is exhausted and replaced with the larger
22 OC-12 system, its maximum utilization at the time of cutover is only 25%
23 (3 DS3s / 12 DS3s). In reality, the cutover takes place prior to absolute
24 exhaustion, so the actual utilization at cutover will be less than 25%.

25

1 The same utilization phenomenon occurs when cutting over from an OC-
2 12 to an OC-48 system.

3

4 **Q. How are the ring costs converted into transport route specific cost?**

5

6 A. The process consists of the following steps. As an example, the cost of
7 the Fort Myers - Fort Myers Beach DS1 route will be described here. The
8 same process is repeated for each route listed on the "Dedicated
9 Transport Rate Summary" worksheet (Dedicated_Rate tab) found in
10 Volume II under the Transport section.

11

12 The first step, takes the input from the Trans_Routes worksheet of the
13 input module to the Dedicated Transport Rate Summary worksheet in the
14 TRANS04.XLS workbook for the development of the transport route cost,
15 in this example the route is Fort Myers - Fort Myers Beach.

16

17 The second step is to identify which ring or rings would the DS1 be routed
18 over for the route Fort Myers - Fort Myers Beach. Once the ring is
19 identified along with the ring number of the associated ring, the ring
20 number is entered in the column to the right of the listed route, columns
21 labeled 1st, 2nd, 3rd, through 8th. Through the use of lookup formulas, the
22 model will pull the cost from the Weighted Termination/Distance Summary
23 for the ring number input to provide the dedicated economic cost for the
24 route listed. Instances where multiple rings are required, the sum of the
25 DS1 cost for each ring will become the route specific cost. The Fort Myers

1 to Fort Myers Beach route utilizes only one ring, which results in a cost of
2 \$ 92.91 which is displayed on an individual route basis on the Dedicated
3 Transport Rate Summary worksheet in column M labeled Dedicated DS1
4 Rate. This can be validated by looking at the Weighted
5 Termination/Distance Summary worksheet for ring number 81 which has a
6 monthly cost of \$ 92.91 per DS1 shown in column S of the Weighted
7 Termination/Distance Summary worksheet. Both of these worksheets
8 (Dedicated Transport Rate Summary, Weighted Termination/Distance
9 Summary) can be found in the TRANS04.XLS workbook or in Volume II
10 under the Transport Section. Sprint witness Mr. Michael R. Hunsucker
11 provides testimony regarding the appropriate method to develop the
12 pricing of transport. Sprint witness Mr. Dan Gordon provides testimony
13 regarding the non-recurring charges associated with transport.

14

15 **II. Circuit Switching**

16

17 **Q. What does the FCC 96-325 First Report and Order state regarding**
18 **switching as a UNE?**

19

20 A. FCC 96-325, First Report and Order, Paragraph 412, states,
21 "We defined the local switching element to encompass line-side and trunk-
22 side facilities plus the features, functions, and capabilities of the switch.
23 The line-side facilities include the connection between a loop termination
24 at, for example, a main distribution frame (MDF), and a switch line card.
25 Trunk-side facilities include the connection between, for example, trunk

1 termination at a trunk-side cross-connect panel and a trunk card. The
2 "features, and capabilities" of the local switch include the basic switching
3 function of connecting lines to lines, lines to trunks, trunks to lines, trunks
4 to trunks."

5
6 **ISSUE 7: What are the appropriate assumptions and inputs for the**
7 **following items to be used in the forward-looking recurring UNE cost**
8 **studies?**

9 (o). switching networks and associated variables

10 (p). traffic data

11 **Q. What assumptions and inputs did Sprint use in its recurring cost**
12 **studies for forward-looking switching network costs?**

13
14 **A.** Sprint uses the FCC's original recommendations in the First Report and
15 Order to develop recurring switching costs.

16 FCC 96-325, First Report and Order, Paragraph 810 states,

17
18 "We conclude that a combination of a flat-rated charge for line
19 ports, which are dedicated to a single new entrant, and either a flat-
20 rate or per-minute usage charge for the switching matrix and for
21 trunk ports, which constitute shared facilities, best reflects the way
22 costs for unbundled switching are incurred and is therefore
23 reasonable."

24

1 Consistent with the FCC's recommendation, Sprint has developed prices
2 for local switching via three separate components: usage sensitive
3 switching, a flat-rated port, and flat-rated features.

4
5 A detailed description of the methodology used by Sprint in developing
6 switching costs can be found in Volume I of Sprint's filing. In general, the
7 approach for switching cost development is to distinguish between the
8 fixed and variable switch cost components. The variable components of
9 the switch are divided by the call attempts and minutes of use (MOU),
10 while the fixed components of the switch are divided by the lines in the
11 switch.

12

13 **Q. Please describe the models used by Sprint for development of circuit**
14 **switching costs.**

15

16 A. The costing methodology for circuit switching is developed using an Excel-
17 based Switching Cost Module (SCM) described in Volume I of Sprint's
18 filing. Total investment is derived from the Telcordia SCIS (Switching Cost
19 Information System) model, and combined with actual usage information
20 and company-specific vendor switch discounts to derive TELRIC
21 investment results for each host office complex. The SCIS model is a
22 widely used and accepted industry model for determining switching
23 investment.

24

1 Since SCIS only considers vendor-specific hardware investments in each
2 central office, software and power investment required to provide basic
3 switching functionality must also be determined separately and included
4 with the SCIS results in the SCM investment inputs.

5

6 **Q. What calculations are performed in the Switching Cost Module?**

7

8 A. The SCM TELRIC methodology for local switching consists of six basic
9 steps. The calculations for one particular switch, DeFuniak Springs,
10 Florida, can be found in Volume II, under the Switching tab. This process
11 is repeated for each switch studied.

12

13 The first step is to determine the total forward-looking switching
14 investment using the SCIS model. Individual Host switches in Florida,
15 which are predominantly Nortel DMS-100 technology, were modeled. The
16 Nortel switch technology represents the predominant technology deployed
17 by Sprint in Florida, however Lucent switch technology for 5ESS switches
18 were also studied.

19

20 Switch investment is segregated into six investment categories. These
21 are:

22

23 1. Processor - the investment required to provide call set-up costs.

- 1 2. Fixed Line - the investment required to terminate the local loop in
2 the central office. It is composed primarily of a line card, the main
3 distribution frame, and protector.
- 4 3. Line Usage - the investment associated with usage sensitive line-
5 side switching. It consists primarily of line concentration
6 equipment, digital links, controllers, and a portion of the network
7 modules.
- 8 4. Trunk Usage - the investment with usage sensitive trunk-side
9 switching. It is composed primarily of digital trunk controllers, DS1
10 links, and a portion of the network modules.
- 11 5. Umbilical Usage - the usage sensitive investment in host-remote
12 links.
- 13 6. SS7 Link - investment associated with the SSP (Service Signaling
14 Point) located in the central office.

15

16 This investment information is summarized in Volume II, tab "Switching",
17 on the page titled "Common Switching Calculations." Switch specific
18 demand data for MOU and call set-up derived from traffic studies are
19 included on the "Common Switching Calculations" page.

20

21 The second step is to determine the number of processor milliseconds
22 required to process each type of call. This information, shown in Volume
23 II, tab "Switching", on the page titled Processor Usage, is vendor
24 proprietary.

25

1 The third step is to derive monthly expense per investment category by
2 multiplying the investment by the appropriate forward-looking annual
3 charge factor. This is shown in Volume II, tab "Switching", on the page
4 titled "Monthly Expenses" (Expenses worksheet).

5
6 The fourth step is to calculate the cost per call set-up, per call type. This
7 is accomplished by determining the total processor cost per call type, and
8 dividing by the call attempts based on actual switch-specific demand. The
9 resulting calculations, costs per call attempt for both the line and trunk
10 side of the switch, are shown Volume II, tab "Switching", on the page titled
11 Cost Per Call Set-Up.

12
13 The fifth step is to calculate the cost per MOU per call type. This is
14 accomplished by determining the total usage/duration investment by call
15 type, and dividing by the appropriate MOU. This calculation is shown on
16 Volume II, tab "Switching", on the page titled Cost Per MOU. The TELRIC
17 results (excluding the common cost factor) for each central office in
18 Florida are summarized in the "Cost Summary" worksheet, found in
19 Volume II. At this point common costs are not included.

20

21 **Q. How and why does SCM segregate costs?**

22

23 **A.** The SCM TELRIC switching results are segregated into two distinct cost
24 zones:

25 1. Host/Remote complex

1 line and trunk investment portions of the switch. Common costs are
2 included in these results. This process of separating the call set-up cost
3 from the duration cost is referred to as the bifurcated cost development
4 process.

5
6 **Q. Can local switching costs be readily separated into two elements?**

7
8 A. Yes. The Telecordia Switching Cost Information System (SCIS), widely
9 employed by the industry, has a standard output for central processor call
10 set-up costs. Thus, switching costs can be reliably separated into call set-
11 up and per MOU costs to support a bifurcated cost development process.

12
13 **Q. Please describe the costing methodology for switching ports.**

14
15 A. The total line termination investment calculated in SCIS for each office is
16 multiplied by the annual charge factor, divided by twelve in the Expenses
17 worksheet, and then divided by the number of lines per office on the page
18 titled "Cost per MOU" (MOU worksheet). The calculations for the
19 DeFuniak Springs office can be found in Volume II, on the page titled
20 "Cost per MOU" (MOU worksheet). This process is repeated for each
21 switch studied. Common costs are added on the page titled Local
22 Switching Costs (Local Switching worksheet) and the statewide average is
23 calculated on the page titled Local Switching Rate Bands (LS Rate Bands
24 worksheet). The average voice grade port cost reflects the percentage of
25 GR303 lines modeled. The port costs for non-voice grade services, i.e.

1 ISDN-BRI, ISDN-PRI, PBX DS1, and PBX DID are also calculated using
2 SCIS investment tables and port specific inputs.

3

4 **Q. Please describe the costing methodology for features.**

5

6 A. The TELRIC methodology is described in the "Centrex Features", "CLASS
7 Features", "Custom Calling Features", and "ISDN Features" pages
8 included in Volume I, tab "Switching". In addition, the TELRIC
9 methodology consists of five steps.

10

11 First, the SCIS/IN model is used to determine the cost of the most
12 prevalent features. In total, twenty-four Centrex features, eight CLASS
13 features, ten Custom Calling features, and eight BRI-ISDN features were
14 studied. Actual usage and demand information for Florida was used in the
15 SCIS/IN model.

16

17 Second, the SCIS/IN model only aggregates resource costs for the switch
18 resources consumed, along with costs for any additional hardware
19 required to provide the feature, software costs had to be added
20 separately.

21

22 Third, the annual charge factor is applied to derive an annual cost.

23

24 Fourth, the annual cost is divided by twelve to derive a monthly cost.

25

1 Fifth, the common cost factor is applied to determine the total cost and all
2 the features in each category are totaled, for a total feature package cost.

3

4 **Q. How does Sprint propose to offer switching features purchased with**
5 **an unbundled port?**

6

7 A. Sprint has developed feature packages that may be purchased with a
8 switching port. Individual feature packages for Custom Calling, CLASS,
9 Centrex and BRI-ISDN may be selected to provision on individual access
10 lines. This will alleviate CLECs from having to purchase feature capability
11 for their customers who do not desire features, while allowing Sprint to
12 recover its feature-specific costs on a per port basis.

13

14 **Q. Should carriers be permitted to purchase unbundled features without**
15 **purchasing the switching port?**

16

17 A. No. As supported by the FCC, feature capability is an integral part of the
18 switch. Sprint's approach is to allow the CLEC to customize the switching
19 ports it purchases from Sprint. The CLEC cannot purchase feature
20 capability without first purchasing the switching port.

21

22 **Q. Please describe the costing methodology for local tandem switching.**

23

24 A. The tandem switching costing methodology is the same as for local
25 switching. It is assumed that the cost of local tandem switching is equal to

1 local trunk-to-trunk switching. An example for the DeFuniak Springs office
2 is shown on the page titled "Tandem Switching Costs" (Tandem Switching
3 worksheet) page included in Volume II, tab "Switching".
4

5 **Q. When does the local tandem switching cost apply?**

6
7 **A.** The SCM calculates a single weighted average cost for Sprint's entire
8 service area. However, for costing purposes, specific offices that provide
9 a local tandem switching function were identified. These local tandem
10 switches and resulting pricing are addressed in the testimony of Sprint's
11 witness, Mr. Michael R. Hunsucker. Tandem switching charges apply if
12 local traffic goes through both a tandem switch and an end-office switch to
13 reach a customer; both rates would apply (as well as common transport)
14 and are simply added together.
15

16 **Q. Please describe the costing methodology for UNE-P lines.**

17
18 **A.** As described in Volume I of Sprint's filing, UNE-P is comprised of a loop
19 and switch port combination. Essentially, the cost for UNE-P is the sum of
20 the cost of all the elements in the platform. This cost study accounts for
21 the combination of loops and switch ports.
22

23 The elements of UNE-P for this filing consist of a 2-wire loop and
24 switching port. The benefits that result are related to using a GR-303
25 switch interface. The primary difference between the cost of a loop and

1 port that are sold in combination (UNE-P) and those elements purchased
2 on a standalone basis, is the result of the technology used to provide the
3 elements. The technical difference between unbundled loops and ports
4 purchased as part of UNE-P, is that the GR-303 interface is used in place
5 of an analog interface. With GR-303, the IDLC Central Office Terminal
6 (COT) is integrated with the central office switch. This permits
7 connectivity between the switch and COT at the DS-1 level in lieu of
8 individual switch and COT line cards connected back to back with analog
9 jumpers. The positive economies for loops sold in combination with
10 switching are related to the differences in labor and material in the IDLC
11 system and to the substitution of DS-1 level for line level switch and COT
12 interfaces.

13
14 **Q. What is the UNE-P cost and when does it apply?**

15
16 **A.** The cost consists of the per office UNE-P switch port and UNE-P loop
17 cost. The study results contained in Volume II, tab UNE-P, include an
18 average UNE-P switch port cost. The complete UNE-P cost includes both
19 loop and port costs for each exchange. The UNE-P cost would apply
20 whenever a combined switched line and port are concurrently purchased.
21 Application of these costs and pricing are addressed in the testimony of
22 Sprint's witness, Mr. Michael R. Hunsucker.

1 **Q. Does this conclude your direct testimony?**

2

3 **A. Yes, it does.**

1 **BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION**

2 **DIRECT TESTIMONY**

3 **OF**

4 **Daniel R. Gordon**

5 **Q. Please state your name, business address, employer and**
6 **current position.**

7
8 **A. My name is Daniel R. Gordon. I am employed by Sprint/United**
9 **Management Company as Manager-Network Services Costing. My**
10 **business address is 6360 Sprint Parkway, Overland Park, Kansas**
11 **66251.**

12
13 **Q. Please describe your educational background and business**
14 **experience.**

15
16 **A. I received a Bachelor of Arts degree from Westminster College in**
17 **Fulton, Missouri in 1991 with a major in Business Administration. In**
18 **1995, I received a Master of Science degree in Agricultural**
19 **Economics from the University of Missouri – Columbia. I have also**
20 **received training in telecommunications through various industry**
21 **sources and completed numerous training courses within Sprint.**

22
23 **From 1995 to 1997, I was employed as a Research Analyst for the**
24 **Missouri Department of Social Services. In 1997, I joined the**

1 Telecommunications Department of the Missouri Public Service
2 Commission (MoPSC) as an Economist. While at the MoPSC I
3 worked on various regulatory issues including NPA number exhaust,
4 Local Number Portability, Universal Service Funding, and mediation
5 and arbitration of the costs of unbundled network elements. I also
6 worked as part of the MoPSC Arbitration Advisory Staff on matters
7 related to telecommunications.

8
9 In 1998, I took a position with the local telecommunications division
10 of Sprint as a Regulatory Analyst. While in that position I was
11 responsible for Sprint's compliance with regulations in Minnesota,
12 Nebraska, and Wyoming. In mid- 1999, I assumed my current
13 position in Cost Support, where I am responsible for the cost support
14 of USF issues, outside plant including all types of loops, and line
15 sharing. I am also responsible for understanding the cost study
16 processes of other ILECs.

17

18 **Q. What is the purpose of your testimony in this proceeding?**

19

20 **A.** The purpose of my testimony is to support the "Non-Recurring
21 Charge (NRC) Study" and to explain the assumptions made and
22 principles utilized in development of the NRCs associated with
23 ordering and installing Unbundled Network Elements ("UNEs").

24

1 Non-recurring charges are one-time charges assessed for activities
2 performed by Sprint on behalf of ALECs which involve the processing
3 of orders and the installation of UNEs. Due to the quantity of NRCs
4 involved with this proceeding, I will only address the categories
5 and/or particular items that warrant discussion due to complexity of
6 the subject and/or costing methodology. Additional details regarding
7 each UNE NRC costing methodology can be found within the body of
8 the cost study, which includes further descriptions, methodology and
9 workpapers. My testimony will also address in whole, issues #8, #10
10 and #11, and in part, issues #9(a) and #12 as identified in Appendix
11 A of this Commission's "Second Revised Order on Procedures"
12 issued March 16, 2000. Sprint witness Mr. Kent Dickerson will also
13 address issues #9(a) and #12.

14

15 **Q. Which portions of Sprint's cost study filings are you**
16 **supporting?**

17

18 A. In addition to my testimony, Exhibit KWD-2 to the testimony of Sprint
19 witness Kent Dickerson identifies the portions of Sprint's cost study
20 filings that I support.

21

22 **Issue 8: What are the appropriate assumptions and inputs**
23 **for the following items to be used in the forward-**
24 **looking non-recurring UNE cost studies?**

- 1 (a) network design;
- 2 (b) OSS design;
- 3 (c) labor rates;
- 4 (d) required activities;
- 5 (e) mix of manual versus electronic activities;
- 6 (f) other.

7 **Q. What guiding principles did Sprint utilize in developing non-**
8 **recurring charges for UNEs?**

9

10 A. Sprint utilized principles set out by the FCC and this Commission.
11 First, the Company assumed a “forward-looking” network as defined
12 by the FCC. That is, the network utilized in the development of
13 NRCs meets the FCC criteria of being “the most efficient, least-cost
14 and reasonable technology currently available for purchase”.

15

16 In compliance with these principles, Sprint assumed the use of Next
17 Generation Digital Loop Carriers (“NGDLCs”) in the development of
18 NRCs for unbundled loops and assumed the availability of a “fully
19 automated” Operations Support System (OSS) for an ALEC to
20 submit Local Service Requests (“LSRs”) to the Company.
21 Automated facility assignment, order routing, switch activation and
22 dispatch have also been assumed as part of the Company’s forward-
23 looking network.

24

1 Second, again assuming a forward-looking network, Sprint
2 developed charges that relate as closely as possible to actual costs
3 incurred, rather than developing a single "average" charge.
4 Consequently, ALECs will pay non-recurring charges that relate
5 directly to work actually performed on their behalf which, in turn, will
6 ensure that Sprint neither over, nor under-recovers, non-recurring
7 costs.

8

9 **Q. Would you please describe in more detail how non-recurring**
10 **charges were developed for unbundled network elements?**

11

12 A. Yes. The purpose of the NRC study is to determine the cost of
13 initiating, changing and providing unbundled element services for
14 ALEC customers. These charges are based on the amount of time
15 required to complete an activity and the cost of performing that
16 activity. The charges represent the most current wage rates and
17 time components related to UNE services.

18

19 The study consists of four main steps:

- 20 1. Identifying the work activities or tasks necessary to complete
21 service order, installation, and other related provisioning
22 functions for each unbundled element.
23 2. Identifying the work times related to performing each function.

1 3. Identifying the labor rates for each work group that completes
2 the activity and multiplying that amount by the time required to
3 complete the activity.

4 4. Grouping the costs by appropriate activities to develop a cost
5 by unbundled network element.

6

7 **Q. Have you included a contribution for common cost in the**
8 **NRCs?**

9

10 A. Yes. A contribution for common costs was included as a component
11 in the total NRC cost. Mr. Kent Dickerson will explain the
12 development of the factor used to determine the level of common
13 costs included in the NRC rates .

14

15 **Q. What categories of NRCs are reflected in the study?**

16

17 A. There are three general categories of functions reflected in the study
18 of non-recurring charges:

19

20 1. *Service Order Charges*

21 2. *Installation Charges*

22 3. *Other Installation Charges*

23

1 Each of the four main study steps I described previously are
2 performed with respect to each of these categories of non-recurring
3 charges.

4
5 **Q. Please describe the first category of non-recurring charges -**
6 **Service Order Charges.**

7
8 A. *A Service Order Charge* covers the cost of work performed by Sprint
9 in connection with receiving, recording and processing ALEC
10 requests for service. Sprint has developed three categories of
11 *Service Order Charges*.

12
13 1) A ***Service Order Charge*** is applied to all orders for new service
14 received from ALECs.

15
16 2) A ***Listing Only Charge*** is applied to orders received through
17 the Local Service Request (LSR) process to provide directory
18 listings only. (Note: Sprint also provides a "batch" process that
19 is generally used by ALECs for providing directory listings.)

20
21 3) A ***Change Order Charge*** is applied when an ALEC requests a
22 change in a port feature.

23

1 Q. Has Sprint developed Service Order Charges based on the
2 availability of a fully automated OSS for ordering service?

3

4 A. Yes. Sprint has developed two general categories of Service Order
5 Charges: **Electronic Service Order Charges** and **Manual Service**
6 **Order Charges.**

7

8 **Electronic Service Order Charges** are applied to orders when an
9 ALEC has elected to use Sprint's automated ordering platforms. In
10 this case, it is assumed that a service order will directly flow into the
11 Company's OSS on a fully automated basis. The majority of the
12 costs, therefore, will result from the processing of orders that, due to
13 errors in the data provided on the ALEC's LSR, require some form of
14 manual intervention to complete. Typically, this might include
15 requesting service at an address that does not exist or is not
16 complete (such as a missing apartment number). In addition, the
17 LSR might not contain sufficient information to identify the existing
18 service that is being transferred from Sprint to the ALEC. In all
19 cases, Sprint will attempt to manually correct the information and
20 may also contact the ALEC for clarification or correction.

21

22 **Manual Service Order Charges** are applied when an order is not
23 transmitted to Sprint through the automated OSS, such as when an
24 order is placed over the telephone or by facsimile.

1

2 **Q. Is Sprint's development of Electronic and Manual Service Order**
3 **Charges consistent with the utilization of a least cost, forward-**
4 **looking technology?**

5

6 A. Yes, it is. In order to be considered forward looking, a technology
7 must be currently available, most efficient and least cost. Sprint
8 believes that the proposed Electronic/Manual service order structure
9 best meets these criteria in a broad range of situations.

10

11 **Q. In what ways does Sprint's service order structure meet the**
12 **criteria of being least cost and most efficient?**

13

14 A. An automated service ordering interface requires investment on the
15 part of both the ALEC that is sending the orders and the ILEC that
16 receives them. A decision as to whether an automated ordering
17 system is "most efficient" must consider the financial impact on both
18 parties. Sprint has an automated platform in place to serve ALECs
19 that find it more economical to use this method. The Company also
20 provides a manual process that ALECs may elect to use if
21 implementing an automated interface is not economical for them due
22 to low order volume or other reasons. ALECs presently use both
23 methods to transmit orders to Sprint in Florida. Since it is likely that
24 ALECs will use the ordering option, which is in their best economic

1 interest, both manual and automated ordering are forward-looking
2 approaches.

3

4 **Q. Is there a difference in the cost to Sprint for processing**
5 **Electronic and Manual service orders?**

6

7 A. Yes. As identified in the Non-Recurring Charge Study, the forward-
8 looking cost for Sprint to process an electronic order for new service
9 is \$4.45. The cost to process the same order manually is \$32.75.

10

11 **Q. Is it appropriate to have higher service order charges for the**
12 **more expensive manual service orders than those charges for**
13 **electronic service orders?**

14

15 A. Yes. This methodology facilitates charges that relate as closely as
16 possible to actual non-recurring costs incurred, rather than
17 developing a single "average" charge.

18

19

20 **Issue 9: (a) What are the appropriate recurring rates (averaged**
21 **or deaveraged as the case may be) and non-recurring**
22 **charges for each of the following UNEs?**

23 **(1) 2-wire voice grade loop;**

24 **(2) 4-wire analog loop;**

- 1 (3) 2-wire ISDN/IDSL loop;
- 2 (4) 2-wire xDSL-capable loop;
- 3 (5) 4-wire xDSL-capable loop;
- 4 (6) 4-wire 56 kbps loop;
- 5 (7) 4-wire 64 kbps loop;
- 6 (8) DS-1 loop;
- 7 (9) high capacity loops (DS3 and above);
- 8 (10) dark fiber loop;
- 9 (11) subloop elements (to the extent required by the
- 10 Commission in Issue 4);
- 11 (12) network interface devices;
- 12 (13) circuit switching (where required);
- 13 (14) packet switching (where required);
- 14 (15) shared interoffice transmission;
- 15 (16) dedicated interoffice transmission;
- 16 (17) dark fiber interoffice facilities;
- 17 (18) signaling networks and call-related databases;
- 18 (19) OS/DA (where required)

19

20 **Q. Does Sprint's non-recurring cost study address each of the**

21 **unbundled network elements listed in Issue 9(a)?**

22

23 **A.** Yes, where applicable. The various UNE NRCs are listed on pages

24 4-14 of the Non-Recurring Cost Study. Approximately one-half of

1 these charges are associated with the UNEs listed in Issue #9(a) and
2 can be found in the Installation Charge section of the subject study.

3

4 **Q. Please describe the second category of non-recurring charges -**
5 **Installation Charges.**

6

7 A. The Installation Charge section of the NRC cost study is sub-
8 categorized into 14 different UNE types including loops (all types),
9 pre-order loop qualification, loop conditioning, dark fiber, UNE-P,
10 EELs, switching, features, customized routing, operator services and
11 transport. Each sub-section contains a description of the costing
12 methodology or elements utilized to derive the applicable NRC rates.

13

14 **Q. Please describe the “loop” sub-category of non-recurring**
15 **charges - Installation Charges.**

16

17 A. For analog, digital, XDSL-capable loops and subloops, the NRC
18 recovers the cost of work performed for connection or reconnection
19 of 2-Wire and/or 4-Wire loops. Two possible installation charges
20 may be applied for each installation:

21

22 New Install: This charge recovers the cost of installing an unbundled
23 loop on behalf of an ALEC for an end user who is not an existing
24 customer of Sprint. The charge will also apply to a loop where there

1 is no existing "Cut Through" or "Dedicated Central Office Plant" in
2 place. It includes the costs of placing a jumper at the Main
3 Distribution Frame or Cross-Connect, the prorated cost of remotely
4 provisioning an NGDLC, the cost of connecting the drop at the
5 terminal and the NID or protector, completion testing and related
6 travel time.

7
8 Re-install or Migrate: This charge recovers the cost of installing an
9 unbundled loop when an existing Sprint end user is migrating to an
10 ALEC, or when there is an existing "Cut Through" or "Dedicated
11 Central Office Plant" in place. This charge includes the costs of
12 placing a jumper on the Main Distribution Frame, the pro-rated cost
13 of remotely provisioning a NGDLC and completion testing from the
14 Main Distribution Frame.

15
16 These charges are designed to ensure that the Loop Installation
17 Charge reflect the costs that would be incurred for each installation in
18 a forward-looking network environment. The description and
19 methodology sections within the cost study for each of these
20 elements provides more detail.

21
22 **Issue 10: What is the appropriate rate, if any, for customized**
23 **routing?**

1 **Q. Please describe the specific Non-recurring charges that apply to**
2 **customized routing.**

3

4 A. Five separate non-recurring charges have been identified for
5 customized routing. Only those charges applicable to a specific
6 customized routing request would apply.

7 They are:

- 8 • Switch Analysis Charge
- 9 • Host Switch Translations
- 10 • Remote Switch Translations
- 11 • Host TOPS translations
- 12 • Remote TOPS translations

13 Time estimates and Florida-specific loaded labor rates were used to
14 develop the charges shown in the cost study.

15

16 **Q. What is xDSL?**

17

18 A. Currently, the term xDSL refers to a number of different technologies
19 that can provide high speed data services, at relatively low cost, over
20 the copper twisted pair network. In the near future, this technology
21 will also be available via NGDLCs in Sprint's local networks. This
22 technology promises to significantly broaden access to high-speed
23 services for residential and business customers in Florida and
24 around the nation.

1 **Q. What are LECs doing to make their voice networks ready to**
2 **support xDSL services?**

3

4 A. xDSL services are known to interfere with certain other high speed
5 data services. Sprint and other LECs are implementing plans to
6 proactively make their networks capable of supporting xDSL services.
7 Such plans include the identification and segregation of particular
8 binder groups for conflicting services. Binder Groups are sub-groups
9 of 25 cable pairs within the cable. An efficient forward-looking
10 network service provider will implement such binder group
11 management plans in a proactive manner, and not on a service order
12 by service order basis.

13

14 **Q. Is this effort just for the benefit of ALECs?**

15

16 A. No, this effort will provide significant benefits to the LECs, the ALECs
17 and the public, through lower costs, wider availability of enhanced
18 services and reduced barriers to market entry.

19

20 **Q. Can TELRIC principles be applied to loop conditioning non-**
21 **recurring cost methodologies?**

22

1 A. Yes. The Commission has found that pricing on the basis of forward-
2 looking costs is a key element in fostering competition in the local
3 services market. Sections 51.319(a)(3)(B) and (C) of the Rules state
4 that line conditioning costs must be recovered "in accordance with
5 the Commission's forward-looking pricing principles..." and that
6 ILECs shall recover nonrecurring loop conditioning costs "in
7 compliance with rules governing nonrecurring costs in Section
8 51.507(e)," that is, based on the ILECs' forward-looking economic
9 costs.

10

11 These TELRIC pricing principles should be followed with respect to
12 costs associated with load coil removal on loops that are shorter than
13 18,000 feet. While Bridged Tap and Repeater removals must be
14 accomplished on a per loop basis, Load Coil removals for loops
15 shorter than 18,000 feet, can be accomplished most efficiently by
16 performing the work on a bulk-basis. An efficient service provider
17 should develop charges for loop conditioning that are based on
18 TELRIC principles, recognizing logical economies of scale and least-
19 cost methodologies, including an assumption that the ILEC will
20 remove Load Coils in groups of at least 25 at a time for loops shorter
21 than 18,000 feet.

22

1 **Q. Will digital services, such as xDSL, work on a pair that has Load**
2 **Coils?**

3

4 A. No. Load Coils will block the transmission of digital services
5 including xDSL-based services for both copper-fed and NGDLC-
6 provisioned xDSL-capable loops. This is the reason that forward-
7 looking networks are designed with loops that are short enough to
8 avoid the need for Load Coils.

9

10 **Q. When you discuss "removing" a Load Coil or "unloading" a pair,**
11 **what work is actually involved?**

12

13 A. Generally, the load coil is not actually removed, it is just
14 disconnected from the cable pair. This involves snipping off the 4
15 wires that connect the coil to the cable pair and then reconnecting
16 the two ends of the cable pair. In larger cables, this may involve
17 removing a connector that splices twenty-five pairs at a time, pulling
18 out the load coil wires and replacing the connector.

19 The actual work time involved in making the connections is no more
20 than a minute or two, but set-up time can be significant, particularly
21 when working in manholes. This is why Sprint will unload multiple
22 pairs at one time when working on loops under 18,000 feet in length,
23 instead of unloading only the pair required for the current order.

24

1 **Q. Please explain the purpose of Repeaters in the voice network.**

2

3 A. A repeater is generally used to amplify a signal over a copper loop.
4 Without such amplification, the signal will decay over distance. The
5 type of repeaters that are found in cable plant are not used for voice
6 grade circuits. They are specialized modifications to the voice
7 network that are installed to support digital services such as T1 and
8 ISDN. The existence of a repeater will interfere with xDSL signals.

9

10 **Q. Please define Bridged Tap and describe the impact on xDSL**
11 **services.**

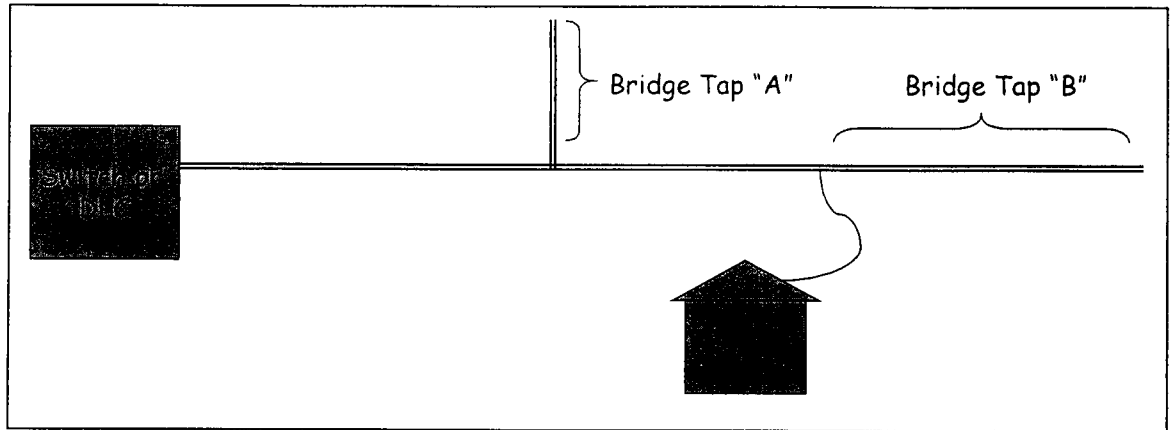
12

13 A. Bridged Tap is any piece of the cable pair that is not in the direct path
14 between the customer and the switching device. In the following
15 illustration, sections "A" and "B" are considered to be bridged tap.
16 Bridged Tap is an issue because it degrades the quality of any type
17 of signal. This issue is magnified when xDSL is placed on a loop.
18 For voice transmission on a non-loaded Revised Resistance Design
19 (RDD) cable pair, Bridged Tap cannot exceed 6,000 feet. Sprint
20 utilizes industry standard Carrier Serving Area (CSA) guidelines
21 which limits total bridged tap to 2,500 feet, with no single bridged tap
22 exceeding 2,000 feet for DSL capable loops.

23

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24

Bridged Tap

In this example, let's say that sections of the cable pair "A" and "B" are both 2,000' long. So, the total bridged tap is 4,000'. This is acceptable for voice but not for xDSL. In order to be used for xDSL, we would need to eliminate 1,500' of the bridged tap. In this example, you could do this by cutting the pair off at the customer's location, eliminating Bridged Tap "B". Only enough bridged tap to get the total under 2,500 feet has to be removed. So it would not be necessary to remove both "A" and "B".

Q. Why does Bridged Tap exist in the embedded network?

A. In the embedded network, there may be insufficient distribution pairs to permanently assign pairs to each address. A pair may be made accessible so that it could potentially be used at several different

1 addresses. This is called "multiple" plant. However, the pair can
2 serve only one address at time.

3

4 **Q. What work is actually involved in "removing" Bridged Tap?**

5

6 A. As in load coils, no plant is actually removed. The two wires of the
7 cable pair are simply cut off and capped. In splices in larger cables,
8 this may require removing a connector that splices twenty-five pairs
9 at a time, pulling out the bridged pair and replacing the connector.
10 Sprint's position is that excessive bridged tap can be removed the
11 majority of the time at the customer's serving terminal (where the
12 customer's drop wire connects to the distribution cable).

13

14 **Q. Please explain how the Sprint proposed Loop Conditioning
15 costs were developed.**

16

17 A. The description and methodology section of the Loop Conditioning
18 cost study contains a full explanation of the actual computations
19 summarized here. Sprint's loop conditioning cost methodology is
20 based upon current actual costs that Sprint pays contractors in
21 Florida to perform the work functions necessary to condition cable
22 pairs. For load coil removal on loops over 18,000 feet, all bridged tap
23 and repeater removals, the costs are determined on a per location
24 basis, dependent upon the type of outside plant facilities

1 (Underground-Ug, Aerial-Ae or Buried-Bu). This methodology
2 enables Sprint to recover costs that vary with the different types of
3 plant conditions encountered when performing loop conditioning
4 activities. For instance, it is more time-consuming to perform loop
5 conditioning activities in manholes than it is to perform the same
6 procedures on aerial or buried outside plant (OSP) facilities. Unlike
7 the aerial and buried OSP environments, a single technician cannot
8 perform (loop conditioning) work activities in the manholes because a
9 minimum of two technicians is required for safety reasons. The time
10 required for pumping out water and purging potentially dangerous
11 gases is also not required when working in aerial and buried OSP
12 facilities. Since manholes are usually located and accessed in city
13 streets, there are additional costs associated with setting up traffic
14 control as opposed to aerial and buried environments where utility
15 trucks can usually pull off the roadway.

16
17 Sprint also assumes that the majority of cable pair access locations
18 involve quick and easy access to the cable pairs via "ready access"
19 splice enclosures when working in both aerial and buried plant
20 facilities. The utilization of such enclosures is common industry
21 practice - even in buried plant environments as the cable pair access
22 locations are usually brought above ground into a pedestal.

23

1 Sprint's costing methodology accounts for the significant labor cost
2 differences associated with accessing cable pairs to perform loop
3 conditioning activities when working in these different OSP
4 environments.

5 To avoid the potential problem with double counting engineering and
6 travel time when multiple conditioning activities occur on one cable
7 pair, Sprint calculated a separate one time per loop charge for
8 "Engineering" and "Travel". Perhaps more important, Sprint offers an
9 alternate, TELRIC-based view of load coil removal for loops under
10 18,000 feet in length. Because cable pairs are generally loaded in
11 groups of 25, and loading is not required at all on loops under 18,000
12 feet, separate costs were determined based on a more efficient load
13 coil removal process. Sprint considers it reasonable to spread the
14 fixed costs of accessing the cable pairs across all pairs that would be
15 unloaded in a 25 pair binder group. The incremental labor costs
16 associated with unloading 24 more cable pairs was added to a single
17 engineering and travel charge and then divided by 25 to determine
18 the cost per pair for the entire binder group. The costing
19 methodology utilized by Sprint represents the "least-cost, most
20 efficient" standard established by the FCC.

21

22 **Q. Are there non-recurring charges associated with Switch Ports?**

23

1 A. No. Sprint assumes 100% "flow-through" for port installation. That
2 is, installation is processed automatically through the Sprint OSS with
3 no manual intervention. Therefore, no non-recurring charge is
4 applied.

5
6 **Q. What Non-Recurring Charges does Sprint apply for Custom
7 Calling Features, CLASS and Centrex Features?**

8
9 A. Sprint provides a standard package of Custom Calling Features and
10 CLASS features with each port purchased. Again, Sprint assumes
11 100% flow-through for these standard packages, with installation
12 processed automatically through OSS and no manual intervention
13 required. Therefore, no non-recurring charge is applied.
14 Certain of the standard Custom Calling Features and CLASS
15 features may be mutually exclusive, such as two different types of
16 call forwarding. In these cases, the ALEC will need to specify which
17 option is desired when the port is initially ordered. If subsequent
18 changes to the features are requested, a Service Order - Change
19 charge would be applied. However, no additional installation charge
20 would be applied for the change.

21
22 In contrast to the above, Centrex features require manual switch
23 programming. Installation charges are, therefore, applied for the

1 standard Centrex package, as well as for several less frequently
2 requested, labor intensive, individual Centrex Features.

3

4 **Issue 12: Without deciding the situations in which such**
5 **combinations are required, what are the**
6 **appropriate recurring and non-recurring rates for**
7 **the following UNE combinations:**

8

9 (a) "UNE Platform" consisting of: loop (all),
10 local (including packet, where required)
11 switching (with signaling), and dedicated and
12 shared transport (through and including local
13 termination);

14

15 (b) "extended links," consisting of:

16

17 (1) loop, DS0/1 multiplexing, DS1
18 interoffice transport;

19 (2) DS1 loop, DS1 interoffice transport;

20

21 (3) DS1 loop, DS1/3 multiplexing, DS3
22 interoffice transport.

23

1 **Q. Describe how the non-recurring rates were developed for “UNE**
2 **platform”.**

3
4 A. Sprint’s NRCs for the UNE platform combinations are listed on page
5 13 of the Non-Recurring Cost Study. For a new 2-wire analog UNE-
6 P, the charge is equal to the cost of the local loop installation. This is
7 because Sprint assumes 100% flow-through automated systems
8 whereby there is no installation charge for the port.

9
10 **Q. Describe how the non-recurring rates were developed for**
11 **“extended links”.**

12
13 A. For “Enhanced Extended Links” also known as “EELs”, three costing
14 scenarios are addressed:

15
16 EEL 1 – includes the DS0 loop, DS0/1 multiplexing and DS1
17 transport. For the first line, the NRC consists of the labor required for
18 a field visit to connect the service at a cross-connect, terminal, and
19 NID/Protector (equal to the loop installation charge) which is added
20 to the labor associated with performing the DS0/1 multiplexing and
21 DS1 transport provisioning functions. For the 2nd through 24th lines
22 that are to share this initial DS1 transport facility, a reduced NRC per
23 line occurs since an additional DS1 transport facility installation
24 charge is not required.

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EEL 2 – includes a DS1 loop, DS1/0 multiplexing and DS1 transport. The NRC is the simple addition of the NRCs for these individual UNEs. This includes the labor required for a field visit to connect the service at a cross-connect, terminal, and NID/Protector which is added to the labor associated with the DS1 transport provisioning function.

EEL 3 – includes a DS1 loop, DS1/3 multiplexing and DS3 transport. The NRC for the initial line includes the labor required for a field visit to connect the service at a cross-connect, terminal, and NID/Protector (equal to the DS1 loop installation charge) which is added to the labor associated with the DS1/3 multiplexing and DS3 transport provisioning functions. For the 2nd through 28th DS1s that are to share this initial DS3 transport facility, a reduced NRC per DS1 line occurs since an additional DS3 transport facility installation charge is not required.

Q. Please discuss the last category of non-recurring charges - Other Installation Charges.

A. Trouble Isolation and Testing Charge is billed when an ALEC reports trouble on a facility and it is discovered that the cause is outside of Sprint's network, as in the case of inside wire or trouble in the

1 ALEC's network. The trouble isolation charge includes two
2 components. The first recovers the cost of conducting tests at the
3 central office and the second recovers the cost of dispatching an
4 outside technician to determine the cause.

5
6 Other UNE charges found within this category includes those
7 associated with *Originating Point Code Service, Global*
8 *Address Translations, Nid Installation, Cooperative Testing,*
9 *Trip Charges, Dark Fiber End-to-End Testing and Loop Tag*
10 *and Label*. The costing methodology utilized for each of these
11 NRCs can be found in the description and methodology
12 sections within the "Other Charges" category of the NRC cost
13 study .

14

15 **Q. Are the work times utilized in Sprint's NRC studies comparable**
16 **to staff's recommended NRC work times for BellSouth in Docket**
17 **No. 990649-TP?**

18

19 A. In many cases the work times that staff proposes for BellSouth are
20 higher than the work times reflected in Sprint's filed NRC studies.
21 Sprint's studies were developed based on assumptions of automated
22 forward looking, least cost, most efficient operating systems and
23 procedures that may not exist but are consistent with TELRIC study
24 procedures. Sprint believes that the appropriate work steps and

1 times are included in our studies. However, it will be necessary for
2 Sprint to revise our NRCs to reflect work times adopted by the
3 Commission based upon staff's recommendation. Sprint's NRCs
4 were developed using a different standard than recommended by
5 staff and Sprint needs to ensure parity between the methodology and
6 relative results for the NRCs it will purchase from BellSouth and
7 those NRCs Sprint charges other ALECs.

8

9 **Q. Does this conclude your testimony?**

10

11 **A.** Yes, it does.

1 **BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION**

2 **DIRECT TESTIMONY**

3 **OF**

4 **Terry D. Talken**

5

6 **Q. Please state your name, business address, employer and current**
7 **position.**

8

9 A. My name is Terry D. Talken. I am employed by Sprint/United
10 Management Company as Manager of Network Costing. My business
11 address 6360 Sprint Parkway, Overland Park KS 66251.

12

13 **Q. Please describe your educational background and relevant work**
14 **experience.**

15

16 A. I received a Bachelor of Science and Business Administration degree from
17 the University of Missouri - Columbia in 1991 with a major in Accounting.
18 Also in 1991, I passed the national exam and am a Certified Public
19 Accountant (CPA) in the State of Kansas. I am currently working towards
20 the completion of a Master of Business Administration degree with emphasis
21 in Finance and Information Technology from the University of Missouri –
22 Kansas City.

23

24 Prior to joining Sprint, I practiced as a CPA. From 1991 to 1992, I was
25 employed as a staff auditor with the public accounting firm of Baird, Kurtz

1 and Dobson, LLP. In this capacity I was responsible for the audits and
2 compilation of financial reports for publicly traded and privately held
3 businesses. From 1991 to 1996, I was employed as a consultant with the
4 public accounting firm of Frederick and Warinner, LLC (now known as
5 Warinner, Gesinger & Associates, LLC). In this capacity I managed the
6 audits of privately held telecommunication providers and their subsidiaries.
7 Additionally, I was responsible for regulatory reporting, which included
8 preparing cost studies in accordance with FCC Parts 36 and 69. With
9 Frederick and Warinner, I also developed traffic study models that produced
10 results used for engineering and regulatory reporting requirements.

11
12 I joined Sprint in 1997 as a senior analyst in the Local Customer Billing area.
13 I accepted a promotion as senior analyst in Network Costing area of the
14 Regulatory Affairs group in 1998. Through a series of promotions I obtained
15 my current position, Manager of Network Costing, in April 2000. I am
16 responsible for the development and analysis of cost models for the pricing
17 of Unbundled Network Elements (UNEs), reciprocal compensation, and
18 other product offerings in accordance with the Total Element Long Run
19 Incremental Cost ("TELRIC") costing methodology.

20
21 **Q. What is the purpose of your testimony in this proceeding?**

22
23 **A.** The purpose of my testimony is to support Sprint's recurring cost studies
24 associated with the following unbundled network elements:

25 I. Signaling Networks and Call-related databases

1 II. E911 Services

2

3 **Q. What specific issues are you addressing?**

4

5 **A.** I will address the following issues as established in the Second Revised
6 Order on Procedure:

7 **Issue 5: For which signaling networks and call related**
8 **databases should rates be set?**

9 **Issue 6: What are the appropriate assumptions and inputs**
10 **for the following items to be used in the forward-looking**
11 **recurring UNE cost studies?**

12 **Item(q): signaling system costs**

13

14 **Issue 9(a): What is the appropriate recurring rates for each**
15 **of the following UNEs?**

16 **Item(18): signaling networks and call-related databases**

17

18 For purposes of clarity, I will address each of the issues under the areas
19 identified earlier. Unless otherwise identified, all non-recurring charges for
20 the above will be addressed by Sprint's witness, Mr. Dan Gordon.

21

22 **Q. Which portions of Sprint's cost study filings are you supporting?**

23

1 A. In addition to my testimony, Exhibit KWD-2 to the testimony of Sprint
2 witness Mr. Kent Dickerson identifies the portions of Sprint's cost study
3 filings that I support.

4

5 **II. SIGNALING NETWORKS AND CALL-RELATED DATABASES**

6 **Q. For which signaling networks and call related databases should**
7 **rates be set?**

8

9 A. Sprint proposes UNE rates for the following call-related database items:

- 10 • 911/E911
11 • STP Ports and STP Switching (SS7 Interconnection)
12 • Database Query Services

13

14 **Q. Please describe the general TELRIC methodology used for each of**
15 **these services.**

16

17 A. The following TELRIC methodology is used for all services except 911:

- 18 1. Determine direct expense associated with the service.
19 2. Determine the direct investment associated with the service.
20 3. Multiply the investment by the annual charge factor to determine
21 the annual direct costs.
22 4. Add common cost.
23 5. Divide total economic cost by the appropriate number of units to
24 determine the total economic cost per unit.

1

2 **Q. What prices for 911/E911 does Sprint recommend?**

3

4 A. In the State of Florida, Sprint's arrangement with the local Public Safety
5 Answering Point (PSAP) recovers all recurring costs of this service outside
6 of any transport required by the CLEC to connect its switch with Sprint's
7 911 tandem. Sprint's witness, Mr. Talmage Cox, addresses transport
8 costing. Further, all non-recurring charges related to E911 will be
9 addressed by Sprint's witness, Mr. Dan Gordon.

10

11 **Q. Please define Signaling System Seven (SS7) interconnection.**

12

13 A. SS7 interconnection consists of Signal Transfer Point (STP) ports,
14 interconnecting facilities, and STP switching usage. The costs for these
15 unbundled network elements are included in Volume II under the
16 Miscellaneous UNEs tab in the SS7 Cost Module section. The common
17 channel signaling interconnection service provides a signaling path for
18 SS7 between a customer designated point of signaling premises and a
19 Sprint STP. This two-way signaling path provides interconnection to the
20 out-of-band signaling network in order to transmit and receive information
21 related to call completion.

22

23 The STP port provides the customer access to the Sprint STP, which acts
24 as a packet switch to route out-of-band signaling. It is in some respects

1 similar to the concept of access to a local switch through a port. An STP
2 port requires use of a link port card and processor costs.

3
4 The STP transport link is the facility which connects the carrier customer's
5 designated premises to the Sprint STP. The link may be provisioned as a
6 DS0 (56 Kbps) or as an optional DS1 (1.544 Mbps), at the option of the
7 requesting carrier. The interconnecting links are provisioned in mated
8 pairs connecting to diversely located STPs consistent with industry
9 technical standards for out-of-band signaling network diversity
10 requirements.

11
12 STP switching usage consists of the cost of routing ISDN User Part
13 (ISUP) messages through a STP. The cost of SS7 switching is
14 determined by the number of individual interoffice trunks using a STP port.
15 The rate is applied on the basis of equivalent 56 Kbps trunks per month.
16 The optional DS1 rate is simply 24 times the 56 Kbps rate. STPs are
17 deployed in mated pairs for network reliability, and interconnecting carriers
18 must provision links to each STP in a mated pair.

19

20 **Q. How are the forward-looking economic costs of Signaling System**
21 **Seven (SS7) interconnection developed (Issue 7(q))?**

22

23 A. The TELRIC methodology and costing assumptions associated with STP
24 Ports and Switching are detailed in Volume I, under the SS7 tab. Care
25 has been taken to exclude port costs from the STP switching usage

1 investment. Florida-specific annual charge factors, equipment fill factors,
2 and demand are used in the calculations. The applicable transport link
3 and multiplexing charges are calculated in the Transport and Multiplexing
4 Cost Modules. Costing methodology associated with Transport and
5 Multiplexing are addressed in the testimony of Sprint's witness, Mr.
6 Talmage Cox.

7 **Q. Please define the database query services Sprint proposes.**

8

9 A. Sprint LTD's intelligent network database services consist of the following:

10 Local Number Portability (LNP)

11 Line Information Database (LIDB)

12 Calling Name (CNAM)

13 Toll Free Code (TFC) 800/888/877

14

15 **Q. How are the forward-looking economic costs of database query**
16 **services developed?**

17

18 A. Again, detailed descriptions and cost studies for these services can be
19 found in Volume II under the Miscellaneous UNEs tab in the SS7 Cost
20 Module section.

21

22 In general, LIDB, CNAM, and TFC services are provided via a diverse pair
23 of Service Control Points (SCPs) located in Johnson City and Bristol,
24 Tennessee. Since these three services use the same SCPs, a common
25 per query rate is developed based on the common investment. Next,

1 annual expenses incurred specific to the type of service are identified and
2 a per query expense calculated. Finally, the per-query costs of query
3 transport and switching from the local STPs in Florida to the National
4 STPs are added. These three cost elements are summed to arrive at a
5 total cost per query. The LNP database is housed in a separate pair of
6 SCPs with Advanced Intelligent Network Capabilities required for this
7 service. Accordingly, a unique per query cost is developed for this
8 service. The remaining calculations are similar to the other database
9 query services. All services utilize the same national STP platform. Care
10 has been exercised to ensure no duplication of investment occurs within
11 the cost studies.

12

13 **Q. Does this conclude your direct testimony?**

14

15 **A. Yes, it does.**

1 **BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION**

2 **DIRECT TESTIMONY**

3 **OF**

4 **MICHAEL R. HUNSUCKER**

5
6 **Q. Please state your name and business address.**

7
8 A. My name is Michael R. Hunsucker. I am Director-Regulatory Policy, for
9 Sprint Corporation. My business address is 6360 Sprint Parkway,
10 Overland Park, Kansas 66251.

11
12 **Q. Please describe your educational background and work experience.**

13
14 A. I received a Bachelor of Arts degree in Economics and Business
15 Administration from King College in 1979.

16
17 I began my career with Sprint in 1979 as a Staff Forecaster for
18 Sprint/United Telephone in Bristol, Tennessee, and was responsible for
19 the preparation and analysis of access line and minute of use forecasts.
20 While at Southeast Group, I held various positions through 1985 primarily
21 responsible for the preparation and analysis of financial operations
22 budgets, capital budgets and Part 69 cost allocation studies. In 1985, I
23 assumed the position of Manager - Cost Allocation Procedures for Sprint
24 United Management Company and was responsible for the preparation

1 and analysis of Part 69 allocations including systems support to the 17
2 states in which Sprint/United operated. In 1987, I transferred back to
3 Sprint/United Telephone and assumed the position of Separations
4 Supervisor with responsibilities to direct all activities associated with the
5 jurisdictional allocations of costs as prescribed by the FCC under Parts 36
6 and 69. In 1988 and 1991, respectively, I assumed the positions of
7 Manager - Access and Toll Services and General Manager - Access
8 Services and Jurisdictional Costs responsible for directing all regulatory
9 activities associated with interstate and intrastate access and toll services
10 and the development of Part 36/69 cost studies including the provision of
11 expert testimony as required.

12
13 In my current position as Director - Regulatory Policy for Sprint/United
14 Management Company, I am responsible for developing state and federal
15 regulatory policy and legislative policy for Sprint. Additionally, I am
16 responsible for the coordination of regulatory/ legislative policies with other
17 Sprint business units.

18
19 **Q. Have you previously testified before state Public Service**
20 **Commissions?**

21
22 **A.** Yes. I have previously testified before state regulatory commissions in
23 South Carolina, Florida, Illinois, Pennsylvania, Nebraska, North Carolina,
24 and Georgia.

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Q. What is the purpose of your testimony?

A. The purpose of my testimony is to address on behalf of Sprint Issues 1, 2, 4, 5, 6, 9, 12, and 13 of the Tentative List of Issues.

Q. Which portions of Sprint's cost study filings are you supporting?

A. In addition to my testimony, Exhibit KWD-2 to the testimony of Sprint witness Kent Dickerson identifies the portions of Sprint's cost study filings that I support.

Issue 1: What factors should the Commission consider in establishing rates and charges for UNEs (including deaveraged UNEs and UNE combinations)?

Q. What is the appropriate basis for the pricing of unbundled network elements?

A. Unbundled network element (UNE) rates should be based on forward-looking economic costs. This is not only the economically appropriate basis for the pricing of UNEs, it is required by Section 252 (d)(1) of the Telecom Act of 1996 and the FCC rules implementing that section of the

1 Act. Where economic costs vary significantly, prices should be
2 deaveraged consistent with FCC Rule 51.505(f).

3

4 **Q. What are the requirements of Section 252(d)(1) of the Telecom Act of**
5 **1996?**

6

7 A. Section 252(d)(1) sets forth the pricing standards for Interconnection and
8 Unbundled Network Elements. Specifically, it requires those rates for
9 these elements

10 (A) shall be-

11 (i) based on the cost (determined without reference to a rate-of-
12 return or other rate-based proceeding) of providing the
13 interconnection or network element (whichever is applicable), and

14 (ii) nondiscriminatory, and

15 (B) may include a reasonable profit.

16

17 **Q. What rules did the FCC adopt implementing that section of the Act?**

18

19 A. In its August 8, 1996 First Report and Order in Docket 96-98, the FCC
20 concluded that the Act requires that prices for UNEs be set at forward-
21 looking economic costs. Specifically, the FCC adopted a version of total
22 service long run incremental costs (TSLRIC) as the methodology to be
23 used in determining the costs of UNEs. The FCC refers to its
24 methodology as Total Element Long Run Incremental Costs (TELRIC),

1 nomenclature that reflects that the methodology is applied to the costing of
2 discrete network elements or facilities, rather than the cost of a service or
3 services provided over that facility.

4
5 The FCC's TELRIC methodology is set forth in Part 51.505(b) of its Rules:

6
7 "Total element long-run incremental cost. The total element long-run
8 incremental cost of an element is the forward-looking cost over the long
9 run of the total quantity of the facilities and functions that are directly
10 attributable to, or reasonably identifiable as incremental to, such element,
11 calculated taking as given the incumbent LEC's provision of other
12 elements.

13 (1) Efficient network configuration. The total element long-run incremental
14 cost of an element should be measured based on the use of the most
15 efficient telecommunications technology currently available and the lowest
16 cost network configuration, given the existing location of the incumbent
17 LEC's wire centers.

18 (2) Forward-looking cost of capital. The forward-looking cost of capital
19 shall be used in calculating the total element long-run incremental cost of
20 an element.

21 (3) Depreciation rates. The depreciation rates used in calculating forward-
22 looking economic costs of elements shall be economic depreciation rates."
23

1 **Q. Are there costs, other than the TELRIC costs, described above that**
2 **should be included in the forward-looking economic costs of**
3 **unbundled network elements?**

4
5 A. Yes. The FCC's currently effective Rules (Part 51.505 (a)) define the
6 forward-looking economic cost of an unbundled network element to be the
7 sum of TELRIC costs and "...a reasonable allocation of forward-looking
8 common costs...." As such, Sprint has developed and applied a common
9 cost factor of 14.23% to its unbundled network element costs. Mr.
10 Dickerson describes how this common cost factor was developed.

11
12 **Q. Why are forward-looking economic costs the economically**
13 **appropriate basis for pricing unbundled network elements?**

14
15 A. A fundamental objective of the Telecom Act of 1996 is to open all
16 telecommunications markets to competition. Congress recognized that
17 there are substantial barriers to entry into the local exchange market. In
18 particular, the local exchange network is highly capital intensive. Facility-
19 based entrants are confronted by the formidable hurdle of having to
20 devote substantial capital resources, over an extended period of time, to
21 construct a local network prior to winning any customers or generating any
22 revenues.

23

1 Section 251 of the Act provides new entrants alternative avenues for
2 entering the local exchange market. First, new entrants can simply resell
3 the services of the incumbent. In other words, they can win customers
4 and gain market share without having to construct any of their own
5 network facilities. Second, new entrants can obtain unbundled network
6 elements from the incumbent. This not only provides new entrants more
7 flexibility in creating services (e.g., the ability to provide expanded local
8 calling areas), but also provides a critical pricing signal for a new entrant's
9 "make or buy" decision in acquiring network facilities. Simply put, new
10 entrants will be incented to build facilities where they can do so at lower
11 costs than they would pay the incumbent for the equivalent network
12 element or elements, and to buy unbundled elements where the
13 incumbent's prices for those elements are lower than the new entrant's
14 cost of constructing those facilities.

15
16 The forward-looking cost standard for unbundled network elements
17 provides a measure of the costs that would be incurred by an efficient
18 supplier to provide a particular network element. Correspondingly, it will
19 provide the appropriate marketplace signals to competitors, creating an
20 incentive for them to construct their own facilities when they can do it more
21 efficiently than the incumbent LEC, and discouraging uneconomic
22 investment where they cannot provide the facilities at a lower cost than the
23 incumbent.

24

1 Conversely, to the extent that unbundled network element prices deviate
2 from economically efficient levels, they will distort infrastructure investment
3 decisions of the new entrants. If network elements are priced above
4 economic costs, it will provide an incentive for competitors to deploy their
5 own facilities, even though in actuality the incumbent can provide those
6 facilities at lower costs. On the other hand, if network elements are priced
7 below economic costs, it will discourage competitors from deploying
8 facilities even though they could do so at a cost that is lower than the
9 incumbent's economic costs.

10

11 **Q. What is the appropriate basis for pricing non-recurring charges for**
12 **unbundled network elements?**

13

14 A. Non-recurring charges should also be based on forward-looking costs. In
15 the first instance, the Act requires unbundled network elements to be
16 based on forward-looking costs. Logically, the same cost standard that
17 applies to the recurring costs of those elements should also apply to the
18 non-recurring costs associated with provisioning those elements.
19 Moreover, non-recurring costs, as well as recurring costs, enter into
20 competitors' decisions to construct their own facilities or to buy unbundled
21 elements from the incumbent LEC. As discussed above, the incumbent
22 LEC's prices should be based on economic costs in order to provide the
23 appropriate pricing signals for competitors in their "make or buy"
24 decisions. The benefits of setting the recurring charge for unbundled

1 network elements at forward-looking economic costs would be diminished
2 or lost if non-recurring charges associated with those elements were not
3 similarly based on forward-looking economic costs.

4

5 **Q. How should the forward-looking economic costs for non-recurring**
6 **charges be determined?**

7

8 A. The forward-looking costs for non-recurring charges should reflect the
9 costs that would be incurred in performing those functions in relation to the
10 forward-looking network that is the basis for calculating the recurring costs
11 and rates for the unbundled network element. Just like the recurring costs
12 for an efficiently designed network based on current technology can differ
13 from the embedded costs of the existing network, so can the non-recurring
14 costs associated with provisioning elements in that forward-looking
15 network differ from the non-recurring costs associated with provisioning
16 elements in the existing network.

17

18 **Q. What is the relationship between the pricing requirements of the**
19 **Telecom Act and rate deaveraging for unbundled network elements?**

20

21 A. As discussed above, the Telecom Act requires that the prices for
22 unbundled network elements be cost-based, and the FCC Rules define
23 cost-based to mean forward-looking economic costs (TELRIC plus a
24 reasonable share of forward-looking common costs). However, the

1 forward-looking costs of providing an element are not necessarily uniform
2 throughout an incumbent LEC's service territory. For example, Sprint's
3 unbundled 2-wire loop costs, including an allocation of common costs,
4 range from a low of \$11.76 a month to a high of \$209.46 a month, while
5 the statewide average in Sprint-Florida's serving area is \$26.10. Although
6 that average cost does, indeed, reflect TELRIC costs, it does not follow
7 that pricing all unbundled loops in Sprint-Florida's serving area at the
8 company-wide average forward-looking cost would meet the requirements
9 of the Act. To do so would result in unbundled loops in the lowest cost
10 areas being priced over 2 times their actual forward-looking costs, while
11 unbundled loops in the highest cost areas would be priced at one-eighth of
12 their forward-looking costs. Clearly, prices that deviate from costs by that
13 magnitude do not meet the Act's requirement for cost-based rates nor do
14 they provide the correct marketplace signals to competitors in their
15 decision to build their own facilities or buy unbundled network elements
16 from the incumbent. Thus, deaveraging of unbundled network elements is
17 necessary to avoid the pricing distortions inherent in rate averaging.

18
19 **Q. What do the FCC's rules require in terms of rate deaveraging?**

20
21 **A.** In Section 51.507(f) of its Rules, the FCC requires that unbundled network
22 elements be geographically deaveraged into at least three cost-related
23 zones. These can be either the zones established for the deaveraging of
24 interstate transport rates, or zones determined by the state commission.

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Q. What factors should the Commission consider in establishing rates for UNE combinations?

A. As discussed above, the governing FCC rules require UNE rates to be based on forward-looking economic costs. That same criteria is applicable to combinations of unbundled network elements. As a general principle, the rate for a UNE combination should be the sum of the rates for those UNE elements that comprise that combination. However, there are occasions where simply summing those individual UNE costs is inappropriate. For example, the local switching UNE includes the cost of a line card. In the case of unbundled loops provided using a Digital Loop Carrier (DLC), two voice-grade line cards are included in the cost of the unbundled loop: one at the DLC-remote terminal and one at the DLC-central office terminal. When loop and switching are provided in combination, only the voice-grade line card at the DLC-remote terminal is required. If the UNE combination of loop and switching were priced at the sum of the individual UNEs, CLECs would be effectively paying for three line cards, although only one voice-grade line card would be used in provisioning that combination. Therefore, the appropriate price for that UNE combination would be the sum of the loop and switching UNE rates, less the costs of two line cards. The purpose of this adjustment, and any deviations from the general principle that UNE combinations be priced at the sum of the individual UNEs included in that combination, is to

1 accurately reflect the actual forward-looking costs of that UNE
2 combination.

3

4 **Q. Are there other factors the Commission should take into**
5 **consideration in establishing rates for UNEs (including deaveraged**
6 **UNEs and UNE combinations)? For example, incumbent LECs' retail**
7 **rates are not typically cost-based, nor are they deaveraged to any**
8 **great degree. Should that be factored into a determination of the**
9 **rates for unbundled network elements, including deaveraged rates**
10 **and rates for UNE combinations?**

11

12 A. No. Although Sprint fully appreciates the differences between existing
13 retail rate structures and levels and the rate levels and structures for
14 unbundled network elements, how these differences should be resolved is
15 equally clear to Sprint. Consistent with the mandate of the Telecom Act of
16 1996, unbundled network elements should be priced at forward-looking
17 economic costs. To the extent that retail rate levels or rate structures are
18 inconsistent with unbundled network element prices, those retail rates
19 should be restructured to bring them into consistency with unbundled
20 network prices. Alternatively stated, the answer lies in moving retail rates
21 toward economic cost levels, and not in introducing distortions in the
22 pricing of unbundled network elements to bring them into conformance
23 with the uneconomic pricing of incumbent LEC retail services.

24

1 **Q. What impact has the Staff Recommendation and Commission**
2 **decision in the BellSouth pricing docket had on Sprint's filing?**

3
4 A. Recognizing that the Commission has not yet issued its written order,
5 Sprint has conducted a review of the Commission decision in the
6 BellSouth docket based upon the Staff Recommendation and the
7 transcript of the Special Agenda. Based on this limited review, Sprint has
8 attempted to incorporate what it believes to be the Commission's
9 decisions into this filing (e.g. modified Sprint banding methodology). Due
10 to the fact that Sprint has not had available the Commission's decision in
11 the BellSouth proceeding, Sprint is uncertain as to whether this filing
12 adequately addresses the Commission's decision. Sprint, therefore,
13 requests that the Commission allow for subsequent changes to Sprint's
14 filing to make it consistent with the BellSouth decision.

15
16 **Q. Why is the Commission's decision in the BellSouth proceeding**
17 **(Phase II) important to Sprint?**

18
19 A. Because Sprint operates as both a CLEC and an ILEC in Florida, Sprint is
20 concerned about the state-wide, industry-wide application of Commission
21 decisions. First, Sprint's ILEC must be treated in the same fashion as the
22 other ILECs in Florida with regard to cost methodologies, cost input
23 requirements and pricing principles. Second, Sprint's CLEC must be able
24 to purchase unbundled network elements from ILECs in the state that are

1 developed/established on a similar basis as Sprint's ILEC is required to
2 provide to CLECs in the state. This is necessary to ensure that Sprint
3 Corporation – an ILEC and a CLEC – is not disadvantaged in the state.
4

5

6

7 **Issue 2(a): What is the appropriate methodology to deaverage UNEs and**
8 **what is the appropriate rate structure for deaveraged UNEs?**

9

10 **Q. What general principles should the Commission apply in determining**
11 **the degree to which rates for unbundled elements are deaveraged?**

12

13 A. As a general principle, rates should be deaveraged to the degree
14 necessary to achieve a result wherein the averaged rate does not deviate
15 significantly from the actual forward-looking cost of providing that element
16 anywhere within the defined zone. While it is impossible to quantify with
17 absolute precision what "significant" deviations of rates from costs are,
18 Sprint believes that differences between rates and costs in excess of 20%
19 would be of sufficient magnitude to potentially distort competitors'
20 investment decisions. Using that criteria, an incumbent LEC should be
21 required to construct a deaveraged rate schedule such that the average
22 rate in each zone is no more than 20% higher or 20% lower than the
23 forward-looking cost of providing that element.

24

1 **Q. What specific criteria should underlay this Commission's**
2 **requirements for incumbent LECs to deaverage their unbundled**
3 **network elements?**

4
5 **A. Sprint would advocate the following criteria:**

6
7 First, as discussed above, prices for unbundled network elements should
8 be deaveraged to the degree necessary to avoid significant deviations
9 between the rate that is charged for an unbundled network element and
10 the actual forward-looking costs of providing that element in a specific
11 geographic area. This means that the degree of deaveraging can vary
12 both across elements and among incumbent LECs. For example, the
13 costs of providing some unbundled network elements in different
14 geographic areas simply do not vary significantly. There is little or no
15 economic benefit, therefore, in deaveraging the rates for those elements.
16 On the other hand, the forward-looking economic costs of other elements
17 can vary significantly, as evidenced by the example for unbundled loops
18 cited above. Clearly, those rates should be deaveraged into a sufficient
19 number of zones such that the rate for each zone does not significantly
20 deviate from the actual forward-looking costs of providing that element for
21 any area included in that zone. As such, the number of zones appropriate
22 for the deaveraging of one element is not necessarily the appropriate
23 number of zones for some other element, where the disparity in costs
24 across geographic areas might be substantially more or less.

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Moreover, the number of zones appropriate for an unbundled element of one incumbent LEC is not necessarily the appropriate number of zones for that same element provided by another incumbent LEC, where, again, the disparity in costs of providing that element could be substantially more or less.

Second, the degree of rate deaveraging should be based on both administrative considerations and a realistic assessment of the extent to which limited rate averaging would not materially adversely impact competition and investment decisions. At the extreme, for example, unbundled loop costs differ almost on a customer-by-customer basis. Customer or location-specific unbundled loop rates may meet the theoretical ideal of cost-based rates, but they would equally be an administrative nightmare, for both Sprint as well as its competitors ordering unbundled loops. Furthermore, that degree of deaveraging is not necessary to provide economically correct pricing signals to new entrants. Typically, a competitor enters the local market with the intention of serving all or a substantial segment of that market, and not just one or two customers.

Some degree of averaging of unbundled element rates does not necessarily distort competitors' investment decisions for several reasons. First, the deviations, both positive and negative, between the averaged

1 rate and the actual forward-looking costs will to some extent be offsetting.
2 Second, and most important, if rates are deaveraged such that there are
3 not significant differences between the average rate and the actual
4 forward-looking costs, the impact of that rate averaging will, by definition,
5 be minimal and is unlikely to have a material impact on a competitor's
6 investment decisions.

7
8 Third, Sprint proposes that forward-looking costs be deaveraged on a wire
9 center basis. Using the wire center as the unit of cost analysis is
10 reasonable for a number of reasons. The wire center generally conforms
11 to the market definitions and plans of new entrants, and therefore, as
12 previously discussed, averaging costs at this level is not likely to distort
13 their entry or marketing decisions. Moreover, deaveraging costs below
14 the wire center level entails not only more complex cost modeling, but
15 would impose significant additional costs on both incumbent LECs and
16 competitors in administering such a rate structure.

17
18 Fourth, incumbent LECs should be required to group wire centers into
19 zones, and develop rates based on the weighted average cost of the UNE
20 for all wire centers within each zone, subject to the constraint that the
21 average rate for a UNE zone should not deviate by more than 20% from
22 the wire center forward-looking cost of that UNE for any wire center
23 included in that zone. However, it would not be unreasonable to permit a
24 wider range of deviation in the lowest and highest cost zones, recognizing

1 the larger cost variances in the lowest and highest cost areas and the
2 undesirability of creating an excessive number of zones.

3

4 Sprint's proposed deaveraging methodology is intended to provide a
5 balance between cost-based rates and administrative ease — both for
6 incumbent LECs and new entrants.

7

8

9 **Issue 2(b): For which of the following UNEs should the Commission set**
10 **deaveraged rates?**

11

(1) loops (all)

12

(2) local switching

13

(3) Interoffice transport (dedicated and shared)

14

(4) other (including combinations)

15

16 **Q. What unbundled network elements should be deaveraged?**

17

18 A. As was stated in Sprint's Post Hearing Brief in Phase II of this docket, filed
19 on November 21, 2000, the forward-looking economic costs for unbundled
20 loops, subloops, local ports and local switching usage, common and
21 dedicated transport, and dark fiber all vary significantly by geographic
22 area. However, Sprint, as indicated in its Brief, requests that only the
23 recurring rates for loops and related combinations be deaveraged.

24

1 Despite Sprint's evidence demonstrating that the recurring costs for
2 unbundled loops, subloops, local ports and local switching usage,
3 common and dedicated transport, and dark fiber all vary significantly by
4 geographic area, it has become increasingly evident that the industry,
5 including the CLECs, have expressed no interest in wanting deaveraged
6 switching and transport.

7

8 Sprint does not believe there are such cost differences in the nonrecurring
9 elements. Therefore, Sprint does not recommend that non-recurring
10 charges be deaveraged.

11

12 **Q. What did this Commission order in the BellSouth proceeding relative**
13 **to this issue?**

14

15 A. Again, without the benefit of a written order, Sprint believes that the
16 Commission ordered BellSouth to deaverage the recurring costs of all
17 varieties of loops below DS3, sub-loops, and combinations containing
18 such loops.

19

20 **Q. What has Sprint proposed to deaverage in this filing?**

21

22 A. Consistent with the interests of CLECs and consistent with what Sprint
23 believes the Commission ordered in the BellSouth proceeding, Sprint is

1 proposing to deaverage the recurring costs of loops below DS3, sub-loops
2 and combinations containing such loops.

3
4

5 **Issue 4 (a): Which subloop elements, if any, should be unbundled in**
6 **this proceeding, and how should prices be set?**

7 **(b): How should access to subloop elements be provided,**
8 **and how should prices be set?**

9

10 **Q. How does the FCC define the subloop unbundled network element?**

11

12 A. In Section 51.319(a)(2) of its rules, the FCC defines the subloop network
13 element "...as any portion of the loop that is technically feasible to access
14 at terminals in the incumbent LEC's outside plant, including inside wire.
15 An accessible terminal is any point on the loop where technicians can
16 access the wire or fiber within the cable without removing a splice case to
17 reach the wire or fiber within. Such points may include, but are not limited
18 to, the pole or pedestal, the network interface device, the minimum point
19 of entry, the single point of interconnection, the main distribution frame,
20 the remote terminal, and the feeder/distribution interface".

21

22 Because subloops are, for the most part, a newly defined network
23 element, it is impossible to determine precisely what subloop elements
24 CLECs will seek to obtain. It would, therefore, be a difficult - if not an

1 impossible - task to identify and develop prices for every conceivable
2 subloop element, nor is it a useful exercise to do so in the absence of
3 demonstrated demand for those elements.

4
5 In any event, Sprint believes that the preponderance of demand for
6 subloop elements will be for feeder or distribution plant. Therefore, Sprint
7 has developed costs and proposed rates for these two components of the
8 loop. To the extent that a CLEC requires different subloop elements, and
9 it is technically feasible to provision such elements, Sprint will determine
10 the rates for those subloop elements on an individual case basis, utilizing
11 the TELRIC costing standard. If future experience demonstrates
12 widespread demand for subloop elements in addition to feeder and
13 distribution, Sprint will develop (and incumbent LECs generally should be
14 required to develop) generic rates for such subloop elements.

15
16 Rates for subloop elements should be based on the same costing and
17 pricing principles as all other loop-related UNEs: that is, subloop elements
18 should be based on TELRIC, and should be deaveraged to the extent they
19 exhibit significant geographical differences.

20

21 **Q. How should access to such subloops be provided, and how should**
22 **they be priced?**

23

1 A. As discussed in Mr. Dickerson's testimony, the lack of experience and
2 standardized practices for interconnection with subloops renders it
3 infeasible at this time for Sprint to develop a generic forward-looking cost
4 for subloop interconnection. Therefore, Sprint proposes to price this
5 interconnection on an individual case basis. As Sprint gains experience,
6 and when industry standards and practices are developed, Sprint
7 anticipates it should be feasible to establish generic rates for subloop
8 interconnection.

9

10

11 **Issue 5: For which signaling networks and call-related databases**
12 **should rates be set?**

13

14 **Q. What unbundling requirements does the FCC require regarding**
15 **signaling networks and call-related databases?**

16

17 A. According to Rule 51.319 (e), the FCC requires that an incumbent LEC
18 shall provide nondiscriminatory access, in accordance with 51.311 and
19 section 251(c)(3) of the Act, to signaling networks, call-related databases,
20 and service management systems on an unbundled basis to any
21 requesting telecommunications carrier for the provision of a
22 telecommunications service.

23

1 **Q. For which signaling networks and call-related databases should**
2 **rates be set?**

3

4 **A. As discussed in Mr. Talken's testimony, Sprint proposes UNE rates for the**
5 **following call-related database items:**

- 6 • 911/E911
- 7 • STP Ports and STP Switching (SS7 Interconnection)
- 8 • Database Query Services

9

10

11 **Issue 6: Under what circumstances, if any, is it appropriate to recover**
12 **non-recurring costs through recurring rates?**

13

14 **Q. Do the FCC rules allow for the recovery of non-recurring costs**
15 **through recurring rates?**

16

17 **A. Yes. Although the general principle is that recurring costs should be**
18 **recovered by recurring rates, Section 51.507(e) of the FCC Rules permits**
19 **deviations from that general principle:**

20 "(e) State commissions may, where reasonable, require incumbent LECs
21 to recover nonrecurring costs through recurring charges over a reasonable
22 period of time. Nonrecurring charges shall be allocated efficiently among
23 requesting telecommunications carriers, and shall not permit an incumbent

1 LEC to recover more than the total forward-looking economic cost of
2 providing the applicable element."

3

4 **Q. Under what circumstances would it be appropriate to recover non-**
5 **recurring costs through recurring rates?**

6

7 A. To the extent that high non-recurring charges are a significant barrier to
8 competitive entry, it may be appropriate to require at least a portion of
9 those non-recurring charges through recurring rates.

10

11 Absent such compelling circumstances, Sprint believes that non-recurring
12 costs should be recovered through non-recurring rates. Requiring non-
13 recurring costs to be recovered through recurring charges raises a number
14 of difficult policy and administrative issues. On the one hand, the
15 incumbent LEC would be financially exposed if the CLEC discontinues
16 service before the non-recurring costs are fully recovered. On the other
17 hand, the incumbent LEC could over-recover its non-recurring costs
18 unless it tracked each service installation and reduced its recurring rate at
19 the point where the non-recurring costs built into that recurring rate were
20 fully recovered.

21

22 Sprint does not propose to recover any non-recurring costs through
23 recurring rates.

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ISSUE 9(a): What are the appropriate recurring rates (averaged or deaveraged as the case may be) and non-recurring charges for each of the following UNEs?

- (1) 2-wire voice grade loop;**
- (2) 4-wire voice grade loop;**
- (3) 2-wire ISDN / IDSL loop;**
- (4) 2-wire xDSL-capable loop;**
- (5) 4-wire xDSL-capable loop;**
- (6) 4-wire 56 kbps loop;**
- (7) 4-wire 64 kbps loop;**
- (8) DS-1 loop;**
- (9) high capacity loops (DS3 and above);**
- (10) dark fiber loop;**
- (11) subloop elements (to the extent required by the Commission In Issue 4);**
- (12) network interface devices;**
- (13) circuit switching (where required);**
- (14) packet switching (where required);**
- (15) shared interoffice transmission;**
- (16) dedicated interoffice transmission;**
- (17) dark fiber interoffice facilities;**
- (18) signaling networks and call-related databases;**

1 **Q. What are Sprint's proposed UNE rates?**

2

3 A. Sprint's proposed UNE rates are summarized in MRH Exhibit 1, "Network
4 Element Price List-Sprint Florida". The proposed UNE rates were derived
5 from the cost studies presented by the Sprint cost witnesses in this
6 proceeding. The proposed rates are calculated as the sum of TELRIC
7 costs plus allocated common costs.

8

9 **Q. Please describe how you developed the deaveraged rate bands in**
10 **MRH Exhibit 1.**

11

12 A. The deaveraged rate bands were developed pursuant to Sprint's proposed
13 criteria for deaveraging, as discussed previously. First, wire center
14 specific costs were developed for each element to be deaveraged.
15 Second, the wire centers were then grouped or banded such that the
16 actual cost of each wire center in the band does not deviate from the
17 proposed rate in the band by more than 20%. Several higher cost and
18 lower cost bands were combined, as explained below. Combining these
19 bands affected a small number of access lines, but did not materially
20 impact rates.

21

22 The derivation of the proposed bands are provided in MRH Exhibit 2. In
23 this exhibit I have provided a summary of the number and percentage of
24 access lines in each band, as well as the proposed rate for each band.

1 This exhibit also separately lists every wire center in each of the bands, as
2 well as the percent deviation between the wire center specific costs and
3 the proposed rate for the band into which that wire center falls.

4

5 **Q. What is Sprint's proposed deaveraged rate structure for unbundled**
6 **loops?**

7

8 A. Sprint's proposed deaveraged rate structure for unbundled loops is
9 provided in MRH Exhibit 2. The proposed rate bands were developed
10 consistent with the deaveraging criteria described above. Strictly applying
11 the 20% deviation rule resulted in 8 bands as shown in MRH Exhibit 3.
12 However, consistent with what the Commission adopted in the Phase II
13 proceeding (BellSouth), Sprint aggregated wire centers in the high cost
14 and low cost zones. This methodology produced 4 rate bands for
15 unbundled loops. Specifically, Band 6, which consisted of 11 wire centers,
16 Band 7, which consisted of 10 wire centers and Band 8, which consisted
17 of one wire center - for a total of 39,552 lines - were grouped with Band 5.
18 Furthermore, I collapsed the two wire centers in Band 1, which included
19 only 14,628 lines, into Band 2.

20

21 MRH Exhibit 2 contains the proposed rates for analog 2-wire loops. The
22 same 4 bands were also used for analog 4-wire, 2-wire ISDN, DS-0 digital
23 data, and DS1 loops to be consistent with what Sprint believes the
24 Commission established for all loop-related elements consistent with the

1 rate bands established for 2-wire analog loops. The banded rates for
2 these loops are provided in MRH Exhibit 1.

3

4 **Q. What is Sprint's proposed deaveraged rate structure for subloops?**

5

6 A. As discussed in my testimony regarding Issue 4, Sprint has developed
7 generic rates for the feeder and distribution subloop elements. Sprint's
8 proposed deaveraged rates for feeder and distribution are provided in
9 MRH Exhibit 1.

10

11 Again, in accordance with Sprint's understanding of what the Commission
12 ordered in the Phase II proceeding, Sprint utilized the same rate bands for
13 the feeder sub-element as the 2-wire analog loop resulting in 4 rate bands.

14

15 The same 4 bands were used also for the 4-wire feeder and distribution
16 subloop elements. The rates for these two elements were calculated by
17 adding to the respective 2-wire rate a uniform amount equal to the
18 additional costs of provisioning these types of loops. The banded rates for
19 the 4-wire feeder and distribution subloop elements are also provided in
20 MRH Exhibit 1.

21

22 **Q. Is Sprint's proposed banding proposal consistent with the**
23 **Commission's act in the Phase II (BellSouth) proceeding?**

24

1 A. Yes, it is. Sprint understands that the Commission adopted Sprint's +/-
2 20% banding proposal in the Phase II proceeding. This produced a total
3 of 5 bands for BellSouth's unbundled loops. At the Special Agenda
4 Conference, the Commission ultimately agreed to collapse the 5 bands
5 into 3, expressing concerns about competitive impacts and high rates in
6 the higher cost bands. Likewise, Sprint's +/- 20% produced 8 bands for
7 Sprint. Employing similar rationale and mechanics, Sprint is proposing to
8 collapse its 8 bands into 4 bands, by collapsing Bands 1 and 2 on the low
9 end and by collapsing Bands 5,6,7 and 8 on the high end. The results are
10 shown in MRH Exhibit 2 and MRH Exhibit 3.

11

12 **Q. What is Sprint's proposed rate structure for local switching?**

13

14 A. Local switching is comprised of two distinct elements: usage and ports.
15 The switch port element includes the fixed or per line cost associated with
16 the provision of local switching, and therefore Sprint proposes that the port
17 charge be assessed on a per line basis. The usage component includes
18 those costs that are usage sensitive, and therefore Sprint proposes that
19 these costs be recovered through a per minute of use charge.

20

21 The cost of a switch port for a PBX trunk is significantly more than the cost
22 of a switch port for a basic access line interconnection. Therefore,
23 separate switch port rates were developed for each of these service types.

24

1 Sprint's proposed local switching rates are provided in MRH Exhibit 1.

2

3 **Q. What is Sprint's proposed rate structure for dedicated transport?**

4

5 A. As explained in the testimony of Sprint witness Cox, transport costs are
6 developed on a route-by-route (i.e., wire center-to-wire center) basis.
7 Dedicated transport costs were developed for DS1, DS3, OC3, and OC12.
8 However, OC3 and OC12 service is not available on all routes in Florida.

9

10 Sprint has developed weighted statewide average termination and transit
11 rates in accordance with the Florida Commission's apparent ruling in the
12 Phase II proceeding. The weighted average termination and transit rates
13 were then applied on a route-by-route basis to determine route-specific
14 dedicated transport rates. Sprint's proposed dedicated transport rates are
15 provided in MRH Exhibit 4.

16

17 **Q. What is Sprint's proposed rate structure for common transport?**

18

19 A. Sprint witness Cox developed the weighted average DS1 cost for
20 transport within each local and EAS calling area for each exchange. This
21 weighted average DS1 rate was then divided by 216,000, which is the
22 assumed average usage per DS1, to determine the average common
23 transport cost for local and EAS calls for that exchange.

24

1 Sprint has filed statewide average common transport rates in accordance
2 with its understanding of the Commission's ruling in the Phase II
3 proceeding. Sprint's proposed common transport rate is provided in MRH
4 Exhibit 1.

5
6 **Q. What is Sprint's proposed rate structure for tandem switching?**

7
8 A. The tandem switching rate was developed following the same approach
9 that was used for common transport. Sprint witness Cox first developed
10 the tandem switching costs for each local exchange and EAS calling area.
11 Sprint has proposed a statewide average tandem switching rate found in
12 MRH Exhibit 1.

13
14 **Q. Please describe Sprint's methodology for pricing local switching and
15 tandem switching for reciprocal compensation.**

16
17 A. The cost of switching a telephone call consists of two distinct cost
18 components. One is incurred on a per message basis, the other on a per
19 minute basis. The per message cost, also known as call set-up cost,
20 consists primarily of the amount of time the switch's central processor
21 requires to set-up the call. Understanding that the lengths of all calls vary
22 significantly, Sprint believes that utilizing a bifurcated rate structure
23 (segregating the switching charge into a call setup charge and a call
24 duration charge) most accurately matches the charges to the underlying

1 costs, thereby ensuring that the costs are recovered appropriately. As is
2 stated in Sprint witness Cox's testimony, switching costs can be easily
3 separated into call set-up and per MOU costs to support this bifurcated
4 cost development process. Sprint's proposed bifurcated switching rates
5 are provided in MRH Exhibit 1 under the heading Reciprocal
6 Compensation.

7

8 **Q. What is Sprint's proposed rate structure for dark fiber?**

9

10 A. Dark fiber costs were developed for interoffice, feeder, and distribution
11 plant dark fiber.

12

13 Sprint witness Dickerson calculated interoffice fiber costs for each wire
14 center. The costs were developed on a per foot per fiber basis. Sprint
15 believes that the cost variances derived for the interoffice fiber are not
16 sufficient to warrant deaveraging. Therefore, Sprint proposes a statewide
17 average interoffice dark fiber rate as shown in MRH Exhibit 1.

18

19 Sprint witness Dickerson also calculated the fiber feeder costs by wire
20 center. Sprint proposes a statewide average feeder dark fiber rate as
21 shown in MRH Exhibit 1.

22

23 Sprint has limited fiber distribution plant, and therefore lacks sufficient data
24 to develop a deaveraged dark fiber cost for fiber distribution plant. Sprint,

1 therefore, proposes to use an average cost as the rate for distribution
2 fiber. The proposed rate is provided in MRH Exhibit 1.

3

4 The rate for a fiber loop would be the sum of the statewide averaged
5 feeder and distribution rates.

6

7

8 **Issue 9(b): Subject to the standards of the FCC's Third Report and Order,**
9 **should the Commission require ILECs to unbundle any other**
10 **elements or combinations of elements? If so, what are they and how**
11 **should they be priced?**

12

13 **Q. Will this proceeding result in the establishment of rates for all UNEs**
14 **identified in the FCC's rules?**

15

16 A. No. In its Third Report and Order in CC Docket 98-147 and Fourth Report
17 and Order in CC Docket 96-98, released December 9, 1999, the FCC
18 added to its list of UNEs the requirement for incumbent LECs to unbundle
19 the high frequency portion of the loop spectrum, an arrangement
20 commonly referred to as "line sharing". This UNE was not included in the
21 stipulated list of UNEs for which rates would be determined in this
22 proceeding. It is Sprint's understanding that the Commission will initiate a
23 separate proceeding to determine rates for this UNE.

24

1 Also, the FCC has defined Operational Support Systems (OSS) as an
2 unbundled network element. The rates for OSS are being addressed in a
3 separate proceeding, and are not included in this filing.
4

5 **Q. Are there any other UNEs or UNE combinations that the Commission**
6 **should require ILECs to unbundle in this proceeding?**
7

8 **A. No.**
9
10

11 **Issue 12: Without deciding the situations in which such combinations are**
12 **required, what are the appropriate recurring and non-recurring rates**
13 **for the following UNE combinations:**

14 (a) "UNE platform" consisting of: loop (all), local (including
15 packet, where required) switching (with signaling), and
16 dedicated and shared transport (through and including local
17 termination);

18 (b) "extended links," consisting of:

19 (1) loop, DSO/1 multiplexing, DS1 interoffice transport;

20 (2) DS1 loop, DS1 interoffice transport;

21 (3) DS1 loop, DS1/3 multiplexing, DS3 interoffice transport.
22

23 **Q. What is Sprint's proposed rate structure for the UNE-platform?**
24

1 A. The UNE platform consists of the loop, switch port, usage sensitive
2 switching, and transport. With the exception of loop, the rate for the UNE
3 platform should be the sum of the statewide average rates for each
4 individual element.

5
6 In the case of loop and switch port, costs (such as line card costs
7 associated with loops provisioned through a DLC) that are included in
8 each element when bought on a standalone basis can be eliminated when
9 they are provided in combination. Therefore, it was necessary to develop
10 a combined loop and port cost for each wire center. The combined costs
11 were then banded based on the 2-wire banding results, resulting in 4 rate
12 bands, as shown in MRH Exhibit 1.

13

14 **Q. What is Sprint's proposed rate structure for enhanced extended**
15 **loops (EELs)?**

16

17 A. Because EELs consist of the loop and transport unbundled elements,
18 Sprint proposes that the rate for an EEL will be calculated as the sum of
19 the banded loop rate and route-specific dedicated transport rate in the
20 combination. Furthermore, multiplexing rates necessary for EEL
21 Scenarios 1 and 3 have been developed as shown in MRH Exhibit 1.

22

23

1 **Issue 13: When should the recurring and non-recurring rates and charges**
2 **take effect?**

3

4 **Q. When should the UNE rates that will be determined in this**
5 **proceeding take effect?**

6

7 A. Sprint recommends that carriers be required to file UNE rates that conform
8 to the Commission's Order 60 days after the release of the Order. Those
9 rates would become effective on the date they are filed.

10

11 **Q. Does that conclude your testimony?**

12

13 A. Yes, it does.

**Network Element Price List
Sprint-Florida**

Description	MRC	NRC	Module Cell Reference
Non-Recurring Charge (NRC) Summary			
Service Orders			
Manual Service Order		\$ 32.75	[Florida NRC 2001.xls]Cost Summary!\$F\$8
Manual Service Order - Listing Only		\$ 17.26	[Florida NRC 2001.xls]Cost Summary!\$F\$9
Manual Service Order - Change Only		\$ 16.04	[Florida NRC 2001.xls]Cost Summary!\$F\$10
Electronic Service Order		\$ 4.45	[Florida NRC 2001.xls]Cost Summary!\$F\$12
Electronic Service Order - Listing Only		\$ 0.48	[Florida NRC 2001.xls]Cost Summary!\$F\$13
Electronic Service Order - Change Only		\$ 1.94	[Florida NRC 2001.xls]Cost Summary!\$F\$14
LNP Administrative Charge		\$ 9.45	[Florida NRC 2001.xls]Cost Summary!\$F\$16
Loops; Analog			
2-Wire New (w/NID)		\$ 98.25	[Florida NRC 2001.xls]Cost Summary!\$F\$28
2-Wire New (w/o NID)		\$ 88.66	[Florida NRC 2001.xls]Cost Summary!\$F\$36
2-Wire New, Addtl or Second Line (same time)		\$ 48.19	[Florida NRC 2001.xls]Cost Summary!\$F\$44
2 Wire Re-install (CT/DCOP/Reinstall)		\$ 26.65	[Florida NRC 2001.xls]Cost Summary!\$F\$52
4-Wire New (w/NID)		\$ 137.34	[Florida NRC 2001.xls]Cost Summary!\$F\$63
4-Wire New (w/o NID)		\$ 127.75	[Florida NRC 2001.xls]Cost Summary!\$F\$71
4-Wire New, Addtl or Second Line (same time)		\$ 87.27	[Florida NRC 2001.xls]Cost Summary!\$F\$79
4 Wire Re-install (CT/DCOP/Reinstall)		\$ 38.04	[Florida NRC 2001.xls]Cost Summary!\$F\$87
Pre-Order Loop Qualification			
Loop Make-Up Information		\$ 46.35	[Florida NRC 2001.xls]Cost Summary!\$F\$93
Loop Conditioning Per Line			
This charge applies to all digital UNES, line sharing and xDSL capable loops that are shorter than 18,000 feet in length. Separate Engineering and Travel charges DO NOT apply as these costs reflect 25 pair economies. All Digital, Line Sharing and/or xDSL capable loops less than 18,000 feet in length - Load Coil		\$ 1.71	[Florida NRC 2001.xls]Cost Summary!\$F\$101
xDSL Capable Loops			

Network Element Price List
Sprint-Florida

Description	MRC	NRC	Module Cell Reference
Loops; xDSL-Capable			
2-Wire xDSL-capable Loop - First Line		\$ 92.34	{Florida NRC 2001.xls}Cost Summary!\$F\$114
2-Wire xDSL-capable Loop - Add'l or Second Line		\$ 42.27	{Florida NRC 2001.xls}Cost Summary!\$F\$122
2-Wire xDSL-capable Loop - Re-install (CT, DCOP, Reinstall)		\$ 20.74	{Florida NRC 2001.xls}Cost Summary!\$F\$127
4-Wire xDSL-capable Loop - First Line		\$ 129.21	{Florida NRC 2001.xls}Cost Summary!\$F\$136
4-Wire xDSL-capable Loop - Add'l or Second Line		\$ 79.14	{Florida NRC 2001.xls}Cost Summary!\$F\$144
4-Wire xDSL-capable Loop - Re-install (CT,DCOP, Reinstall)		\$ 29.91	{Florida NRC 2001.xls}Cost Summary!\$F\$149
Digital Loops			
2-Wire New, First Line (w/NID)		\$ 162.03	{Florida NRC 2001.xls}Cost Summary!\$F\$156
2-Wire New, First Line (w/o NID)		\$ 152.45	{Florida NRC 2001.xls}Cost Summary!\$F\$157
2-Wire New, Add'l or Second Line		\$ 113.04	{Florida NRC 2001.xls}Cost Summary!\$F\$158
4-Wire New, First Line (w/NID)		\$ 239.30	{Florida NRC 2001.xls}Cost Summary!\$F\$160
4-Wire New, First Line (w/o NID)		\$ 229.72	{Florida NRC 2001.xls}Cost Summary!\$F\$161
4-Wire New, Add'l or Second Line		\$ 190.30	{Florida NRC 2001.xls}Cost Summary!\$F\$162
DS1 Service New, First Line		\$ 336.68	{Florida NRC 2001.xls}Cost Summary!\$F\$164
DS1 Service New, First Line (w/o NID)		\$ 327.09	{Florida NRC 2001.xls}Cost Summary!\$F\$165
DS1 Service New, Add'l or Second Line		\$ 237.01	{Florida NRC 2001.xls}Cost Summary!\$F\$166
Loops; High-Capacity			
Add DS3, OC3, OC12, OC48 to an existing Fiber Optic System		\$ 123.52	{Florida NRC 2001.xls}Cost Summary!\$F\$169

**Network Element Price List
Sprint-Florida**

Description	MRC	NRC	Module Cell Reference
Loop Conditioning - Per Location			
The following charge applies to all loops that are 18,000 feet in length or longer that require load coil removal.			
Engineering Charge - per loop		\$ 41.53	[Florida NRC 2001.xls]Cost Summary!\$F\$176
Trip Charge - per loop		\$ 21.30	[Florida NRC 2001.xls]Cost Summary!\$F\$177
Load Coil Removal: Loops 18kft or longer			
Unload cable pair, per Underground location		\$ 453.95	[Florida NRC 2001.xls]Cost Summary!\$F\$180
Unload add'l cable pair, UG same time, same location and cable		\$ 3.50	[Florida NRC 2001.xls]Cost Summary!\$F\$181
Unload cable pair, per Aerial Location		\$ 7.95	[Florida NRC 2001.xls]Cost Summary!\$F\$182
Unload add'l cable pair, AE, same time, location and cable		\$ 1.84	[Florida NRC 2001.xls]Cost Summary!\$F\$183
Unload cable pair, per Buried Location		\$ 7.95	[Florida NRC 2001.xls]Cost Summary!\$F\$184
Unload add'l cable pair, BU, same time, location and cable		\$ 1.84	[Florida NRC 2001.xls]Cost Summary!\$F\$185
The following charges apply to all loops of any length that require Bridged Tap or Repeater removal.			
Engineering Charge - per loop		\$ 41.53	[Florida NRC 2001.xls]Cost Summary!\$F\$189
Trip Charge - per loop		\$ 21.30	[Florida NRC 2001.xls]Cost Summary!\$F\$190
Bridge Tap Removal; Any Loop Length			
Remove Bridged Tap, per Underground Location		\$ 450.96	[Florida NRC 2001.xls]Cost Summary!\$F\$193
Remove one (1) add'l Bridged Tap, UG same time, location and cable		\$ 0.51	[Florida NRC 2001.xls]Cost Summary!\$F\$194
Remove Bridged Tap, per Aerial Location		\$ 6.56	[Florida NRC 2001.xls]Cost Summary!\$F\$195
Remove one (1) add'l Bridged Tap, AE same time, location and cable		\$ 0.45	[Florida NRC 2001.xls]Cost Summary!\$F\$196
Remove Bridged Tap, per Buried Location		\$ 6.56	[Florida NRC 2001.xls]Cost Summary!\$F\$197
Remove one (1) add'l Bridged Tap, Bu same time, location and cable		\$ 0.45	[Florida NRC 2001.xls]Cost Summary!\$F\$198
Repeater Removal; Any Loop Length			
Remove Repeater, per Underground Location		\$ 450.96	[Florida NRC 2001.xls]Cost Summary!\$F\$201
Remove add'l Repeater, UG, same time, location and cable		\$ 0.51	[Florida NRC 2001.xls]Cost Summary!\$F\$202
Remove Repeater, per Aerial Location		\$ 6.56	[Florida NRC 2001.xls]Cost Summary!\$F\$203
Remove add'l Repeater, AE, same time, location and cable		\$ 0.45	[Florida NRC 2001.xls]Cost Summary!\$F\$204
Remove Repeater, per Buried Location		\$ 6.56	[Florida NRC 2001.xls]Cost Summary!\$F\$205
Remove add'l Repeater, BU, same time, location and cable		\$ 0.45	[Florida NRC 2001.xls]Cost Summary!\$F\$206

**Network Element Price List
Sprint-Florida**

Description	MRC	NRC	Module Cell Reference
Dark Fiber Loops			
Initial Patch Cord Installation, Field Location		\$ 30.57	[Florida NRC 2001.xls]Cost Summary!\$F\$211
Additional Patch Cord Installation, Field Location, Same Time, Same Location		\$ 10.19	[Florida NRC 2001.xls]Cost Summary!\$F\$212
Central Office Interconnection, 1-4 Patch Cords, per C.O.		\$ 218.37	[Florida NRC 2001.xls]Cost Summary!\$F\$213
Special Construction for Fiber Pigtail		ICB	[Florida NRC 2001.xls]Cost Summary!\$F\$214
Sub-Loops			
Sub-Loop Interconnection (Stub Cable)		ICB	[Florida NRC 2001.xls]Cost Summary!\$F\$218
2-Wire First Line		\$ 82.15	[Florida NRC 2001.xls]Cost Summary!\$F\$220
2-Wire Add'l or Second Line		\$ 32.08	[Florida NRC 2001.xls]Cost Summary!\$F\$221
4-Wire First Line		\$ 109.84	[Florida NRC 2001.xls]Cost Summary!\$F\$223
4-Wire Add'l or Second Line		\$ 59.78	[Florida NRC 2001.xls]Cost Summary!\$F\$224
2W Disconnect Charge		\$ 34.09	[Florida NRC 2001.xls]Cost Summary!\$F\$226
4W Disconnect Charge		\$ 46.87	[Florida NRC 2001.xls]Cost Summary!\$F\$227
Local Switching			
PBX Trunks			
PBX Trunk Connection Analog		\$ 118.90	[Florida NRC 2001.xls]Cost Summary!\$F\$233
PBX Trunk Connection (DS0)		\$ 118.90	[Florida NRC 2001.xls]Cost Summary!\$F\$234
PBX Trunk Connection (DS1)		\$ 351.00	[Florida NRC 2001.xls]Cost Summary!\$F\$235
Customized Routing			
Switch Analysis		\$ 114.55	[Florida NRC 2001.xls]Cost Summary!\$F\$237
Host Switch Translations		\$ 2,291.01	[Florida NRC 2001.xls]Cost Summary!\$F\$238
Remote Switch Translations		\$ 1,718.26	[Florida NRC 2001.xls]Cost Summary!\$F\$239
Features			
Feature Packages			
CENTREX Package		\$ 34.55	[Florida NRC 2001.xls]Cost Summary!\$F\$243
ISDN Package		\$ 7.81	[Florida NRC 2001.xls]Cost Summary!\$F\$244

**Network Element Price List
Sprint-Florida**

Description	MRC	NRC	Module Cell Reference
Individual Features			
- 3 Way Conf / Consult / Hold Transfer		\$ 21.87	{Florida NRC 2001.xls}Cost Summary!\$F\$246
- Conf Calling - 6 Way Station Control		\$ 21.87	{Florida NRC 2001.xls}Cost Summary!\$F\$247
- Dial Transfer to Tandem Tie Line		\$ 100.04	{Florida NRC 2001.xls}Cost Summary!\$F\$248
- Direct Connect		\$ 21.87	{Florida NRC 2001.xls}Cost Summary!\$F\$249
- Meet Me Conference		\$ 31.31	{Florida NRC 2001.xls}Cost Summary!\$F\$250
- Multi-Hunt Service		\$ 21.87	{Florida NRC 2001.xls}Cost Summary!\$F\$251
Transport, 1/0 & 3/1 Multiplexing			
911 Trunk 2 Wire Analog		\$ 163.42	{Florida NRC 2001.xls}Cost Summary!\$F\$254
Transport - DS0 Dedicated - Install		\$ 209.98	{Florida NRC 2001.xls}Cost Summary!\$F\$256
Transport - DS1 Dedicated - Install		\$ 195.71	{Florida NRC 2001.xls}Cost Summary!\$F\$257
Transport - DS3 Dedicated - Install		\$ 209.98	{Florida NRC 2001.xls}Cost Summary!\$F\$258
Transport - DS3 Migrate		\$ 196.08	{Florida NRC 2001.xls}Cost Summary!\$F\$259
Transport - OC3 Dedicated		\$ 209.98	{Florida NRC 2001.xls}Cost Summary!\$F\$260
Transport - OC12 Dedicated		\$ 209.98	{Florida NRC 2001.xls}Cost Summary!\$F\$261
Interoffice Transmission - STP Ports		\$ 336.67	{Florida NRC 2001.xls}Cost Summary!\$F\$263
Interoffice Transmission - STP Link (56 kbps)		\$ 213.30	{Florida NRC 2001.xls}Cost Summary!\$F\$264
DS1 to DS1 Cross Connect		\$ 195.71	{Florida NRC 2001.xls}Cost Summary!\$F\$266
DS3 to DS3 Cross Connect		\$ 209.98	{Florida NRC 2001.xls}Cost Summary!\$F\$267
OC3 to OC3 Cross Connect		\$ 209.98	{Florida NRC 2001.xls}Cost Summary!\$F\$268
OC12 to OC12 Cross Connect		\$ 209.98	{Florida NRC 2001.xls}Cost Summary!\$F\$269
Multiplexing - DS1-DS0		\$ 102.75	{Florida NRC 2001.xls}Cost Summary!\$F\$271
Multiplexing - DS3-DS1		\$ 137.79	{Florida NRC 2001.xls}Cost Summary!\$F\$272
Dark Fiber Transport - Initial Installation, 1-4 Patch Cords, per C.O.		\$ 218.37	{Florida NRC 2001.xls}Cost Summary!\$F\$274

Network Element Price List
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Description	MRC	NRC	Module Cell Reference
UNE Combinations			
UNE Platform			
UNE-P 2-Wire Analog Loop - First Line, Switching, Common Transport		\$ 98.25	[Florida NRC 2001.xls]Cost Summary!\$F\$279
UNE-P 2-Wire Analog Loop - Add'l Line ordered same time to same location		\$ 48.19	[Florida NRC 2001.xls]Cost Summary!\$F\$280
UNE-P 2-Wire Analog Loop - Reinstall Loop, Switching, Common Transport		\$ 26.65	[Florida NRC 2001.xls]Cost Summary!\$F\$281
Enhanced Extended Link (EEL 1); DS0 Loop, 1/0 Mux, DS1 Transport			
EEL 1 - 2-Wire Analog - First Line		\$ 396.71	[Florida NRC 2001.xls]Cost Summary!\$F\$283
EEL 1 - 2-Wire Analog - 2nd through 24th Lines, ordered same time for same location		\$ 150.94	[Florida NRC 2001.xls]Cost Summary!\$F\$284
EEL 1 - 2-Wire Analog - 2nd through 24th Lines, ordered different times		\$ 201.00	[Florida NRC 2001.xls]Cost Summary!\$F\$285
EEL 1 - 4-Wire Analog - First Line		\$ 435.80	[Florida NRC 2001.xls]Cost Summary!\$F\$287
EEL 1 - 4-Wire Analog - 2nd through 24th Lines, ordered same time for same location		\$ 190.02	[Florida NRC 2001.xls]Cost Summary!\$F\$288
EEL 1 - 4-Wire Analog - 2nd through 24th Lines, ordered different times		\$ 240.09	[Florida NRC 2001.xls]Cost Summary!\$F\$289
EEL 1 - 2-Wire Digital - First Line		\$ 460.50	[Florida NRC 2001.xls]Cost Summary!\$F\$291
EEL 1 - 2-Wire Digital, 2nd through 24th Lines, ordered same time for same location		\$ 215.79	[Florida NRC 2001.xls]Cost Summary!\$F\$292
EEL 1 - 2-Wire Digital, 2nd through 24th Lines, ordered different times		\$ 264.79	[Florida NRC 2001.xls]Cost Summary!\$F\$293
EEL 1 - 4-Wire Digital - First Line		\$ 537.77	[Florida NRC 2001.xls]Cost Summary!\$F\$295
EEL 1 - 4-Wire Digital, 2nd through 24th Lines, ordered same time for same location		\$ 293.06	[Florida NRC 2001.xls]Cost Summary!\$F\$296
EEL 1 - 4-Wire Digital, 2nd through 24th Lines, ordered different times		\$ 342.06	[Florida NRC 2001.xls]Cost Summary!\$F\$297
Enhanced Extended Link (EEL 2); DS1 Loop, DS1 Transport			
EEL 2 - DS1 Loop, DS1 Interoffice Transport		\$ 532.39	[Florida NRC 2001.xls]Cost Summary!\$F\$299
Enhanced Extended Link (EEL 3); DS1 Loop, 3/1 Mux, DS3 Transport			
EEL 3 - First DS1, DS1/3 Multiplexing, DS3 Interoffice Transport		\$ 684.44	[Florida NRC 2001.xls]Cost Summary!\$F\$301
EEL 3 - 2nd through 28th DS1's, ordered same time for same location		\$ 374.80	[Florida NRC 2001.xls]Cost Summary!\$F\$302
EEL 3 - 2nd through 28th DS1's, ordered different times		\$ 474.46	[Florida NRC 2001.xls]Cost Summary!\$F\$303
EEL 3 - Reinstall DS1 to CLEC DS3		\$ 196.08	[Florida NRC 2001.xls]Cost Summary!\$F\$304
Enhanced Extended Link (EEL 4); DS3 Loop, DS3 Transport			
EEL 4 - DS3 Loop, DS3 Interoffice Transport		\$ 543.47	[Florida NRC 2001.xls]Cost Summary!\$F\$306
EEL 4 - DS3 Loop, DS3 Transport - Reinstall		\$ 196.08	[Florida NRC 2001.xls]Cost Summary!\$F\$307

Network Element Price List
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Description	MRC	NRC	Module Cell Reference
Other Charges			
SS7 - Originating Point Code Service		\$ 28.64	[Florida NRC 2001.xls]Cost Summary!\$F\$312
SS7 - Global Title Address Translation		\$ 14.32	[Florida NRC 2001.xls]Cost Summary!\$F\$313
Nid Installation		\$ 9.59	[Florida NRC 2001.xls]Cost Summary!\$F\$315
Nid Connection - 2 Wire		\$ 9.59	[Florida NRC 2001.xls]Cost Summary!\$F\$316
Nid Connection - 4 Wire		\$ 19.17	[Florida NRC 2001.xls]Cost Summary!\$F\$317
Trip Charge		\$ 21.30	[Florida NRC 2001.xls]Cost Summary!\$F\$319
2-Wire Digital Data Loop Cooperative Testing		\$ 42.24	[Florida NRC 2001.xls]Cost Summary!\$F\$321
4-Wire Digital Data Loop Cooperative Testing		\$ 57.85	[Florida NRC 2001.xls]Cost Summary!\$F\$322
Trouble Isolation and Testing		\$ 56.25	[Florida NRC 2001.xls]Cost Summary!\$F\$324
Dark Fiber End-to-End Testing, Initial Strand		\$ 71.34	[Florida NRC 2001.xls]Cost Summary!\$F\$326
Dark Fiber End-to-End Testing, Subsequent Strands		\$ 20.38	[Florida NRC 2001.xls]Cost Summary!\$F\$327
Tag & Label loop at the Dmarc (First Loop)		\$ 10.65	[Florida NRC 2001.xls]Cost Summary!\$F\$329
Tag & Label loop at the Dmarc (Additional Loop at same location and time)		\$ 4.26	[Florida NRC 2001.xls]Cost Summary!\$F\$330
Tag & Label Loop -First Loop - Ordered with Loop Installation		\$ 5.33	[Florida NRC 2001.xls]Cost Summary!\$F\$331

**Network Element Price List
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Description	MRC	NRC	Module Cell Reference
RECURRING RATES			
NID			
6 Line	\$ 0.89		'[NID04.xls]NIDLine6'!\$15
25 Line	\$ 5.72		'[NID04.xls]NIDLine25'!\$17
SmartJack	\$ 7.21		'[NID04.xls]SMARTJACK'!\$13
LOOP			
Analog 2-wire/xDSL Capable Loop			
Band 1	\$ 17.71		'[Loop04.xls]Rate_Band_Summary'!\$D9
Band 2	\$ 25.01		'[Loop04.xls]Rate_Band_Summary'!\$D10
Band 3	\$ 37.59		'[Loop04.xls]Rate_Band_Summary'!\$D11
Band 4	\$ 61.41		'[Loop04.xls]Rate_Band_Summary'!\$D12
Analog 4-wire/xDSL Capable Loop			
Band 1	\$ 32.69		'[Loop04.xls]Rate_Band_Summary'!\$D23
Band 2	\$ 47.06		'[Loop04.xls]Rate_Band_Summary'!\$D24
Band 3	\$ 72.27		'[Loop04.xls]Rate_Band_Summary'!\$D25
Band 4	\$ 119.81		'[Loop04.xls]Rate_Band_Summary'!\$D26
2 Wire IDSL/ISDN-BRI Loop			
Band 1	\$ 30.99		'[Loop04.xls]Rate_Band_Summary'!\$D65
Band 2	\$ 41.02		'[Loop04.xls]Rate_Band_Summary'!\$D66
Band 3	\$ 58.66		'[Loop04.xls]Rate_Band_Summary'!\$D67
Band 4	\$ 93.91		'[Loop04.xls]Rate_Band_Summary'!\$D68

**Network Element Price List
Sprint-Florida**

Description	MRC	NRC	Module Cell Reference
DS0 Digital Data Loop 56 or 64 kbps			
Band 1	\$ 36.25		'[Loop04.xls]Rate_Band_Summary!\$D79
Band 2	\$ 44.54		'[Loop04.xls]Rate_Band_Summary!\$D80
Band 3	\$ 57.79		'[Loop04.xls]Rate_Band_Summary!\$D81
Band 4	\$ 83.06		'[Loop04.xls]Rate_Band_Summary!\$D82
DS1 4 Wire Digital Data Loop DS1/T1/ISDN-PRI			
Band 1	\$ 148.70		'[Loop04.xls]Rate_Band_Summary!\$D93
Band 2	\$ 183.48		'[Loop04.xls]Rate_Band_Summary!\$D94
Band 3	\$ 207.95		'[Loop04.xls]Rate_Band_Summary!\$D95
Band 4	\$ 283.53		'[Loop04.xls]Rate_Band_Summary!\$D96
Sub Loop			
Sub Loop Feeder 2W			
Band 1	\$ 15.40		'[Loop04.xls]Rate_Band_Summary!\$D107
Band 2	\$ 19.24		'[Loop04.xls]Rate_Band_Summary!\$D108
Band 3	\$ 29.85		'[Loop04.xls]Rate_Band_Summary!\$D109
Band 4	\$ 50.58		'[Loop04.xls]Rate_Band_Summary!\$D110
Sub Loop Distribution 2W			
Band 1	\$ 8.11		'[Loop04.xls]Rate_Band_Summary!\$D121
Band 2	\$ 12.71		'[Loop04.xls]Rate_Band_Summary!\$D122
Band 3	\$ 18.44		'[Loop04.xls]Rate_Band_Summary!\$D123
Band 4	\$ 27.93		'[Loop04.xls]Rate_Band_Summary!\$D124
Sub Loop Feeder 4W			
Band 1	\$ 28.90		'[Loop04.xls]Rate_Band_Summary!\$D135
Band 2	\$ 36.10		'[Loop04.xls]Rate_Band_Summary!\$D136
Band 3	\$ 56.01		'[Loop04.xls]Rate_Band_Summary!\$D137
Band 4	\$ 94.91		'[Loop04.xls]Rate_Band_Summary!\$D138
Sub Loop Distribution 4W			
Band 1	\$ 15.21		'[Loop04.xls]Rate_Band_Summary!\$D149
Band 2	\$ 23.85		'[Loop04.xls]Rate_Band_Summary!\$D150
Band 3	\$ 34.60		'[Loop04.xls]Rate_Band_Summary!\$D151
Band 4	\$ 52.40		'[Loop04.xls]Rate_Band_Summary!\$D152
High Capacity Loops			
DS-3			
Per DS-3, both ends	\$ 1,143.34		'[HighCapLoop01HC.xls]Unit Cost Results!\$D57
OC-3			
single termination, per OC-3 terminal	\$ 929.40		'[HighCapLoop01HC.xls]Unit Cost Results!\$D511

**Network Element Price List
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Description	MRC	NRC	Module Cell Reference
DS-3 Bandwidth, single termination per DS-3 card	\$ 67.80		'[HighCapLoop01HC.xls]Unit Cost Results!\$D\$13
OC-12			
single termination per OC-12 terminal	\$ 999.30		'[HighCapLoop01HC.xls]Unit Cost Results!\$D\$18
DS-3 Bandwidth, single termination per quad DS-3 card	\$ 157.12		'[HighCapLoop01HC.xls]Unit Cost Results!\$D\$20
OC-3 Bandwidth, single termination per OC-3 card	\$ 182.38		'[HighCapLoop01HC.xls]Unit Cost Results!\$D\$22
OC-48			
single termination per OC-48 terminal	\$ 1,595.52		'[HighCapLoop01HC.xls]Unit Cost Results!\$D\$27
DS-3 Bandwidth, single termination per quad DS-3 card	\$ 157.12		'[HighCapLoop01HC.xls]Unit Cost Results!\$D\$29
OC-3 Bandwidth, single termination per OC-3 card	\$ 182.38		'[HighCapLoop01HC.xls]Unit Cost Results!\$D\$31
OC-12 Bandwidth, single termination per OC-12 card	\$ 288.44		'[HighCapLoop01HC.xls]Unit Cost Results!\$D\$33
Dark Fiber will need to be purchased for dedicated OC-3s and above.			
Dark Fiber			
Interoffice, per foot per fiber			
Statewide Average	\$0.00290		'[Loop04.xls]Rate_Band_Summary!\$D\$180
Feeder, per fiber			
Statewide Average	\$ 171.51		'[Loop04.xls]Rate_Band_Summary!\$D\$163
Distribution Price Per Fiber	\$ 29.91		'[Loop04.xls]Rate_Band_Summary!\$D\$177
Fiber Patch Cord, per fiber	\$ 0.89		'[Darkfiber_FPP_FPC01HC.XLS]Dark Fiber Misc. Summary!\$B\$6
Fiber Patch Panel, per fiber	\$ 0.94		'[Darkfiber_FPP_FPC01HC.XLS]Dark Fiber Misc. Summary!\$B\$13
UNE-P			
UNE-P Loop and Port Combination			
Band 1	\$ 18.42		'[Loop04.xls]Rate_Band_Summary!\$D\$183
Band 2	\$ 25.83		'[Loop04.xls]Rate_Band_Summary!\$D\$184
Band 3	\$ 38.55		'[Loop04.xls]Rate_Band_Summary!\$D\$185
Band 4	\$ 62.66		'[Loop04.xls]Rate_Band_Summary!\$D\$186
UNE-P ISDN/BRI Loop & Port Combination			
Band 1	\$ 53.75		'[Loop04.xls]Rate_Band_Summary!\$D\$197
Band 2	\$ 60.95		'[Loop04.xls]Rate_Band_Summary!\$D\$198
Band 3	\$ 76.36		'[Loop04.xls]Rate_Band_Summary!\$D\$199
Band 4	\$ 105.15		'[Loop04.xls]Rate_Band_Summary!\$D\$200
Usage, per MOU	See UNE Switching MOU Prices		See UNE Switching MOU Prices

**Network Element Price List
Sprint-Florida**

Description	MRC	NRC	Module Cell Reference
Enhanced Extended Links (EELs)			
Scenario 1			
DS0 Loop	See Loop UNE prices		See Loop UNE prices
DS1 Transport	See Transport UNE Prices		See Transport UNE Prices
Channel Bank Shelf/Common (per DS1)	\$ 179.69		'[Mux04.xls]Channel_Bank!\$P\$31
Channel Bank Card (per DS0)	\$ 5.42		'[Mux04.xls]Channel_Bank!\$P\$43
Scenario 2			
DS1 Loop	See Loop UNE prices		See Loop UNE prices
DS1 Transport	See Transport UNE Prices		See Transport UNE Prices
Scenario 3			
DS1 Loop	See Loop UNE prices		See Loop UNE prices
DS3 Transport	See Transport UNE Prices		See Transport UNE Prices
3/1 Multiplexing (per DS3)	\$ 242.21		'[Mux04.xls]M13!\$O\$29
Local Switching			
UNE Stand Alone Ports			
Statewide Average			
Residential 1	\$ 2.25		'[SWITCH04.xls]UNE_Port!\$J7
Business 1	\$ 2.25		'[SWITCH04.xls]UNE_Port!\$J8
Key System	\$ 2.25		'[SWITCH04.xls]UNE_Port!\$J9
CENTREX	\$ 2.25		'[SWITCH04.xls]UNE_Port!\$J10
Pay Station	\$ 2.40		'[SWITCH04.xls]UNE_Port!\$J11
PBX (DS-O)	\$ 5.62		'[SWITCH04.xls]UNE_Port!\$J12
DS-1	\$ 134.77		'[SWITCH04.xls]UNE_Port!\$J13
PBX / DID (DS-1)	\$ 134.87		'[SWITCH04.xls]UNE_Port!\$J14
BRI-ISDN	\$ 12.93		'[SWITCH04.xls]UNE_Port!\$J15
PRI-ISDN	\$ 193.56		'[SWITCH04.xls]UNE_Port!\$J16
Local Switching Usage, per MOU			
Statewide Average			
	\$ 0.002570		'[SWITCH04.xls]LS_Rate_Bands!\$F\$22

**Network Element Price List
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Description	MRC	NRC	Module Cell Reference
FEATURES			
Local Switching Features			
CCF Package *	\$ 0.29		[SWITCH04.xls]CCF!\$K\$20
CLASS Package *	\$ 5.45		[SWITCH04.xls]CLASS_Features!\$K\$19
CENTREX Package *	\$ 10.38		[SWITCH04.xls]Centrex_Features!\$L\$29
- 3 Way Conf/Consult/Hold Transfer	\$ 1.68		[SWITCH04.xls]Centrex_Features!\$L32
- Conf Calling - 6 Way Station Control	\$ 2.67		[SWITCH04.xls]Centrex_Features!\$L33
- Dial Transfer to Tandem Tie Line	\$ 0.11		[SWITCH04.xls]Centrex_Features!\$L34
- Direct Connect	\$ 0.01		[SWITCH04.xls]Centrex_Features!\$L35
- Meet Me Conference	\$ 16.89		[SWITCH04.xls]Centrex_Features!\$L36
- Multi-Hunt Service	\$ 0.08		[SWITCH04.xls]Centrex_Features!\$L37
ISDN Package	\$ 6.57		[SWITCH04.xls]SDN_Features!\$L\$19
TANDEM SWITCHING			
Tandem Switching, per MOU			
Statewide Average	\$ 0.002094		[SWITCH04.xls]TS_UNE_Summary!\$C\$12
TRANSPORT			
DSO Dedicated Transport See Dedicated Worksheet for Prices			
DS1 Dedicated Transport See Dedicated Worksheet for Prices			
DS3 Dedicated Transport See Dedicated Worksheet for Prices			
OC-3 Dedicated Transport See Dedicated Worksheet for Prices			
OC-12 Dedicated Transport See Dedicated Worksheet for Prices			
Common Transport, per minute of use	\$ 0.001032		[TRANS04.xls]Common_Rate!\$B\$3

Network Element Price List
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Description	MRC	NRC	Module Cell Reference
COMMON CHANNEL SIGNALING			
STP Port	\$ 289.00		'[SS704.xls]SS7_Monthly_Recurring!\$J\$29
STP Switching	\$ 0.40		'[SS704.xls]SS7_Monthly_Recurring!\$C\$54
STP Transport Link 56.0 Kbps SS7 Link per month	See Dedicated Transport and Multiplexing Ch		See Dedicated Transport and Multiplexing Charges
STP Transport Link 1.544 Mbps SS7 Link per month	See DS-1 Dedicated Transport and Multiplexin		See DS-1 Dedicated Transport and Multiplexing Charges
D4 Channel Units	\$ 5.42		+E494
Originating Point Code (OPC), per entry	See NRC's Other Charges Section		See NRC's Other Charges Section
GlobalTitle Address Translation (GTT), per entry	See NRC's Other Charges Section		See NRC's Other Charges Section
CALL-RELATED DATABASES SERVICES			
LIDB Database per query	\$ 0.012733		'[SS704.xls]LIDB_Query_Calculations!\$C\$42
Toll Free Code Access Service query	\$ 0.001069		'[SS704.xls]Toll_Free_Query_Calculations!\$C\$31
Calling Name Delivery per query	\$ 0.000884		'[SS704.xls]CNAM_Query_Calculations!\$C\$27
Local Number Portability per query	\$ 0.001444		'[SS704.xls]LNP_Query_Calculations!\$C\$39
911 and E911 Database Access			
DS-0 transport to Sprint's 911 tandem office	See DS-0 Dedicated Transport and Multiplexin		See DS-0 Dedicated Transport and Multiplexing Charges
Reciprocal Compensation			
Local End Office Call Attempt (Setup)	\$ 0.003721		'[SWITCH04.xls]CT_CA_Summary!\$D\$3
Local End Office MOU	\$ 0.001732		'[SWITCH04.xls]CT_MOU_Summary!\$D\$3
Tandem Call Attempt (Setup)	\$ 0.003782		'[SWITCH04.xls]TS_CA_Summary!\$C\$4
Tandem MOU	\$ 0.001250		'[SWITCH04.xls]TS_MOU_Summary!\$C\$4
Tandem Transport MOU	\$ 0.001032		+E639
MULTIPLEXING			
Mux 1/0 Common Equipment	\$ 179.69		'[Mux04.xls]Channel_Bank!\$P\$31
D4 Channel Unit	\$ 5.42		'[Mux04.xls]Channel_Bank!\$P\$43
M 1 3 Multiplexer - Per DS3	\$ 242.21		'[Mux04.xls]M13!\$O\$29

Sprint-Florida
Loop Banding Module
Proposed Deaveraged Loop Rates

Rate Banding Summary

Rate ID	Rate Band	Number of Wire Centers	Total Lines Served	Percent of Total Lines	Monthly Price	Monthly Price	Monthly Price	Monthly Price	Monthly Price	Monthly Price	Monthly Price	Monthly Price	Monthly Price	Monthly Price
					2-Wire	4-Wire	DS-0 56/64K	DS-1	ISDN-BRI	ISDN-PRI	Sub Loop Feeder	Sub Loop Dist.	UNEP 2-Wire	UNEP ISDN-PRI
1	Rate Band 1	30	785,657	38.36%	\$ 17.71	\$ 32.69	\$ 36.25	\$ 148.70	\$ 30.99	\$ 148.70	\$ 15.40	\$ 8.11	\$ 18.42	\$ 53.75
2	Rate Band 2	37	865,853	42.28%	\$ 25.01	\$ 47.06	\$ 44.54	\$ 183.48	\$ 41.02	\$ 183.48	\$ 19.24	\$ 12.71	\$ 25.83	\$ 60.95
3	Rate Band 3	27	271,137	13.24%	\$ 37.59	\$ 72.27	\$ 57.79	\$ 207.95	\$ 58.66	\$ 207.95	\$ 29.85	\$ 18.44	\$ 38.55	\$ 76.36
4	Rate Band 4	39	125,426	6.12%	\$ 61.41	\$ 119.81	\$ 83.06	\$ 283.53	\$ 93.91	\$ 283.53	\$ 50.58	\$ 27.93	\$ 62.66	\$ 105.15
Company Wide		133	2,048,073	100.00%	\$ 26.10	\$ 49.34	\$ 45.47	\$ 179.50	\$ 42.75	\$ 179.50	\$ 21.09	\$ 12.63	\$ 26.93	\$ 62.94

Rate Band Detail (Sorted by 2-wire Monthly Cost (TELRIC))

Rate Band	Wire Center	Total Lines Served	Deviation From Company Average	Deviation From Band Average	Monthly Cost	Monthly Cost	Monthly Cost	Monthly Cost	Monthly Cost	Monthly Cost	Monthly Cost	Monthly Cost	Monthly Cost
		Company	2-wire	2-wire	2-Wire	4-Wire	DS-0 56/64K	DS-1	ISDN-BRI	Sub Loop Feeder	Sub Loop Dist.	UNEP 2-Wire	UNEP ISDN-BRI
		1	TLHSFLXERS0	11,159	-54.93%	-33.56%	\$ 11.76	\$ 20.35	\$ 30.00	\$ 133.42	\$ 26.36	\$10.30	\$3.58
1	MTLDFLXADS1	3,469	-50.51%	-27.05%	\$ 12.92	\$ 25.01	\$ 28.89	\$ 51.58	\$ 12.92	\$11.50	\$3.86	\$ 13.72	\$ 54.13
1	SHLMFLXADS0	9,697	-45.35%	-19.44%	\$ 14.26	\$ 27.03	\$ 31.63	\$ 78.17	\$ 17.91	\$13.59	\$6.35	\$ 15.11	\$ 53.94
1	CYLKFLXBRS0	24,840	-42.06%	-14.59%	\$ 15.12	\$ 26.80	\$ 34.26	\$ 192.83	\$ 31.24	\$13.59	\$6.47	\$ 15.77	\$ 49.78
1	WNPFLXADS1	45,651	-39.53%	-10.87%	\$ 15.78	\$ 28.91	\$ 34.28	\$ 120.46	\$ 26.65	\$14.27	\$7.12	\$ 16.49	\$ 52.55
1	FTMYFLXCDS2	36,895	-38.21%	-8.92%	\$ 16.13	\$ 29.81	\$ 34.30	\$ 128.47	\$ 27.18	\$14.57	\$7.18	\$ 16.86	\$ 53.06
1	NNPLFLXADS1	61,675	-37.41%	-7.75%	\$ 16.34	\$ 29.69	\$ 34.67	\$ 152.67	\$ 31.48	\$14.61	\$7.46	\$ 16.96	\$ 51.43
1	NPLSFLXDDS0	59,885	-35.78%	-5.34%	\$ 16.76	\$ 30.67	\$ 35.39	\$ 166.69	\$ 32.38	\$14.70	\$7.51	\$ 17.46	\$ 51.87
1	ALSPFLXADS0	52,906	-34.60%	-3.60%	\$ 17.07	\$ 31.45	\$ 35.95	\$ 135.28	\$ 29.15	\$14.79	\$7.55	\$ 17.84	\$ 53.59
1	FTWBFLXADS0	21,940	-34.31%	-3.18%	\$ 17.14	\$ 31.81	\$ 35.42	\$ 131.54	\$ 28.14	\$14.87	\$7.72	\$ 17.87	\$ 53.87
1	LKBRFLXADS1	44,736	-33.81%	-2.44%	\$ 17.28	\$ 31.89	\$ 35.57	\$ 142.66	\$ 30.11	\$14.88	\$7.90	\$ 17.89	\$ 52.32
1	KSSMFLXBDS1	23,798	-33.73%	-2.32%	\$ 17.30	\$ 31.56	\$ 35.63	\$ 166.47	\$ 32.83	\$14.98	\$8.25	\$ 17.97	\$ 53.46
1	FTWBFLXBDS0	20,505	-33.15%	-1.47%	\$ 17.45	\$ 33.11	\$ 35.23	\$ 101.00	\$ 23.78	\$14.99	\$8.27	\$ 18.29	\$ 56.47
1	FTMYFLXADS0	21,607	-32.57%	-0.61%	\$ 17.60	\$ 32.90	\$ 35.79	\$ 117.16	\$ 26.06	\$15.08	\$8.39	\$ 18.33	\$ 55.07
1	TLHSFLXBDS0	25,778	-31.82%	0.50%	\$ 17.80	\$ 33.03	\$ 36.35	\$ 135.14	\$ 29.23	\$15.12	\$8.52	\$ 18.56	\$ 54.56
1	GLRDFLXADS0	47,103	-30.67%	2.19%	\$ 18.10	\$ 33.35	\$ 37.78	\$ 150.22	\$ 31.67	\$15.23	\$8.58	\$ 18.95	\$ 54.71
1	CSLBFLXADS1	21,307	-30.27%	2.78%	\$ 18.20	\$ 33.81	\$ 36.74	\$ 143.06	\$ 30.63	\$15.58	\$8.80	\$ 18.96	\$ 54.06
1	TLHSFLXADS0	12,881	-30.13%	2.99%	\$ 18.24	\$ 34.59	\$ 35.43	\$ 88.27	\$ 23.65	\$15.64	\$8.87	\$ 18.97	\$ 57.12
1	FTMBFLXARS0	12,345	-29.45%	3.99%	\$ 18.41	\$ 34.29	\$ 36.04	\$ 178.06	\$ 34.71	\$15.95	\$8.93	\$ 18.98	\$ 53.72
1	VLPRFLXADS0	13,414	-28.00%	6.12%	\$ 18.79	\$ 35.22	\$ 37.30	\$ 135.85	\$ 28.84	\$16.26	\$9.00	\$ 19.60	\$ 56.13
1	CPCRFLXADS0	35,813	-26.24%	8.72%	\$ 19.25	\$ 35.89	\$ 37.81	\$ 144.35	\$ 32.29	\$16.51	\$9.19	\$ 20.02	\$ 55.43
1	FTWBFLXCERS0	4,690	-25.91%	9.20%	\$ 19.34	\$ 35.65	\$ 38.37	\$ 157.16	\$ 33.45	\$16.97	\$9.45	\$ 20.03	\$ 54.56
1	DESTFLXADS0	23,740	-23.27%	13.10%	\$ 20.03	\$ 37.11	\$ 38.21	\$ 193.04	\$ 38.01	\$17.02	\$9.66	\$ 20.61	\$ 53.90
1	VLPRFLXBRS0	7,067	-23.19%	13.22%	\$ 20.05	\$ 37.80	\$ 38.47	\$ 126.25	\$ 30.66	\$17.33	\$9.79	\$ 20.69	\$ 54.53
1	BNSPFLXADS1	50,319	-23.03%	13.45%	\$ 20.09	\$ 36.97	\$ 38.63	\$ 180.50	\$ 38.58	\$17.33	\$9.98	\$ 20.86	\$ 57.58
1	LDLFLXARS0	24,609	-22.75%	13.86%	\$ 20.16	\$ 37.22	\$ 39.02	\$ 160.27	\$ 36.37	\$17.61	\$10.00	\$ 20.86	\$ 55.74
1	NFMYFLXADS0	17,327	-22.59%	14.10%	\$ 20.20	\$ 37.92	\$ 38.77	\$ 144.38	\$ 32.75	\$18.15	\$10.06	\$ 20.98	\$ 56.76

1	WNGRFLXADS0	25,289	-22.47%	14.27%	\$ 20.24	\$ 37.61	\$ 39.54	\$ 192.46	\$ 33.28	\$18.21	\$10.23	\$ 21.02	\$ 56.46
1	WNDRFLXARS0	10,238	-21.91%	15.11%	\$ 20.38	\$ 37.66	\$ 39.57	\$ 205.96	\$ 38.28	\$18.23	\$10.80	\$ 21.12	\$ 55.47
1	KSSMFLXDRS0	14,974	-21.87%	15.16%	\$ 20.39	\$ 37.83	\$ 39.27	\$ 156.05	\$ 35.49	\$18.88	\$11.23	\$ 21.13	\$ 55.59
2	BCGRFLXARS1	3,053	-20.14%	-16.64%	\$ 20.84	\$ 39.66	\$ 39.48	\$ 133.07	\$ 30.94	\$16.37	\$8.78	\$ 21.84	\$ 57.73
2	ORCYFLXADS0	13,421	-19.13%	-15.59%	\$ 21.11	\$ 39.93	\$ 39.65	\$ 140.86	\$ 31.64	\$16.89	\$9.08	\$ 21.92	\$ 56.73
2	NPLSFLXCDS0	37,886	-18.95%	-15.40%	\$ 21.15	\$ 39.30	\$ 40.90	\$ 155.38	\$ 38.01	\$17.00	\$9.42	\$ 21.94	\$ 58.25
2	MOISFLXADS1	23,863	-18.90%	-15.35%	\$ 21.17	\$ 39.83	\$ 39.51	\$ 164.66	\$ 36.52	\$17.08	\$9.44	\$ 22.03	\$ 56.75
2	TLHSFLXDDS0	43,290	-16.59%	-12.94%	\$ 21.77	\$ 40.53	\$ 40.84	\$ 169.95	\$ 36.82	\$17.14	\$9.56	\$ 22.49	\$ 57.80
2	TLHSFLXHDS0	11,920	-14.79%	-11.06%	\$ 22.24	\$ 41.45	\$ 41.69	\$ 154.43	\$ 37.51	\$17.31	\$10.83	\$ 23.07	\$ 57.86
2	KSSMFLXADS0	48,870	-14.35%	-10.60%	\$ 22.36	\$ 41.75	\$ 41.76	\$ 197.33	\$ 37.64	\$17.50	\$10.93	\$ 23.14	\$ 58.05
2	CLMTFLXADS0	23,597	-12.67%	-8.85%	\$ 22.79	\$ 42.37	\$ 42.28	\$ 143.83	\$ 39.79	\$17.64	\$10.93	\$ 23.56	\$ 59.26
2	APPKFLXADS1	34,515	-12.00%	-8.14%	\$ 22.97	\$ 42.88	\$ 42.47	\$ 215.21	\$ 38.51	\$17.83	\$11.08	\$ 23.74	\$ 58.46
2	OCALFLXCRS0	9,052	-11.99%	-8.14%	\$ 22.97	\$ 43.42	\$ 42.85	\$ 154.23	\$ 34.42	\$17.93	\$11.19	\$ 23.98	\$ 60.51
2	GLGCFLXADS0	35,653	-11.08%	-7.19%	\$ 23.21	\$ 43.57	\$ 42.52	\$ 144.18	\$ 37.92	\$18.16	\$11.32	\$ 24.04	\$ 60.09
2	CPCRFLXBDS1	30,568	-9.75%	-5.79%	\$ 23.56	\$ 44.21	\$ 42.28	\$ 144.74	\$ 38.93	\$18.18	\$11.67	\$ 24.29	\$ 58.92
2	LSBGFLXADS0	35,332	-9.45%	-5.49%	\$ 23.63	\$ 44.21	\$ 43.14	\$ 236.29	\$ 39.92	\$18.62	\$11.98	\$ 24.40	\$ 58.85
2	TLHSFLXCDS0	26,869	-7.81%	-3.77%	\$ 24.06	\$ 45.60	\$ 43.14	\$ 292.65	\$ 36.02	\$19.03	\$12.42	\$ 24.90	\$ 61.28
2	ORCYFLXCRS0	15,476	-7.44%	-3.38%	\$ 24.16	\$ 45.14	\$ 44.12	\$ 150.46	\$ 40.23	\$19.11	\$12.43	\$ 25.00	\$ 59.39
2	TVRSFLXADS0	15,771	-5.31%	-1.17%	\$ 24.71	\$ 46.78	\$ 44.40	\$ 151.93	\$ 39.23	\$19.15	\$12.57	\$ 25.66	\$ 61.42
2	CYLKFLXADS0	42,232	-3.15%	1.10%	\$ 25.28	\$ 47.13	\$ 46.57	\$ 222.68	\$ 45.23	\$19.19	\$12.82	\$ 26.28	\$ 59.32
2	MTDRFLXARS0	16,963	-2.86%	1.39%	\$ 25.35	\$ 47.97	\$ 45.58	\$ 132.08	\$ 38.37	\$19.26	\$12.89	\$ 26.38	\$ 62.65
2	KSSMFLXCRS1	9,291	-1.04%	3.30%	\$ 25.83	\$ 48.53	\$ 45.76	\$ 206.82	\$ 43.51	\$19.59	\$13.08	\$ 26.58	\$ 60.88
2	OCALFLXADS0	56,831	-0.96%	3.37%	\$ 25.85	\$ 48.52	\$ 45.32	\$ 192.20	\$ 42.43	\$19.65	\$13.24	\$ 26.69	\$ 62.00
2	PTCTFLXADS0	45,715	-0.18%	4.20%	\$ 26.05	\$ 49.11	\$ 46.14	\$ 212.61	\$ 43.28	\$19.67	\$13.25	\$ 26.97	\$ 61.26
2	FTMYFLXBRS0	16,094	1.09%	5.52%	\$ 26.39	\$ 50.23	\$ 45.49	\$ 174.61	\$ 40.54	\$19.78	\$13.26	\$ 27.19	\$ 59.49
2	SNISFLXADS0	12,701	1.29%	5.73%	\$ 26.44	\$ 49.66	\$ 45.98	\$ 223.51	\$ 49.46	\$19.80	\$13.45	\$ 27.26	\$ 63.19
2	TLHSFLXFDS0	26,974	1.67%	6.12%	\$ 26.54	\$ 49.77	\$ 46.79	\$ 153.80	\$ 44.02	\$19.82	\$13.93	\$ 27.30	\$ 61.56
2	NFMYFLXBRS0	18,530	1.86%	6.32%	\$ 26.59	\$ 50.16	\$ 45.41	\$ 188.81	\$ 44.97	\$19.85	\$14.00	\$ 27.41	\$ 62.95
2	OCALFLXBDS0	32,767	3.02%	7.53%	\$ 26.89	\$ 50.62	\$ 45.96	\$ 234.25	\$ 44.23	\$20.07	\$14.37	\$ 27.59	\$ 62.67
2	CHSWFLXARS0	4,660	4.47%	9.05%	\$ 27.27	\$ 52.34	\$ 46.84	\$ 143.95	\$ 37.40	\$20.07	\$14.43	\$ 28.29	\$ 65.62
2	BLVWFLXADS0	23,889	6.58%	11.25%	\$ 27.82	\$ 52.70	\$ 47.16	\$ 158.02	\$ 43.45	\$20.23	\$14.47	\$ 28.64	\$ 64.22
2	SBNGFLXADS1	28,252	6.84%	11.52%	\$ 27.89	\$ 52.62	\$ 47.87	\$ 184.29	\$ 46.66	\$20.26	\$14.58	\$ 28.75	\$ 63.32
2	SVSSFLXARS0	7,653	7.47%	12.18%	\$ 28.05	\$ 53.39	\$ 46.30	\$ 196.15	\$ 44.42	\$20.70	\$14.94	\$ 28.77	\$ 63.48
2	BVHLFLXADS0	14,500	8.81%	13.58%	\$ 28.40	\$ 53.79	\$ 48.16	\$ 154.65	\$ 43.75	\$20.80	\$14.94	\$ 29.26	\$ 64.44
2	MTVRFLXARS0	1,813	9.95%	14.76%	\$ 28.70	\$ 55.86	\$ 46.95	\$ 110.57	\$ 34.30	\$20.96	\$15.88	\$ 29.74	\$ 68.64
2	LHACFLXADS0	18,034	10.89%	15.75%	\$ 28.94	\$ 55.30	\$ 48.63	\$ 140.73	\$ 42.73	\$20.98	\$15.88	\$ 29.90	\$ 66.84
2	ESTSFLXARS0	19,888	11.65%	16.54%	\$ 29.14	\$ 55.69	\$ 48.62	\$ 135.28	\$ 42.59	\$21.54	\$16.16	\$ 30.03	\$ 65.57
2	PNGRFLXADS1	28,298	11.76%	16.65%	\$ 29.17	\$ 55.28	\$ 49.01	\$ 181.15	\$ 49.43	\$22.69	\$16.60	\$ 30.05	\$ 66.31
2	CRVWFLXADS0	18,188	12.01%	16.92%	\$ 29.24	\$ 55.65	\$ 48.60	\$ 222.33	\$ 43.53	\$22.85	\$16.69	\$ 30.06	\$ 66.92
2	DDCYFLXADS1	13,444	14.48%	19.50%	\$ 29.88	\$ 57.34	\$ 49.11	\$ 149.93	\$ 43.49	\$23.72	\$17.85	\$ 30.82	\$ 68.18
3	CPHZFLXADS0	12,412	15.57%	-19.75%	\$ 30.16	\$ 57.17	\$ 49.99	\$ 195.02	\$ 50.03	\$21.17	\$12.40	\$ 31.02	\$ 65.01
3	LKHLFLXARS0	2,188	21.24%	-15.81%	\$ 31.64	\$ 61.93	\$ 49.33	\$ 111.17	\$ 37.81	\$23.07	\$14.38	\$ 32.51	\$ 66.77
3	SNRSFLXARS0	6,257	21.70%	-15.49%	\$ 31.76	\$ 60.51	\$ 50.77	\$ 230.50	\$ 50.49	\$23.31	\$14.77	\$ 32.65	\$ 72.77
3	SGBHFLXARS0	6,053	23.43%	-14.29%	\$ 32.22	\$ 60.84	\$ 52.19	\$ 219.46	\$ 57.77	\$23.85	\$14.97	\$ 32.97	\$ 66.03
3	AVPKFLXADS0	12,062	25.56%	-12.81%	\$ 32.77	\$ 62.31	\$ 54.05	\$ 334.18	\$ 49.21	\$24.06	\$15.53	\$ 33.59	\$ 67.19
3	PNISFLXADS0	9,813	25.68%	-12.72%	\$ 32.80	\$ 62.31	\$ 52.62	\$ 246.68	\$ 57.36	\$24.93	\$15.90	\$ 33.76	\$ 67.16
3	INVRFLXADS1	29,590	31.52%	-8.67%	\$ 34.33	\$ 65.43	\$ 54.97	\$ 188.20	\$ 53.59	\$25.60	\$16.71	\$ 35.28	\$ 70.19
3	CRRVFLXADS0	15,511	32.66%	-7.88%	\$ 34.63	\$ 66.16	\$ 54.76	\$ 183.79	\$ 53.49	\$25.70	\$17.54	\$ 35.54	\$ 70.99
3	HOWYFLXARS0	1,861	33.34%	-7.41%	\$ 34.80	\$ 67.43	\$ 53.02	\$ 191.69	\$ 51.20	\$25.95	\$18.28	\$ 35.68	\$ 72.64
3	STCDFLXARS0	23,147	33.91%	-7.01%	\$ 34.95	\$ 67.44	\$ 53.79	\$ 161.90	\$ 54.71	\$26.64	\$18.43	\$ 35.81	\$ 76.01
3	MRNNFLXADS0	11,499	34.95%	-6.29%	\$ 35.22	\$ 67.71	\$ 55.65	\$ 374.81	\$ 47.63	\$27.91	\$18.66	\$ 36.18	\$ 73.17
3	SVSPFLXARS0	5,833	37.02%	-4.85%	\$ 35.76	\$ 68.79	\$ 56.05	\$ 204.99	\$ 56.99	\$27.92	\$19.05	\$ 36.82	\$ 74.95
3	FTMDFLXARS0	3,406	37.48%	-4.53%	\$ 35.88	\$ 70.23	\$ 54.16	\$ 147.04	\$ 48.25	\$29.11	\$19.06	\$ 36.94	\$ 77.56
3	HMSPLXARS0	11,027	42.67%	-0.93%	\$ 37.24	\$ 71.09	\$ 57.39	\$ 225.11	\$ 59.00	\$29.17	\$19.08	\$ 38.06	\$ 71.14

3	WCHFLXADS0	7,552	45.92%	1.33%	\$ 38.09	\$ 73.76	\$ 57.68	\$ 179.78	\$ 56.11	\$29.18	\$19.25	\$ 39.08	\$ 77.73
3	STRKFLXADS0	7,930	48.59%	3.18%	\$ 38.78	\$ 75.19	\$ 59.25	\$ 145.72	\$ 51.97	\$29.20	\$19.28	\$ 39.93	\$ 78.65
3	CFVLFLXADS0	8,785	51.40%	5.13%	\$ 39.52	\$ 75.54	\$ 61.01	\$ 204.09	\$ 62.27	\$29.98	\$19.30	\$ 40.53	\$ 76.30
3	SNANFLXARS0	4,064	54.87%	7.54%	\$ 40.42	\$ 77.10	\$ 62.62	\$ 211.90	\$ 64.71	\$30.71	\$19.31	\$ 41.49	\$ 75.66
3	ARCDFLXADS0	15,332	56.94%	8.98%	\$ 40.96	\$ 79.44	\$ 60.77	\$ 175.43	\$ 62.37	\$30.83	\$19.47	\$ 41.98	\$ 83.00
3	GVLDLFLXARS0	6,131	57.30%	9.23%	\$ 41.06	\$ 79.01	\$ 62.61	\$ 187.73	\$ 61.48	\$31.08	\$19.88	\$ 42.18	\$ 79.90
3	MDSNFLXADS0	5,217	61.81%	12.36%	\$ 42.23	\$ 82.72	\$ 61.18	\$ 152.07	\$ 57.63	\$31.64	\$19.94	\$ 43.29	\$ 84.71
3	SLHLFLXARS0	5,574	62.97%	13.17%	\$ 42.54	\$ 81.72	\$ 64.00	\$ 249.93	\$ 68.93	\$34.22	\$20.39	\$ 43.65	\$ 79.68
3	WLWDFLXARS0	8,568	65.29%	14.78%	\$ 43.14	\$ 83.63	\$ 63.67	\$ 195.11	\$ 62.77	\$35.38	\$20.99	\$ 44.14	\$ 87.40
3	OKCBFLXADS1	23,685	65.42%	14.87%	\$ 43.18	\$ 83.31	\$ 63.43	\$ 218.41	\$ 74.47	\$35.38	\$21.55	\$ 44.22	\$ 82.61
3	CLTNFLXARS0	9,451	66.46%	15.59%	\$ 43.45	\$ 84.84	\$ 62.13	\$ 182.01	\$ 72.65	\$39.11	\$22.30	\$ 44.41	\$ 92.43
3	LBLLFLXADS0	9,641	72.03%	19.46%	\$ 44.90	\$ 86.70	\$ 65.98	\$ 215.38	\$ 72.18	\$41.23	\$23.33	\$ 45.95	\$ 86.85
3	UMTLFLXARS0	8,548	72.10%	19.51%	\$ 44.92	\$ 86.76	\$ 67.33	\$ 192.70	\$ 65.49	\$43.98	\$24.75	\$ 46.23	\$ 84.82
4	TLHSFLXGRS0	4,928	75.25%	-25.51%	\$ 45.74	\$ 88.30	\$ 67.48	\$ 222.06	\$ 67.88	\$29.77	\$15.52	\$ 46.90	\$ 84.86
4	BSHNFLXADS0	12,465	80.15%	-23.43%	\$ 47.02	\$ 90.93	\$ 68.06	\$ 212.11	\$ 70.85	\$32.18	\$18.33	\$ 48.08	\$ 86.08
4	ALVAFLXARS1	1,766	81.71%	-22.76%	\$ 47.43	\$ 91.09	\$ 69.83	\$ 214.33	\$ 72.24	\$33.55	\$20.73	\$ 48.52	\$ 82.57
4	TLCHFLXARS0	4,075	82.09%	-22.60%	\$ 47.53	\$ 91.74	\$ 70.73	\$ 224.44	\$ 69.55	\$33.72	\$20.98	\$ 48.89	\$ 85.03
4	MRHNFLXARS0	3,000	83.82%	-21.87%	\$ 47.98	\$ 94.00	\$ 66.57	\$ 230.12	\$ 75.29	\$35.32	\$22.12	\$ 48.97	\$ 92.89
4	OKLWFLXADS0	4,454	84.64%	-21.52%	\$ 48.19	\$ 93.35	\$ 67.92	\$ 242.95	\$ 69.51	\$35.79	\$23.44	\$ 49.10	\$ 84.28
4	BWLGFLXARS0	1,675	85.12%	-21.31%	\$ 48.32	\$ 95.14	\$ 66.47	\$ 222.41	\$ 70.44	\$36.27	\$24.18	\$ 49.38	\$ 91.17
4	IMKLFLXARS0	6,999	85.79%	-21.03%	\$ 48.49	\$ 94.73	\$ 68.23	\$ 235.77	\$ 78.00	\$37.13	\$24.87	\$ 49.61	\$ 93.67
4	LKPCFLXARS0	13,495	87.64%	-20.24%	\$ 48.98	\$ 94.86	\$ 68.88	\$ 229.17	\$ 80.82	\$38.91	\$24.97	\$ 49.86	\$ 92.71
4	DFSPFLXADS0	9,290	88.91%	-19.70%	\$ 49.31	\$ 95.79	\$ 70.22	\$ 180.98	\$ 69.51	\$40.27	\$25.57	\$ 50.46	\$ 88.98
4	OCNFFLXARS0	6,105	95.53%	-16.89%	\$ 51.03	\$ 98.69	\$ 72.87	\$ 258.13	\$ 77.45	\$41.63	\$25.66	\$ 52.20	\$ 89.28
4	SNDSFLXARS0	2,037	96.82%	-16.34%	\$ 51.37	\$ 100.41	\$ 72.21	\$ 193.74	\$ 68.61	\$41.66	\$26.06	\$ 52.60	\$ 92.34
4	ASTRFLXARS0	1,567	104.79%	-12.95%	\$ 53.45	\$ 104.42	\$ 72.87	\$ 248.57	\$ 83.23	\$41.92	\$26.24	\$ 54.64	\$ 93.80
4	PANCFXARS0	1,160	105.74%	-12.55%	\$ 53.70	\$ 103.65	\$ 75.86	\$ 433.10	\$ 88.05	\$42.62	\$27.24	\$ 55.00	\$ 87.71
4	WLSTFLXARS0	6,773	111.41%	-10.14%	\$ 55.18	\$ 107.37	\$ 78.14	\$ 340.55	\$ 78.06	\$45.56	\$28.09	\$ 56.62	\$ 98.32
4	GNWDFLXARS0	916	121.89%	-5.69%	\$ 57.91	\$ 113.16	\$ 79.84	\$ 388.21	\$ 83.98	\$46.18	\$28.15	\$ 59.67	\$ 96.68
4	BNFYFLXARS0	5,169	125.08%	-4.33%	\$ 58.75	\$ 115.06	\$ 79.92	\$ 190.04	\$ 80.27	\$46.21	\$28.35	\$ 60.05	\$ 102.27
4	SSPRFLXARS0	1,720	132.11%	-1.34%	\$ 60.58	\$ 117.32	\$ 84.08	\$ 306.87	\$ 92.62	\$49.23	\$28.36	\$ 62.22	\$ 94.99
4	FRPTFLXARS0	3,238	146.05%	4.58%	\$ 64.22	\$ 125.12	\$ 87.38	\$ 315.81	\$ 99.41	\$50.72	\$29.05	\$ 65.74	\$ 104.51
4	MNTIFLXADS0	7,344	156.18%	8.89%	\$ 66.86	\$ 131.00	\$ 88.96	\$ 251.19	\$ 106.13	\$51.51	\$30.14	\$ 68.20	\$ 118.63
4	LWTFXARS0	1,235	164.00%	12.21%	\$ 68.90	\$ 134.04	\$ 91.36	\$ 300.17	\$ 104.65	\$57.15	\$30.35	\$ 70.20	\$ 105.18
4	CTDLFLXARS0	1,437	184.24%	20.82%	\$ 74.19	\$ 145.80	\$ 95.82	\$ 276.14	\$ 105.06	\$59.46	\$31.94	\$ 75.60	\$ 118.97
4	ALFRFLXARS0	1,743	188.62%	22.68%	\$ 75.33	\$ 147.48	\$ 98.93	\$ 301.38	\$ 109.12	\$60.20	\$33.20	\$ 76.88	\$ 118.36
4	ZLSPFLXARS0	2,649	195.59%	25.64%	\$ 77.15	\$ 151.38	\$ 99.87	\$ 328.43	\$ 123.72	\$61.90	\$34.77	\$ 78.61	\$ 127.71
4	CHLKFLXARS0	1,447	214.51%	33.69%	\$ 82.09	\$ 160.47	\$ 107.37	\$ 502.59	\$ 116.29	\$69.31	\$34.80	\$ 83.79	\$ 123.09
4	BAKRFLXADS0	2,844	229.29%	39.97%	\$ 85.95	\$ 168.34	\$ 110.73	\$ 343.66	\$ 129.74	\$69.43	\$36.46	\$ 87.51	\$ 133.84
4	GDRGFLXADS0	2,385	229.75%	40.16%	\$ 86.07	\$ 168.78	\$ 110.18	\$ 336.38	\$ 127.84	\$71.37	\$36.74	\$ 87.60	\$ 133.24
4	STMKFLXARS0	728	234.43%	42.15%	\$ 87.29	\$ 171.37	\$ 110.94	\$ 301.45	\$ 126.41	\$73.44	\$37.54	\$ 89.20	\$ 130.17
4	MALNFLXARS0	1,396	245.36%	46.79%	\$ 90.14	\$ 177.52	\$ 112.35	\$ 347.59	\$ 130.99	\$74.02	\$38.61	\$ 91.57	\$ 135.90
4	PNLNFLXARS0	1,312	258.92%	52.56%	\$ 93.68	\$ 183.31	\$ 120.06	\$ 404.04	\$ 142.48	\$78.44	\$39.83	\$ 95.42	\$ 137.77
4	GNVFLXARS0	1,493	312.99%	75.54%	\$ 107.79	\$ 213.17	\$ 128.91	\$ 435.36	\$ 174.28	\$86.87	\$40.05	\$ 109.18	\$ 167.55
4	LEEFLXARS0	1,238	314.87%	76.34%	\$ 108.28	\$ 213.31	\$ 132.09	\$ 432.24	\$ 164.12	\$95.17	\$40.71	\$ 109.53	\$ 199.23
4	SPCPFLXARL0	1,173	315.20%	76.48%	\$ 108.37	\$ 214.09	\$ 130.22	\$ 436.28	\$ 168.00	\$97.38	\$41.07	\$ 109.79	\$ 159.09
4	EVRGFLXARS1	1,729	315.21%	76.49%	\$ 108.37	\$ 213.88	\$ 128.34	\$ 440.02	\$ 213.60	\$101.91	\$41.45	\$ 109.91	\$ 162.48
4	WSTVFLXARS0	899	344.67%	89.01%	\$ 116.06	\$ 228.41	\$ 141.35	\$ 557.54	\$ 165.22	\$103.68	\$44.75	\$ 118.22	\$ 161.06
4	GLDLFLXARS0	863	353.04%	92.57%	\$ 118.24	\$ 232.72	\$ 143.70	\$ 873.73	\$ 179.73	\$105.81	\$51.25	\$ 120.05	\$ 168.17
4	KGLKFLXARS0	335	356.29%	93.95%	\$ 119.09	\$ 234.14	\$ 145.48	\$ 591.40	\$ 178.94	\$117.84	\$51.31	\$ 121.91	\$ 153.84
4	RYHLFLXARS0	1,602	377.67%	103.04%	\$ 124.67	\$ 245.42	\$ 150.66	\$ 915.47	\$ 189.11	\$138.33	\$55.46	\$ 126.56	\$ 177.36
4	KNVLFLXARS0	742	702.53%	241.12%	\$ 209.46	\$ 415.21	\$ 234.77	\$ 1,048.43	\$ 391.06	\$266.89	\$58.37	\$ 211.86	\$ 312.63

**Sprint-Florida
Loop Banding Module
Deaveraged Loop Rates - Non-Collapsed**

Rate Banding Summary

Rate ID	Rate Band	Number of Wire Centers	Total Lines Served	Percent of Total Lines	Monthly Price	Monthly Price	Monthly Price	Monthly Price	Monthly Price	Monthly Price	Monthly Price	Monthly Price	Monthly Price	Monthly Price
					2-Wire	4-Wire	DS-0 56/64K	DS-1	ISDN-BRI	ISDN-PRI	Sub Loop Feeder	Sub Loop Dist.	UNEP 2-Wire	UNEP ISDN-PRI
1	Rate Band 1	2	14,628	0.71%	\$ 12.04	\$ 21.45	\$ 29.74	\$ 114.01	\$ 23.17	\$ 114.01	\$ 10.86	\$ 3.78	\$ 12.67	\$ 48.30
2	Rate Band 2	28	771,029	37.65%	\$ 17.82	\$ 32.90	\$ 36.37	\$ 149.36	\$ 31.14	\$ 149.36	\$ 15.52	\$ 8.32	\$ 18.53	\$ 53.85
3	Rate Band 3	37	865,853	42.28%	\$ 25.01	\$ 47.06	\$ 44.54	\$ 183.48	\$ 41.02	\$ 183.48	\$ 19.24	\$ 12.71	\$ 25.83	\$ 60.95
4	Rate Band 4	27	271,137	13.24%	\$ 37.59	\$ 72.27	\$ 57.79	\$ 207.95	\$ 58.66	\$ 207.95	\$ 29.85	\$ 18.44	\$ 38.55	\$ 76.36
5	Rate Band 5	17	85,874	4.19%	\$ 49.84	\$ 96.77	\$ 70.74	\$ 234.15	\$ 74.88	\$ 234.15	\$ 38.24	\$ 24.22	\$ 50.96	\$ 90.70
6	Rate Band 6	11	26,770	1.31%	\$ 73.31	\$ 143.46	\$ 96.46	\$ 309.46	\$ 111.80	\$ 309.46	\$ 62.35	\$ 32.44	\$ 74.80	\$ 119.15
7	Rate Band 7	10	12,040	0.59%	\$ 108.33	\$ 213.40	\$ 131.74	\$ 530.98	\$ 171.60	\$ 530.98	\$ 103.02	\$ 43.89	\$ 109.94	\$ 164.30
8	Rate Band 8	1	742	0.04%	\$ 209.46	\$ 415.21	\$ 234.77	\$ 1,048.43	\$ 391.06	\$ 1,048.43	\$ 266.89	\$ 58.37	\$ 211.86	\$ 312.63
Company Wide		133	2,048,073	100.00%	\$ 26.10	\$ 49.34	\$ 45.47	\$ 179.50	\$ 42.75	\$ 179.50	\$ 21.09	\$ 12.63	\$ 26.93	\$ 62.94

Rate Band Detail (Sorted by 2-wire Monthly Cost (TELRIC))

Rate Band	Wire Center	Total Lines Served	Deviation From Company Average	Deviation From Band Average	Monthly Cost	Monthly Cost	Monthly Cost	Monthly Cost	Monthly Cost	Monthly Cost	Monthly Cost	Monthly Cost	Monthly Cost
		Company	2-wire	2-wire	2-Wire	4-Wire	DS-0 56/64K	DS-1	ISDN-BRI	Sub Loop Feeder	Sub Loop Dist.	UNEP 2-Wire	UNEP ISDN-BRI
1	TLHSFLXERS0	11,159	-54.93%	-2.27%	\$ 11.76	\$ 20.35	\$ 30.00	\$ 133.42	\$ 26.36	\$ 10.30	\$ 3.58	\$ 12.35	\$ 46.49
1	MTLDFLXADS1	3,469	-50.51%	7.30%	\$ 12.92	\$ 25.01	\$ 28.89	\$ 51.58	\$ 12.92	\$ 11.50	\$ 3.86	\$ 13.72	\$ 54.13
2	SHLMFLXADS0	9,697	-45.35%	-19.93%	\$ 14.26	\$ 27.03	\$ 31.63	\$ 78.17	\$ 17.91	\$ 13.59	\$ 6.35	\$ 15.11	\$ 53.94
2	CYLKFLXBRS0	24,840	-42.06%	-15.11%	\$ 15.12	\$ 26.80	\$ 34.26	\$ 192.83	\$ 31.24	\$ 13.59	\$ 6.47	\$ 15.77	\$ 49.78
2	WNPFLXADS1	45,651	-39.53%	-11.41%	\$ 15.78	\$ 28.91	\$ 34.28	\$ 120.46	\$ 26.65	\$ 14.27	\$ 7.12	\$ 16.49	\$ 52.55
2	FTMYFLXCDS2	36,895	-38.21%	-9.47%	\$ 16.13	\$ 29.81	\$ 34.30	\$ 128.47	\$ 27.18	\$ 14.57	\$ 7.18	\$ 16.86	\$ 53.06
2	NNPLFLXADS1	61,675	-37.41%	-8.30%	\$ 16.34	\$ 29.69	\$ 34.67	\$ 152.67	\$ 31.48	\$ 14.61	\$ 7.46	\$ 16.96	\$ 51.43
2	NPLSFLXDDS0	59,885	-35.78%	-5.91%	\$ 16.76	\$ 30.67	\$ 35.39	\$ 166.69	\$ 32.38	\$ 14.70	\$ 7.51	\$ 17.46	\$ 51.87
2	ALSPFLXADS0	52,906	-34.60%	-4.18%	\$ 17.07	\$ 31.45	\$ 35.95	\$ 135.28	\$ 29.15	\$ 14.79	\$ 7.55	\$ 17.84	\$ 53.59
2	FTWBFLXADS0	21,940	-34.31%	-3.77%	\$ 17.14	\$ 31.81	\$ 35.42	\$ 131.54	\$ 28.14	\$ 14.87	\$ 7.72	\$ 17.87	\$ 53.87
2	LKBRFLXADS1	44,736	-33.81%	-3.03%	\$ 17.28	\$ 31.89	\$ 35.57	\$ 142.66	\$ 30.11	\$ 14.88	\$ 7.90	\$ 17.89	\$ 52.32
2	KSSMFLXBDS1	23,798	-33.73%	-2.91%	\$ 17.30	\$ 31.56	\$ 35.63	\$ 166.47	\$ 32.83	\$ 14.98	\$ 8.25	\$ 17.97	\$ 53.46
2	FTWBFLXBDS0	20,505	-33.15%	-2.06%	\$ 17.45	\$ 33.11	\$ 35.23	\$ 101.00	\$ 23.78	\$ 14.99	\$ 8.27	\$ 18.29	\$ 56.47
2	FTMYFLXADS0	21,607	-32.57%	-1.21%	\$ 17.60	\$ 32.90	\$ 35.79	\$ 117.16	\$ 26.06	\$ 15.08	\$ 8.39	\$ 18.33	\$ 55.07
2	TLHSFLXBDS0	25,778	-31.82%	-0.11%	\$ 17.80	\$ 33.03	\$ 36.35	\$ 135.14	\$ 29.23	\$ 15.12	\$ 8.52	\$ 18.56	\$ 54.56
2	GLRDFLXADS0	47,103	-30.67%	1.58%	\$ 18.10	\$ 33.35	\$ 37.78	\$ 150.22	\$ 31.67	\$ 15.23	\$ 8.58	\$ 18.95	\$ 54.71
2	CSLBFLXADS1	21,307	-30.27%	2.16%	\$ 18.20	\$ 33.81	\$ 36.74	\$ 143.06	\$ 30.63	\$ 15.58	\$ 8.80	\$ 18.96	\$ 54.06
2	TLHSFLXADS0	12,881	-30.13%	2.37%	\$ 18.24	\$ 34.59	\$ 35.43	\$ 88.27	\$ 23.65	\$ 15.64	\$ 8.87	\$ 18.97	\$ 57.12
2	FTMBFLXARS0	12,345	-29.45%	3.37%	\$ 18.41	\$ 34.29	\$ 36.04	\$ 178.06	\$ 34.71	\$ 15.95	\$ 8.93	\$ 18.98	\$ 53.72
2	VLPRFLXADS0	13,414	-28.00%	5.48%	\$ 18.79	\$ 35.22	\$ 37.30	\$ 135.85	\$ 28.84	\$ 16.26	\$ 9.00	\$ 19.60	\$ 56.13
2	CPCRFLXADS0	35,813	-26.24%	8.06%	\$ 19.25	\$ 35.89	\$ 37.81	\$ 144.35	\$ 32.29	\$ 16.51	\$ 9.19	\$ 20.02	\$ 55.43
2	FTWBFLXCDS0	4,690	-25.91%	8.55%	\$ 19.34	\$ 35.65	\$ 38.37	\$ 157.16	\$ 33.45	\$ 16.97	\$ 9.45	\$ 20.03	\$ 54.56
2	DESTFLXADS0	23,740	-23.27%	12.42%	\$ 20.03	\$ 37.11	\$ 38.21	\$ 193.04	\$ 38.01	\$ 17.02	\$ 9.66	\$ 20.61	\$ 53.90
2	VLPRFLXBRS0	7,067	-23.19%	12.53%	\$ 20.05	\$ 37.80	\$ 38.47	\$ 126.25	\$ 30.66	\$ 17.33	\$ 9.79	\$ 20.69	\$ 54.53
2	BNSPFLXADS1	50,319	-23.03%	12.77%	\$ 20.09	\$ 36.97	\$ 38.63	\$ 180.50	\$ 38.58	\$ 17.33	\$ 9.98	\$ 20.86	\$ 57.58

2	LDLFLXARS0	24,609	-22.75%	13.17%	\$ 20.16	\$ 37.22	\$ 39.02	\$ 160.27	\$ 36.37	\$17.61	\$10.00	\$ 20.86	\$ 55.74
2	NFMYFLXADS0	17,327	-22.59%	13.41%	\$ 20.20	\$ 37.92	\$ 38.77	\$ 144.38	\$ 32.75	\$18.15	\$10.06	\$ 20.98	\$ 56.76
2	WNGRFLXADS0	25,289	-22.47%	13.58%	\$ 20.24	\$ 37.61	\$ 39.54	\$ 192.46	\$ 33.28	\$18.21	\$10.23	\$ 21.02	\$ 56.46
2	WDRFLXARS0	10,238	-21.91%	14.41%	\$ 20.38	\$ 37.66	\$ 39.57	\$ 205.96	\$ 38.28	\$18.23	\$10.80	\$ 21.12	\$ 55.47
2	KSSMFLXDRS0	14,974	-21.87%	14.46%	\$ 20.39	\$ 37.83	\$ 39.27	\$ 156.05	\$ 35.49	\$18.88	\$11.23	\$ 21.13	\$ 55.59
3	BCGRFLXARS1	3,053	-20.14%	-16.64%	\$ 20.84	\$ 39.66	\$ 39.48	\$ 133.07	\$ 30.94	\$16.37	\$8.78	\$ 21.84	\$ 57.73
3	ORCYFLXADS0	13,421	-19.13%	-15.59%	\$ 21.11	\$ 39.93	\$ 39.65	\$ 140.86	\$ 31.64	\$16.89	\$9.08	\$ 21.92	\$ 56.73
3	NPLSFLXCDS0	37,886	-18.95%	-15.40%	\$ 21.15	\$ 39.30	\$ 40.90	\$ 155.38	\$ 38.01	\$17.00	\$9.42	\$ 21.94	\$ 58.25
3	MOISFLXADS1	23,863	-18.90%	-15.35%	\$ 21.17	\$ 39.83	\$ 39.51	\$ 164.66	\$ 36.52	\$17.08	\$9.44	\$ 22.03	\$ 56.75
3	TLHSFLXDDS0	43,290	-16.59%	-12.94%	\$ 21.77	\$ 40.53	\$ 40.84	\$ 169.95	\$ 36.82	\$17.14	\$9.56	\$ 22.49	\$ 57.80
3	TLHSFLXHDS0	11,920	-14.79%	-11.06%	\$ 22.24	\$ 41.45	\$ 41.69	\$ 154.43	\$ 37.51	\$17.31	\$10.83	\$ 23.07	\$ 57.86
3	KSSMFLXADS0	48,870	-14.35%	-10.60%	\$ 22.36	\$ 41.75	\$ 41.76	\$ 197.33	\$ 37.64	\$17.50	\$10.93	\$ 23.14	\$ 58.05
3	CLMTFLXADS0	23,597	-12.67%	-8.85%	\$ 22.79	\$ 42.37	\$ 42.28	\$ 143.83	\$ 39.79	\$17.64	\$10.93	\$ 23.56	\$ 59.26
3	APPKFLXADS1	34,515	-12.00%	-8.14%	\$ 22.97	\$ 42.88	\$ 42.47	\$ 215.21	\$ 38.51	\$17.83	\$11.08	\$ 23.74	\$ 58.46
3	OCALFLXCDS0	9,052	-11.99%	-8.14%	\$ 22.97	\$ 43.42	\$ 42.85	\$ 154.23	\$ 34.42	\$17.93	\$11.19	\$ 23.98	\$ 60.51
3	GLGCFLXADS0	35,653	-11.08%	-7.19%	\$ 23.21	\$ 43.57	\$ 42.52	\$ 144.18	\$ 37.92	\$18.16	\$11.32	\$ 24.04	\$ 60.09
3	CPCRFLEXBDS1	30,568	-9.75%	-5.79%	\$ 23.56	\$ 44.21	\$ 42.28	\$ 144.74	\$ 38.93	\$18.18	\$11.67	\$ 24.29	\$ 58.92
3	LSBGFLXADS0	35,332	-9.45%	-5.49%	\$ 23.63	\$ 44.21	\$ 43.14	\$ 236.29	\$ 39.92	\$18.62	\$11.98	\$ 24.40	\$ 58.85
3	TLHSFLXCDS0	26,869	-7.81%	-3.77%	\$ 24.06	\$ 45.60	\$ 43.14	\$ 292.65	\$ 36.02	\$19.03	\$12.42	\$ 24.90	\$ 61.28
3	ORCYFLXCDS0	15,476	-7.44%	-3.38%	\$ 24.16	\$ 45.14	\$ 44.12	\$ 150.46	\$ 40.23	\$19.11	\$12.43	\$ 25.00	\$ 59.39
3	TVRSFLXADS0	15,771	-5.31%	-1.17%	\$ 24.71	\$ 46.78	\$ 44.40	\$ 151.93	\$ 39.23	\$19.15	\$12.57	\$ 25.66	\$ 61.42
3	CYLKFLXADS0	42,232	-3.15%	1.10%	\$ 25.28	\$ 47.13	\$ 46.57	\$ 222.68	\$ 45.23	\$19.19	\$12.82	\$ 26.28	\$ 59.32
3	MTDRFLXARS0	16,963	-2.86%	1.39%	\$ 25.35	\$ 47.97	\$ 45.58	\$ 132.08	\$ 38.37	\$19.26	\$12.89	\$ 26.38	\$ 62.65
3	KSSMFLXCDS1	9,291	-1.04%	3.30%	\$ 25.83	\$ 48.53	\$ 45.76	\$ 206.82	\$ 43.51	\$19.59	\$13.08	\$ 26.58	\$ 60.88
3	OCALFLXADS0	56,831	-0.96%	3.37%	\$ 25.85	\$ 48.52	\$ 45.32	\$ 192.20	\$ 42.43	\$19.65	\$13.24	\$ 26.69	\$ 62.00
3	PTCTFLXADS0	45,715	-0.18%	4.20%	\$ 26.05	\$ 49.11	\$ 46.14	\$ 212.61	\$ 43.28	\$19.67	\$13.25	\$ 26.97	\$ 61.26
3	FTMYFLXBRS0	16,094	1.09%	5.52%	\$ 26.39	\$ 50.23	\$ 45.49	\$ 174.61	\$ 40.54	\$19.78	\$13.26	\$ 27.19	\$ 59.49
3	SNISFLXADS0	12,701	1.29%	5.73%	\$ 26.44	\$ 49.66	\$ 45.98	\$ 223.51	\$ 49.46	\$19.80	\$13.45	\$ 27.26	\$ 63.19
3	TLHSFLXFDS0	26,974	1.67%	6.12%	\$ 26.54	\$ 49.77	\$ 46.79	\$ 153.80	\$ 44.02	\$19.82	\$13.93	\$ 27.30	\$ 61.56
3	NFMYFLXBRS0	18,530	1.86%	6.32%	\$ 26.59	\$ 50.16	\$ 45.41	\$ 188.81	\$ 44.97	\$19.85	\$14.00	\$ 27.41	\$ 62.95
3	OCALFLXBDS0	32,767	3.02%	7.53%	\$ 26.89	\$ 50.62	\$ 45.96	\$ 234.25	\$ 44.23	\$20.07	\$14.37	\$ 27.59	\$ 62.67
3	CHSWFLXARS0	4,660	4.47%	9.05%	\$ 27.27	\$ 52.34	\$ 46.84	\$ 143.95	\$ 37.40	\$20.07	\$14.43	\$ 28.29	\$ 65.62
3	BLVWFLXADS0	23,889	6.58%	11.25%	\$ 27.82	\$ 52.70	\$ 47.16	\$ 158.02	\$ 43.45	\$20.23	\$14.47	\$ 28.64	\$ 64.22
3	SBNGFLXADS1	28,252	6.84%	11.52%	\$ 27.89	\$ 52.62	\$ 47.87	\$ 184.29	\$ 46.66	\$20.26	\$14.58	\$ 28.75	\$ 63.32
3	SVSSFLXARS0	7,653	7.47%	12.18%	\$ 28.05	\$ 53.39	\$ 46.30	\$ 196.15	\$ 44.42	\$20.70	\$14.94	\$ 28.77	\$ 63.48
3	BVHLFLXADS0	14,500	8.81%	13.58%	\$ 28.40	\$ 53.79	\$ 48.16	\$ 154.65	\$ 43.75	\$20.80	\$14.94	\$ 29.26	\$ 64.44
3	MTVRFLXARS0	1,813	9.95%	14.76%	\$ 28.70	\$ 55.86	\$ 46.95	\$ 110.57	\$ 34.30	\$20.96	\$15.88	\$ 29.74	\$ 68.64
3	LHACFLXADS0	18,034	10.89%	15.75%	\$ 28.94	\$ 55.30	\$ 48.63	\$ 140.73	\$ 42.73	\$20.98	\$15.88	\$ 29.90	\$ 66.84
3	ESTSFLXARS0	19,888	11.65%	16.54%	\$ 29.14	\$ 55.69	\$ 48.62	\$ 135.28	\$ 42.59	\$21.54	\$16.16	\$ 30.03	\$ 65.57
3	PNGRFLXADS1	28,298	11.76%	16.65%	\$ 29.17	\$ 55.28	\$ 49.01	\$ 181.15	\$ 49.43	\$22.69	\$16.60	\$ 30.05	\$ 66.31
3	CRVWFLXADS0	18,188	12.01%	16.92%	\$ 29.24	\$ 55.65	\$ 48.60	\$ 222.33	\$ 43.53	\$22.85	\$16.69	\$ 30.06	\$ 66.92
3	DDCYFLXADS1	13,444	14.48%	19.50%	\$ 29.88	\$ 57.34	\$ 49.11	\$ 149.93	\$ 43.49	\$23.72	\$17.85	\$ 30.82	\$ 68.18
3	CPHZFLXADS0	12,412	15.57%	-19.75%	\$ 30.16	\$ 57.17	\$ 49.99	\$ 195.02	\$ 50.03	\$21.17	\$12.40	\$ 31.02	\$ 65.01
3	LKHLFLXARS0	2,188	21.24%	-15.81%	\$ 31.64	\$ 61.93	\$ 49.33	\$ 111.17	\$ 37.81	\$23.07	\$14.38	\$ 32.51	\$ 66.77
3	SNRSFLXARS0	6,257	21.70%	-15.49%	\$ 31.76	\$ 60.51	\$ 50.77	\$ 230.50	\$ 50.49	\$23.31	\$14.77	\$ 32.65	\$ 72.77
3	SGBHFLXARS0	6,053	23.43%	-14.29%	\$ 32.22	\$ 60.84	\$ 52.19	\$ 219.46	\$ 57.77	\$23.85	\$14.97	\$ 32.97	\$ 66.03
3	AVPKFLXADS0	12,062	25.56%	-12.81%	\$ 32.77	\$ 62.31	\$ 54.05	\$ 334.18	\$ 49.21	\$24.06	\$15.53	\$ 33.59	\$ 67.19
3	PNISFLXADS0	9,813	25.68%	-12.72%	\$ 32.80	\$ 62.31	\$ 52.62	\$ 246.68	\$ 57.36	\$24.93	\$15.90	\$ 33.76	\$ 67.16
3	INVRFLXADS1	29,590	31.52%	-8.67%	\$ 34.33	\$ 65.43	\$ 54.97	\$ 188.20	\$ 53.59	\$25.60	\$16.71	\$ 35.28	\$ 70.19
3	CRRVFLXADS0	15,511	32.66%	-7.88%	\$ 34.63	\$ 66.16	\$ 54.76	\$ 183.79	\$ 53.49	\$25.70	\$17.54	\$ 35.54	\$ 70.99
3	HOWYFLXARS0	1,861	33.34%	-7.41%	\$ 34.80	\$ 67.43	\$ 53.02	\$ 191.69	\$ 51.20	\$25.95	\$18.28	\$ 35.68	\$ 72.64
3	STCDFLXARS0	23,147	33.91%	-7.01%	\$ 34.95	\$ 67.44	\$ 53.79	\$ 161.90	\$ 54.71	\$26.64	\$18.43	\$ 35.81	\$ 76.01
3	MRNIFLXADS0	11,499	34.95%	-6.29%	\$ 35.22	\$ 67.71	\$ 55.65	\$ 374.81	\$ 47.63	\$27.91	\$18.66	\$ 36.18	\$ 73.17
3	SVSPFLXARS0	5,833	37.02%	-4.85%	\$ 35.76	\$ 68.79	\$ 56.05	\$ 204.99	\$ 56.99	\$27.92	\$19.05	\$ 36.82	\$ 74.95

4	FTMDFLXARS0	3,406	37.48%	-4.53%	\$ 35.88	\$ 70.23	\$ 54.16	\$ 147.04	\$ 48.25	\$29.11	\$19.06	\$ 36.94	\$ 77.56
4	HMSPFLEXARS0	11,027	42.67%	-0.93%	\$ 37.24	\$ 71.09	\$ 57.39	\$ 225.11	\$ 59.00	\$29.17	\$19.08	\$ 38.06	\$ 71.14
4	WCHFLXADS0	7,552	45.92%	1.33%	\$ 38.09	\$ 73.76	\$ 57.68	\$ 179.78	\$ 56.11	\$29.18	\$19.25	\$ 39.08	\$ 77.73
4	STRKFLXADS0	7,930	48.59%	3.18%	\$ 38.78	\$ 75.19	\$ 59.25	\$ 145.72	\$ 51.97	\$29.20	\$19.28	\$ 39.93	\$ 78.65
4	CFVLFLXADS0	8,785	51.40%	5.13%	\$ 39.52	\$ 75.54	\$ 61.01	\$ 204.09	\$ 62.27	\$29.98	\$19.30	\$ 40.53	\$ 76.30
4	SNANFLXARS0	4,064	54.87%	7.54%	\$ 40.42	\$ 77.10	\$ 62.62	\$ 211.90	\$ 64.71	\$30.71	\$19.31	\$ 41.49	\$ 75.66
4	ARCDLXADS0	15,332	56.94%	8.98%	\$ 40.96	\$ 79.44	\$ 60.77	\$ 175.43	\$ 62.37	\$30.83	\$19.47	\$ 41.98	\$ 83.00
4	GVLDLXARS0	6,131	57.30%	9.23%	\$ 41.06	\$ 79.01	\$ 62.61	\$ 187.73	\$ 61.48	\$31.08	\$19.88	\$ 42.18	\$ 79.90
4	MDSNFLXADS0	5,217	61.81%	12.36%	\$ 42.23	\$ 82.72	\$ 61.18	\$ 152.07	\$ 57.63	\$31.64	\$19.94	\$ 43.29	\$ 84.71
4	SLHLFLXARS0	5,574	62.97%	13.17%	\$ 42.54	\$ 81.72	\$ 64.00	\$ 249.93	\$ 68.93	\$34.22	\$20.39	\$ 43.65	\$ 79.68
4	WLWDFLXARS0	8,568	65.29%	14.78%	\$ 43.14	\$ 83.63	\$ 63.67	\$ 195.11	\$ 62.77	\$35.38	\$20.99	\$ 44.14	\$ 87.40
4	OKCBFLXADS1	23,685	65.42%	14.87%	\$ 43.18	\$ 83.31	\$ 63.43	\$ 218.41	\$ 74.47	\$35.38	\$21.55	\$ 44.22	\$ 82.61
4	CLTNFLXARS0	9,451	66.46%	15.59%	\$ 43.45	\$ 84.84	\$ 62.13	\$ 182.01	\$ 72.65	\$39.11	\$22.30	\$ 44.41	\$ 92.43
4	LBLLFLXADS0	9,641	72.03%	19.46%	\$ 44.90	\$ 86.70	\$ 65.98	\$ 215.38	\$ 72.18	\$41.23	\$23.33	\$ 45.95	\$ 86.85
4	UMTLFLXARS0	8,548	72.10%	19.51%	\$ 44.92	\$ 86.76	\$ 67.33	\$ 192.70	\$ 65.49	\$43.98	\$24.75	\$ 46.23	\$ 84.82
4	TLHSFLXGRS0	4,928	75.25%	-8.21%	\$ 45.74	\$ 88.30	\$ 67.48	\$ 222.06	\$ 67.88	\$29.77	\$15.52	\$ 46.90	\$ 84.86
4	BSHNFLXADS0	12,465	80.15%	-5.65%	\$ 47.02	\$ 90.93	\$ 68.06	\$ 212.11	\$ 70.85	\$32.18	\$18.33	\$ 48.08	\$ 86.08
4	ALVAFLXARS1	1,766	81.71%	-4.83%	\$ 47.43	\$ 91.09	\$ 69.83	\$ 214.33	\$ 72.24	\$33.55	\$20.73	\$ 48.52	\$ 82.57
4	TLCHFLXARS0	4,075	82.09%	-4.63%	\$ 47.53	\$ 91.74	\$ 70.73	\$ 224.44	\$ 69.55	\$33.72	\$20.98	\$ 48.89	\$ 85.03
4	MRHNFLXARS0	3,000	83.82%	-3.73%	\$ 47.98	\$ 94.00	\$ 66.57	\$ 230.12	\$ 75.29	\$35.32	\$22.12	\$ 48.97	\$ 92.89
4	OKLWFLXADS0	4,454	84.64%	-3.30%	\$ 48.19	\$ 93.35	\$ 67.92	\$ 242.95	\$ 69.51	\$35.79	\$23.44	\$ 49.10	\$ 84.28
4	BWLGLXARS0	1,675	85.12%	-3.05%	\$ 48.32	\$ 95.14	\$ 66.47	\$ 222.41	\$ 70.44	\$36.27	\$24.18	\$ 49.38	\$ 91.17
4	IMKFLXARS0	6,999	85.79%	-2.70%	\$ 48.49	\$ 94.73	\$ 68.23	\$ 235.77	\$ 78.00	\$37.13	\$24.87	\$ 49.61	\$ 93.67
4	LKPCFLXARS0	13,495	87.64%	-1.72%	\$ 48.98	\$ 94.86	\$ 68.88	\$ 229.17	\$ 80.82	\$38.91	\$24.97	\$ 49.86	\$ 92.71
4	DFSPFLXADS0	9,290	88.91%	-1.06%	\$ 49.31	\$ 95.79	\$ 70.22	\$ 180.98	\$ 69.51	\$40.27	\$25.57	\$ 50.46	\$ 88.98
4	OCNFFLXARS0	6,105	95.53%	2.41%	\$ 51.03	\$ 98.69	\$ 72.87	\$ 258.13	\$ 77.45	\$41.63	\$25.66	\$ 52.20	\$ 89.28
4	SNDSFLXARS0	2,037	96.82%	3.08%	\$ 51.37	\$ 100.41	\$ 72.21	\$ 193.74	\$ 68.61	\$41.66	\$26.06	\$ 52.60	\$ 92.34
4	ASTRFLXARS0	1,567	104.79%	7.25%	\$ 53.45	\$ 104.42	\$ 72.87	\$ 248.57	\$ 83.23	\$41.92	\$26.24	\$ 54.64	\$ 93.80
4	PANCFXARS0	1,160	105.74%	7.75%	\$ 53.70	\$ 103.65	\$ 75.86	\$ 433.10	\$ 88.05	\$42.62	\$27.24	\$ 55.00	\$ 87.71
4	WLSTFLXARS0	6,773	111.41%	10.72%	\$ 55.18	\$ 107.37	\$ 78.14	\$ 340.55	\$ 78.06	\$45.56	\$28.09	\$ 56.62	\$ 98.32
4	GNWDFLXARS0	916	121.89%	16.21%	\$ 57.91	\$ 113.16	\$ 79.84	\$ 388.21	\$ 83.98	\$46.18	\$28.15	\$ 59.67	\$ 96.68
4	BNFYFLXARS0	5,169	125.08%	17.88%	\$ 58.75	\$ 115.06	\$ 79.92	\$ 190.04	\$ 80.27	\$46.21	\$28.35	\$ 60.05	\$ 102.27
4	SSPRFLXARS0	1,720	132.11%	-17.36%	\$ 60.58	\$ 117.32	\$ 84.08	\$ 306.87	\$ 92.62	\$49.23	\$28.36	\$ 62.22	\$ 94.99
4	FRPTFLXARS0	3,238	146.05%	-12.40%	\$ 64.22	\$ 125.12	\$ 87.38	\$ 315.81	\$ 99.41	\$50.72	\$29.05	\$ 65.74	\$ 104.51
4	MNTIFLXADS0	7,344	156.18%	-8.80%	\$ 66.86	\$ 131.00	\$ 88.96	\$ 251.19	\$ 106.13	\$51.51	\$30.14	\$ 68.20	\$ 118.63
4	LWTYFLXARS0	1,235	164.00%	-6.01%	\$ 68.90	\$ 134.04	\$ 91.36	\$ 300.17	\$ 104.65	\$57.15	\$30.35	\$ 70.20	\$ 105.18
4	CTDLFLXARS0	1,437	184.24%	1.19%	\$ 74.19	\$ 145.80	\$ 95.82	\$ 276.14	\$ 105.06	\$59.46	\$31.94	\$ 75.60	\$ 118.97
4	ALFRFLXARS0	1,743	188.62%	2.75%	\$ 75.33	\$ 147.48	\$ 98.93	\$ 301.38	\$ 109.12	\$60.20	\$33.20	\$ 76.88	\$ 118.36
4	ZLSPFLXARS0	2,649	195.59%	5.23%	\$ 77.15	\$ 151.38	\$ 99.87	\$ 328.43	\$ 123.72	\$61.90	\$34.77	\$ 78.61	\$ 127.71
4	CHLKFLXARS0	1,447	214.51%	11.97%	\$ 82.09	\$ 160.47	\$ 107.37	\$ 502.59	\$ 116.29	\$69.31	\$34.80	\$ 83.79	\$ 123.09
4	BAKRFLXADS0	2,844	229.29%	17.23%	\$ 85.95	\$ 168.34	\$ 110.73	\$ 343.66	\$ 129.74	\$69.43	\$36.46	\$ 87.51	\$ 133.84
4	GDRGFLXADS0	2,385	229.75%	17.39%	\$ 86.07	\$ 168.78	\$ 110.18	\$ 336.38	\$ 127.84	\$71.37	\$36.74	\$ 87.60	\$ 133.24
4	STMKFLXARS0	728	234.43%	19.06%	\$ 87.29	\$ 171.37	\$ 110.94	\$ 301.45	\$ 126.41	\$73.44	\$37.54	\$ 89.20	\$ 130.17
4	MALNFLXARS0	1,396	245.36%	-16.79%	\$ 90.14	\$ 177.52	\$ 112.35	\$ 347.59	\$ 130.99	\$74.02	\$38.61	\$ 91.57	\$ 135.90
4	PNLNFLXARS0	1,312	258.92%	-13.52%	\$ 93.68	\$ 183.31	\$ 120.06	\$ 404.04	\$ 142.48	\$78.44	\$39.83	\$ 95.42	\$ 137.77
4	GNVFLXARS0	1,493	312.99%	-0.49%	\$ 107.79	\$ 213.17	\$ 128.91	\$ 435.36	\$ 174.28	\$86.87	\$40.05	\$ 109.18	\$ 167.55
4	LEE FLXARS0	1,238	314.87%	-0.04%	\$ 108.28	\$ 213.31	\$ 132.09	\$ 432.24	\$ 164.12	\$95.17	\$40.71	\$ 109.53	\$ 199.23
4	SPCPFLXARL0	1,173	315.20%	0.04%	\$ 108.37	\$ 214.09	\$ 130.22	\$ 436.28	\$ 168.00	\$97.38	\$41.07	\$ 109.79	\$ 159.09
4	EVRGFLXARS1	1,729	315.21%	0.04%	\$ 108.37	\$ 213.88	\$ 128.34	\$ 440.02	\$ 213.60	\$101.91	\$41.45	\$ 109.91	\$ 162.48
4	WSTVFLXARS0	899	344.67%	7.14%	\$ 116.06	\$ 228.41	\$ 141.35	\$ 557.54	\$ 165.22	\$103.68	\$44.75	\$ 118.22	\$ 161.06
4	GLDLFLXARS0	863	353.04%	9.16%	\$ 118.24	\$ 232.72	\$ 143.70	\$ 873.73	\$ 179.73	\$105.81	\$51.25	\$ 120.05	\$ 168.17
4	KGLKFLXARS0	335	356.29%	9.94%	\$ 119.09	\$ 234.14	\$ 145.48	\$ 591.40	\$ 178.94	\$117.84	\$51.31	\$ 121.91	\$ 153.84
4	RYHLFLXARS0	1,602	377.67%	15.09%	\$ 124.67	\$ 245.42	\$ 150.66	\$ 915.47	\$ 189.11	\$138.33	\$55.46	\$ 126.56	\$ 177.36
4	KNVLFLXARS0	742	702.53%	0.00%	\$ 209.46	\$ 415.21	\$ 234.77	\$ 1,048.43	\$ 391.06	\$266.89	\$58.37	\$ 211.86	\$ 312.63

INTEROFFICE TRANSPORT

Originating	Terminating	Dedicated DS0	Dedicated DS1	Dedicated DS3	Dedicated OC3	Dedicated DS12
ALFRFLXARS0 - Alford	CTDFLXARS0 - Cottondale	35.64	144.38	1,328.67	3,925.37	NA
ALFRFLXARS0 - Alford	GDRGFLXADS0 - Grand Ridge	40.10	215.96	1,975.97	5,841.33	NA
ALFRFLXARS0 - Alford	GNWDFLXARS0 - Greenwood	39.96	213.79	1,915.27	5,674.87	NA
ALFRFLXARS0 - Alford	MALNFLXARS0 - Malone	39.96	213.79	1,915.27	5,674.87	NA
ALFRFLXARS0 - Alford	MRNFLXADS0 - Marianna	35.64	144.38	1,328.67	3,925.37	NA
ALFRFLXARS0 - Alford	NSN - Graceville*	24.28	176.10	1,538.37	4,570.87	NA
ALFRFLXARS0 - Alford	SNDSFLXARS0 - Sneads	40.10	215.96	1,975.97	5,841.33	NA
ALSPFLXADS0 - Altamonte Springs	APPKFLXADS1 - Apopka	25.83	76.67	790.00	2,307.29	7,691.50
ALSPFLXADS0 - Altamonte Springs	CSLBFLXADS1 - Casselberry	25.64	72.57	674.99	1,991.89	6,559.18
ALSPFLXADS0 - Altamonte Springs	GLRDFLXADS0 - Goldenrod	25.64	72.57	674.99	1,991.89	6,559.18
ALSPFLXADS0 - Altamonte Springs	KSSMFLXBDS1 - Reedy Creek	33.89	254.70	3,061.15	8,817.22	29,878.87
ALSPFLXADS0 - Altamonte Springs	LKBRFLXADS1 - Lake Brantley	25.83	76.67	790.00	2,307.29	7,691.50
ALSPFLXADS0 - Altamonte Springs	MNTIFLXADS0 - Montverde	41.23	416.71	4,883.96	NA	NA
ALSPFLXADS0 - Altamonte Springs	MTLDFLXADS1 - Maitland	25.83	76.67	790.00	2,307.29	7,691.50
ALSPFLXADS0 - Altamonte Springs	NSN - Celebration*	21.01	217.12	2,687.45	7,721.98	NA
ALSPFLXADS0 - Altamonte Springs	NSN - East Orange*	16.48	117.10	1,243.57	3,621.56	12,113.89
ALSPFLXADS0 - Altamonte Springs	NSN - Geneva*	16.48	117.10	1,243.57	3,621.56	12,113.89
ALSPFLXADS0 - Altamonte Springs	NSN - Lake Buena Vista*	21.01	217.12	2,687.45	7,721.98	NA
ALSPFLXADS0 - Altamonte Springs	NSN - Orlando*	16.29	113.00	1,128.56	3,306.16	10,981.57
ALSPFLXADS0 - Altamonte Springs	NSN - Oviedo*	16.29	113.00	1,128.56	3,306.16	10,981.57
ALSPFLXADS0 - Altamonte Springs	NSN - Sanford*	19.82	104.37	886.81	NA	NA
ALSPFLXADS0 - Altamonte Springs	WNDRFLXARS0 - Windermere	32.19	217.12	2,687.45	7,721.98	NA
ALSPFLXADS0 - Altamonte Springs	WNGRFLXADS0 - Winter Garden	30.49	179.66	2,316.95	6,635.50	22,638.20
ALSPFLXADS0 - Altamonte Springs	WNPKFLXADS1 - Winter Park	25.83	76.67	790.00	2,307.29	7,691.50
ALVAFLXARS0 - Alva	BNSPFLXADS1 - Bonita Springs	28.32	131.80	2,334.18	6,541.87	22,893.88
ALVAFLXARS0 - Alva	CPCRFLXADS0 - Cape Coral	31.70	206.34	3,064.54	8,685.62	29,998.25
ALVAFLXARS0 - Alva	CPCRFLXBDS1 - North Cape Coral	31.70	206.34	3,064.54	8,685.62	29,998.25
ALVAFLXARS0 - Alva	CYLKFLXBRS0 - Regional Airport	31.84	209.35	3,148.67	8,916.33	30,826.52
ALVAFLXARS0 - Alva	FTMBFLXADS0 - Fort Myers Beach	32.53	224.71	3,578.91	10,096.17	35,062.21
ALVAFLXARS0 - Alva	FTMYFLXADS0 - Fort Myers	28.32	131.80	2,334.18	6,541.87	22,893.88
ALVAFLXARS0 - Alva	FTMYFLXBDS0 - East Fort Myers	28.32	131.80	2,334.18	6,541.87	22,893.88
ALVAFLXARS0 - Alva	FTMYFLXCDS2 - South Ft Myers	32.53	224.71	3,578.91	10,096.17	35,062.21
ALVAFLXARS0 - Alva	LHACFLXADS0 - Lehigh Acres	28.32	131.80	2,334.18	6,541.87	22,893.88
ALVAFLXARS0 - Alva	NFMYFLXADS0 - North Fort Myers	32.53	224.71	3,578.91	10,096.17	35,062.21
ALVAFLXARS0 - Alva	PNISFLXADS0 - Pine Island	32.53	224.71	3,578.91	10,096.17	35,062.21
ALVAFLXARS0 - Alva	SNISFLXADS0 - Sanibel-Captiva Islands	32.53	224.71	3,578.91	10,096.17	35,062.21
APPKFLXADS1 - Apopka	CSLBFLXADS1 - Casselberry	29.11	149.24	1,464.99	4,299.18	14,250.68
APPKFLXADS1 - Apopka	GLRDFLXADS0 - Goldenrod	29.11	149.24	1,464.99	4,299.18	14,250.68
APPKFLXADS1 - Apopka	KSSMFLXBDS1 - Reedy Creek	30.42	178.02	2,271.15	6,509.92	22,187.37
APPKFLXADS1 - Apopka	LKBRFLXADS1 - Lake Brantley	25.83	76.67	790.00	2,307.29	7,691.50
APPKFLXADS1 - Apopka	MNTIFLXADS0 - Montverde	29.78	164.07	1,880.32	NA	NA
APPKFLXADS1 - Apopka	MTDRFLXARS0 - Mt. Dora	26.62	94.20	1,280.94	3,653.60	12,524.81

INTEROFFICE TRANSPORT

Originating	Terminating	Dedicated DS0	Dedicated DS1	Dedicated DS3	Dedicated OC3	Dedicated DS12
APPKFLXADS1 - Apopka	MTLDFLXADS1 - Maitland	25.83	76.67	790.00	2,307.29	7,691.50
APPKFLXADS1 - Apopka	NSN - Celebration*	17.54	140.45	1,897.45	5,414.69	NA
APPKFLXADS1 - Apopka	NSN - East Orange*	16.48	117.10	1,243.57	3,621.56	12,113.89
APPKFLXADS1 - Apopka	NSN - Lake Buena Vista*	17.33	135.92	1,770.72	5,067.16	17,303.67
APPKFLXADS1 - Apopka	NSN - Orlando*	16.48	117.10	1,243.57	3,621.56	12,113.89
APPKFLXADS1 - Apopka	WNDRFLXARS0 - Windermere	28.71	140.45	1,897.45	5,414.69	NA
APPKFLXADS1 - Apopka	WNGRFLXADS0 - Winter Garden	27.02	102.98	1,526.95	4,328.21	14,946.70
APPKFLXADS1 - Apopka	WNPKFLXADS1 - Winter Park	25.83	76.67	790.00	2,307.29	7,691.50
ARCDFLXADS0 - Arcadia	PTCTFLXADS0 - Port Charlotte	29.86	165.75	3,285.18	9,149.78	32,256.45
ARCDFLXADS0 - Arcadia	WCHLFLXADS0 - Wauchula	29.86	165.75	3,285.18	9,149.78	32,256.45
ARCDFLXADS0 - Arcadia	ZLSPFLXARS0 - Zolfo Springs	29.86	165.75	3,285.18	9,149.78	32,256.45
ASTRFLXARS0 - Astor	CLMTFLXADS0 - Clermont	37.07	167.34	1,971.90	5,689.29	NA
ASTRFLXARS0 - Astor	ESTSFLXARS0 - Eustis	37.07	167.34	1,971.90	5,689.29	NA
ASTRFLXARS0 - Astor	GVLDFLXARS0 - Groveland	45.96	310.20	4,615.98	13,081.00	NA
ASTRFLXARS0 - Astor	HOWYFLXARS0 - Howey-in-the-Hills	41.41	237.13	2,569.15	NA	NA
ASTRFLXARS0 - Astor	LDLKFLXARS0 - Lady Lake	42.71	258.04	3,154.87	9,074.21	NA
ASTRFLXARS0 - Astor	LSBGFLXADS1 - Leesburg	37.07	167.34	1,971.90	5,689.29	NA
ASTRFLXARS0 - Astor	MTDRFLXARS0 - Mt. Dora	37.07	167.34	1,971.90	5,689.29	NA
ASTRFLXARS0 - Astor	MTVRFLXARS0 - Monteverde	41.29	235.16	2,513.77	NA	NA
ASTRFLXARS0 - Astor	TVRSFLXADS0 - Tavares	37.07	167.34	1,971.90	5,689.29	NA
ASTRFLXARS0 - Astor	UMTLFLXARS0 - Umatilla	37.07	167.34	1,971.90	5,689.29	NA
AVPKFLXADS0 - Avon Park	LKPCFLXARS0 - Lake Placid	32.96	234.13	3,843.02	10,820.43	NA
AVPKFLXADS0 - Avon Park	SBNGFLXADS1 - Sebring	29.86	165.75	3,285.18	9,149.78	32,256.45
AVPKFLXADS0 - Avon Park	SLHLFLXARS0 - Spring Lake	29.86	165.75	3,285.18	9,149.78	32,256.45
AVPKFLXADS0 - Avon Park	WCHLFLXADS0 - Wauchula	29.86	165.75	3,285.18	9,149.78	32,256.45
BAKRFLXADS0 - Baker	CRVWFLXADS0 - Crestview	30.83	67.02	519.50	NA	NA
BAKRFLXADS0 - Baker	DESTFLXADS0 - Destin	38.23	185.89	2,491.60	NA	NA
BAKRFLXADS0 - Baker	DFSPFLXADS0 - Defuniak Springs	38.23	185.89	2,491.60	NA	NA
BAKRFLXADS0 - Baker	FTWBFLXADS0 - Fort Walton Beach	38.23	185.89	2,491.60	NA	NA
BAKRFLXADS0 - Baker	NSN - Laurel Hill*	19.78	103.72	868.71	NA	NA
BAKRFLXADS0 - Baker	SHLMFLXADS0 - Shalimar	42.47	254.09	3,044.11	NA	NA
BAKRFLXADS0 - Baker	VLPRFLXADS0 - Valparaiso	38.23	185.89	2,491.60	NA	NA
BLVWFLXADS0 - Belleview	LDLKFLXARS0 - Lady Lake (821)	26.46	90.70	1,182.97	3,384.92	11,560.24
BLVWFLXADS0 - Belleview	NSN - Citra*	19.30	179.26	2,984.77	NA	NA
BLVWFLXADS0 - Belleview	NSN - Dunnellon*	19.12	175.38	2,876.14	8,098.53	28,186.47
BLVWFLXADS0 - Belleview	NSN - McIntosh*	19.30	179.26	2,984.77	NA	NA
BLVWFLXADS0 - Belleview	NSN - Orange Springs*	17.49	139.38	1,867.63	NA	NA
BLVWFLXADS0 - Belleview	OCALFLXADS0 - Ocala	28.82	142.86	2,644.08	7,391.70	25,944.84
BLVWFLXADS0 - Belleview	OCALFLXCRS0 - Highlands	32.67	227.86	3,667.30	10,338.56	35,932.42
BLVWFLXADS0 - Belleview	OCNFFLXARS0 - Forest	32.67	227.86	3,667.30	10,338.56	35,932.42
BLVWFLXADS0 - Belleview	OKLWFLXADS0 - Ocklawaha	25.42	67.78	540.80	1,623.92	5,238.15
BLVWFLXADS0 - Belleview	SSPRFLXARS0 - Salt Springs	32.67	227.86	3,667.30	10,338.56	35,932.42

INTEROFFICE TRANSPORT

Originating	Terminating	Dedicated DS0	Dedicated DS1	Dedicated DS3	Dedicated OC3	Dedicated DS12
BLVWFLXADS0 - Belleview	SVSSFLXARS0 - Silver Springs Shores	25.91	78.58	843.25	2,453.31	8,215.72
BLVWFLXADS0 - Belleview	WLWDFLXARS0 - Wildwood	26.46	90.70	1,182.97	3,384.92	11,560.24
BNFYFLXARS0 - Bonifay	DFSPFLXADS0 - Defuniak Springs	29.92	166.96	1,961.25	5,660.09	19,136.41
BNFYFLXARS0 - Bonifay	NSN - Chipley*	16.24	111.74	1,093.41	3,209.79	NA
BNFYFLXARS0 - Bonifay	NSN - Graceville*	16.24	111.74	1,093.41	3,209.79	NA
BNFYFLXARS0 - Bonifay	NSN - Vernon*	16.24	111.74	1,093.41	3,209.79	NA
BNFYFLXARS0 - Bonifay	PNLNFLXARS0 - Ponce Leon	32.99	234.78	2,503.12	NA	NA
BNFYFLXARS0 - Bonifay	RYHLFLXARS0 - Reynolds Hill	28.98	146.20	1,379.79	NA	NA
BNFYFLXARS0 - Bonifay	WSTVFLXARS0 - Westville	25.98	80.02	883.72	2,564.29	8,614.12
BNSPFLXADS1 - Bonita Springs	CYLKFLXADS0 - Cypress Lake	28.32	131.80	2,334.18	6,541.87	22,893.88
BNSPFLXADS1 - Bonita Springs	FTMBFLXADS0 - Fort Myers Beach	32.53	224.71	3,578.91	10,096.17	35,062.21
BNSPFLXADS1 - Bonita Springs	FTMDFLXARS0 - Fort Meade	28.32	131.80	2,334.18	6,541.87	22,893.88
BNSPFLXADS1 - Bonita Springs	FTMYFLXADS0 - Fort Myers	28.32	131.80	2,334.18	6,541.87	22,893.88
BNSPFLXADS1 - Bonita Springs	FTMYFLXBDS0 - East Fort Myers	28.32	131.80	2,334.18	6,541.87	22,893.88
BNSPFLXADS1 - Bonita Springs	GLGCFLXADS0 - Golden Gate	28.32	131.80	2,334.18	6,541.87	22,893.88
BNSPFLXADS1 - Bonita Springs	NNPLFLXADS1 - North Naples	28.32	131.80	2,334.18	6,541.87	22,893.88
BNSPFLXADS1 - Bonita Springs	NPLSFLXCDS0 - Naples	28.32	131.80	2,334.18	6,541.87	22,893.88
BNSPFLXADS1 - Bonita Springs	NPLSFLXCDS0 - Naples Moorings	28.32	131.80	2,334.18	6,541.87	22,893.88
BNSPFLXADS1 - Bonita Springs	NPLSFLXCDS0 - Naples Southeast	28.32	131.80	2,334.18	6,541.87	22,893.88
BSHNFLXADS0 - Bushnell	HOWYFLXARS0 - Howey-in-the-Hills	31.99	212.65	3,241.32	NA	NA
BSHNFLXADS0 - Bushnell	LSBGFLXADS1 - Leesburg	28.82	142.86	2,644.08	7,391.70	25,944.84
BSHNFLXADS0 - Bushnell	WLWDFLXARS0 - Wildwood	32.93	233.56	3,827.05	10,776.62	37,505.08
BVHLFLXADS0 - Beverly Hills	CHSWFLXARS0 - Chassahowitzka	29.08	148.41	1,441.56	4,234.93	NA
BVHLFLXADS0 - Beverly Hills	CRRVFLXADS0 - Crystal River	26.09	82.57	955.07	2,759.95	9,316.58
BVHLFLXADS0 - Beverly Hills	HMSPLXARS0 - Homosassa Springs	26.09	82.57	955.07	2,759.95	9,316.58
BVHLFLXADS0 - Beverly Hills	INVRFLXADS0 - Inverness	26.09	82.57	955.07	2,759.95	9,316.58
BVHLFLXADS0 - Beverly Hills	NSN - Dunnellon*	12.65	32.52	232.06	706.83	2,241.64
BWLGFLXARS0 - Bowling Green	FTMDFLXARS0 - Fort Meade	41.35	236.07	3,897.33	10,969.37	NA
BWLGFLXARS0 - Bowling Green	WCHLFLXADS0 - Wauchula	41.35	236.07	3,897.33	10,969.37	NA
BWLGFLXARS0 - Bowling Green	ZLSPFLXARS0 - Zolfo Springs	41.35	236.07	3,897.33	10,969.37	NA
CFVLFLXADS0 - Crawfordville	NSN - Alligator Point*	16.47	116.80	1,235.05	3,598.20	NA
CFVLFLXADS0 - Crawfordville	NSN - Carrabelle*	16.47	116.80	1,235.05	3,598.20	NA
CFVLFLXADS0 - Crawfordville	PANCFLXARS0 - Panacea	25.48	69.07	577.01	1,723.21	5,594.62
CFVLFLXADS0 - Crawfordville	SPCFLXADS0 - Sopchoppy	26.21	85.08	1,025.35	2,952.70	10,008.55
CFVLFLXADS0 - Crawfordville	STMKFLXARS0 - St. Marks	25.42	67.78	540.80	1,623.92	5,238.15
CFVLFLXADS0 - Crawfordville	TLHSFLXADS0 - Calhoun	26.21	85.08	1,025.35	2,952.70	10,008.55
CHLKFLXARS0 - Cherry Lake	GNVFLXARS0 - Greenville	44.26	282.87	3,850.28	10,981.23	NA
CHLKFLXARS0 - Cherry Lake	LEE FLXARS0 - Lee	35.15	136.39	1,105.03	NA	NA
CHLKFLXARS0 - Cherry Lake	MDSNFLXADS0 - Madison	31.04	70.36	613.22	1,822.51	NA
CHSWFLXARS0 - Chassahowitzka	CRRVFLXADS0 - Crystal River	35.89	148.41	1,441.56	4,234.93	NA
CHSWFLXARS0 - Chassahowitzka	INVRFLXADS0 - Inverness	35.89	148.41	1,441.56	4,234.93	NA
CHSWFLXARS0 - Chassahowitzka	OCAFLEXCRS0 - Homosassa	30.76	65.84	486.49	1,474.98	NA

INTEROFFICE TRANSPORT

Originating	Terminating	Dedicated DS0	Dedicated DS1	Dedicated DS3	Dedicated OC3	Dedicated DS12
CLMTFLXADS0 - Clermont	ESTSFLXARS0 - Eustis	26.62	94.20	1,280.94	3,653.60	12,524.81
CLMTFLXADS0 - Clermont	GVLDFLXARS0 - Groveland	28.82	142.86	2,644.08	7,391.70	25,944.84
CLMTFLXADS0 - Clermont	HOWYFLXARS0 - Howey-in-the-Hills	29.87	166.05	1,935.69	NA	NA
CLMTFLXADS0 - Clermont	KSSMFLXBDS1 - Reedy Creek	25.75	75.04	744.21	2,181.72	7,240.67
CLMTFLXADS0 - Clermont	LDLKFLXARS0 - Lady Lake	32.93	233.56	3,827.05	10,776.62	37,505.08
CLMTFLXADS0 - Clermont	LSBGLXADS1 - Leesburg	26.62	94.20	1,280.94	3,653.60	12,524.81
CLMTFLXADS0 - Clermont	MNTIFLXADS0 - Montverde	28.45	134.63	1,734.51	4,967.86	16,947.20
CLMTFLXADS0 - Clermont	MTDRFLXARS0 - Mt. Dora	26.62	94.20	1,280.94	3,653.60	12,524.81
CLMTFLXADS0 - Clermont	NSN - Celebration*	20.94	215.49	2,641.66	7,596.40	NA
CLMTFLXADS0 - Clermont	NSN - Lake Buena Vista*	16.07	107.98	987.98	2,920.67	9,597.63
CLMTFLXADS0 - Clermont	NSN - Orlando*	21.07	218.45	2,724.73	7,824.19	26,609.76
CLMTFLXADS0 - Clermont	TVRSFLXADS0 - Tavares	26.62	94.20	1,280.94	3,653.60	12,524.81
CLMTFLXADS0 - Clermont	UMTFLXARS0 - Umatilla	29.93	167.34	1,971.90	5,689.29	NA
CLMTFLXADS0 - Clermont	WNRFLXARS0 - Windermere	34.52	268.73	3,454.12	9,894.84	33,747.61
CLMTFLXADS0 - Clermont	WNGRFLXADS0 - Winter Garden	30.42	178.02	2,271.15	6,509.92	22,187.37
CLTNFLXARS0 - Clewiston	LBLLFLXADS0 - LaBelle	32.41	92.41	1,230.89	3,516.34	NA
CLTNFLXARS0 - Clewiston	MRHNFLXARS0 - Moore Haven	32.41	92.41	1,230.89	3,516.34	NA
CPCRFLXADS0 - Cape Coral	CPCRFLXBDS1 - North Cape Coral	25.73	74.55	730.36	2,143.75	7,104.37
CPCRFLXADS0 - Cape Coral	FTMBFLXADS0 - Fort Myers Beach	29.94	167.45	1,975.10	5,698.05	19,272.71
CPCRFLXADS0 - Cape Coral	FTMYFLXADS0 - Fort Myers	25.73	74.55	730.36	2,143.75	7,104.37
CPCRFLXADS0 - Cape Coral	FTMYFLXBDS0 - East Fort Myers	31.70	206.34	3,064.54	8,685.62	29,998.25
CPCRFLXADS0 - Cape Coral	LHACFLXADS0 - Lehigh Acres	31.70	206.34	3,064.54	8,685.62	29,998.25
CPCRFLXADS0 - Cape Coral	NFMYFLXADS0 - North Fort Myers	25.73	74.55	730.36	2,143.75	7,104.37
CPCRFLXADS0 - Cape Coral	PNGRFLXADS1 - Punta Gorda	33.24	240.29	4,015.54	11,293.53	39,360.82
CPCRFLXADS0 - Cape Coral	PNISFLXADS0 - Pine Island	29.94	167.45	1,975.10	5,698.05	19,272.71
CPCRFLXADS0 - Cape Coral	SNISFLXADS0 - Sanibel-Captiva Islands	29.94	167.45	1,975.10	5,698.05	19,272.71
CPCRFLXBDS1 - North Cape Coral	NFMYFLXADS0 - North Fort Myers	25.73	74.55	730.36	2,143.75	7,104.37
CPCRFLXBDS1 - North Cape Coral	PNGRFLXADS1 - Punta Gorda	33.24	240.29	4,015.54	11,293.53	39,360.82
CPCRFLXBDS1 - North Cape Coral	PNISFLXADS0 - Pine Island	29.94	167.45	1,975.10	5,698.05	19,272.71
CPCRFLXBDS1 - North Cape Coral	PNISFLXADS0 - Pine Island	29.94	167.45	1,975.10	5,698.05	19,272.71
CPCRFLXBDS1 - North Cape Coral	SNISFLXADS0 - Sanibel-Captiva Islands	29.94	167.45	1,975.10	5,698.05	19,272.71
CPCRFLXBDS1 - North Cape Coral	SNISFLXADS0 - Sanibel-Captiva Islands	29.94	167.45	1,975.10	5,698.05	19,272.71
CPHZFLXADS0 - Cape Haze	NSN - Englewood*	15.44	33.85	269.34	NA	NA
CPHZFLXADS0 - Cape Haze	PNGRFLXADS1 - Punta Gorda	41.54	239.27	3,986.79	11,214.68	NA
CPHZFLXADS0 - Cape Haze	PTCTFLXADS0 - Port Charlotte	31.24	73.52	701.61	2,064.90	NA
CRRVFLXADS0 - Crystal River	HMSPFLEXARS0 - Homosassa Springs	26.09	82.57	955.07	2,759.95	9,316.58
CRRVFLXADS0 - Crystal River	INVRFLXADS0 - Inverness	26.09	82.57	955.07	2,759.95	9,316.58
CRRVFLXADS0 - Crystal River	NSN - Yankeetown*	16.39	115.09	1,187.13	3,466.78	11,558.21
CRVWFLXADS0 - Crestview	DESTFLXADS0 - Destin	27.74	118.87	1,972.09	5,548.93	19,329.18
CRVWFLXADS0 - Crestview	DFSPFLXADS0 - DeFuniak Springs	27.74	118.87	1,972.09	5,548.93	19,329.18
CRVWFLXADS0 - Crestview	FTWBFLXADS0 - Fort Walton Beach	27.74	118.87	1,972.09	5,548.93	19,329.18
CRVWFLXADS0 - Crestview	NSN - Laurel Hill*	15.61	36.70	349.21	NA	NA

INTEROFFICE TRANSPORT

Originating	Terminating	Dedicated DS0	Dedicated DS1	Dedicated DS3	Dedicated OC3	Dedicated DS12
CRVWFLXADS0 - Crestview	SHLMFLXADS0 - Shalimar	30.83	187.07	2,524.61	7,204.98	24,682.66
CRVWFLXADS0 - Crestview	VLPRFLXADS0 - Valparaiso	27.74	118.87	1,972.09	5,548.93	19,329.18
CSLBFLXADS1 - Casselberry	GLRDFLXADS0 - Goldenrod	25.64	72.57	674.99	1,991.89	6,559.18
CSLBFLXADS1 - Casselberry	KSSMFLXBDS1 - Reedy Creek	33.70	250.59	2,946.14	8,501.81	28,746.55
CSLBFLXADS1 - Casselberry	LKBRFLXADS1 - Lake Brantley	29.11	149.24	1,464.99	4,299.18	14,250.68
CSLBFLXADS1 - Casselberry	MNTIFLXADS0 - Montverde	41.04	412.61	4,768.95	NA	NA
CSLBFLXADS1 - Casselberry	MTLDFLXADS1 - Maitland	29.11	149.24	1,464.99	4,299.18	14,250.68
CSLBFLXADS1 - Casselberry	NSN - Celebration*	20.82	213.01	2,572.44	7,406.58	NA
CSLBFLXADS1 - Casselberry	NSN - East Orange*	16.29	113.00	1,128.56	3,306.16	10,981.57
CSLBFLXADS1 - Casselberry	NSN - Geneva*	16.29	113.00	1,128.56	3,306.16	10,981.57
CSLBFLXADS1 - Casselberry	NSN - Lake Buena Vista*	20.62	208.49	2,445.71	7,059.05	23,862.85
CSLBFLXADS1 - Casselberry	NSN - Orlando*	16.29	113.00	1,128.56	3,306.16	10,981.57
CSLBFLXADS1 - Casselberry	NSN - Oviedo*	16.29	113.00	1,128.56	3,306.16	10,981.57
CSLBFLXADS1 - Casselberry	NSN - Sanford*	19.19	176.94	1,561.80	NA	NA
CSLBFLXADS1 - Casselberry	WNRDFLXARS0 - Windermere	32.00	213.01	2,572.44	7,406.58	NA
CSLBFLXADS1 - Casselberry	WNGRFLXADS0 - Winter Garden	30.30	175.55	2,201.93	6,320.10	21,505.88
CSLBFLXADS1 - Casselberry	WNPKFLXADS1 - Winter Park	25.64	72.57	674.99	1,991.89	6,559.18
CTDLFLXARS0 - Cottondale	GDRGFLXADS0 - Grand Ridge	29.22	151.60	1,531.01	4,480.25	NA
CTDLFLXARS0 - Cottondale	GNWDFLXARS0 - Greenwood	29.12	149.43	1,470.31	4,313.79	NA
CTDLFLXARS0 - Cottondale	MALNFLXARS0 - Malone	29.12	149.43	1,470.31	4,313.79	NA
CTDLFLXARS0 - Cottondale	MRNNFLXADS0 - Marianna	25.98	80.02	883.72	2,564.29	8,614.12
CTDLFLXARS0 - Cottondale	NSN - Chipley*	16.24	111.74	1,093.41	3,209.79	NA
CTDLFLXARS0 - Cottondale	NSN - Graceville*	16.24	111.74	1,093.41	3,209.79	NA
CTDLFLXARS0 - Cottondale	SNDSFLXARS0 - Sneads	29.22	151.60	1,531.01	4,480.25	NA
CYLKFLXADS0 - Cypress Lake	CPCRFLEXBDS1 - North Cape Coral	25.73	74.55	730.36	2,143.75	7,104.37
CYLKFLXADS0 - Cypress Lake	CYLKFLXBRS0 - Regional Airport	31.84	209.35	3,148.67	8,916.33	30,826.52
CYLKFLXADS0 - Cypress Lake	FTMBFLXADS0 - Fort Myers Beach	26.56	92.91	1,244.73	3,554.30	12,168.34
CYLKFLXADS0 - Cypress Lake	FTMYFLXADS0 - Fort Myers	28.32	131.80	2,334.18	6,541.87	22,893.88
CYLKFLXADS0 - Cypress Lake	FTMYFLXBDS0 - East Fort Myers	28.32	131.80	2,334.18	6,541.87	22,893.88
CYLKFLXADS0 - Cypress Lake	FTMYFLXCDS2 - South Ft Myers	26.56	92.91	1,244.73	3,554.30	12,168.34
CYLKFLXADS0 - Cypress Lake	LHACFLXADS0 - Lehigh Acres	28.32	131.80	2,334.18	6,541.87	22,893.88
CYLKFLXADS0 - Cypress Lake	NFMYFLXADS0 - North Fort Myers	26.56	92.91	1,244.73	3,554.30	12,168.34
CYLKFLXADS0 - Cypress Lake	PNISFLXADS0 - Pine Island	26.56	92.91	1,244.73	3,554.30	12,168.34
CYLKFLXADS0 - Cypress Lake	SNISFLXADS0 - Sanibel-Captiva Islands	26.56	92.91	1,244.73	3,554.30	12,168.34
CYLKFLXBRS0 - Regional Airport	FTMYFLXCDS2 - South Ft Myers	30.07	170.46	2,059.23	5,928.77	20,100.97
DDCYFLXADS1 - Dade City	NSN - Tampa-Central*	15.36	32.64	235.26	NA	NA
DDCYFLXADS1 - Dade City	NSN - Tampa-North*	15.36	32.64	235.26	NA	NA
DDCYFLXADS1 - Dade City	NSN - Zephyrhills*	15.36	32.64	235.26	NA	NA
DDCYFLXADS1 - Dade City	SNANFLXARS0 - San Antonio	25.65	72.72	679.25	2,003.57	6,601.12
DDCYFLXADS1 - Dade City	TLCHFLXARS0 - Trilacoochee	25.65	72.72	679.25	2,003.57	6,601.12
DESTFLXADS0 - Destin	DFSPFLXADS0 - DeFuniak Springs	27.74	118.87	1,972.09	5,548.93	19,329.18
DESTFLXADS0 - Destin	FRPTFLXARS0 - Freeport	27.74	118.87	1,972.09	5,548.93	19,329.18

INTEROFFICE TRANSPORT

Originating	Terminating	Dedicated DS0	Dedicated DS1	Dedicated DS3	Dedicated OC3	Dedicated DS12
DESTFLXADS0 - Destin	FTWBFLXADS0 - Fort Walton Beach	27.74	118.87	1,972.09	5,548.93	19,329.18
DESTFLXADS0 - Destin	GLDLFLXARS0 - Glendale	30.81	186.77	2,516.09	7,181.62	24,598.78
DESTFLXADS0 - Destin	PNLNFLXARS0 - Ponce Leon	30.81	186.69	2,513.96	NA	NA
DESTFLXADS0 - Destin	SGBHFLXARS0 - Seagrove Beach	27.74	118.87	1,972.09	5,548.93	19,329.18
DESTFLXADS0 - Destin	SHLMFLXADS0 - Shalimar	30.83	187.07	2,524.61	7,204.98	24,682.66
DESTFLXADS0 - Destin	SNRSFLXARS0 - Santa Rosa Beach	27.74	118.87	1,972.09	5,548.93	19,329.18
DESTFLXADS0 - Destin	VLPRFLXADS0 - Valparaiso	27.74	118.87	1,972.09	5,548.93	19,329.18
DFSPFLXADS0 - DeFuniak Springs	FRPTFLXARS0 - Freeport	27.74	118.87	1,972.09	5,548.93	19,329.18
DFSPFLXADS0 - DeFuniak Springs	FTWBFLXADS0 - Fort Walton Beach	27.74	118.87	1,972.09	5,548.93	19,329.18
DFSPFLXADS0 - DeFuniak Springs	GLDLFLXARS0 - Glendale	25.43	67.89	544.00	1,632.68	5,269.60
DFSPFLXADS0 - DeFuniak Springs	NSN - Paxton*	18.22	155.58	2,321.30	NA	NA
DFSPFLXADS0 - DeFuniak Springs	PNLNFLXARS0 - Ponce Leon	30.88	67.82	541.87	NA	NA
DFSPFLXADS0 - DeFuniak Springs	RYHLFLXARS0 - Reynolds Hill	28.98	146.20	1,379.79	NA	NA
DFSPFLXADS0 - DeFuniak Springs	SGBHFLXARS0 - Seagrove Beach	27.74	118.87	1,972.09	5,548.93	19,329.18
DFSPFLXADS0 - DeFuniak Springs	SHLMFLXADS0 - Shalimar	30.83	187.07	2,524.61	7,204.98	24,682.66
DFSPFLXADS0 - DeFuniak Springs	SNRSFLXARS0 - Santa Rosa Beach	27.74	118.87	1,972.09	5,548.93	19,329.18
DFSPFLXADS0 - DeFuniak Springs	VLPRFLXADS0 - Valparaiso	27.74	118.87	1,972.09	5,548.93	19,329.18
DFSPFLXADS0 - DeFuniak Springs	WSTVFLXARS0 - Westville	29.92	166.96	1,961.25	5,660.09	19,136.41
ESTSFLXARS0 - Eustis	GVLDLFLXARS0 - Groveland	33.09	237.06	3,925.02	11,045.30	38,469.64
ESTSFLXARS0 - Eustis	HOWYFLXARS0 - Howey-in-the-Hills	29.78	163.99	1,878.19	NA	NA
ESTSFLXARS0 - Eustis	LDLKFLXARS0 - Lady Lake	30.73	184.90	2,463.91	7,038.52	24,085.05
ESTSFLXARS0 - Eustis	LSBGFLXADS1 - Leesburg	26.62	94.20	1,280.94	3,653.60	12,524.81
ESTSFLXARS0 - Eustis	MNTIFLXADS0 - Montverde	28.45	134.63	1,734.51	4,967.86	16,947.20
ESTSFLXARS0 - Eustis	MTDRFLXARS0 - Mt. Dora	26.62	94.20	1,280.94	3,653.60	12,524.81
ESTSFLXARS0 - Eustis	TVRSFLXADS0 - Tavares	26.62	94.20	1,280.94	3,653.60	12,524.81
ESTSFLXARS0 - Eustis	UMTLFLXARS0 - Umatilla	29.93	167.34	1,971.90	5,689.29	NA
EVRGFLXARS0 - Everglades	NPLSFLXCDS0 - Naples	28.32	131.80	2,334.18	6,541.87	22,893.88
FRPTFLXARS0 - Freeport	GLDLFLXARS0 - Glendale	30.81	186.77	2,516.09	7,181.62	24,598.78
FRPTFLXARS0 - Freeport	PNLNFLXARS0 - Ponce Leon	30.81	186.69	2,513.96	NA	NA
FRPTFLXARS0 - Freeport	SGBHFLXARS0 - Seagrove Beach	27.74	118.87	1,972.09	5,548.93	19,329.18
FRPTFLXARS0 - Freeport	SNRSFLXARS0 - Santa Rosa Beach	27.74	118.87	1,972.09	5,548.93	19,329.18
FRPTFLXARS0 - Freeport	VLPRFLXADS0 - Valparaiso	27.74	118.87	1,972.09	5,548.93	19,329.18
FTMBFLXADS0 - Fort Myers Beach	CPCRFLXBDS1 - North Cape Coral	29.94	167.45	1,975.10	5,698.05	19,272.71
FTMBFLXADS0 - Fort Myers Beach	NFMYFLXADS0 - North Fort Myers	26.56	92.91	1,244.73	3,554.30	12,168.34
FTMBFLXADS0 - Fort Myers Beach	NNPLFLXADS1 - North Naples	32.53	224.71	3,578.91	10,096.17	35,062.21
FTMBFLXADS0 - Fort Myers Beach	NPLSFLXCDS0 - Naples	32.53	224.71	3,578.91	10,096.17	35,062.21
FTMBFLXADS0 - Fort Myers Beach	PNISFLXADS0 - Pine Island	26.56	92.91	1,244.73	3,554.30	12,168.34
FTMBFLXADS0 - Fort Myers Beach	SNISFLXADS0 - Sanibel-Captiva Islands	26.56	92.91	1,244.73	3,554.30	12,168.34
FTMDFLXARS0 - Fort Meade	NSN - Bartow*	30.22	271.56	4,212.46	11,903.99	NA
FTMDFLXARS0 - Fort Meade	NSN - Lakeland*	30.22	271.56	4,212.46	11,903.99	NA
FTMYFLXADS0 - Fort Myers	CPCRFLXBDS1 - North Cape Coral	25.73	74.55	730.36	2,143.75	7,104.37
FTMYFLXADS0 - Fort Myers	FTMBFLXADS0 - Fort Myers Beach	26.56	92.91	1,244.73	3,554.30	12,168.34

INTEROFFICE TRANSPORT

Originating	Terminating	Dedicated DS0	Dedicated DS1	Dedicated DS3	Dedicated OC3	Dedicated DS12
FTMYFLXADS0 - Fort Myers	IMKLFLXARS0 - Immokalee	28.32	131.80	2,334.18	6,541.87	22,893.88
FTMYFLXADS0 - Fort Myers	LBLLFLXADS0 - LaBelle	29.86	165.75	3,285.18	9,149.78	32,256.45
FTMYFLXADS0 - Fort Myers	LHACFLXADS0 - Lehigh Acres	28.32	131.80	2,334.18	6,541.87	22,893.88
FTMYFLXADS0 - Fort Myers	NFMYFLXADS0 - North Fort Myers	26.56	92.91	1,244.73	3,554.30	12,168.34
FTMYFLXADS0 - Fort Myers	NNPLFLXADS1 - North Naples	28.32	131.80	2,334.18	6,541.87	22,893.88
FTMYFLXADS0 - Fort Myers	NPLSFLXCDS0 - Naples	28.32	131.80	2,334.18	6,541.87	22,893.88
FTMYFLXADS0 - Fort Myers	PNGRFLXADS1 - Punta Gorda	29.86	165.75	3,285.18	9,149.78	32,256.45
FTMYFLXADS0 - Fort Myers	PNISFLXADS0 - Pine Island	26.56	92.91	1,244.73	3,554.30	12,168.34
FTMYFLXADS0 - Fort Myers	SNISFLXADS0 - Sanibel-Captiva Islands	26.56	92.91	1,244.73	3,554.30	12,168.34
FTMYFLXBDS0 - East Fort Myers	CPCRFLXBDS1 - North Cape Coral	31.70	206.34	3,064.54	8,685.62	29,998.25
FTMYFLXBDS0 - East Fort Myers	CYLKFLXBRS0 - Regional Airport	31.84	209.35	3,148.67	8,916.33	30,826.52
FTMYFLXBDS0 - East Fort Myers	FTMBFLXADS0 - Fort Myers Beach	32.53	224.71	3,578.91	10,096.17	35,062.21
FTMYFLXBDS0 - East Fort Myers	FTMYFLXADS0 - Fort Myers	28.32	131.80	2,334.18	6,541.87	22,893.88
FTMYFLXBDS0 - East Fort Myers	FTMYFLXCDS2 - South Ft Myers	32.53	224.71	3,578.91	10,096.17	35,062.21
FTMYFLXBDS0 - East Fort Myers	LHACFLXADS0 - Lehigh Acres	28.32	131.80	2,334.18	6,541.87	22,893.88
FTMYFLXBDS0 - East Fort Myers	NFMYFLXADS0 - North Fort Myers	32.53	224.71	3,578.91	10,096.17	35,062.21
FTMYFLXBDS0 - East Fort Myers	PNISFLXADS0 - Pine Island	32.53	224.71	3,578.91	10,096.17	35,062.21
FTMYFLXBDS0 - East Fort Myers	SNISFLXADS0 - Sanibel-Captiva Islands	32.53	224.71	3,578.91	10,096.17	35,062.21
FTWBFLXADS0 - Fort Walton Beach	FRPTFLXARS0 - Freeport	27.74	118.87	1,972.09	5,548.93	19,329.18
FTWBFLXADS0 - Fort Walton Beach	NSN - Holley-Navarre*	12.61	31.72	209.70	645.50	2,021.46
FTWBFLXADS0 - Fort Walton Beach	NSN - Niceville*	21.26	222.56	2,839.74	8,139.60	27,742.07
FTWBFLXADS0 - Fort Walton Beach	SGBHFLXARS0 - Seagrove Beach	30.83	187.07	2,524.61	7,204.98	24,682.66
FTWBFLXADS0 - Fort Walton Beach	SHLMFLXADS0 - Shalimar	27.74	118.87	1,972.09	5,548.93	19,329.18
FTWBFLXADS0 - Fort Walton Beach	SNRSFLXARS0 - Santa Rosa Beach	30.83	187.07	2,524.61	7,204.98	24,682.66
FTWBFLXADS0 - Fort Walton Beach	VLPRFLXADS0 - Valparaiso	27.74	118.87	1,972.09	5,548.93	19,329.18
GDRGFLXADS0 - Grand Ridge	GNWDFLXARS0 - Greenwood	35.43	140.99	1,233.89	3,665.46	NA
GDRGFLXADS0 - Grand Ridge	MALNFLXARS0 - Malone	35.43	140.99	1,233.89	3,665.46	NA
GDRGFLXADS0 - Grand Ridge	MRNNFLXADS0 - Marianna	31.12	71.58	647.30	1,915.96	NA
GDRGFLXADS0 - Grand Ridge	NSN - Graceville*	19.76	103.30	857.00	2,561.46	NA
GDRGFLXADS0 - Grand Ridge	SNDSFLXARS0 - Sneads	31.12	71.58	647.30	1,915.96	NA
GLDLFLXARS0 - Glendale	NSN - Paxton*	21.30	223.47	2,865.30	NA	NA
GLDLFLXARS0 - Glendale	PNLNFLXARS0 - Ponce Leon	28.50	135.71	1,085.86	NA	NA
GLDLFLXARS0 - Glendale	SGBHFLXARS0 - Seagrove Beach	30.81	186.77	2,516.09	7,181.62	24,598.78
GLDLFLXARS0 - Glendale	SNRSFLXARS0 - Santa Rosa Beach	30.81	186.77	2,516.09	7,181.62	24,598.78
GLDLFLXARS0 - Glendale	VLPRFLXADS0 - Valparaiso	30.81	186.77	2,516.09	7,181.62	24,598.78
GLGCFLXADS0 - Golden Gate	MOISFLXADS0 - Marco Island	28.32	131.80	2,334.18	6,541.87	22,893.88
GLGCFLXADS0 - Golden Gate	NNPLFLXADS1 - North Naples	28.32	131.80	2,334.18	6,541.87	22,893.88
GLGCFLXADS0 - Golden Gate	NPLSFLXCDS0 - Naples	28.32	131.80	2,334.18	6,541.87	22,893.88
GLGCFLXADS0 - Golden Gate	NPLSFLXCDS0 - Naples Moorings	28.32	131.80	2,334.18	6,541.87	22,893.88
GLGCFLXADS0 - Golden Gate	NPLSFLXCDS0 - Naples Southeast	28.32	131.80	2,334.18	6,541.87	22,893.88
GLRDFLXADS0 - Goldenrod	KSSMFLXBDS1 - Reedy Creek	33.70	250.59	2,946.14	8,501.81	28,746.55
GLRDFLXADS0 - Goldenrod	LKBRFLXADS1 - Lake Brantley	29.11	149.24	1,464.99	4,299.18	14,250.68

INTEROFFICE TRANSPORT

Originating	Terminating	Dedicated DS0	Dedicated DS1	Dedicated DS3	Dedicated OC3	Dedicated DS12
GLRDFLXADS0 - Goldenrod	MNTIFLXADS0 - Montverde	41.04	412.61	4,768.95	NA	NA
GLRDFLXADS0 - Goldenrod	MTLDFLXADS1 - Maitland	29.11	149.24	1,464.99	4,299.18	14,250.68
GLRDFLXADS0 - Goldenrod	NSN - Celebration*	20.82	213.01	2,572.44	7,406.58	NA
GLRDFLXADS0 - Goldenrod	NSN - East Orange*	16.29	113.00	1,128.56	3,306.16	10,981.57
GLRDFLXADS0 - Goldenrod	NSN - Geneva*	16.29	113.00	1,128.56	3,306.16	10,981.57
GLRDFLXADS0 - Goldenrod	NSN - Lake Buena Vista*	20.62	208.49	2,445.71	7,059.05	23,862.85
GLRDFLXADS0 - Goldenrod	NSN - Orlando*	16.29	113.00	1,128.56	3,306.16	10,981.57
GLRDFLXADS0 - Goldenrod	NSN - Oviedo*	16.29	113.00	1,128.56	3,306.16	10,981.57
GLRDFLXADS0 - Goldenrod	NSN - Sanford*	19.19	176.94	1,561.80	NA	NA
GLRDFLXADS0 - Goldenrod	WNDRFLXARS0 - Windermere	32.00	213.01	2,572.44	7,406.58	NA
GLRDFLXADS0 - Goldenrod	WNGRFLXADS0 - Winter Garden	30.30	175.55	2,201.93	6,320.10	21,505.88
GLRDFLXADS0 - Goldenrod	WNPKFLXADS1 - Winter Park	25.64	72.57	674.99	1,991.89	6,559.18
GNVFLXARS0 - Greenville	LEE FLXARS0 - Lee	43.99	278.53	3,728.88	NA	NA
GNVFLXARS0 - Greenville	MDSNFLXADS0 - Madison	35.39	140.27	1,213.66	NA	NA
GNVFLXARS0 - Greenville	MNTIFLXADS0 - Monticello	39.88	212.50	3,237.06	9,158.72	NA
GNVFLXARS0 - Greenville	TLHSFLXADS0 - Calhoun	39.88	212.50	3,237.06	9,158.72	NA
GNWDFLXARS0 - Greenwood	MALNFLXARS0 - Malone	30.98	69.41	586.59	1,749.50	NA
GNWDFLXARS0 - Greenwood	MRNNFLXADS0 - Marianna	30.98	69.41	586.59	1,749.50	NA
GNWDFLXARS0 - Greenwood	NSN - Graceville*	19.62	101.14	796.29	2,394.99	NA
GNWDFLXARS0 - Greenwood	SNDSFLXARS0 - Sneads	35.43	140.99	1,233.89	3,665.46	NA
GVLDFLXARS0 - Groveland	BSHNFLXADS0 - Bushnell	28.82	142.86	2,644.08	7,391.70	25,944.84
GVLDFLXARS0 - Groveland	HOWYFLXARS0 - Howey-in-the-Hills	31.99	212.65	3,241.32	NA	NA
GVLDFLXARS0 - Groveland	LDLKFLXARS0 - Lady Lake	32.93	233.56	3,827.05	10,776.62	37,505.08
GVLDFLXARS0 - Groveland	LSBGFLXADS1 - Leesburg	28.82	142.86	2,644.08	7,391.70	25,944.84
GVLDFLXARS0 - Groveland	MTDRFLXARS0 - Mt. Dora	33.09	237.06	3,925.02	11,045.30	38,469.64
GVLDFLXARS0 - Groveland	MTVRFLXARS0 - Monteverde	36.16	304.88	4,466.89	NA	NA
GVLDFLXARS0 - Groveland	NSN - Orlando*	27.54	361.31	5,368.80	15,215.90	52,554.60
GVLDFLXARS0 - Groveland	TVRSFLXADS0 - Tavares	33.09	237.06	3,925.02	11,045.30	38,469.64
GVLDFLXARS0 - Groveland	UMTLFLXARS0 - Umatilla	36.40	310.20	4,615.98	13,081.00	NA
GVLDFLXARS0 - Groveland	WNDRFLXARS0 - Windermere	38.58	358.35	5,285.74	14,988.11	NA
GVLDFLXARS0 - Groveland	WNGRFLXADS0 - Winter Garden	36.89	320.88	4,915.23	13,901.63	48,132.21
HMSPFLEXARS0 - Homosassa Springs	BVHLFLXADS0 - Beverly Hills	26.09	82.57	955.07	2,759.95	9,316.58
HMSPFLEXARS0 - Homosassa Springs	INVRFLXADS0 - Inverness	26.09	82.57	955.07	2,759.95	9,316.58
HOWYFLXARS0 - Howey-In-The-Hills	LDLKFLXARS0 - Lady Lake	36.65	160.50	1,780.21	NA	NA
HOWYFLXARS0 - Howey-In-The-Hills	LSBGFLXADS1 - Leesburg	31.01	69.79	597.24	NA	NA
HOWYFLXARS0 - Howey-In-The-Hills	MTDRFLXARS0 - Mt. Dora	36.86	163.99	1,878.19	NA	NA
HOWYFLXARS0 - Howey-In-The-Hills	MTVRFLXARS0 - Monteverde	41.08	231.81	2,420.05	NA	NA
HOWYFLXARS0 - Howey-In-The-Hills	TVRSFLXADS0 - Tavares	36.86	163.99	1,878.19	NA	NA
HOWYFLXARS0 - Howey-In-The-Hills	UMTLFLXARS0 - Umatilla	41.41	237.13	2,569.15	NA	NA
HOWYFLXARS0 - Howey-In-The-Hills	WLWDFLXARS0 - Wildwood	36.65	160.50	1,780.21	NA	NA
IMKLFLXARS0 - Immokalee	LBLLFLXADS0 - LaBelle	35.83	297.54	5,619.36	15,691.65	55,150.32
IMKLFLXARS0 - Immokalee	NPLSFLXCDS0 - Naples	28.32	131.80	2,334.18	6,541.87	22,893.88

INTEROFFICE TRANSPORT

Originating	Terminating	Dedicated DS0	Dedicated DS1	Dedicated DS3	Dedicated OC3	Dedicated DS12
INVRFLXADS0 - Inverness	NSN - Brooksville*	19.13	175.50	2,879.34	NA	NA
INVRFLXADS0 - Inverness	NSN - Dunnellon*	16.39	115.09	1,187.13	3,466.78	11,558.21
INVRFLXADS0 - Inverness	NSN - Yankeetown*	16.39	115.09	1,187.13	3,466.78	11,558.21
KGLKFLXARS0 - Kingsley Lake	LWTYFLXARS0 - Lawtey	31.02	70.10	605.76	NA	NA
KGLKFLXARS0 - Kingsley Lake	NSN - Jacksonville*	19.67	101.97	819.72	NA	NA
KGLKFLXARS0 - Kingsley Lake	NSN - Raiford*	19.67	101.97	819.72	NA	NA
KGLKFLXARS0 - Kingsley Lake	STRKFLXADS0 - Starke	31.02	70.10	605.76	NA	NA
KNVFLXARS0 - Kenansville	KSSMFLXADS0 - Kissimmee	29.17	150.39	2,854.94	7,969.94	28,020.75
KNVFLXARS0 - Kenansville	KSSMFLXBDS1 - West Kissimmee	33.83	253.37	4,381.88	12,298.15	42,967.45
KNVFLXARS0 - Kenansville	NSN - Orlando*	24.48	293.80	4,835.46	13,612.42	47,389.84
KNVFLXARS0 - Kenansville	STCDFLXARS0 - St. Cloud	29.17	150.39	2,854.94	7,969.94	28,020.75
KSSMFLXADS0 - Kissimmee	KSSMFLXBDS1 - Reedy Creek	30.42	178.02	2,271.15	6,509.92	22,187.37
KSSMFLXADS0 - Kissimmee	KSSMFLXBDS1 - West Kissimmee	27.02	102.98	1,526.95	4,328.21	14,946.70
KSSMFLXADS0 - Kissimmee	NSN - Celebration*	17.54	140.45	1,897.45	5,414.69	NA
KSSMFLXADS0 - Kissimmee	NSN - Haines City*	15.85	40.47	454.64	1,317.19	NA
KSSMFLXADS0 - Kissimmee	NSN - Orlando*	17.67	143.41	1,980.52	5,642.48	19,369.09
KSSMFLXADS0 - Kissimmee	STCDFLXARS0 - St. Cloud	29.17	150.39	2,854.94	7,969.94	28,020.75
KSSMFLXADS0 - Kissimmee	WNPFLXADS1 - Winter Park	27.02	102.98	1,526.95	4,328.21	14,946.70
KSSMFLXBDS1 - Reedy Creek	KSSMFLXBDS1 - West Kissimmee	25.75	75.04	744.21	2,181.72	7,240.67
KSSMFLXBDS1 - Reedy Creek	NSN - Celebration*	20.94	215.49	2,641.66	7,596.40	NA
KSSMFLXBDS1 - Reedy Creek	NSN - East Orange*	21.07	218.45	2,724.73	7,824.19	26,609.76
KSSMFLXBDS1 - Reedy Creek	NSN - Haines City*	16.41	115.51	1,198.84	3,498.91	NA
KSSMFLXBDS1 - Reedy Creek	NSN - Lake Buena Vista*	16.07	107.98	987.98	2,920.67	9,597.63
KSSMFLXBDS1 - Reedy Creek	NSN - Orlando*	21.07	218.45	2,724.73	7,824.19	26,609.76
KSSMFLXBDS1 - Reedy Creek	WNRFLXARS0 - Windermere	32.11	215.49	2,641.66	7,596.40	NA
KSSMFLXBDS1 - Reedy Creek	WNGRFLXADS0 - Winter Garden	30.42	178.02	2,271.15	6,509.92	22,187.37
KSSMFLXBDS1 - Reedy Creek	WNPFLXADS1 - Winter Park	30.42	178.02	2,271.15	6,509.92	22,187.37
KSSMFLXBDS1 - West Kissimmee	KNVFLXARS0 - Kenansville	33.83	253.37	4,381.88	12,298.15	42,967.45
KSSMFLXBDS1 - West Kissimmee	NSN - Celebration*	15.66	37.46	370.51	1,086.48	NA
KSSMFLXBDS1 - West Kissimmee	NSN - Haines City*	17.67	143.45	1,981.58	5,645.40	NA
KSSMFLXBDS1 - West Kissimmee	NSN - Lake Buena Vista*	12.67	32.94	243.78	738.95	2,356.96
KSSMFLXBDS1 - West Kissimmee	NSN - Orlando*	17.67	143.41	1,980.52	5,642.48	19,369.09
KSSMFLXDRS0 - Buenaventura Lakes	KSSMFLXADS0 - Kissimmee	28.51	135.92	1,770.72	5,067.16	17,303.67
LDLKFLXARS0 - Lady Lake (753)	LSBGFLXADS1 - Leesburg	26.46	90.70	1,182.97	3,384.92	11,560.24
LDLKFLXARS0 - Lady Lake (753)	MTDRFLXARS0 - Mt. Dora	30.73	184.90	2,463.91	7,038.52	24,085.05
LDLKFLXARS0 - Lady Lake (753)	MTVRFLXARS0 - Monteverde	33.80	252.72	3,005.78	NA	NA
LDLKFLXARS0 - Lady Lake (753)	OKLWFLXADS0 - Ocklawaha	30.02	169.28	2,026.21	5,838.23	19,775.96
LDLKFLXARS0 - Lady Lake (753)	SVSSFLXARS0 - Silver Springs Shores	30.02	169.28	2,026.21	5,838.23	19,775.96
LDLKFLXARS0 - Lady Lake (753)	TVRSFLXADS0 - Tavares	30.73	184.90	2,463.91	7,038.52	24,085.05
LDLKFLXARS0 - Lady Lake (753)	UMTLFLXARS0 - Umatilla	34.04	258.04	3,154.87	9,074.21	NA
LDLKFLXARS0 - Lady Lake (753)	WLWDFLXARS0 - Wildwood	26.46	90.70	1,182.97	3,384.92	11,560.24
LDLKFLXARS0 - Lady Lake (821)	LSBGFLXADS1 - Leesburg	26.46	90.70	1,182.97	3,384.92	11,560.24

INTEROFFICE TRANSPORT

Originating	Terminating	Dedicated DS0	Dedicated DS1	Dedicated DS3	Dedicated OC3	Dedicated DS12
LDLKFLXARS0 - Lady Lake (821)	MTDRFLXARS0 - Mt. Dora	30.73	184.90	2,463.91	7,038.52	24,085.05
LDLKFLXARS0 - Lady Lake (821)	MTVRFLXARS0 - Monteverde	33.80	252.72	3,005.78	NA	NA
LDLKFLXARS0 - Lady Lake (821)	OCALFLXADS0 - Ocala	32.93	233.56	3,827.05	10,776.62	37,505.08
LDLKFLXARS0 - Lady Lake (821)	OKLWFLXADS0 - Ocklawaha	30.02	169.28	2,026.21	5,838.23	19,775.96
LDLKFLXARS0 - Lady Lake (821)	SSPRFLXARS0 - Salt Springs	36.78	318.56	4,850.27	13,723.48	47,492.66
LDLKFLXARS0 - Lady Lake (821)	SVSSFLXARS0 - Silver Springs Shores	30.02	169.28	2,026.21	5,838.23	19,775.96
LDLKFLXARS0 - Lady Lake (821)	TVRSFLXADS0 - Tavares	30.73	184.90	2,463.91	7,038.52	24,085.05
LDLKFLXARS0 - Lady Lake (821)	UMTLFLXARS0 - Umatilla	34.04	258.04	3,154.87	9,074.21	NA
LEE FLXARS0 - Lee	MDSNFLXADS0 - Madison	30.77	66.03	491.81	NA	NA
LHACFLXADS0 - Lehigh Acres	CPCRFLXADS0 - Cape Coral	31.70	206.34	3,064.54	8,685.62	29,998.25
LHACFLXADS0 - Lehigh Acres	CPCRFLXBDS1 - North Cape Coral	31.70	206.34	3,064.54	8,685.62	29,998.25
LHACFLXADS0 - Lehigh Acres	NFMYFLXADS0 - North Ft. Myers	32.53	224.71	3,578.91	10,096.17	35,062.21
LKBRFLXADS1 - Lake Brantley	KSSMFLXBDS1 - Reedy Creek	33.89	254.70	3,061.15	8,817.22	29,878.87
LKBRFLXADS1 - Lake Brantley	MNTIFLXADS0 - Montverde	41.23	416.71	4,883.96	NA	NA
LKBRFLXADS1 - Lake Brantley	MTLDFLXADS1 - Maitland	25.83	76.67	790.00	2,307.29	7,691.50
LKBRFLXADS1 - Lake Brantley	NSN - Celebration*	21.01	217.12	2,687.45	7,721.98	NA
LKBRFLXADS1 - Lake Brantley	NSN - East Orange*	16.48	117.10	1,243.57	3,621.56	12,113.89
LKBRFLXADS1 - Lake Brantley	NSN - Geneva*	16.48	117.10	1,243.57	3,621.56	12,113.89
LKBRFLXADS1 - Lake Brantley	NSN - Lake Buena Vista*	20.81	212.60	2,560.72	7,374.45	24,995.16
LKBRFLXADS1 - Lake Brantley	NSN - Orlando*	16.48	117.10	1,243.57	3,621.56	12,113.89
LKBRFLXADS1 - Lake Brantley	NSN - Oviedo*	16.48	117.10	1,243.57	3,621.56	12,113.89
LKBRFLXADS1 - Lake Brantley	NSN - Sanford*	19.38	181.04	1,676.81	NA	NA
LKBRFLXADS1 - Lake Brantley	WNDRFLXARS0 - Wintermere	32.19	217.12	2,687.45	7,721.98	NA
LKBRFLXADS1 - Lake Brantley	WNGRFLXADS0 - Winter Garden	30.49	179.66	2,316.95	6,635.50	22,638.20
LKBRFLXADS1 - Lake Brantley	WNPKFLXADS1 - Winter Park	25.83	76.67	790.00	2,307.29	7,691.50
LKHLFLXARS0 - Lake Helen	NSN - Deltona Lakes*	30.75	65.61	480.10	NA	NA
LKHLFLXARS0 - Lake Helen	ORCYFLXADS0 - Orange City	30.75	65.61	480.10	NA	NA
LKPCFLXARS0 - Lake Placid	SBNGFLXADS1 - Sebring	30.92	68.39	557.84	1,670.65	NA
LKPCFLXARS0 - Lake Placid	SLHLFLXARS0 - Spring Lake	41.23	234.13	3,843.02	10,820.43	NA
LSBGFLXADS1 - Leesburg	MTDRFLXARS0 - Mt. Dora	26.62	94.20	1,280.94	3,653.60	12,524.81
LSBGFLXADS1 - Leesburg	MTVRFLXARS0 - Monteverde	28.45	134.63	1,734.51	4,967.86	16,947.20
LSBGFLXADS1 - Leesburg	TVRSFLXADS0 - Tavares	26.62	94.20	1,280.94	3,653.60	12,524.81
LSBGFLXADS1 - Leesburg	UMTLFLXARS0 - Umatilla	29.93	167.34	1,971.90	5,689.29	NA
LSBGFLXADS1 - Leesburg	WLWDFLXARS0 - Wildwood	26.46	90.70	1,182.97	3,384.92	11,560.24
LWTYFLXARS0 - Lawtey	NSN - Raiford*	19.67	101.97	819.72	NA	NA
LWTYFLXARS0 - Lawtey	STRKFLXADS0 - Starke	31.02	70.10	605.76	NA	NA
MALNFLXARS0 - Malone	MRNNFLXADS0 - Marianna	30.98	69.41	586.59	1,749.50	NA
MALNFLXARS0 - Malone	NSN - Graceville*	19.62	101.14	796.29	2,394.99	NA
MALNFLXARS0 - Malone	SNDSFLXARS0 - Sneads	35.43	140.99	1,233.89	3,665.46	NA
MDSNFLXADS0 - Madison	MNTIFLXADS0 - Monticello	28.62	138.26	2,515.22	7,038.34	24,676.23
MDSNFLXADS0 - Madison	TLHSFLXADS0 - Calhoun	28.62	138.26	2,515.22	7,038.34	24,676.23
MNTIFLXADS0 - Monticello	TLHSFLXADS0 - Calhoun	28.62	138.26	2,515.22	7,038.34	24,676.23

INTEROFFICE TRANSPORT

Originating	Terminating	Dedicated DS0	Dedicated DS1	Dedicated DS3	Dedicated OC3	Dedicated DS12
MOISFLXADS0 - Marco Island	NNPLFLXADS1 - North Naples	28.32	131.80	2,334.18	6,541.87	22,893.88
MOISFLXADS0 - Marco Island	NPLSFLXCDS0 - Naples	28.32	131.80	2,334.18	6,541.87	22,893.88
MOISFLXADS0 - Marco Island	NPLSFLXCDS0 - Naples Moorings	28.32	131.80	2,334.18	6,541.87	22,893.88
MOISFLXADS0 - Marco Island	NPLSFLXCDS0 - Naples Southeast	28.32	131.80	2,334.18	6,541.87	22,893.88
MRNNFLXADS0 - Marianna	NSN - Altha *	15.56	35.83	324.71	NA	NA
MRNNFLXADS0 - Marianna	NSN - Graceville*	15.31	31.72	209.70	645.50	NA
MRNNFLXADS0 - Marianna	SNSDFLXARS0 - Sneads	31.12	71.58	647.30	1,915.96	NA
MTDRFLXARS0 - Mt. Dora	MTVRFLXARS0 - Monteverde	28.45	134.63	1,734.51	4,967.86	16,947.20
MTDRFLXARS0 - Mt. Dora	TVRSFLXADS0 - Tavares	26.62	94.20	1,280.94	3,653.60	12,524.81
MTDRFLXARS0 - Mt. Dora	UMTLFLXARS0 - Umatilla	29.93	167.34	1,971.90	5,689.29	NA
MTDRFLXARS0 - Mt. Dora	WNPFLXADS1 - Winter Park	31.28	197.18	2,807.89	7,981.80	27,471.51
MTLDFLXADS1 - Maitland	KSSMFLXBDS1 - Reedy Creek	33.89	254.70	3,061.15	8,817.22	29,878.87
MTLDFLXADS1 - Maitland	MNTIFLXADS0 - Montverde	41.23	416.71	4,883.96	NA	NA
MTLDFLXADS1 - Maitland	NSN - Celebration*	21.01	217.12	2,687.45	7,721.98	NA
MTLDFLXADS1 - Maitland	NSN - East Orange*	16.48	117.10	1,243.57	3,621.56	12,113.89
MTLDFLXADS1 - Maitland	NSN - Geneva*	16.48	117.10	1,243.57	3,621.56	12,113.89
MTLDFLXADS1 - Maitland	NSN - Lake Buena Vista*	20.81	212.60	2,560.72	7,374.45	24,995.16
MTLDFLXADS1 - Maitland	NSN - Orlando*	16.48	117.10	1,243.57	3,621.56	12,113.89
MTLDFLXADS1 - Maitland	NSN - Ovieda*	16.48	117.10	1,243.57	3,621.56	12,113.89
MTLDFLXADS1 - Maitland	NSN - Sanford*	19.38	181.04	1,676.81	NA	NA
MTLDFLXADS1 - Maitland	WNDRFLXARS0 - Windermere	32.19	217.12	2,687.45	7,721.98	NA
MTLDFLXADS1 - Maitland	WNGRFLXADS0 - Winter Garden	30.49	179.66	2,316.95	6,635.50	22,638.20
MTLDFLXADS1 - Maitland	WNPFLXADS1 - Winter Park	25.83	76.67	790.00	2,307.29	7,691.50
MTVRFLXARS0 - Monteverde	KSSMFLXBDS1 - Reedy Creek	41.53	239.11	2,624.52	NA	NA
MTVRFLXARS0 - Monteverde	NSN - Celebration*	19.88	105.28	912.37	NA	NA
MTVRFLXARS0 - Monteverde	NSN - East Orange*	26.47	211.23	2,522.38	NA	NA
MTVRFLXARS0 - Monteverde	NSN - Lake Buena Vista*	26.00	203.74	2,312.59	NA	NA
MTVRFLXARS0 - Monteverde	NSN - Orlando*	26.47	211.23	2,522.38	NA	NA
MTVRFLXARS0 - Monteverde	TVRSFLXADS0 - Tavares	36.74	162.02	1,822.81	NA	NA
MTVRFLXARS0 - Monteverde	UMTLFLXARS0 - Umatilla	41.29	235.16	2,513.77	NA	NA
MTVRFLXARS0 - Monteverde	WNDRFLXARS0 - Windermere	39.62	208.26	2,439.32	NA	NA
MTVRFLXARS0 - Monteverde	WNGRFLXADS0 - Winter Garden	30.88	67.82	541.87	NA	NA
MTVRFLXARS0 - Monteverde	WNPFLXADS1 - Winter Park	37.29	170.80	2,068.81	NA	NA
NFMYFLXADS0 - North Fort Myers	CPCRFLEXBDS1 - North Cape Coral	25.73	74.55	730.36	2,143.75	7,104.37
NFMYFLXADS0 - North Fort Myers	PNGRFLXADS1 - Punta Gorda	29.86	165.75	3,285.18	9,149.78	32,256.45
NFMYFLXADS0 - North Fort Myers	PNISFLXADS0 - Pine Island	26.56	92.91	1,244.73	3,554.30	12,168.34
NFMYFLXADS0 - North Fort Myers	SNISFLXADS0 - Sanibel-Captiva Islands	26.56	92.91	1,244.73	3,554.30	12,168.34
NNPLFLXADS1 - North Naples	MOISFLXADS0 - Marco Island	28.32	131.80	2,334.18	6,541.87	22,893.88
NPLSFLXCDS0 - Naples	NNPLFLXADS1 - North Naples	28.32	131.80	2,334.18	6,541.87	22,893.88
NPLSFLXCDS0 - Naples	NPLSFLXCDS0 - Naples Southeast	28.32	131.80	2,334.18	6,541.87	22,893.88
NPLSFLXCDS0 - Naples Moorings	NNPLFLXADS1 - North Naples	28.32	131.80	2,334.18	6,541.87	22,893.88
NPLSFLXCDS0 - Naples Moorings	NPLSFLXCDS0 - Naples Southeast	28.32	131.80	2,334.18	6,541.87	22,893.88

INTEROFFICE TRANSPORT

Originating	Terminating	Dedicated DS0	Dedicated DS1	Dedicated DS3	Dedicated OC3	Dedicated DS12
NPLSFLXCDS0 - Naples Southeast	NNPLFLXADS1 - North Naples	28.32	131.80	2,334.18	6,541.87	22,893.88
NPLSFLXCDS0 - Niceville	SHLMFLXADS0 - Shalimar	29.35	154.36	2,287.22	6,483.55	22,388.60
OCALFLXADS0 - Ocala	NSN - Citra*	19.30	179.26	2,984.77	NA	NA
OCALFLXADS0 - Ocala	NSN - Dunnellon*	19.12	175.38	2,876.14	8,098.53	28,186.47
OCALFLXADS0 - Ocala	NSN - McIntosh*	15.60	36.40	340.69	NA	NA
OCALFLXADS0 - Ocala	NSN - Orange Springs*	15.60	36.40	340.69	NA	NA
OCALFLXADS0 - Ocala	OCALFLXBDS0 - Shady Road	28.82	142.86	2,644.08	7,391.70	25,944.84
OCALFLXADS0 - Ocala	OKLWFLXADS0 - Ocklawaha	25.91	78.58	843.25	2,453.31	8,215.72
OCALFLXADS0 - Ocala	SSPRFLXARS0 - Salt Springs	26.20	85.00	1,023.22	2,946.86	9,987.58
OCALFLXADS0 - Ocala	SVSPFLXARS0 - Silver Springs	26.20	85.00	1,023.22	2,946.86	9,987.58
OCALFLXADS0 - Ocala	SVSSFLXARS0 - Silver Springs Shores	25.91	78.58	843.25	2,453.31	8,215.72
OCALFLXADS0 - Ocala	WLSTFLXARS0 - Williston	31.13	71.73	651.56	1,927.64	NA
OCALFLXADS0 - Ocala	WLWDFLXARS0 - Wildwood	32.93	233.56	3,827.05	10,776.62	37,505.08
OCALFLXCRS0 - Highlands	LDLKFLXARS0 - Lady Lake (821)	36.78	318.56	4,850.27	13,723.48	47,492.66
OCALFLXCRS0 - Highlands	NSN - Citra*	16.68	121.40	1,363.91	NA	NA
OCALFLXCRS0 - Highlands	NSN - Dunnellon*	22.97	260.38	3,899.37	11,045.39	38,174.05
OCALFLXCRS0 - Highlands	NSN - McIntosh*	16.68	121.40	1,363.91	NA	NA
OCALFLXCRS0 - Highlands	NSN - Orange Springs*	16.68	121.40	1,363.91	NA	NA
OCALFLXCRS0 - Highlands	OCALFLXADS0 - Ocala	26.20	85.00	1,023.22	2,946.86	9,987.58
OCALFLXCRS0 - Highlands	OCALFLXBDS0 - Shady Road	32.67	227.86	3,667.30	10,338.56	35,932.42
OCALFLXCRS0 - Highlands	OKLWFLXADS0 - Ocklawaha	29.76	163.58	1,866.47	5,400.17	18,203.30
OCALFLXCRS0 - Highlands	SSPRFLXARS0 - Salt Springs	26.20	85.00	1,023.22	2,946.86	9,987.58
OCALFLXCRS0 - Highlands	SVSSFLXARS0 - Silver Springs Shores	26.20	85.00	1,023.22	2,946.86	9,987.58
OCALFLXJRS0 - Boca Grande	CPHZFLXADS0 - Cape Haze	41.54	239.27	3,986.79	11,214.68	NA
OCALFLXJRS0 - Boca Grande	NSN - Englewood*	30.32	273.12	4,256.12	NA	NA
OCALFLXJRS0 - Boca Grande	PNGRFLXADS1 - Punta Gorda	41.54	239.27	3,986.79	11,214.68	NA
OCALFLXJRS0 - Boca Grande	PTCTFLXADS0 - Port Charlotte	41.54	239.27	3,986.79	11,214.68	NA
OCNFFLXARS0 - Forest	LDLKFLXARS0 - Lady Lake (821)	36.78	318.56	4,850.27	13,723.48	47,492.66
OCNFFLXARS0 - Forest	NSN - Citra*	16.68	121.40	1,363.91	NA	NA
OCNFFLXARS0 - Forest	NSN - Dunnellon*	22.97	260.38	3,899.37	11,045.39	38,174.05
OCNFFLXARS0 - Forest	NSN - McIntosh*	16.68	121.40	1,363.91	NA	NA
OCNFFLXARS0 - Forest	NSN - Orange Springs*	16.68	121.40	1,363.91	NA	NA
OCNFFLXARS0 - Forest	OCALFLXADS0 - Ocala	26.20	85.00	1,023.22	2,946.86	9,987.58
OCNFFLXARS0 - Forest	OCALFLXCRS0 - Highlands	26.20	85.00	1,023.22	2,946.86	9,987.58
OCNFFLXARS0 - Forest	OKLWFLXADS0 - Ocklawaha	29.76	163.58	1,866.47	5,400.17	18,203.30
OCNFFLXARS0 - Forest	SSPRFLXARS0 - Salt Springs	26.20	85.00	1,023.22	2,946.86	9,987.58
OCNFFLXARS0 - Forest	SVSSFLXARS0 - Silver Springs Shores	29.76	163.58	1,866.47	5,400.17	18,203.30
OKCBFLXADS1 - Okeechobee	SBNGFLXADS1 - Sebring	29.86	165.75	3,285.18	9,149.78	32,256.45
OKLWFLXADS0 - Ocklawaha	ESTSFLXARS0 - Eustis	36.74	317.69	4,825.78	13,656.32	47,251.52
OKLWFLXADS0 - Ocklawaha	LSBGFLXADS1 - Leesburg	30.02	169.28	2,026.21	5,838.23	19,775.96
OKLWFLXADS0 - Ocklawaha	NSN - Citra*	16.38	114.97	1,183.93	NA	NA
OKLWFLXADS0 - Ocklawaha	NSN - Dunnellon*	22.68	253.96	3,719.39	10,551.84	36,402.19

INTEROFFICE TRANSPORT

Originating	Terminating	Dedicated DS0	Dedicated DS1	Dedicated DS3	Dedicated OC3	Dedicated DS12
OKLWFLXADS0 - Ocklawaha	NSN - McIntosh*	16.38	114.97	1,183.93	NA	NA
OKLWFLXADS0 - Ocklawaha	NSN - Orange Springs*	16.38	114.97	1,183.93	NA	NA
OKLWFLXADS0 - Ocklawaha	SSPRFLXARS0 - Salt Springs	29.76	163.58	1,866.47	5,400.17	18,203.30
OKLWFLXADS0 - Ocklawaha	SVSSFLXARS0 - Silver Springs Shores	25.91	78.58	843.25	2,453.31	8,215.72
OKLWFLXADS0 - Ocklawaha	UMTLFLXARS0 - Umatilla	39.96	388.78	5,459.23	15,534.31	NA
ORCYFLXADS0 - Orange City	NSN - DeBary*	15.44	33.81	268.27	806.12	NA
ORCYFLXADS0 - Orange City	NSN - Deland*	15.35	32.41	228.87	NA	NA
ORCYFLXADS0 - Orange City	NSN - DeLeon Springs*	15.35	32.41	228.87	NA	NA
ORCYFLXADS0 - Orange City	NSN - Deltona Lakes*	30.75	65.61	480.10	NA	NA
ORCYFLXADS0 - Orange City	NSN - Sanford*	15.44	33.81	268.27	806.12	NA
ORCYFLXADS0 - Orange City	WNPKFLXADS1 - Winter Park	35.82	147.23	1,408.54	NA	NA
PANCFLXARS0 - Panacea	NSN - Alligator Point*	19.60	185.87	1,812.06	5,321.41	NA
PANCFLXARS0 - Panacea	SPCPFLXADS0 - Sopchoppy	29.34	154.15	1,602.36	4,675.91	15,603.17
PANCFLXARS0 - Panacea	STMKFLXARS0 - St. Marks	28.55	136.85	1,117.81	3,347.13	10,832.76
PANCFLXARS0 - Panacea	TLHSFLXADS0 - Calhoun	29.34	154.15	1,602.36	4,675.91	15,603.17
PNISFLXADS0 - Pine Island	SNISFLXADS0 - Sanibel-Captiva Islands	26.56	92.91	1,244.73	3,554.30	12,168.34
PNISFLXADS0 - Ponce de Leon	RYHLFLXARS0 - Reynolds Hill	45.38	300.96	2,999.19	NA	NA
PNISFLXADS0 - Ponce de Leon	SGBHFLXARS0 - Seagrove Beach	38.27	186.69	2,513.96	NA	NA
PNISFLXADS0 - Ponce de Leon	SNRSFLXARS0 - Santa Rosa Beach	38.27	186.69	2,513.96	NA	NA
PNISFLXADS0 - Ponce de Leon	VLPRFLXADS0 - Valparaiso	38.27	186.69	2,513.96	NA	NA
PNISFLXADS0 - Ponce de Leon	WSTVFLXARS0 - Westville	41.27	234.78	2,503.12	NA	NA
PTCTFLXADS0 - Port Charlotte	NSN - North Port*	15.51	34.95	300.22	893.73	NA
PTCTFLXADS0 - Port Charlotte	PNGRFLXADS1 - Punta Gorda	29.86	165.75	3,285.18	9,149.78	32,256.45
RYHLFLXARS0 - Reynolds Hill	NSN - Graceville*	24.40	177.93	1,589.49	NA	NA
RYHLFLXARS0 - Reynolds Hill	WSTVFLXARS0 - Westville	35.76	146.20	1,379.79	NA	NA
SBNGFLXADS1 - Sebring	SLHLFLXARS0 - Spring Lake	29.86	165.75	3,285.18	9,149.78	32,256.45
SBNGFLXADS1 - Sebring	WCHLFLXADS0 - Wauchula	29.86	165.75	3,285.18	9,149.78	32,256.45
SHLMFLXADS0 - Shalimar	VLPRFLXADS0 - Valparaiso	30.83	187.07	2,524.61	7,204.98	24,682.66
SNANFLXARS0 - San Antonio	NSN - Brooksville*	15.95	105.36	914.50	NA	NA
SNANFLXARS0 - San Antonio	NSN - Tampa Central*	15.95	105.36	914.50	NA	NA
SNANFLXARS0 - San Antonio	NSN - Tampa North*	15.95	105.36	914.50	NA	NA
SNANFLXARS0 - San Antonio	NSN - Zephyrhills*	15.95	105.36	914.50	NA	NA
SNANFLXARS0 - San Antonio	TLCHFLXARS0 - Trilacoochee	25.65	72.72	679.25	2,003.57	6,601.12
SNDNFLXARS0 - Sneads	NSN - Chattahoochee*	19.76	103.30	857.00	2,561.46	NA
SNDNFLXARS0 - Sneads	NSN - Graceville*	19.76	103.30	857.00	2,561.46	NA
SNRSFLXARS0 - Santa Rosa Beach	SGBHFLXARS0 - Seagrove Beach	27.74	118.87	1,972.09	5,548.93	19,329.18
SNRSFLXARS0 - Santa Rosa Beach	VLPRFLXADS0 - Valparaiso	27.74	118.87	1,972.09	5,548.93	19,329.18
SPCPFLXADS0 - Sopchoppy	NSN - Alligator Point*	16.47	116.80	1,235.05	3,598.20	NA
SPCPFLXADS0 - Sopchoppy	NSN - Carrabelle*	16.47	116.80	1,235.05	3,598.20	NA
SPCPFLXADS0 - Sopchoppy	STMKFLXARS0 - St. Marks	29.28	152.86	1,566.16	4,576.62	15,246.70
SPCPFLXADS0 - Sopchoppy	TLHSFLXADS0 - Calhoun	26.21	85.08	1,025.35	2,952.70	10,008.55
SSPRFLXARS0 - Salt Springs	NSN - Citra*	16.68	121.40	1,363.91	NA	NA

INTEROFFICE TRANSPORT

Originating	Terminating	Dedicated DS0	Dedicated DS1	Dedicated DS3	Dedicated OC3	Dedicated DS12
SSPRFLXARS0 - Salt Springs	NSN - Dunnellon*	22.97	260.38	3,899.37	11,045.39	38,174.05
SSPRFLXARS0 - Salt Springs	NSN - McIntosh*	16.68	121.40	1,363.91	NA	NA
SSPRFLXARS0 - Salt Springs	NSN - Orange Springs*	16.68	121.40	1,363.91	NA	NA
SSPRFLXARS0 - Salt Springs	SVSSFLXARS0 - Silver Springs Shores	29.76	163.58	1,866.47	5,400.17	18,203.30
STCDFLXARS0 - St. Cloud	KSSMFLXBDS1 - West Kissimmee	27.02	102.98	1,526.95	4,328.21	14,946.70
STCDFLXARS0 - St. Cloud	NSN - Celebration*	17.54	140.45	1,897.45	5,414.69	NA
STCDFLXARS0 - St. Cloud	NSN - Orlando*	17.67	143.41	1,980.52	5,642.48	19,369.09
STCDFLXARS0 - St. Cloud	WNPKFLXADS1 - Winter Park	27.02	102.98	1,526.95	4,328.21	14,946.70
STMKFLXARS0 - St. Marks	NSN - Alligator Point*	19.54	184.58	1,775.85	5,222.12	NA
STMKFLXARS0 - St. Marks	TLHSFLXDDS0 - Blairstone	29.28	152.86	1,566.16	4,576.62	15,246.70
STRKFLXADS0 - Starke	LWTYFLXARS0 - Lawtey	31.02	70.10	605.76	NA	NA
STRKFLXADS0 - Starke	NSN - Brooker*	15.31	31.87	213.96	NA	NA
STRKFLXADS0 - Starke	NSN - Keystone Heights*	15.31	31.87	213.96	657.18	NA
STRKFLXADS0 - Starke	NSN - Lake Butler*	15.31	31.87	213.96	NA	NA
STRKFLXADS0 - Starke	NSN - Raiford*	15.31	31.87	213.96	NA	NA
STRKFLXADS0 - Starke	NSN - Waldo*	15.31	31.87	213.96	NA	NA
SVSSFLXARS0 - Silver Springs Shores	NSN - Citra*	16.38	114.97	1,183.93	NA	NA
SVSSFLXARS0 - Silver Springs Shores	NSN - Dunnellon*	22.68	253.96	3,719.39	10,551.84	36,402.19
SVSSFLXARS0 - Silver Springs Shores	NSN - McIntosh*	16.38	114.97	1,183.93	NA	NA
SVSSFLXARS0 - Silver Springs Shores	NSN - Orange Springs*	16.38	114.97	1,183.93	NA	NA
SVSSFLXARS0 - Silver Springs Shores	WLWDFLXARS0 - Wildwood	30.02	169.28	2,026.21	5,838.23	19,775.96
TLCHFLXARS0 - Trilocochee	BSHNFLXADS0 - Bushnell	32.12	215.58	3,323.32	9,395.28	32,545.96
TLCHFLXARS0 - Trilocochee	NSN - Brooksville*	15.95	105.36	914.50	NA	NA
TLCHFLXARS0 - Trilocochee	NSN - Zephyrhills*	15.95	105.36	914.50	NA	NA
TLHSFLXADS0 - Calhoun	NSN - Alligator Point*	15.31	31.72	209.70	645.50	NA
TLHSFLXADS0 - Calhoun	NSN - Bristol*	15.31	31.72	209.70	645.50	NA
TLHSFLXADS0 - Calhoun	NSN - Carrabelle*	15.31	31.72	209.70	645.50	NA
TLHSFLXADS0 - Calhoun	NSN - Chattahoochee*	15.31	31.72	209.70	645.50	NA
TLHSFLXADS0 - Calhoun	NSN - Greensboro*	15.96	42.22	503.62	1,451.53	NA
TLHSFLXADS0 - Calhoun	NSN - Greta*	16.94	127.29	1,528.98	4,404.23	NA
TLHSFLXADS0 - Calhoun	NSN - Havana*	15.78	39.29	421.62	1,226.66	NA
TLHSFLXADS0 - Calhoun	NSN - Hosford*	15.31	31.72	209.70	645.50	NA
TLHSFLXADS0 - Calhoun	NSN - Perry*	19.37	180.82	3,028.43	8,516.15	NA
TLHSFLXADS0 - Calhoun	NSN - Quincy*	15.96	42.22	503.62	1,451.53	NA
TLHSFLXADS0 - Calhoun	TLHSFLXBDS0 - Willis	25.61	71.92	656.88	1,942.24	6,380.95
TLHSFLXADS0 - Calhoun	TLHSFLXCDS0 - Mabry	25.61	71.92	656.88	1,942.24	6,380.95
TLHSFLXADS0 - Calhoun	TLHSFLXEDS0 - FSU	25.61	71.92	656.88	1,942.24	6,380.95
TLHSFLXADS0 - Calhoun	TLHSFLXHDS0 - Perkins	25.61	71.92	656.88	1,942.24	6,380.95
TLHSFLXADS0 - Calhoun	TVRSFLXADS0 - Thomasville	25.32	65.54	477.97	1,451.62	4,619.57
TLHSFLXBDS0 - Willis	NSN - Alligator Point*	15.87	103.65	866.58	2,587.74	NA
TLHSFLXBDS0 - Willis	NSN - Bristol*	15.87	103.65	866.58	2,587.74	NA
TLHSFLXBDS0 - Willis	NSN - Carrabelle*	15.87	103.65	866.58	2,587.74	NA

INTEROFFICE TRANSPORT

Originating	Terminating	Dedicated DS0	Dedicated DS1	Dedicated DS3	Dedicated OC3	Dedicated DS12
TLHSFLXBDS0 - Willis	NSN - Chattahoochee*	15.87	103.65	866.58	2,587.74	NA
TLHSFLXBDS0 - Willis	NSN - Greensboro*	15.96	42.22	503.62	1,451.53	NA
TLHSFLXBDS0 - Willis	NSN - Greta*	15.96	42.22	503.62	1,451.53	NA
TLHSFLXBDS0 - Willis	NSN - Havana*	15.78	39.29	421.62	1,226.66	NA
TLHSFLXBDS0 - Willis	NSN - Hosford*	15.87	103.65	866.58	2,587.74	NA
TLHSFLXBDS0 - Willis	NSN - Quincy*	15.96	42.22	503.62	1,451.53	NA
TLHSFLXCDS0 - Mabry	NSN - Alligator Point*	15.87	103.65	866.58	2,587.74	NA
TLHSFLXCDS0 - Mabry	NSN - Bristol*	15.87	103.65	866.58	2,587.74	NA
TLHSFLXCDS0 - Mabry	NSN - Carrabelle*	15.87	103.65	866.58	2,587.74	NA
TLHSFLXCDS0 - Mabry	NSN - Chattahoochee*	15.87	103.65	866.58	2,587.74	NA
TLHSFLXCDS0 - Mabry	NSN - Greensboro*	15.96	42.22	503.62	1,451.53	NA
TLHSFLXCDS0 - Mabry	NSN - Greta*	15.96	42.22	503.62	1,451.53	NA
TLHSFLXCDS0 - Mabry	NSN - Havana*	15.78	39.29	421.62	1,226.66	NA
TLHSFLXCDS0 - Mabry	NSN - Hosford*	15.87	103.65	866.58	2,587.74	NA
TLHSFLXCDS0 - Mabry	NSN - Quincy*	15.96	42.22	503.62	1,451.53	NA
TLHSFLXCDS0 - Mabry	TLHSFLXBDS0 - Willis	25.61	71.92	656.88	1,942.24	6,380.95
TLHSFLXCDS0 - Mabry	TLHSFLXHDS0 - Perkins	25.61	71.92	656.88	1,942.24	6,380.95
TLHSFLXCDS0 - Mabry	TVRSFLXADS0 - Thomasville	28.58	137.46	1,134.85	3,393.86	11,000.51
TLHSFLXDDS0 - Blairstone	NSN - Alligator Point*	16.47	116.80	1,235.05	3,598.20	NA
TLHSFLXDDS0 - Blairstone	NSN - Bristol*	16.47	116.80	1,235.05	3,598.20	NA
TLHSFLXDDS0 - Blairstone	NSN - Carrabelle*	16.47	116.80	1,235.05	3,598.20	NA
TLHSFLXDDS0 - Blairstone	NSN - Chattahoochee*	16.47	116.80	1,235.05	3,598.20	NA
TLHSFLXDDS0 - Blairstone	NSN - Greensboro*	16.94	127.29	1,528.98	4,404.23	NA
TLHSFLXDDS0 - Blairstone	NSN - Greta*	15.96	42.22	503.62	1,451.53	NA
TLHSFLXDDS0 - Blairstone	NSN - Havana*	16.81	124.36	1,446.98	4,179.36	NA
TLHSFLXDDS0 - Blairstone	NSN - Hosford*	16.47	116.80	1,235.05	3,598.20	NA
TLHSFLXDDS0 - Blairstone	NSN - Quincy*	16.94	127.29	1,528.98	4,404.23	NA
TLHSFLXDDS0 - Blairstone	TLHSFLXADS0 - Calhoun	25.76	75.31	751.66	2,202.16	7,314.06
TLHSFLXDDS0 - Blairstone	TLHSFLXBDS0 - Willis	25.76	75.31	751.66	2,202.16	7,314.06
TLHSFLXDDS0 - Blairstone	TLHSFLXCDS0 - Mabry	29.02	147.23	1,408.54	4,144.40	13,695.00
TLHSFLXDDS0 - Blairstone	TLHSFLXEDS0 - FSU	29.02	147.23	1,408.54	4,144.40	13,695.00
TLHSFLXDDS0 - Blairstone	TLHSFLXHDS0 - Perkins	29.02	147.23	1,408.54	4,144.40	13,695.00
TLHSFLXDDS0 - Blairstone	TVRSFLXADS0 - Thomasville	28.73	140.84	1,229.63	3,653.78	11,933.63
TLHSFLXEDS0 - FSU	NSN - Alligator Point*	15.87	103.65	866.58	2,587.74	NA
TLHSFLXEDS0 - FSU	NSN - Bristol*	15.87	103.65	866.58	2,587.74	NA
TLHSFLXEDS0 - FSU	NSN - Carrabelle*	15.87	103.65	866.58	2,587.74	NA
TLHSFLXEDS0 - FSU	NSN - Chattahoochee*	15.87	103.65	866.58	2,587.74	NA
TLHSFLXEDS0 - FSU	NSN - Greensboro*	15.96	42.22	503.62	1,451.53	NA
TLHSFLXEDS0 - FSU	NSN - Greta*	16.06	107.75	981.59	2,903.14	NA
TLHSFLXEDS0 - FSU	NSN - Havana*	15.78	39.29	421.62	1,226.66	NA
TLHSFLXEDS0 - FSU	NSN - Hosford*	15.87	103.65	866.58	2,587.74	NA
TLHSFLXEDS0 - FSU	NSN - Quincy*	15.96	42.22	503.62	1,451.53	NA

INTEROFFICE TRANSPORT

Originating	Terminating	Dedicated DS0	Dedicated DS1	Dedicated DS3	Dedicated OC3	Dedicated DS12
TLHSFLXEDS0 - FSU	TLHSFLXBDS0 - Willis	25.61	71.92	656.88	1,942.24	6,380.95
TLHSFLXEDS0 - FSU	TLHSFLXCDS0 - Mabry	25.61	71.92	656.88	1,942.24	6,380.95
TLHSFLXEDS0 - FSU	TLHSFLXHDS0 - Perkins	25.61	71.92	656.88	1,942.24	6,380.95
TLHSFLXEDS0 - FSU	TVRSFLXADS0 - Thomasville	28.58	137.46	1,134.85	3,393.86	11,000.51
TLHSFLXFDS0 - Thomasville	NSN - Alligator Point*	15.58	97.26	687.67	2,097.11	NA
TLHSFLXFDS0 - Thomasville	NSN - Bristol*	15.58	97.26	687.67	2,097.11	NA
TLHSFLXFDS0 - Thomasville	NSN - Carrabelle*	15.58	97.26	687.67	2,097.11	NA
TLHSFLXFDS0 - Thomasville	NSN - Chattahoochee*	15.58	97.26	687.67	2,097.11	NA
TLHSFLXFDS0 - Thomasville	NSN - Greensboro*	16.06	107.75	981.59	2,903.14	NA
TLHSFLXFDS0 - Thomasville	NSN - Greta*	15.96	42.22	503.62	1,451.53	NA
TLHSFLXFDS0 - Thomasville	NSN - Havana*	15.92	104.82	899.59	2,678.27	NA
TLHSFLXFDS0 - Thomasville	NSN - Hosford*	15.58	97.26	687.67	2,097.11	NA
TLHSFLXFDS0 - Thomasville	NSN - Quincy*	16.06	107.75	981.59	2,903.14	NA
TLHSFLXFDS0 - Thomasville	TLHSFLXBDS0 - Willis	28.58	137.46	1,134.85	3,393.86	11,000.51
TLHSFLXHDS0 - Perkins	NSN - Alligator Point*	15.87	103.65	866.58	2,587.74	NA
TLHSFLXHDS0 - Perkins	NSN - Bristol*	15.87	103.65	866.58	2,587.74	NA
TLHSFLXHDS0 - Perkins	NSN - Carrabelle*	15.87	103.65	866.58	2,587.74	NA
TLHSFLXHDS0 - Perkins	NSN - Chattahoochee*	15.87	103.65	866.58	2,587.74	NA
TLHSFLXHDS0 - Perkins	NSN - Greensboro*	15.96	42.22	503.62	1,451.53	NA
TLHSFLXHDS0 - Perkins	NSN - Greta*	15.96	42.22	503.62	1,451.53	NA
TLHSFLXHDS0 - Perkins	NSN - Havana*	15.78	39.29	421.62	1,226.66	NA
TLHSFLXHDS0 - Perkins	NSN - Hosford*	15.87	103.65	866.58	2,587.74	NA
TLHSFLXHDS0 - Perkins	NSN - Quincy*	15.96	42.22	503.62	1,451.53	NA
TLHSFLXHDS0 - Perkins	TLHSFLXBDS0 - Willis	25.61	71.92	656.88	1,942.24	6,380.95
TLHSFLXHDS0 - Perkins	TVRSFLXADS0 - Thomasville	28.58	137.46	1,134.85	3,393.86	11,000.51
TVRSFLXADS0 - Tavares	UMTLFLXARS0 - Umatilla	29.93	167.34	1,971.90	5,689.29	NA
WCHLFLXADS0 - Wauchula	ZLSPFLXARS0 - Zolfo Springs	29.86	165.75	3,285.18	9,149.78	32,256.45
WLSTFLXARS0 - Williston	NSN - Bronson*	19.93	106.04	933.67	NA	NA
WNDRFLXARS0 - Windermere	NSN - Celebration*	22.24	143.30	1,977.32	5,633.72	NA
WNDRFLXARS0 - Windermere	NSN - East Orange*	17.80	146.26	2,060.39	5,861.51	20,155.42
WNDRFLXARS0 - Windermere	NSN - Lake Buena Vista*	22.24	143.30	1,977.32	5,633.72	NA
WNDRFLXARS0 - Windermere	NSN - Orlando*	17.80	146.26	2,060.39	5,861.51	20,155.42
WNDRFLXARS0 - Windermere	WNGRFLXADS0 - Winter Garden	35.58	143.30	1,977.32	5,633.72	NA
WNDRFLXARS0 - Windermere	WNPKFLXADS1 - Winter Park	35.58	143.30	1,977.32	5,633.72	NA
WNGRFLXADS0 - Winter Garden	NSN - Celebration*	15.66	37.46	370.51	1,086.48	NA
WNGRFLXADS0 - Winter Garden	NSN - East Orange*	17.67	143.41	1,980.52	5,642.48	19,369.09
WNGRFLXADS0 - Winter Garden	NSN - Lake Buena Vista*	17.33	135.92	1,770.72	5,067.16	17,303.67
WNGRFLXADS0 - Winter Garden	NSN - Orlando*	17.67	143.41	1,980.52	5,642.48	19,369.09
WNGRFLXADS0 - Winter Garden	WNPKFLXADS1 - Winter Park	27.02	102.98	1,526.95	4,328.21	14,946.70
WNPKFLXADS1 - Winter Park	NSN - Celebration*	17.54	140.45	1,897.45	5,414.69	NA
WNPKFLXADS1 - Winter Park	NSN - DeBary*	19.56	185.03	1,788.63	5,257.16	NA
WNPKFLXADS1 - Winter Park	NSN - East Orange*	13.01	40.43	453.57	1,314.27	4,422.39

INTEROFFICE TRANSPORT

Originating	Terminating	Dedicated DS0	Dedicated DS1	Dedicated DS3	Dedicated OC3	Dedicated DS12
WNPFLXADS1 - Winter Park	NSN - Geneva*	13.01	40.43	453.57	1,314.27	4,422.39
WNPFLXADS1 - Winter Park	NSN - Lake Buena Vista*	17.33	135.92	1,770.72	5,067.16	17,303.67
WNPFLXADS1 - Winter Park	NSN - Orlando*	13.01	40.43	453.57	1,314.27	4,422.39
WNPFLXADS1 - Winter Park	NSN - Oviedo*	13.01	40.43	453.57	1,314.27	4,422.39
WNPFLXADS1 - Winter Park	NSN - Sanford*	15.44	33.81	268.27	806.12	NA
WSTVFLXARS0 - Westville	NSN - Graceville*	16.24	111.74	1,093.41	3,209.79	NA
WSTVFLXARS0 - Westville	NSN - Vernon*	16.24	111.74	1,093.41	3,209.79	NA
		#N/A	0.00	0.00	NA	NA

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BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION
DIRECT TESTIMONY
OF
BRIAN K. STAIHR

Q. Please state your name, title, and business address.

A. My name is Brian K. Staihr. I am employed by Sprint Corporation as Senior Regulatory Economist in the Department of Policy and Regulatory Affairs. My business address is 6360 Sprint Parkway, Overland Park, Kansas 66251.

Q. Please briefly describe your educational background and work experience.

A. I hold a B.A. in Economics from the University of Missouri, and an M.A. and Ph.D. in Economics from Washington University in St. Louis. My field of specialization is Industrial Organization.

I have been a part of Sprint's Regulatory Policy Group since 1996. In my current position I am involved with the development of state and federal regulatory and legislative policy for all divisions of

1 Sprint Corporation. I am also involved with the coordination of
2 policy across business units. My particular responsibilities include
3 1) ensuring that Sprint's policies are based on sound economic
4 reasoning, 2) undertaking or directing economic/quantitative
5 analysis to provide support for Sprint's policies, and 3) conducting
6 original research. The specific policy issues that I address include
7 universal service, pricing, costing (including cost of capital), access
8 reform, reciprocal compensation and interconnection, local
9 competition, and more.

10

11 In my position I have appeared before the Florida Public Service
12 Commission, the New Jersey Board of Public Utilities, the
13 Pennsylvania Public Utilities Commission, the North Carolina Public
14 Utilities Commission, the South Carolina Public Service
15 Commission, the Nevada Public Service Commission, the Texas
16 Public Utilities Commission, the Missouri Public Service
17 Commission, and the Kansas Corporation Commission. I have
18 also worked extensively with the Federal Communication
19 Commission's staff and presented original research to the FCC.

20

21 [In January 2000 I left Sprint temporarily to serve as Senior
22 Economist for the Federal Reserve Bank of Kansas City. There I
23 was an active participant in the Federal Open Market Committee

1 process, the process by which the Federal Reserve sets certain
2 interest rates. In addition, I conducted original research on
3 telecommunication issues and the effects of deregulation. During
4 that period my research was presented to the Governors of the
5 states of Georgia, Arkansas, Kentucky and to the staff of the
6 Governor of Minnesota, as well as to the U.S. Department of
7 Agriculture. At that time I also assisted the O.E.C.D. on a multi-
8 national investigation regarding the economic effects of advanced
9 telecommunications service deployment. I returned to Sprint in
10 December 2000.]

11
12 Currently, I also serve as Adjunct Professor of Economics at Avila
13 College in Kansas City, Missouri. There I teach both graduate and
14 undergraduate level courses.

15
16 Prior to my work in Sprint's Regulatory Policy Group I served as
17 Manager-Consumer Demand Forecasting in Sprint's Local Division
18 Marketing department. There I was responsible for forecasting the
19 demand for services in the local market, and producing economic
20 and quantitative analysis for business cases, opportunity analyses,
21 etc.

22

1 **Q. What is the purpose of your testimony?**

2

3 A. In my testimony I put forth Sprint's position regarding the correct
4 cost of capital to be used in calculating forward-looking economic
5 costs for Sprint – Florida, Incorporated (Sprint-Florida). My
6 testimony supports the appropriateness of Sprint witness
7 Dickerson's use of 12.38% as the weighted average cost of capital
8 in determining the annual charge factor, which is used in the
9 forward-looking cost studies for unbundled network elements in this
10 proceeding.

11

12 **Q. What is Sprint's position concerning the cost of capital to be**
13 **used for Sprint-Florida?**

14

15 A. Sprint's position is consistent with Section 252 (d) (1) of the
16 Telecommunications Act of 1996 (Act) which explicitly states that
17 rates for interconnection and access to unbundled network
18 elements "may include a reasonable profit." It is also consistent
19 with the FCC's interconnection order (First Report and Order in CC
20 Docket Nos. 96-98 and 96-195, released August 8, 1996) which
21 states that the concept of reasonable or "normal" profit is
22 embodied in forward-looking costs, because the forward-looking
23 direct cost of a network element includes "the forward-looking

1 costs of capital (debt and equity) needed to support investments
2 required to produce a given element” (paragraph 691).
3 Furthermore, the order states that the forward-looking cost of
4 capital “is equal to a normal profit” (paragraph 700). Sprint’s
5 position is that the FPSC should accept the use of the forward-
6 looking, weighted, market value cost of capital of 12.38%, based on
7 the market value capital structure shown below, used by witness
8 Dickerson in Sprint-Florida’s forward-looking cost studies.

9
10 **Q. How does Sprint define a forward-looking cost of capital?**

11
12 **A.** A forward-looking cost of capital, as opposed to an embedded or
13 historical cost of capital, incorporates market-based values, as
14 opposed to book values, in both its cost estimates and its capital
15 structure. In the same way that a forward-looking cost study
16 avoids the use of embedded or accounting costs for determining
17 outside plant investment or overhead expenses, a forward-looking
18 cost of capital avoids the use of embedded (book) values for costs
19 of debt, costs of equity and capital structure. For example, the
20 forward-looking cost of debt is the rate at which new debt could be
21 issued in today’s debt market, under existing market conditions. In
22 contrast, the embedded cost of debt is the rate at which existing
23 debt was issued in the past, and it reflects historical market

1 conditions. The embedded cost of debt has no place in a forward-
2 looking cost of capital calculation, or a forward looking cost study.

3 Of course, this does not suggest that actual information is not used
4 in the process of calculating a forward-looking cost of capital.

5 Rather, existing information should be used in the correct context to
6 obtain the best estimate of a forward looking cost of capital that
7 reflects the expectations of investors today.

8

9 **Q. Is that definition consistent with other cost of capital**
10 **testimony that has been presented recently to the FPSC?**

11

12 A. Yes. Dr. Randall Billingsley, on behalf of BellSouth
13 Telecommunications, Inc. testified on May 1, 2000 that for a
14 forward-looking cost of capital, "Market values should be used
15 exclusively because they are dynamically determined in the
16 marketplace by investors, while book values are the result of
17 historical accounting practices."¹ In addition, Mr. Gregory
18 Jacobson, on behalf of GTE Florida Inc. testified on May 1, 2000
19 that, "to provide correct incentives for entry into local markets" the
20 FPSC must use a forward-looking definition of the cost of capital
21 which "differs from the "traditional"—and now
22 outmoded—regulatory view" of using embedded costs, book values
23 and historical risk.²

1

2 **Q. Have any state commissions agreed with Sprint's definition of**
3 **forward-looking, in terms of a cost of capital that rejects book**
4 **values and utilizes market values?**

5

6 A. Yes. On August 8, 2000 the Nevada Public Service Commission
7 issued a Modified Final Order in Docket No. 98-6004 addressing
8 the cost of unbundled network elements. In that Order, the
9 Commission stated that it was in the public interest to consider
10 economic, forward-looking factors in evaluating and setting the cost
11 of capital for Nevada Bell. The Order states,

12 "As such, the Commission rejects near-term dividend growth
13 analyses, embedded book value capital structures, and
14 embedded costs of debt...as vestiges of traditional rate-
15 making; and accepts earnings growth analyses, market-
16 value capital structures, and the market value of debt as the
17 proper forward-looking components of the cost of capital for
18 setting UNE prices."³
19

20

21 **RISK**

22

23 **Q. Please explain briefly Sprint's position regarding the**
24 **relationship between cost of capital and risk.**

¹ Direct testimony of Dr. Randall Billingsley, pp. 30-31, Docket No. 990649-TP.

² Direct testimony of Mr. Gregory Jacobson, pp. 5-6, Docket No. 990649-TP.

³ Modified Final Order, Docket No. 98-6004, Public Utilities Commission of Nevada, August 8, 2000, p.9.

1 A. The weighted, average cost of capital is the sum of the components
2 of investor-supplied capital, weighted by each component's relative
3 proportion. The components include debt and equity. Investors
4 supply this capital with the expectation of receiving a return on their
5 investment, and the magnitude of that expected return is based on
6 the risk of the investment relative to the risks of other potential
7 investments. In general, investors are risk averse and all else held
8 equal, the greater the risk, the greater the expected return that
9 investors will require. A firm that seeks investor capital must meet
10 the return requirements that investors possess after having
11 examined alternative investments of comparable risk.

12
13 **Q. Exactly what risk is reflected in Sprint's proposed cost of**
14 **capital in this proceeding?**

15
16 A. In a statistical sense, risk is the likelihood that an actual return will
17 differ from an expected return. Assets that are often referred to as
18 "risk-free" are so named because the likelihood that an investor's
19 actual return will differ from his or her expected return approaches
20 zero. For other assets, the likelihood that a return will differ from an
21 expected return is non-zero, and that likelihood is affected by both
22 financial risk and business risk. Put simply, financial risk involves
23 relative amounts of debt as well as a firm's capacity to service that

1 debt. Business risk involves variability of a firm's inflow of revenue
2 and the operating return on a firm's assets. The forward-looking
3 cost of capital to be used in the calculation of unbundled network
4 element costs must reflect the risks associated with investing in a
5 local provider operating in a competitive market, which in turn
6 reflect the risks that the company faces while operating in that
7 market. Sprint's recommended weighted average cost of capital of
8 12.38 accurately reflects this level of risk.

9
10 **CAPITAL STRUCTURE**

11
12 **Q. What capital structure does Sprint recommend for use in**
13 **calculating the cost of capital in this proceeding?**

14
15 A. Sprint recommends a market-based capital structure of 85.04%
16 equity and 14.96% debt.

17
18 **Q. What is the process by which this capital structure is**
19 **determined?**

20
21 A. The process begins with Sprint-Florida's book value capital
22 structure, as shown in Exhibit BKS-1. This is obtained using
23 historical accounting values taken from Sprint's own records. First,

1 the book value of debt is converted to a market value using prices
2 of debt instruments as of February 2001 taken from Bloomberg
3 Financial Services. Next, market-to-book ratios for common equity
4 are calculated for a group of select firms that have been determined
5 to be comparable in risk to Sprint-Florida. (The process of
6 identifying these firms is discussed below.) These ratios are shown
7 in Exhibit BKS-4. Using these ratios the book value of common
8 equity is converted to a market value. Finally, using both the
9 market value of equity and the market value of debt, an appropriate
10 market value capital structure ratio is produced. This is shown in
11 Exhibit BKS-3. As a check on reasonableness, Sprint-Florida's
12 estimated market value of \$4.92 billion translates to a per line value
13 of \$2,222. That amount falls squarely in the range of \$1,200 to
14 \$5,300 per access line paid in recent LEC/LEC acquisitions.

15
16 **Q. Is this capital structure relatively consistent with other**
17 **forward-looking, market value-based capital structures**
18 **recently presented to the FPSC?**

19
20 **A.** Yes. According to Mr. Gregory Jacobson's testimony from May 1,
21 2000 the average telecommunications company at that time had a
22 market-value capital structure comprised of 81.1% equity and

1 18.9% debt.⁴ Similarly, Dr. Randall Billingsley also testified on May
2 1, 2000 that a market-value capital structure of 90.17% equity and
3 9.83% debt was appropriate for Bell South.⁵ Sprint's proposed
4 capital structure falls squarely between the two. Mr. John
5 Hirshleifer, testifying on behalf of AT&T Communications of the
6 Southern States, Inc. and MCIWorldCom, Inc., on June 8, 2000
7 utilized a market-value capital structure of 84% equity and 16%
8 debt in his calculations, which is extremely close to Sprint's
9 proposed capital structure.⁶

10

11 **COST OF DEBT**

12

13 **Q. What is the Sprint's position regarding the appropriate**
14 **forward-looking cost of debt to be used in calculating the**
15 **forward-looking cost of capital for this proceeding?**

16

17 **A.** Sprint-Florida's forward-looking cost of debt as of February 2001 is
18 7.87%, as shown in Exhibit BKS-2. The figure represents the rate
19 at which Sprint-Florida could issue debt in February 2001. The cost
20 has three separate components. First, a forward-looking risk free
21 rate of return of 5.77%, which is the return on twenty-year U.S.

⁴ Direct testimony of Mr. Gregory Jacobson, p. 27, Docket No. 990649-TP.

⁵ Direct testimony of Dr. Randall Billingsley, p. 30, Docket No. 990649-TP

1 Treasury bonds implied by futures prices. This figure is described
2 in more detail below in the Risk Premium portion of my testimony.
3 Second, the credit spread for twenty-year "A" rated telephone
4 bonds over twenty year U.S. Treasury bonds, which is estimated at
5 202 basis points based on prevailing market data from Bloomberg
6 Financial Markets. Third, an estimated issuance cost increment for
7 twenty-year debt which is eight (8) basis points.

8

9 **MARKET TRADED GROUP OF COMPARABLE FIRMS**

10

11 **Q. What is Sprint's position regarding the proper estimation of a**
12 **forward-looking cost of equity for Sprint-Florida?**

13

14 **A.** Investors' required return on common equity forms the basis for
15 estimating the cost of equity, and investors' required return is
16 generally estimated with standard, market-based, forward-looking
17 financial models. Sprint utilizes the discounted cash flow model
18 (DCF) and risk premium model, both of which are market-based,
19 forward-looking models, to estimate investors' required return on
20 common equity. An appropriate issuance cost increment is added
21 to this required return to produce the forward-looking cost of equity.

⁶ It should be noted that although Mr. Hirshleifer utilized this market-value capital structure, he recommended use of a combination of market value and book value capital structures. Direct testimony of Mr. John Hirshleifer, p. 36, Docket No. 990649-TP.

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23

Q. Are the DCF and risk premium models applied directly to Sprint-Florida?

A. No. Using market-based models requires the use of stock market prices, and Sprint-Florida does not have stock that is traded on a stock market as a separate entity. Therefore, there is no way to directly observe the value that investors would place on it, and so market-based models cannot be applied directly to Sprint-Florida. Instead, a group of market-traded companies is identified that, on average, are comparable in risk to Sprint-Florida and the DCF and Risk Premium models are applied to that group.

Q. How is this group of comparable-risk, market-traded companies identified?

A. It is a basic tenet of finance theory that investors' required returns, and the cost of common equity that reflects those returns, are a function of risk. No single, precise formula exists to directly measure risk, but various risk measures can be used to estimate general (and comparable) risk levels. Sprint utilizes four specific risk measures to obtain its group of comparable risk firms: the common equity ratio, the cash-flow-to-capital ratio, the pre-tax fixed

1 charge coverage ratio, and the revenues-to-net plant ratio. These
2 risk measurements capture both financial risk and business risk.
3 They are used as inputs to cluster analysis, which identifies a group
4 of twenty market-based firms that, on average, have risk
5 comparable to the risk measures of Sprint-Florida.

6

7 **Q. Please briefly describe how the four measures reflect relative**
8 **risk levels.**

9

10 A. The common equity ratio reflects financial risk by measuring the
11 amount of financial leverage. The ratio is simply the percentage of
12 total capital supplied by common stockholders, as opposed to
13 preferred stockholders and debt holders. All else held equal, the
14 higher the common equity ratio, the lower the risk to the
15 stockholder.

16

17 The cash-flow-to-capital ratio reflects both business risk and
18 financial risk. It provides information regarding the adequacy of
19 cash flow to the providers of capital. This ratio demonstrates the
20 quality of reported earnings levels. All else held equal, the higher
21 the cash-flow-to-capital ratio, the lower the risk to the stockholder.

22

1 The pre-tax fixed charge coverage ratio reflects both business risk
2 and financial risk by indicating the adequacy of earnings levels.

3 The ratio indicates the number of times (in terms of a multiple) that
4 fixed charges, including interest and preferred dividends, are
5 earned. All else held equal, the higher the pre-tax fixed charge
6 coverage ratio, the lower the risk to the stockholder.

7
8 Finally, the revenues-to-net plant ratio reflects business risk by
9 measuring the ability to generate revenues from fixed assets. The
10 ratio indicates net plant turnover and the degree to which resources
11 are employed to generate revenues. All else held equal, the higher
12 the revenues-to-net plant ratio, the lower the risk to the stockholder.

13

14 **Q. Please describe the cluster analysis that uses these measures.**

15

16 **A.** Cluster analysis is a statistical technique used to classify objects,
17 people, or, in this case, firms into categories based on similarity of
18 characteristics. In this instance, cluster analysis is used to narrow
19 a large universe of firms down to a specific, relatively small group of
20 firms that comes closest to exhibiting the targeted characteristic
21 (risk) of single firm, Sprint-Florida.

22

1 Sprint starts its cluster analysis with all firms available from
2 Standard and Poor's Research Insight. Firms are eliminated if they
3 are not market-traded, if they are not U.S. based, if they do not pay
4 dividends, or if there is insufficient data available to calculate risk
5 measures or required return on common equity. For this
6 proceeding, six hundred and thirty-five firms were identified as
7 meeting the criteria. The risk measures were obtained for these
8 firms, and then standardized. The cluster analysis calculates the
9 cumulative distance between each firm's standardized risk
10 measures and Sprint-Florida's standardized risk measures, and
11 identifies the firms having the shortest distance. The final group is
12 made up of the twenty companies whose risk measures cluster
13 around, or are literally closest to, the risk measures for Sprint-
14 Florida.

15
16 **Q. How do Sprint-Florida's risk measures compare to those of the**
17 **select group of firms?**

18
19 **A.** The comparable group of twenty companies, and the risk measures
20 for each, are shown in Exhibit BKS-5, as are the risk measures for
21 Sprint-Florida. The common equity ratios are determined as of
22 September 30, 2000. The other three risk measures are average
23 risk measures for 1998 and 1999. A two-year time period is used

1 because Sprint feels that it is necessary to examine cash flow,
2 earnings, and revenue-based risk measures over a period of time
3 long enough to avoid possible aberrations but short enough to be
4 relatively current.

5
6 Because the required returns on common equity for the group will
7 be averaged, the proper comparison is between Sprint-Florida's
8 risk measures and the group's average, rather than between Sprint-
9 Florida and any single firm in the group. Sprint-Florida's equity
10 ratio is 57.6%, compared to the group average of 54.8%. Sprint-
11 Florida's cash-flow-to-capital ratio is 40.2%, compared to the group
12 average of 36.3%. Sprint-Florida's pre-tax fixed charge coverage
13 ratio is 8.72 times, compared to the group average of 8.39 times.
14 And Sprint-Florida's revenues-to-net plant ratio is 78.2%, compared
15 to the group average of 222.9%. When making these comparisons,
16 it is important to understand that the goal of the cluster analysis is
17 to obtain a group of firm's whose combined, cumulative data (in this
18 case, risk) comes closest to the data of the target firm, Sprint-
19 Florida.

20
21 **Q. Why does Sprint not limit the universe of market-traded firms**
22 **for the cluster analysis to only those firms operating in the**
23 **telecommunications industry?**

1

2 A. Because of changes occurring within the industry—mergers,
3 acquisitions, diversification and bundling—the number of market-
4 traded firms that primarily provide LEC-type services is falling, and
5 the number of telecom firms that are purely representative of the
6 ILEC business is dwindling. As such, it is no longer appropriate to
7 assume that companies involved in providing telecommunications
8 services are generally facing the same types of business risk as
9 those faced by Sprint-Florida.

10

11 **Q. Then why not use, as a comparable group of firms, publicly**
12 **traded companies where a majority of revenues comes from**
13 **LEC-type services?**

14

15 A. While that approach might be superficially appealing, it is based on
16 a fallacious and foundationless notion that firms that operate in the
17 same industry, or “do the same thing”, automatically exhibit the
18 same risk characteristics. Plainly speaking, there is no reason to
19 assume that just because two firms provide the same service they
20 therefore face the same business risk and represent the same
21 investment risk to investors. If that were true, we would not
22 observe situations where one firm succeeds in an industry while a
23 similar, competing firm fails. Sprint’s approach to identifying

1 comparable-risk firms uses analysis applied to data that is
2 measurable, objective, and verifiable to determine comparable risk.
3 There are no assumptions involved. But choosing comparable
4 firms from the same industry simply because they do operate in the
5 same industry is an approach that is based solely on assumption.

6

7 **DISCOUNTED CASH FLOW (DCF) ANALYSIS**

8

9 **Q. Please describe the DCF approach used by Sprint in**
10 **determining the required return on common equity.**

11

12 **A.** The DCF model is a straightforward method of calculating an
13 investor's required return on common equity. It reflects this
14 required return because investors' consensus risk analysis, which
15 forms the basis for the required return, is embodied in the market
16 price of any stock. The DCF model is market-based, and it is
17 forward-looking. It implies that an asset's value is the expected
18 cash flow generated by the asset, discounted by the investor's
19 required return. In other words, the market value of common stock
20 equals the present value of the expected stream of future
21 dividends. Exhibit BKS-7 shows the general form of the DCF
22 model and, in Equation (5), the quarterly required return on
23 common equity for companies that pay dividends quarterly. The

1 corresponding annual return is shown in Equation (8). This version
2 of the DCF model is sometimes referred to as a quarterly DCF
3 model. Sprint's use of quarterly DCF model does not indicate or
4 imply that dividends are expected to increase quarterly. Rather, it
5 reflects the reality that quarterly dividends are expected to increase
6 annually at a rate equal to the average compounded quarterly
7 growth rate.

8

9 **Q. How does Sprint determine the current dividend yield for the**
10 **companies in the comparable-risk group?**

11

12 **A.** The current market value of a stock, as determined by investors
13 based on all available information, is reflected in the stock's current
14 price. But a change in the market price does not necessarily imply
15 a change in the required return on common equity. Rather, a price
16 change may simply reflect an adjustment of investors' beliefs
17 regarding a growth rate or expected dividends. When the DCF
18 model is used to estimate the required return on common equity it
19 is important to determine the current dividend yield and the
20 expected growth rate simultaneously. If an outdated, averaged,
21 historical stock price is combined with current growth expectations,
22 or an updated price is combined with past growth expectations, the
23 model's results can be biased. The same holds for using past

1 growth expectations along with historical average stock prices. For
2 each firm in the comparable group Sprint uses the most recent
3 quarterly dividend and the average closing stock market price from
4 January 22 through February 2, 2001. A two-week time period is
5 current enough to avoid the biases associated with historical,
6 outdated stock prices and corresponds to the time period of growth
7 rate determination. The quarterly dividend yields are presented in
8 Exhibit BKS-6.

9
10 **Q. How does Sprint determine the expected growth rate for the**
11 **companies in the comparable-risk group?**

12
13 A. DCF models require a growth rate that reflects the long run
14 dividend growth rate expected by investors. Although current
15 market prices reflect market-consensus expectations regarding
16 value, there is no specific method to directly measure market
17 consensus on expected long run growth rates. So it becomes
18 necessary to estimate expected long run dividend growth rates, and
19 there are a number of approaches to doing this. For its DCF model
20 Sprint uses the Institutional Brokers Estimate System (I/B/E/S)
21 consensus analysts growth rate estimates. I/B/E/S is an
22 investment research service of I/B/E/S, Inc., and is an often cited,
23 objective source of analysts forecast data. I/B/E/S produces the

1 consensus earnings growth expectations of financial analysts from
2 research departments of investment brokerage firms, in summary
3 form, every month. I/B/E/S growth rates are forward-looking,
4 expectation-based estimates of earnings growth.

5
6 The five-year average I/B/E/S earnings per share growth rates for
7 the companies in the comparable risk group are shown in Exhibit
8 BKS-6. These growth rates are the most recently available at the
9 time this analysis was conducted. For the group of comparable
10 firms there is an average of nine analysts' estimates per company
11 used to develop the consensus growth rate.

12
13 **Q. What is the relationship between dividend growth and**
14 **earnings growth, as estimated by I/B/E/S?**

15
16 A. The expected growth in dividends is a function of the expected
17 growth in earnings. In the short run, it is certainly possible that
18 dividends may grow at a rate that is greater or less than earnings
19 growth. One can observe this potential short run divergence in
20 companies that maintain a relatively stable dividend policy despite
21 greatly fluctuating earnings. But in the long run, dividends and
22 earnings must grow at the same rate. Any firm that increased
23 dividends at a higher rate than earnings would, in the long run,

1 eventually pay out more than it earns. So long run dividend growth
2 cannot be maintained without underlying long term earnings
3 growth, and since the DCF model is reflective of long term
4 expectations, it is the long run relationship between dividends and
5 earnings that matters most.

6

7 **Q. What is the average required return on common equity for the**
8 **comparable-risk group based on Sprint's DCF analysis?**

9

10 A. The average required return on common equity, as shown in
11 Exhibit BKS-6, for the comparable group based on Sprint's DCF
12 analysis, is 13.71%.

13

14 **RISK PREMIUM ANALYSIS**

15

16 **Q. Please describe the risk premium analysis that Sprint uses to**
17 **determine the required return on common equity.**

18

19 A. The risk premium approach is based on the well-known relationship
20 between risk and return of market-traded securities that I initially
21 referenced on page 6 of this testimony. Sprint uses a form of the
22 risk premium approach known as the Capital Asset Pricing Model
23 (CAPM). The CAPM is based on the theory that the required return

1 for a given security is equal to the return on a risk-free asset plus a
2 risk premium. It is consistent with the belief that investors tend to
3 be risk averse and that, all else held equal, if an investor faces the
4 choice of two assets providing the same expected return, the
5 investor will choose that asset that offers the least risk. And if an
6 investor chooses a riskier asset over a less-risky asset, it is
7 generally because the expected return on the risky asset is higher.

8

9 A standard specification of the CAPM is:

$$10 \quad R_j = R_f + B_j * (R_m - R_f)$$

11 Where...

12 R_j = the required return on stock j

13 R_f = the risk free return

14 R_m = the required return on the market portfolio, and

15 B_j = the measure of risk for stock j.

16 In order to use this model to obtain a required return on any stock,
17 it is necessary to determine the risk-free return, the market risk
18 premium (which is the difference between the required return on
19 the market portfolio and the risk free return, $R_m - R_f$), and the
20 appropriate company-specific risk measure, or beta, B_j . The risk-
21 free return is generally observable, but the market risk premium
22 and the company-specific risk measure, or beta, must be
23 estimated.

1

2 **Q. What does Sprint use as the risk-free return?**

3

4 A. Sprint uses the 5.77% average interest rate implied by the prices of
5 U.S. Treasury bond futures contracts for delivery during the period
6 March 2001 through March 2002 as traded on the Chicago Board
7 of Trade from January 22 through February 2, 2001. These are
8 shown in Exhibit BKS-8. Generally, these rates implied by the
9 prices on the futures contracts represent forward-looking
10 assessments made by the market of the risk-free return in the near-
11 term future. As such, they are more in keeping with the forward-
12 looking nature of Sprint's cost estimation than the use of current
13 rates would be.

14

15 **Q. Why does Sprint use Treasury bonds when measuring the**
16 **risk-free rate of return as opposed to U.S. Treasury bills?**

17

18 A. It is simply a question of choosing a security that has a duration, or
19 maturity period at issuance, that is most similar to common equity.
20 U.S. Treasury bills have a maturity period at issuance that ranges
21 from 3 months to 1 year, while U.S. Treasury bonds are used for
22 longer-term financing. U.S. Treasury bonds have maturity periods
23 at issuance over fifteen years, often twenty or thirty years.

1 Because common equity has a long-term time horizon, or the
2 equivalent of an infinite maturity period, it makes sense to use
3 bonds rather than bills since they are closer to matching the
4 duration of common equity. In addition, the market risk premium
5 used by Sprint utilizes long-term government bonds in its
6 calculation, not shorter-term instruments.

7
8 **Q. What does Sprint use as the market risk premium?**

9
10 A. Sprint bases its market risk premium on data from the Roger G.
11 Ibbotson series of risk premium studies, specifically the 2001
12 Stocks, Bonds, Bills and Inflation Classic Edition Yearbook.⁷ Sprint
13 uses a risk premium of 7.27% which is the risk premium of common
14 stock returns over U.S. Treasury bond returns based on market
15 results for 1926 through 2000, which is the entire period for which
16 data is available.

17
18 **Q. Why does Sprint utilize the entire period?**

19
20 A. It is a fact that different market risk premiums can be calculated by
21 subjectively altering the time period over which the data is taken.
22 For example, if Sprint used only the years 1995-1999 as the basis

⁷ 2001 Stocks, Bonds, Bills and Inflation Classic Edition Yearbook; Chicago, Illinois: Ibbotson Associates, Inc., 2001.

1 for its calculation the market risk premium would approach 20%.
2 Conversely, if Sprint used only the years 1960-1965, the market
3 risk premium would be less than 4%. Using data from 1940 to the
4 present produces a market risk premium above 8.2% while data
5 from 1990 to the present produces a market risk premium of 7.4%,
6 relatively close to Sprint's proposed number. To eliminate the
7 subjectivity that is associated with selecting one time period over
8 another, and to capture the widest possible set of economic
9 circumstances that can affect a market risk premium, Sprint
10 believes it is most appropriate to utilize all data available. The
11 7.27% market risk premium and the 5.77% risk free return produce
12 a current required return on a market portfolio of 13.04%.

13
14 As a test of reasonableness for the 13.04%, Sprint's conducts a
15 DCF analysis on all 635 firms included in the original cluster
16 analysis. Using the quarterly DCF model shown in Exhibit BKS-7,
17 recent quarterly dividends and stock prices, and the I/B/E/S growth
18 rates discussed above, the 635 dividend-paying firms produce an
19 average required return of 15.24%. This indicates that Sprint's
20 required return on a market portfolio of 13.04%, obtained through
21 the risk premium approach, is both appropriate and conservative.

22

1 **Q. What measure of risk is used to determine the risk premium**
2 **for the comparable group of firms?**

3
4 A. Sprint uses a *beta* as an objective measure of risk since betas are
5 well established as objective measures of risk in a portfolio context.
6 A beta equal to one (1) indicates that the risk associated with that
7 asset is equal to the market average risk level. And a beta greater
8 than (lower than) one indicates a risk level greater than (lower than)
9 the market average risk level. Sprint uses Value Line betas that
10 are published in The Value Line Investment Survey Summary and
11 Index dated February 2, 2001. The Value Line betas are computed
12 using sixty months of weekly returns, using the New York Stock
13 Exchange Composite Index as the market index. These betas for
14 each company in the comparable risk group are shown in Exhibit
15 BKS-9. The average comparable group beta is 0.91, and this is the
16 beta value used in Sprint's risk premium analysis.

17
18 **Q. What is the average required return on common equity for the**
19 **group of comparable risk firms based on Sprint's risk premium**
20 **analysis?**

21

1 A. As shown in Exhibit BKS-8, the required return on common equity
2 for the group of comparable risk firms is 12.40%, based on risk
3 premium analysis.

4

5 **REQUIRED RETURN ON COMMON EQUITY & COST OF EQUITY**

6

7 **Q. What is the required return on common equity for Sprint-**
8 **Florida based on the two distinct market-based analyses?**

9

10 A. Sprint's comparable risk group DCF analysis produces a required
11 return on common equity of 13.71%. Sprint's comparable risk
12 group risk premium analysis produces a required return on
13 common equity of 12.40%.

14

15 **Q. Does this range represent the cost of common equity for**
16 **Sprint-Florida?**

17

18 A. Not exactly, because neither value includes an increment for
19 issuance costs. To determine the cost of common equity, it is
20 necessary to add an increment for issuance costs to the required
21 return.

22

1 **Q. Why is an increment for issuance costs needed?**

2

3 A. When a company raises equity capital it incurs costs of
4 issuance—underwriting fees, legal costs, accounting costs, printing
5 costs, and more. Sprint-Florida does not issue common stock
6 directly to the public, but Sprint-Florida's parent company, Sprint
7 Corporation, does issue common stock publicly. Because Sprint
8 Corporation raises equity capital for the benefit of its subsidiary
9 entities, investors understand that issuance costs must be
10 recovered and that the parent company's subsidiary entities, such
11 as Sprint-Florida, will undertake and invest in projects that provide
12 a return intended to cover these issuance costs. Exhibit BKS-10
13 shows the Sprint Corporation common equity issues from 1967
14 through the present, and shows that the average issuance cost as
15 a percent of net proceeds is 4.9%.

16

17 **Q. How does Sprint quantify the rate of return increment for these**
18 **issuance costs?**

19

20 A. The issuance cost increment can be quantified using a standard
21 approach within the DCF model: the stock price component in the
22 model should be reduced by 4.9%. Holding all other variables
23 constant, this will produce an adjusted DCF result that is slightly

1 higher than the original. The difference between these two DCF
2 results represents the appropriate issuance cost increment. For
3 Sprint Corporation and its subsidiary entities, including Sprint-
4 Florida, the proper issuance cost increment is currently twelve (12)
5 basis points. This increment is based on the 4.9% issuance cost
6 ratio, the current Sprint FON group quarterly dividend of \$0.125, the
7 Sprint FON group stock price as of February 2001 of \$23.68, and
8 the I/B/E/S growth rate of 10.96%.

9
10 **Q. After incorporating the twelve basis point issuance cost**
11 **increment, what is Sprint's estimate for the cost of common**
12 **equity for Sprint-Florida?**

13
14 A. Sprint's estimate for the range of cost of common equity is 12.52%
15 to 13.83%. It is Sprint's position that the midpoint of this range,
16 13.18%, represents the most appropriate forward-looking market
17 based cost of common equity to be used in determining the
18 forward-looking cost of capital in this proceeding.

19
20 **RECOMMENDED COST OF CAPITAL**

21
22 **Q. In summary, what is Sprint's recommendation concerning the**
23 **cost of capital to be used in this proceeding for Sprint-Florida?**

1

2 A. In keeping with the forward-looking nature of the costing
3 methodology required for unbundled elements, Sprint strongly
4 recommends reliance on the weighted market value cost of capital.
5 The weighted-average cost of capital for Sprint-Florida is 12.38%
6 based on the market value capital structure shown in Exhibit BKS-
7 11 of 85.04% equity and 14.96% debt; the forward-looking market
8 value cost of common equity of 13.18%; and the forward-looking
9 market value cost of debt of 7.87%.

10

11 **Q. Does this conclude your testimony?**

12

13 A. Yes it does.

14

SPRINT - FLORIDA, INCORPORATED
BOOK VALUE CAPITAL STRUCTURE
AS OF DECEMBER 31, 2000

<u>Component</u>	<u>Amount</u>	<u>Book Value Ratio</u>
Debt	\$715,594,469	40.09%
Common Equity	\$1,069,371,557	59.91%
Total	<u>\$1,784,966,026</u>	<u>100.00%</u>

SPRINT - FLORIDA, INCORPORATED
COST OF DEBT
AS OF JANUARY 22 THROUGH FEBRUARY 2, 2001

<u>COMPONENT</u>	<u>COST RATE</u>
Risk-Free Return	5.77%
Credit Spread	2.02%
Issuance Cost Increment	0.08%
TOTAL	<u><u>7.87%</u></u>

Sources: Bloomberg Financial Markets

SPRINT - FLORIDA, INCORPORATED
MARKET VALUE CAPITAL STRUCTURE
AS OF JANUARY 22 THROUGH FEBRUARY 2, 2001

<u>Component</u>	<u>Amount</u>	<u>Market Value Ratio</u>
Debt	\$735,149,989	14.96%
Common Equity	\$4,179,983,036	85.04%
Total	<u>\$4,915,133,025</u>	<u>100.00%</u>

COMPARABLE GROUP
MARKET-TO-BOOK RATIOS
AS OF JANUARY 22 THROUGH FEBRUARY 2, 2001

<u>Company</u>	<u>Market Price</u>	<u>Number of Shares as of 9/30/00 (in Millions)</u>	<u>Market Value of Equity (in Millions)</u>	<u>Book Value of Equity as of 9/30/00 (in Millions)</u>	<u>Market to Book Ratio (x)</u>
Airborne	\$12.86	48.035	\$618.0	\$877.8	0.7
Alcoa	\$35.38	864.961	\$30,601.9	\$10,994.0	2.8
ALLTEL	\$62.93	312.655	\$19,675.7	\$5,009.8	3.9
Anheuser-Busch	\$41.81	902.043	\$37,711.4	\$4,090.9	9.2
Applebees Intl	\$33.18	25.223	\$836.9	\$268.1	3.1
AT&T	\$23.91	3,753.643	\$89,756.0	\$110,108.0	0.8
Avery Dennison	\$52.24	110.515	\$5,773.8	\$793.6	7.3
BellSouth	\$41.20	1,866.000	\$76,881.3	\$16,499.0	4.7
Briggs & Stratton	\$41.18	22.387	\$922.0	\$417.7	2.2
Delta Air Lines	\$46.19	122.952	\$5,679.8	\$5,706.0	1.0
Donnelley (R R) & Sons	\$26.72	122.041	\$3,261.2	\$1,194.8	2.7
Hershey Foods	\$58.71	136.096	\$7,989.6	\$1,099.6	7.3
Johns Manville	\$12.96	147.735	\$1,914.0	\$988.9	1.9
Kimberly-Clark	\$64.49	533.600	\$34,411.9	\$5,507.4	6.2
New York Times	\$42.11	164.880	\$6,943.6	\$1,258.5	5.5
PPG Industries	\$45.72	168.753	\$7,715.6	\$3,139.0	2.5
Procter & Gamble	\$70.52	1,307.900	\$92,231.7	\$12,328.0	7.5
Rohm & Haas	\$34.46	219.681	\$7,569.9	\$3,670.0	2.1
Sauer-Danfoss	\$9.92	45.312	\$449.3	\$334.9	1.3
SBC Communications	\$48.41	3,384.971	\$163,882.0	\$30,190.0	5.4
Average					<u>3.9</u>

Source: Compustat Research Insight.

COMPARABLE GROUP
RISK MEASURES

<u>Company</u>	<u>Common Equity Ratio (1)</u>	<u>Cash Flow to Capital Ratio (2)</u>	<u>Pre-Tax Fixed Charge Coverage Ratio (x) (2)</u>	<u>Revenues to Net Plant Ratio (2)</u>
Sprint - Florida	57.6%	40.2%	8.72	78.2%
<u>Comparable Group</u>				
Airborne	67.1%	38.4%	10.03	304.8%
Alcoa	57.0%	30.5%	8.28	186.4%
ALLTEL	53.9%	33.4%	5.13	124.4%
Anheuser-Busch	43.5%	33.6%	7.39	146.1%
Applebees Intl	71.7%	33.1%	8.63	202.0%
AT&T	62.3%	35.8%	11.29	201.1%
Avery Dennison	49.3%	39.3%	9.73	352.4%
BellSouth	45.2%	37.9%	6.81	101.3%
Briggs & Stratton	53.5%	40.3%	8.51	357.0%
Delta Air Lines	50.3%	43.6%	8.75	152.2%
Donnelley (R R) & Sons	51.1%	34.8%	5.99	295.8%
Hershey Foods	45.1%	33.7%	7.08	260.3%
Johns Manville	68.5%	31.6%	9.46	220.7%
Kimberly-Clark	61.6%	38.7%	9.47	212.5%
New York Times	54.7%	31.9%	11.06	232.1%
PPG Industries	52.5%	33.2%	9.35	263.3%
Procter & Gamble	46.9%	41.8%	9.08	311.4%
Rohm & Haas	48.3%	31.5%	8.57	193.8%
Sauer-Danfoss	60.3%	31.8%	5.96	225.1%
SBC Communications	53.4%	50.5%	7.24	115.0%
Average	54.8%	36.3%	8.39	222.9%

(1) The common equity ratios are as of September 30, 2000.

(2) The other risk measures are two-year averages for 1998 and 1999.

Source: Compustat Research Insight.

COMPARABLE GROUP
DISCOUNTED CASH FLOW ANALYSIS
AS OF JANUARY 22 THROUGH FEBRUARY 2, 2001

<u>Company</u>	<u>Current Quarterly Dividend</u>	<u>Current Stock Price</u>	<u>Current Quarterly Dividend Yield</u>	<u>W/B/E/S Annual Growth Rate</u>	<u>Number of Estimates</u>	<u>Quarterly Growth Rate</u>	<u>DCF Required Return on Common Equity</u>
Airborne	\$0.040	\$12.86	0.31%	11.13%	8	2.67%	12.50%
Alcoa	\$0.125	\$35.38	0.35%	14.60%	8	3.47%	16.25%
ALLTEL	\$0.330	\$62.93	0.52%	14.38%	12	3.42%	16.82%
Anheuser-Busch	\$0.165	\$41.81	0.39%	10.13%	16	2.44%	11.87%
Applebees Intl	\$0.027	\$33.18	0.08%	15.65%	13	3.70%	16.03%
AT&T	\$0.037	\$23.91	0.16%	10.00%	6	2.41%	10.69%
Avery Dennison	\$0.300	\$52.24	0.57%	12.75%	8	3.05%	15.38%
BellSouth	\$0.190	\$41.20	0.46%	11.35%	13	2.72%	13.40%
Briggs & Stratton	\$0.310	\$41.18	0.75%	8.00%	1	1.94%	11.28%
Delta Air Lines	\$0.025	\$46.19	0.05%	11.50%	4	2.76%	11.75%
Donnelley (R R) & Sons	\$0.230	\$26.72	0.86%	12.17%	6	2.91%	16.07%
Hershey Foods	\$0.280	\$58.71	0.48%	9.60%	10	2.32%	11.71%
Johns Manville	\$0.060	\$12.96	0.46%	11.33%	3	2.72%	13.41%
Kimberly-Clark	\$0.270	\$64.49	0.42%	11.33%	9	2.72%	13.21%
New York Times	\$0.115	\$42.11	0.27%	12.64%	11	3.02%	13.87%
PPG Industries	\$0.400	\$45.72	0.87%	7.99%	7	1.94%	11.82%
Procter & Gamble	\$0.350	\$70.52	0.50%	11.45%	11	2.75%	13.69%
Rohm & Haas	\$0.200	\$34.46	0.58%	11.29%	9	2.71%	13.89%
Sauer-Danfoss	\$0.070	\$9.92	0.71%	11.50%	2	2.76%	14.69%
SBC Communications	\$0.254	\$48.41	0.52%	13.46%	14	3.21%	15.87%
Average					9		13.71%

Sources: Bloomberg Financial Markets and IBES Express

THE DISCOUNTED CASH FLOW MODEL
GENERAL FORM AND QUARTERLY MODEL

In its general form, the discounted cash flow (DCF) model is stated as follows:

$$(1) P_o = \frac{D_1}{(1+k_e)} + \frac{D_2}{(1+k_e)^2} + \dots + \frac{D_t}{(1+k_e)^t} + \dots + \frac{D_n}{(1+k_e)^n}$$

where P_o = the current market price

where D_t = the expected dividend at the end of period t

where n = infinity, and

where k_e = the required return on common equity.

If it is anticipated that dividends will grow at the rate of g each period, then Equation (1) reduces to...

$$(2) P_o = \frac{D_1}{(k_e - g)}$$

where g = the expected growth rate.

Solving Equation (2) for k_e results in:

$$(3) k_e = \frac{D_1}{P_o} + g$$

And...

$$(4) k_e = \frac{D_o(1+g)}{P_o} + g$$

where D_o = the most recent dividend.

THE DISCOUNTED CASH FLOW MODEL
GENERAL FORM AND QUARTERLY MODEL (cont.)

It is important to note that Equations (1) through (4) are generic with regard to time period. Equation (4) should be implemented for the time period that best reflects actual dividend payments. For companies that pay dividends quarterly, a quarterly dividend DCF model is required.

To emphasize that dividends are paid quarterly, Equation (4) can be re-stated using time period subscripts:

$$(5) k_{eq} = \frac{D_{oq}(1+g_q)}{P_o} + g_q$$

where k_{cq} = the quarterly required return on common equity

where D_{oq} = the most recent quarterly dividend

where g_q = the expected quarterly growth rate

Quarterly and annual variables are related as follows:

$$(6) k_{eq} = (1+k_{ca})^{0.25} - 1$$

$$(7) g_q = (1+g_a)^{0.25} - 1$$

where k_{ca} = the annual required return on common equity

where g_a = the expected annual growth rate

Solving for k_{ca} results in:

$$(8) k_{ca} = (1+k_{eq})^4 - 1$$

RISK PREMIUM ANALYSIS
AS OF JANUARY 22 THROUGH FEBRUARY 2, 2001

<u>Company</u>	<u>Risk-free Return</u>	<u>Beta</u>	<u>Market Risk Premium</u>	<u>CAPM Required Return on Common Equity</u>
Sprint - Florida	5.77%	0.91	7.27%	12.40%

Sources: The Value Line Investment Survey Summary and Index, February 2, 2001, and Ibbotson Associates.

INTEREST RATES IMPLIED BY PRICES
ON U.S. TREASURY BOND FUTURES CONTRACTS
AS OF JANUARY 22 THROUGH FEBRUARY 2, 2001

<u>Delivery Month</u>	<u>Interest Rate</u>
March-01	5.72%
June-01	5.74%
September-01	5.77%
December-01	5.80%
March-02	5.82%
Average	<u>5.77%</u>

Source: Bloomberg Financial Markets.

VALUE LINE BETAS
AS OF FEBRUARY 2, 2001

<u>Ticker</u>	<u>Company</u>	<u>Beta</u>
ABF	Airborne	1.35
AA	Alcoa	0.90
AT	ALLTEL	0.80
BUD	Anheuser-Busch	0.70
APPB	Applebees Intl	0.90
T	AT&T	1.00
AVY	Avery Dennison	0.95
BLS	BellSouth	0.85
BGG	Briggs & Stratton	0.95
DAL	Delta Air Lines	1.15
DNY	Donnelley (R R) & Sons	0.85
HSY	Hershey Foods	0.60
JM	Johns Manville	0.95
KMB	Kimberly-Clark	0.85
NYT	New York Times	1.05
PPG	PPG Industries	1.05
PG	Procter & Gamble	0.80
ROH	Rohm & Haas	0.95
SHS	Sauer-Danfoss	0.75
SBC	SBC Communications	0.85
Average		<u>0.91</u>

Sources: The Value Line Investment Survey Summary and Index, February 2, 2001.

SPRINT CORPORATION
COMMON STOCK ISSUANCE COSTS
JANUARY 1967 THROUGH FEBRUARY 2001

<u>Date of Issue</u>	<u>Number of Shares (Millions)</u>	<u>Offering Price Per Share</u>	<u>Issuance Costs Per Share</u>	<u>Net Proceeds Per Share</u>	<u>Issuance Costs as a Percent of Net Proceeds</u>
2/4/99	24.403	\$28.750	\$1.203	\$27.670	4.3%
6/21/85	5.000	\$23.625	\$0.732	\$22.893	3.2%
9/12/75	2.500	\$13.000	\$0.593	\$12.407	4.8%
10/31/74	2.300	\$12.625	\$0.807	\$11.818	6.8%
12/8/71	1.500	\$18.000	\$0.789	\$17.211	4.6%
10/6/70	1.500	\$17.500	\$1.091	\$16.409	6.6%
12/2/69	1.000	\$22.000	\$1.076	\$20.924	5.1%
6/6/67	1.200	\$30.000	\$1.116	\$28.884	3.9%
AVERAGE					<u><u>4.9%</u></u>

Note: The data has not been adjusted for the 1989 two-for-one stock split. The data excludes issuances through the Employee Stock Purchase Plan, the Employee Stock Ownership Plan, the Automatic Dividend Reinvestment Plan, and incentive stock option plans, as well as stock issued for acquisitions.

Source: Sprint Corporation (formerly United Telecommunications, Inc.) Prospectuses.

SPRINT - FLORIDA, INCORPORATED
WEIGHTED MARKET VALUE COST OF CAPITAL
MARKET VALUE CAPITAL STRUCTURE AND COST RATES
AS OF JANUARY 22 THROUGH FEBRUARY 2, 2001

<u>Component</u>	<u>Amount</u>	<u>Market Value Ratio</u>	<u>Cost Rate</u>	<u>Weighted Cost Rate</u>
Debt	\$735,149,989	14.96%	7.87%	1.18%
Common Equity	\$4,179,983,036	85.04%	13.18%	11.21%
Total	<u>\$4,915,133,025</u>	<u>100.00%</u>		<u>12.38%</u>

SPRINT TELRIC UNE MODEL OVERVIEW

I. INTRODUCTION

The Sprint TELRIC UNE Model is an Excel spreadsheet model. All inputs and calculations are readily observable. The model consists of nine individual modules. A flow-chart of the Sprint TELRIC UNE Model is shown in Attachment 1.

The Sprint TELRIC UNE Model can be run by opening the TELRICSM.XLS spreadsheet, clicking on the "PROCESS" button, selecting the input file "INPFLUNE.XLS", and clicking on the "Process Study" button. There is also a "Help" button which provides a model description.

A brief description of each module follows.

1. Input (INPFLT00.xls) – This module contains all of the inputs required to run any of the following modules. All spreadsheets are populated in this study. The Input Module also includes the Price List for unbundled network element rates.
2. Avoided Cost Study (ACS00FL.xls) – This module calculates the amount of retail related expenses by account and develops a discount percentage for each resold wholesale service. The retail-related expenses calculated in this model are used in the Other Direct and Common Costs module to reduce

Total Regulated expenses in the calculation of other direct expenses for each unbundled network element and the common cost factor applicable to all elements.

3. Other Direct and Common Costs (ODC) (ODC04.xls) – This module assigns other direct expenses to each unbundled network element, and calculates a single common cost factor applicable to all unbundled network elements.
4. Annual Charge Factor (ACF) (ACF04.xls) – This module calculates an annual charge factor for each type of plant. This factor includes the other direct expenses calculated in the ODC module.
5. Switching (Switch04. xls) – This module calculates the cost and rate for unbundled end office switching, end office termination, and tandem switching.
6. Transport (Trans04. xls) – This module calculates the cost of common transport for both unbundled transport and reciprocal compensation.
7. Loop (Loop04.xls) – This module calculates the cost on analog 2-wire and 4-wire loops.
8. NID (Network Interface Device) (NID04.xls) – This module calculates the cost of three types of Network Interface Devices: 6-Line, 25-Line Building Terminals, and Smart Jacks.
9. SS7 (SS704.xls) – This module calculates the cost of STP Ports and Switching.
10. Multiplexing (MUX04.xls) – This module calculates the cost of multiplexing, channel banks, and channel units.

II. INPUT MODULE

The Input Module is described in Section II of the documentation.

III. SWITCHING MODULE: END-OFFICE TERMINATING SWITCHING

The Sprint TELRIC UNE Model contains a module titled "Switching." The Switching Module takes total investment derived from the Bellcore SCIS (Switching Cost Information System) model, and combines it with actual usage information to derive TELRIC results for each host office complex.

The Switching Module consists of twenty worksheets. Note that the process is repeated for each individual host office complex. Once the model has completed its calculations for each office, a summary report is produced. However, the data associated with the last office remains in the model itself, which allows the analyst to more easily review the calculations.

1. VARIABLES WORKSHEET

The TELRIC methodology for switching consists of five basic steps. The five worksheets Variables, Processor, Expenses, SetUp, and MOU, show the calculations for one particular switch. This process is repeated for each switch studied.

The first step is to determine the total forward-looking switching investment and demand for each central office switch.

Forward looking investment is determined using the SCIS model. Individual Nortel DMS-100/200 switches are modeled, assuming a minimum Supernode-60 processor capability. Supernode-60 is the minimum processor size currently supported by Nortel. Although earlier vintage processors may be currently in use, they represent obsolete technology and do not represent forward-looking technology as required by TELRIC standards. The Nortel switch represents the predominant technology deployed by Sprint.

This investment is segregated into six investment categories. These are:

1. Processor - the investment associated with the set-up of calls.
2. Fixed Line - the investment required to terminate the local loop in the central office. It is composed primarily of a line card, the main distribution frame, and protector.
3. Line Usage - the investment associated with usage sensitive line-side switching. It is composed primarily of the line concentrating module, DS-30A links, line group controller, DS-30 links, and the network module.
4. Trunk Usage - the investment with usage sensitive trunk-side switching. It is composed primarily of digital trunk controllers, DS1 links, and the network module.
5. Umbilical Usage - the usage sensitive investment necessary to operate the host-remote links.

6. SS7 Link - investment associated with the SSP (Service Signaling Point) located in the central office.

This investment information is summarized on the "Variables" worksheet.

The SCIS model considers only the hardware investment in the central office. One-time software investment required to provide basic switching functionality must also be included and is provided to Sprint by the vendors.

Demand data for MOU and call set-ups is derived from traffic studies. This information is also shown on the "Variables" worksheet.

2. PROCESSOR WORKSHEET

The second step is to determine the number of processor milliseconds required to process each type of call. This information, shown on the "Processor" worksheet, is proprietary to the vendor.

3. EXPENSES WORKSHEET

The third step is to derive monthly expense per investment category by multiplying the investment by the appropriate forward-looking annual charge factor. This is shown on the "Expenses" worksheet. The development of the annual charge factor is discussed in Section XII.

4. SETUP WORKSHEET

The fourth step is to calculate the cost per call set-up per call type. This is done by determining the total processor cost per call type, and dividing by the appropriate MOU. The result is a processor cost per MOU for both the line-side and trunk-side of the central office. This calculation is shown the "Set-Up" worksheet.

5. MOU WORKSHEET

The fifth step is to calculate the cost per MOU per call type. This is done by determining the total CCS (Centum or 100 Call Seconds) investment by call type, and dividing by the appropriate MOU. The result is a cost per CCS for both the line-side and trunk-side of the central office. This calculation is shown on the "MOU" worksheet.

6. COST SUMMARY WORKSHEET

The TELRIC results for each central office are summarized in the "Cost Summary" worksheet in the Switching Module.

The TELRIC switching results are segregated into two distinct cost zones:

1. Host offices, and
2. Remote offices outside of the host office's exchange.

Switch costs are provided on an exchange basis. Each exchange reflects the cost characteristics of the switch providing service to that exchange. Host switches generally require less investment per line than remotes due to economies of scale. In addition, there are additional costs associated with remote switches, including processor, power, and umbilical investment. Thus these two cost zones reflect the cost differences between exchanges served by a host, and exchanges served solely by a remote.

7. LOCAL SWITCHING WORKSHEET

The "Local Switching" worksheet shows the calculation for one particular switch for both the port and usage components of local switching. The port cost is equal to the line termination cost while the usage cost is equal to the processor cost plus the CCS cost associated with the line, trunk, and host-remote umbilical.

8. LS (LOCAL SWITCHING) MOU WORKSHEET

The "LS (Local Switching) MOU" worksheet summarizes the minutes of use and number of lines (both in exchange and out of exchange) for each host switch.

9. LS (LOCAL SWITCHING) RATE BANDS WORKSHEET

The "LS (Local Switching) Rate Bands" worksheet shows the banded TELRIC results for the port and usage local switching elements.

10. UNE PORT WORKSHEET

The "UNE Port" worksheet shows the calculations for the cost of the various port types offered (e.g., Residential, Business, PBX, ISDN).

11. CALL TERMINATION WORKSHEET

The "Call Termination" worksheet shows the calculation for one particular switch. Both the per call attempt cost (processor set-up cost) and the per minute of use cost (the CCS cost associated with the line, trunk, and host-remote umbilical) are calculated on this worksheet.

12. CT (CALL TERMINATION) MOU SUMMARY WORKSHEET

The TELRIC results for call termination per minute of use for each host office are summarized in the "CT (Call Termination) MOU Summary" worksheet. Sprint calculated a single weighted average cost of end office call termination for its entire

service area, as can be seen at the top of the worksheet. The common cost factor, as discussed in Section XI, is included.

13. CT (CALL TERMINATION) CA (CALL ATTEMPTS) SUMMARY WORKSHEET

The TELRIC results for call termination per call attempt for each central office are summarized in the "CT (Call Termination) CA Summary" worksheet. Sprint calculated a single weighted average cost of end office call termination for its entire service area, as can be seen at the top of the worksheet. The common cost factor, as discussed in Section XI, is included.

14. SWITCHING SUMMARY WORKSHEET

The "Switching Summary" worksheet summarizes the cost of the various switching elements (e.g., ports, end office switching, call termination, and tandem switching) calculated within the Switching Module.

IV. SWITCHING MODULE: TANDEM SWITCHING

The methodology is the same as for end-office terminating switching, as discussed in Section III.

1. TANDEM SWITCHING WORKSHEET

The "Tandem Switching" worksheet shows the calculation for one particular switch. Both the per call attempt cost (processor set-up cost) and the per minute of use cost (two trunk CCS costs, one for incoming and one for outgoing functions of the tandem switch) are calculated on this worksheet.

2. TANDEM SWITCHING MOU SUMMARY WORKSHEET

The TELRIC results for tandem switching per minute of use for each tandem office are summarized in the "Tandem Switching MOU Summary" worksheet. Sprint calculated a single weighted average cost of tandem switching for its entire service area, as can be seen at the top of the worksheet. The common cost factor, as discussed in Section XI, is included.

3. TANDEM SWITCHING CALL ATTEMPT SUMMARY WORKSHEET

The TELRIC results for tandem switching per call attempt for each tandem office are summarized in the "Tandem Switching Call Attempt Summary" worksheet. Sprint calculated a single weighted average cost of tandem switching for its entire service area, as can be seen at the top of the worksheet. The common cost factor, as discussed in Section XI, is included.

4. SUMMARY OF TANDEM SWITCHING COSTS WORKSHEET

The "Summary of Tandem Switching Costs" Worksheet summarizes the statewide average UNE tandem switching costs. The common cost factor, as discussed in Section XI, is included.

V. SWITCHING MODULE: FEATURES

1. CCF (CUSTOM CALLING FEATURES) WORKSHEET

The "CCF (Custom Calling Features)" worksheet calculates the TELRIC cost of custom calling features on a statewide level, based on the required SCIS hardware, software, and SS7 investment.

2. CLASS FEATURES WORKSHEET

The "CLASS Features" worksheet calculates the TELRIC cost of CLASS features on a statewide level, based on the required SCIS hardware, software, and SS7 investment.

3. CENTREX FEATURES WORKSHEET

The "Centrex Features" worksheet calculates the TELRIC cost of Centrex features on a statewide level, based on the required SCIS hardware, software, and SS7 investment.

VI. TRANSPORT MODULE

The Transport Module determines the TELRIC of interoffice transport, individually for each fiber optic transmission ring.

The Transport Module consists of twenty-two worksheets. Note that the process is repeated for each individual transport ring. Once the model has completed its calculations for each ring, a summary report is produced. However, the data associated with the last transport ring remains in the model itself, which allows the analyst to more easily review the calculations.

1. MATERIAL ACF, RTE INFO, ASSUMPTION, & RINGS WORKSHEETS

The Transport Module contains four input worksheets: "Material ACF", "RTE Info", "Assumption", and "Rings". These sheets simply retrieve information from the Input Module for processing within the Transport Module.

2. WORKSHEETS A - H

There are four basic steps to the Transport Module calculations. The first step is performed by Worksheet A, which converts the total utilized capacity of each type of transmission equipment into a cost per DS1.

The second step is performed by Worksheet B, which calculates the costs of each of seven types of interconnections over the applicable transport systems.

The third step is performed by Worksheet C, which calculates the cost per route-mile of fiber facilities, or transit. This cost includes the costs of providing route diversity, or protection.

The fourth step is performed by Worksheets D through H. The termination and transit costs of each fiber ring are determined using the information in Worksheets A, B, and C. The end result is the termination and transit costs of DS1 transport for that individual transport ring.

3. SUMMARY WORKSHEETS

There are seven summary worksheets contained in the Transport Module: "DS0 Summary", "DS1 Summary", "DS3 Summary", "OC3 Summary", "OC12 Summary", "Summary", and "Weighted Termination/Distance Summary". The first six worksheets each contain the termination and transit cost of the various bandwidths of transport for each individual ring. The "Weighted Termination/Distance

Summary" worksheet calculates a weighted average for termination and transit costs, by bandwidth, and then applies the weighted averages to each ring modeled to calculate the cost per ring for each bandwidth. The common cost factor, discussed in Section XI, is included in these worksheets.

4. COMMON RATE WORKSHEET

The "Common Rate" worksheet combines three pieces of information. First is the individual routes to be priced, which are copied from the "Trans Routes" worksheet of the Input Module. Second is the actual ring (one or more) used by the route, which is also copied from the "Trans Routes" worksheet. Third is the termination and transit cost of each ring, which is copied from the "DS1 Summary" worksheet. The result is the DS1 cost for each individual transport route.

Route-specific DS1 costs are converted into a rate for common transport in the following manner: The cost per common transport MOU is equal to the average DS1 ring cost, weighted across all routes, divided by 216,000 MOU per DS1. 216,000 MOU per DS1 is equal to 9,000 MOU per DS0 times 24 voice-grade circuits per DS1, as assumed by the FCC's 96-98 Order:

Specifically, when the transport rate restructure was implemented, the initial levels of tandem-switched transmission rates were presumed reasonable if they were based on a weighted per-minute equivalent of direct-trunked transport DS1 and DS3 rates that reflects the relative number of DS1 and DS3 circuits used in the tandem to end office links, calculated using a loading factor of 9000 minutes per month per voice-grade circuit. (Paragraph 822, Footnote 1949)

Note that in the May 16, 1997 Order on Access Charge Reform, paragraphs 206 - 209, the FCC indicated that this factor may be too high. A lower factor would increase costs. Thus Sprint's use of this FCC-derived factor results in a lower rate.

5. DEDICATED RATE WORKSHEET

The "Dedicated Rate" worksheet is similar to the "Common Rate" worksheet in that the individual routes to be priced and the actual rings used by the route are combined with the termination and transit cost of each ring. However, in this worksheet, the cost of DS3, OC3, and OC12 circuits, as well as DS1 circuits, are copied from the appropriate summary worksheet.

6. INVESTMENT SUMMARY WORKSHEET

The "Investment Summary" worksheet summarizes the Circuit Equipment and Cable and Wire Facilities investment by ring and in total for the entire company.

VII. LOOP MODULE

The Loop module determines the TELRIC of unbundled local loops, individually for each wire center. The Loop module consists of fifteen worksheets.

1. VARIABLES WORKSHEET

The "Variables" worksheet retrieves the Annual Charge Factors for each type of plant, the Common Cost Factor, and other miscellaneous inputs required to calculate monthly loop costs.

2. 2-WIRE LOOP MONTHLY COST WORKSHEET

The "2-Wire Loop Monthly Cost" worksheet retrieves loop investment and line counts by wire center from the Input Module and, using the appropriate Annual Charge Factors, calculates a monthly cost per 2-Wire loop for each wire center. The common cost factor, discussed in Section XI, is added in this worksheet.

3. UNEP 2-WIRE LOOP MONTHLY COST WORKSHEET

The "UNEP 2-Wire Loop Monthly Cost" worksheet retrieves loop investment and line counts by wire center from the Input Module and, using the appropriate Annual Charge Factors, calculates a monthly cost per UNEP 2-Wire loop for each wire center. The common cost factor, discussed in Section XI, is added in this worksheet.

4. 4-WIRE LOOP MONTHLY COST WORKSHEET

The "4-Wire Loop Monthly Cost" worksheet retrieves loop investment and line counts by wire center from the Input Module and, using the appropriate Annual Charge Factors, calculates a monthly cost per 4-Wire loop for each wire center. The common cost factor, discussed in Section XI, is added in this worksheet.

5. DS-0 56/64KBPS LOOP MONTHLY COST WORKSHEET

The "DS-0 56/64Kbps Loop Monthly Cost" worksheet retrieves loop investment and line counts by wire center from the Input Module and, using the appropriate Annual Charge Factors, calculates a monthly cost per DS-0 56/64Kbps loop for each wire center. The common cost factor, discussed in Section XI, is added in this worksheet.

6. DS-1 LOOP MONTHLY COST WORKSHEET

The "DS-1 Loop Monthly Cost" worksheet retrieves loop investment and line counts by wire center from the Input Module and, using the appropriate Annual Charge Factors, calculates a monthly cost per DS-1 loop for each wire center. The common cost factor, discussed in Section XI, is added in this worksheet.

7. ISDN-BRI/IDSL LOOP MONTHLY COST WORKSHEET

The "ISDN-BRI/IDSL Loop Monthly Cost" worksheet retrieves loop investment and line counts by wire center from the Input Module and, using the appropriate Annual Charge Factors, calculates a monthly cost per ISDN-BRI/IDSL loop for each wire center. The common cost factor, discussed in Section XI, is added in this worksheet.

8. UNEP ISDN-BRI/IDSL LOOP MONTHLY COST WORKSHEET

The "UNEP ISDN-BRI/IDSL Loop Monthly Cost" worksheet retrieves loop investment and line counts by wire center from the Input Module and, using the appropriate Annual Charge Factors, calculates a monthly cost per UNEP ISDN-BRI/IDSL loop for each wire center. The common cost factor, discussed in Section XI, is added in this worksheet.

9. SUB-LOOP LOOP MONTHLY COST WORKSHEET

The "Sub-Loop Loop Monthly Cost" worksheet retrieves loop investment and line counts by wire center from the Input Module and, using the appropriate Annual Charge Factors, calculates a monthly cost per sub-loop loop for each wire center. The common cost factor, discussed in Section XI, is added in this worksheet.

10. DARK FIBER LOOP MONTHLY COST WORKSHEET

The “Dark Fiber Loop Monthly Cost” worksheet retrieves loop investment and line counts by wire center from the Input Module and, using the appropriate Annual Charge Factors, calculates a monthly cost per Dark Fiber loop for each wire center. The common cost factor, discussed in Section XI, is added in this worksheet.

11. INTEROFFICE DARK FIBER LOOP MONTHLY COST WORKSHEET

The “Interoffice Dark Fiber Loop Monthly Cost” worksheet retrieves loop investment and line counts by wire center from the Input Module and, using the appropriate Annual Charge Factors, calculates a monthly cost per Interoffice Dark Fiber loop for each wire center. The common cost factor, discussed in Section XI, is added in this worksheet.

12. LOOP BANDING WORKSHEET

The “Loop Banding” worksheet displays the results of the loop banding calculations performed in the “Loop Banding - Calculation” worksheet.

13. LOOP BANDING - CALCULATION WORKSHEET

The "Loop Banding - Calculation" worksheet sorts the wire centers in the study in ascending order of TELRIC Loop cost per line and permits the user to group the wire centers into classes which have similar cost characteristics.

14. LOOP RATE BANDS SUMMARY WORKSHEET

The "Loop Rate Bands Summary" worksheet summarizes the results for all types of loops by rate band. The common cost factor is added to all banded costs in order to produce the loop prices by band.

VIII. SS7 MODULE

The SS7 module calculates the monthly recurring cost of access to regional STP ports and STP trunk switching, as well as the per-query cost for access to Local Number Portability (LNP), Toll-Free Calling (8XX), Line Identification (LIDB), and Calling Name Delivery (CNAM) databases. The SS7 module consists of seven worksheets.

1. STP PORT AND LINK CALCULATIONS WORKSHEET

The "STP Port and Link Calculations" worksheet calculates the monthly recurring cost of regional STP ports and STP trunk switching, based on the investment, capacity, and utilization of the various components of STP ports and switching.

2. LNP DATABASE QUERY SERVICE WORKSHEET

The "LNP Database Query Service" worksheet calculates the Local Number Portability (LNP) cost per query based on LNP investment, LNP expense, and annual volume of LNP queries.

3. TOLL FREE CODE DATABASE QUERY SERVICE WORKSHEET

The "Toll Free Code Database Query Service" worksheet calculates the Toll Free Calling (8XX) cost per query based on total Intelligent Network investment and the annual volume of 8XX, LIDB, and CNAM queries.

4. BILLED NUMBER SCREENING ACCESS SERVICE WORKSHEET

The "Billed Number Screening Access Service" worksheet calculates the Line Identification Database (LIDB) cost per query based on total Intelligent Network investment, the annual volume of 8XX, LIDB, and CNAM queries, and LIDB expense.

5. CALLING NAME DATABASE ACCESS WORKSHEET

The "Calling Name Database Access" worksheet calculates the Calling Name Database (CNAM) cost per query based on total Intelligent Network investment, the annual volume of 8XX, LIDB, and CNAM queries, and CNAM expense.

6. NATIONAL TRAFFIC SENSITIVE INVESTMENT WORKSHEET

The "National Traffic Sensitive Investment" worksheet calculates the switching and transport costs related to the National STP investment used in LNP, Toll Free, LIDB, and CNAM queries.

7. REGIONAL TRAFFIC SENSITIVE INVESTMENT WORKSHEET

The "Regional Traffic Sensitive Investment" worksheet calculates the switching and transport costs related to the Regional STP investment used in LNP, Toll Free, LIDB, and CNAM queries.

IX. NID MODULE

The NID module calculates cost of three types of Network Interface Devices: 6-Line NID, 25-Line Building Terminal, and Smart Jacks. The NID module consists of four worksheets: "NIDLine6", "NIDLine25", "SmartJack" and "Investment Summary".

The first three worksheets calculate the cost (including common costs) of the three

types of Network Interfaces, based on inputs pulled from the Input module, while the "Investment Summary" worksheet calculates a total company investment in NIDs.

X. MUX MODULE

The MUX (Multiplexing) module calculates the cost of multiplexing, channel banks, and channel units.

XI. ACS (AVOIDED COST STUDY) MODULE

The ACS (Avoided Cost Study) module calculates the level of retail-related expenses by account, based on a relevant activity-based driver, and develops a discount percentage for each resold wholesale service. In addition, the retail-related expenses determined in this model are used in the Other Direct and Common Module in the calculation of the Other Direct and Common Cost factors.

XII. ODC (OTHER DIRECT AND COMMON) MODULE

The Sprint TELRIC UNE Model contains a module titled "ODC." The ODC (Other Direct and Common) Module uses actual General Ledger expense information and creates two factors. First is an Other Direct factor which is added to the direct costs

determined in the ACF Module (discussed in Section XII) to create a total Annual Charge Factor for each type of plant.

The second factor is the Common Cost factor, which is added to the TELRIC cost to derive the total economic cost of the network element, which is also the price.

The ODC Module consists of eight worksheets. A description of each follows:

1. EXPENSES WORKSHEET

The ODC methodology consists of four steps. The first step is to identify each General Ledger account as either a direct expense, other direct expense, common expense, or excluded (non-UNE related). Each account is labeled "D", "O", "C", or "E", respectively. Examples of direct expenses include

- Central office switching (621X)
- Operator systems (6220)
- Central office transmission (623X)
- Cable & wire facilities (64XX)
- Depreciation associated with direct investment (656X)

Other direct expenses include

- Network support (excluding aircraft) (611X)
- Land and Building associated with used CO (6121)
- Provisioning (6512)
- Network operations (653X)
- Portions of following accounts:

- Marketing (661X)
- Services (662X)
- Depreciation associated with indirect investment (656X)
- Return and taxes associated with indirect investment
- Revenues (contra expenses) associated with service connection, pole attachments and rent revenue

Common expenses include

- Furniture (6122)
- Office Equipment (6123)
- General Purpose Computers (6124)
- Executive and Planning (671X)
- General and Administrative (672X)
- Return and taxes associated with 6113 - 6124

Excluded expenses include

- Land and building associated with unused CO (6121)
- Station apparatus (6311)
- Large PBX (6341)
- Public Telephone Terminal Equipment (6351)
- Other terminal equipment (6362)
- Access expense (6540)
- Foreign Directory (portion of 6622)
- Customer instruction (6623.01)
- Paystation expenses (6623.05, 6623.7)
- Corporate overheads associated with excluded expenses (671X)

Direct expenses are reflected in the TELRIC annual charge factor, which is calculated in the ACF (Annual Charge Factor) Module of the Sprint TELRIC UNE Model. Direct costs are identified here and removed from the analysis to prevent double-recovery of these expenses.

2. INVESTMENT WORKSHEET

The second step is to develop a direct investment base for each network element. The General Ledger investment accounts are identified as direct, other direct, common, or excluded, in the same manner as the expense accounts. Each investment account is assigned to a network element based upon one of several drivers, as indicated in the "Assignment Driver" column. The drivers themselves are found on the "Drivers" Worksheet.

3. OTHER DIRECT EXPENSES WORKSHEET

The third step is to assign each other direct expense account to the network elements based upon one of several drivers, as indicated in the "Assignment Driver" column. The assignment drivers themselves may be a driver found on the "Drivers" worksheet, or an investment account.

Return and taxes are also accounted for in this spreadsheet.

In the fourth step, the total other direct expenses associated with each network element is divided by the TELRIC investment (found on the "Drivers" worksheet) associated with that network element to derive the other direct factor. Since this is stated as a percent of investment, it can be added to the direct expense factor

developed in the ACF Module to derive a total Annual Charge Factor (see Section XII).

4. DRIVERS WORKSHEET

The “Drivers” worksheet shows the four main drivers used to assign expenses and investments to the individual network elements. These four drivers are:

- TELRIC Investment – The TELRIC investment associated with each network element is calculated by the corresponding module within the Sprint TELRIC UNE Model.
- TELRIC Cost – The total expenses associated with the network element, including return and taxes.
- TELRIC Expenses – The total expenses associated with the network element, excluding return and taxes.
- Building Usage Analysis – A one-time special study of building use.

5. COMMON EXPENSES WORKSHEET

Common costs cannot be allocated logically to individual network elements. Thus the Sprint TELRIC UNE Model develops a single common cost factor which is applied to each network element. Since common costs are applied to the TELRIC

cost (not investment), the common cost factor is calculated and applied on a percent of TELRIC cost basis.

6. DIRECT EXPENSES WORKSHEET

The Direct Expenses worksheet identifies the book expenses related to direct maintenance, and is shown for informational purposes only.

7. EXCLUSIONS WORKSHEET

Not all general ledger expenses are included in this analysis. Excluded expenses, as detailed on this worksheet, are as follows:

Direct Expenses – As already discussed in Section XI.1, certain direct expenses are excluded from the analysis because they are non-UNE related.

Other Direct Expenses – Three types of expenses are excluded. First, the amounts associated with non-recurring revenue and shared facilities (service connection and rent revenues) are deducted from the other direct expenses to prevent double-recovery of these expenses.

Second, all direct retail marketing expenses (the majority of accounts 6611, 6612, 6613, and 6623) are excluded from the other direct expenses.

Third, a portion of other direct expenses are excluded because they are assigned to the excluded accounts such as CPE (as discussed in Section XI.1).

Common Costs – Two types of expenses are excluded. First, since a portion of Other Direct expenses is excluded because they are retail-related, it is assumed that an equal proportion of common expenses will also be excluded.

Second, since a portion of Other Direct expenses is excluded because they are non-UNE related, it is assumed that an equal proportion of common expenses will also be excluded.

8. SUMMARY WORKSHEET

The "Summary" worksheet simply a one-page exhibit which shows the results of the other direct and common cost factor calculations in an abbreviated form.

XIII. ACF (ANNUAL CHARGE FACTOR) MODULE

The Sprint TELRIC UNE Model contains a module titled "ACF" (Annual Charge Factor). The ACF Module is a levelizing model, which projects total expenses and demand over the expected economic life of the investment, and restates these projections to current dollars using a discount rate equal to the cost of capital.

The ACF Module consists of four worksheets.

1. ROR (RATE OF RETURN) WORKSHEET

The "ROR (Rate of Return)" worksheet contains the calculation of the book depreciation and cost of money components of the Annual Charge Factor for each class of plant.

2. INCOME TAXES WORKSHEET

The "Income Taxes" worksheet contains the calculation of the income tax component of the Annual Charge Factor for each class of plant.

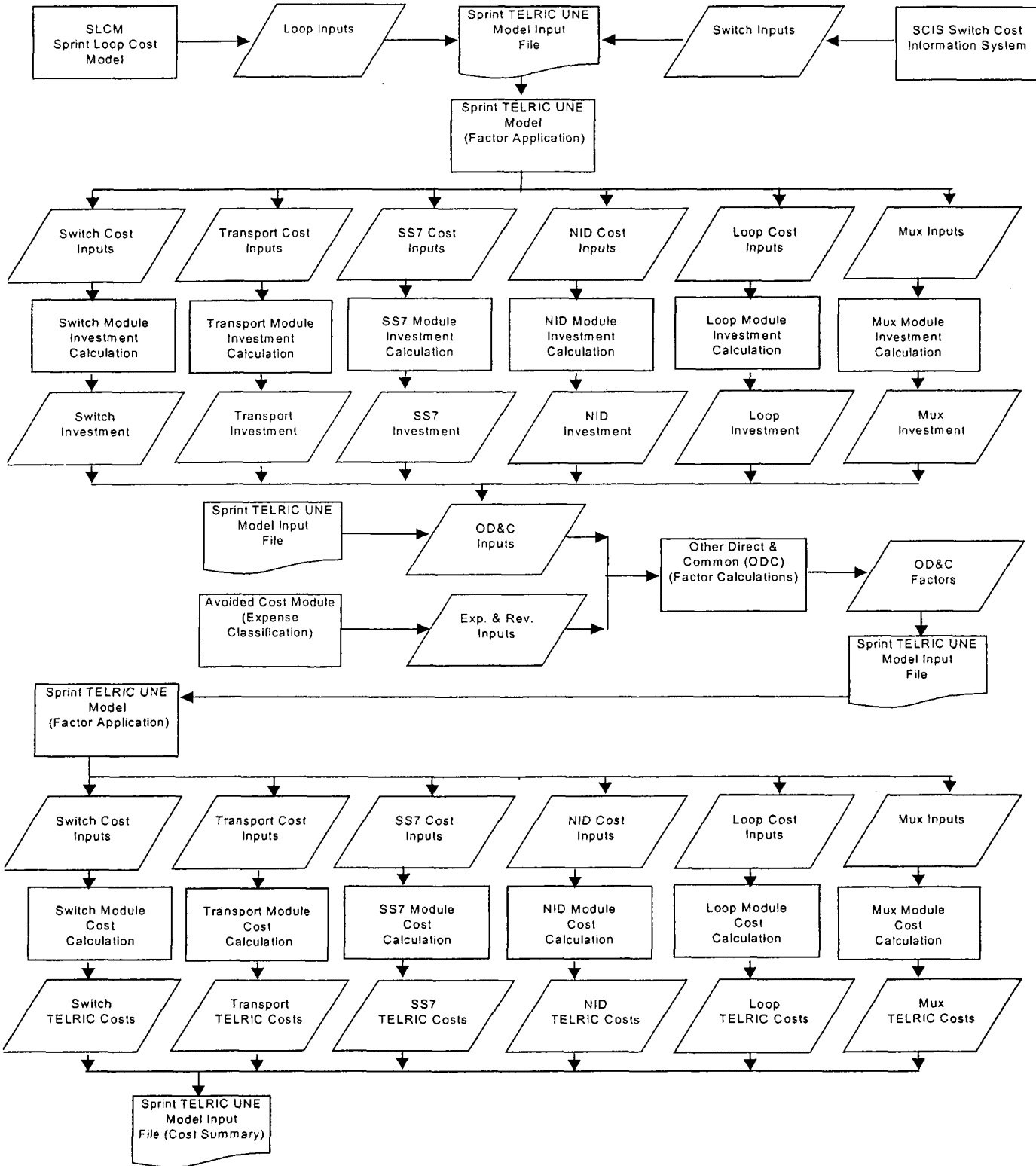
3. TAX DEPRECIATION WORKSHEET

The "Tax Depreciation" worksheet contains the tax depreciation rates and associated present values of tax depreciation for each plant tax life.

4. SUMMARY WORKSHEET

The "Summary" worksheet calculates the total Annual Charge Factor for each class of plant, including the cost of money, book depreciation, income tax, maintenance, and ad valorem components.

SPRINT TELRIC MODEL



SPRINT TELRIC UNE MODEL INPUT MODULE OVERVIEW

I. INTRODUCTION

The Sprint TELRIC UNE Model Input Module contains all of the inputs required to run the other modules. All spreadsheets are populated in this study. The Input Module also includes the Price List for unbundled network element rates.

II. INPUT MODULE

The Input Module consists of sixteen worksheets.

1. ACF (ANNUAL CHARGE FACTOR) WORKSHEET

The "ACF" worksheet of the Input Module contains the information necessary to run the ACF Module. The section labeled Return and Taxes includes information such as tax rates and capitalization data applicable to all types of plant.

The section labeled Maintenance and Depreciation includes information specific to each type of plant, such as salvage, maintenance, and depreciable life.

2. SWITCHING_1 WORKSHEET

The "Switching_1" worksheet of the Input Module contains information necessary to run the Switching Module. The first page (the top of the worksheet) contains area-wide inputs which apply to all offices. Some of this information is proprietary to Nortel.

The following pages (the remainder of the worksheet) contain office-specific information, such as study-derived traffic data, and SCIS-derived investment data.

3. SWITCHING_2 WORKSHEET

The "Switching_2" worksheet of the Input Module contains inputs from SCIS and software investment related to Custom Calling, CLASS, and Centrex features. These inputs apply to all offices in the study. Some of this information is proprietary to Nortel.

4. TRANSPORT INPUT WORKSHEETS

There are three inputs worksheets necessary to run the Transport Module. The "TransInputs" worksheet contains area-wide inputs. This includes the material and installation costs of each type of transport equipment.

The "TransRings" worksheet shows the physical characteristics of each transport ring modeled. This information includes the central offices the individual ring passes through, length of each ring segment, terminal capacity, and the utilization of each component. It is projected that demand will grow approximately 40% over the next five years. Current levels of demand are increased by at least 20% to reflect the mid-point of this projected growth. If necessary, existing transmission capacity may be expanded in order to meet growth in demand. If embedded facilities have more capacity than needed to meet forecasted demand, existing transmission capacity may be reduced.

The "TransRoutes" worksheet shows the actual transport routes used for pricing. These routes consist of an originating office, a terminating office, and one or more rings between the two offices.

5. MULTIPLEXING INPUT WORKSHEETS

There are two input worksheets necessary to run the Multiplexing Module. The "M13" worksheet contains inputs for the material and installation cost of DS1/DS3 multiplexers. The "Channel Bank" worksheet contains inputs for the material and installation costs of DS0/DS1 multiplexers.

6. SS7 WORKSHEET

The "SS7" worksheet of the Input Module contains inputs for the material cost, capacity, and utilization of each component of the Regional STP Port investment, as well as inputs related to non-port STP investment. The inputs are used to calculate the monthly recurring cost of access to regional STP ports and STP trunk switching.

7. QUERY SERVICES WORKSHEET

The "Query Services" worksheet of the Input Module contains inputs for the investments and demand volumes related to Regional STPs, National STPs, and National SCPs, as well as inputs for National Database Operations expenses related to Local Number Portability (LNP), Line Identification (LIDB), and Calling Name Delivery (CNAM). These inputs are used to calculate the per-query costs for use of the LNP, LIDB, CNAM, and Toll-Free Calling databases.

8. LOOP WORKSHEET

The "Loop" worksheet of the Input Module contains the inputs necessary to run the Loop Module. The top of the worksheet contains company-wide investment and

annual charge factor inputs, while the remainder of the worksheet contains wire center-specific line counts and investments from the Sprint Loop Cost Model for all the loop types modeled (2-wire Voice Grade, 4-wire Voice Grade, DS0, DS1, ISDN-BRI, ISDN-PRI, Sub Loops, and Dark Fiber).

9. LOOP UNEP WORKSHEET

The "Loop UNEP" worksheet of the Input Module contains the wire center-specific line counts and investments from the Sprint Loop Cost Model for 2-wire Voice Grade and ISDN-BRI loops. These inputs are used to calculate the loop cost portion of those loops associated with UNE-P.

10. ODC (OTHER DIRECT AND COMMON) WORKSHEET

The "ODC" worksheet includes asset information necessary to run the ODC Module.

11. NID WORKSHEET

The "NID" worksheet of the Input Module contains inputs for the material and installation costs of the three types of Network Interface devices modeled: 6-Line, 25-Line Building Terminal, and Smart Jacks.

12. PRICE LIST TRANSPORT WORKSHEET

This worksheet includes the price of DS1 and DS3 transport unbundled network elements on a route-specific basis, as calculated by the Sprint TELRIC UNE Model.

13. COST SUMMARY WORKSHEET

This worksheet includes the price of each unbundled network element (except DS1 and DS3 transport), as calculated by the Sprint TELRIC UNE Model, as well as a summary of the associated non-recurring charges.

Sprint Loop Cost Model (SLCM)

The following documentation for the Sprint Loop Cost Model is included on the model CD-ROM:

1. Model Methodology
2. System Flow
3. User Manual

III. B. Loop Module

Table of Contents

Section 1.	Definition
Section 2.	Detailed Network Element Diagrams
Section 3.	Major Determinants of Cost
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4.2.1	Cable Costs
4.2.2	Serving Area Interface
4.2.3	Drop Terminal
4.2.4	Drop Costs
4.2.5	Digital Loop Carrier
4.2.6	Structure
4.2.7	Plant Mix
4.2.8	Cable Sizing Factor
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4.2.11	Lines
Section 5	Outputs
Section 6	Pricing

1. FCC Definition

The Telecommunications Act of 1996 (Act) states:

Provide to any requesting carrier non-discriminatory access to network elements:

- On an unbundled basis
- At any technically feasible point
- At rates and terms that are just, reasonable and non-discriminatory
- In accordance with the interconnection agreement
- In a manner that allows the requesting carrier to combine network elements to provide its telecommunications service (251(c)(3)).

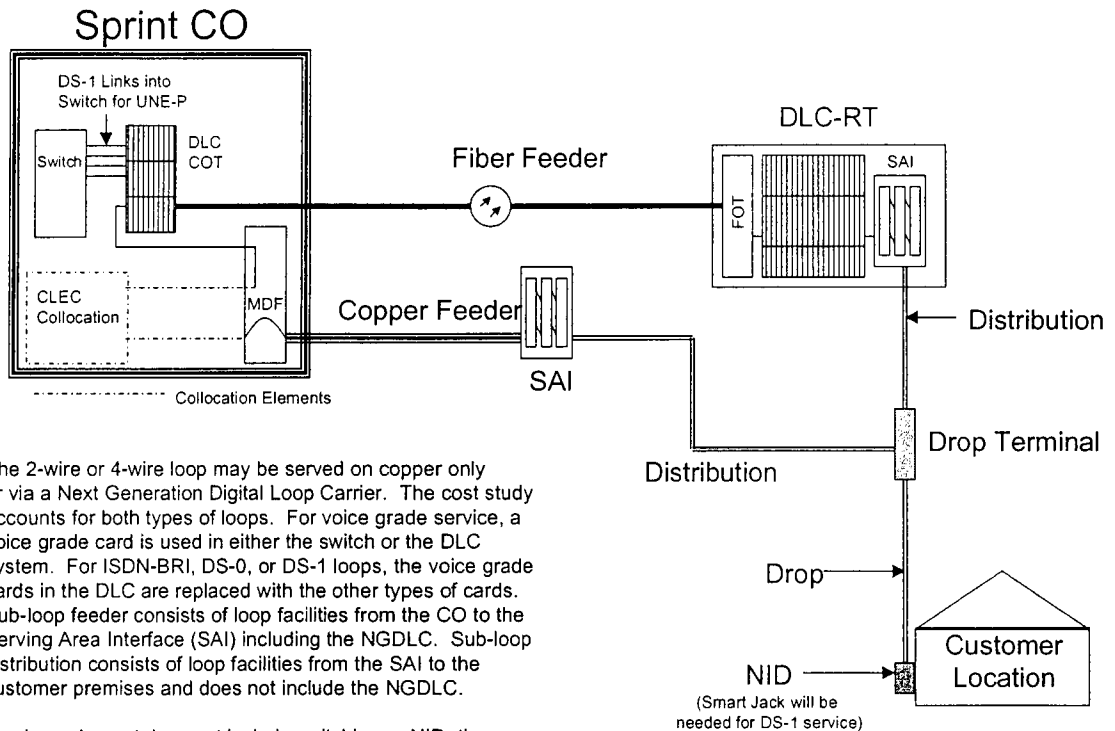
In paragraph 167 of FCC 99-238, the FCC states:

We modify the definition of the loop network element to include all features, functions, and capabilities of the transmission facilities, including dark fiber and attached electronics (except those used for the provision of advanced services, such as DSLAMs) owned by the incumbent LEC, between an incumbent LEC's central office and the loop demarcation point at the customer premises.

2. Detailed Network Element Diagrams

All loop elements DS-1 level or less have the same basic form. From the central office, the loop passes through the main distribution frame, proceeds on a feeder route through the SAI, along a distribution route. The loop then passes through a drop terminal, which connects the distribution facility to the drop. The drop then proceeds to the customer premises. Below is a basic diagram applicable to all loop types.

2-wire or 4-wire UNE Loop (Voice Grade or xDSL Capable)



The 2-wire or 4-wire loop may be served on copper only or via a Next Generation Digital Loop Carrier. The cost study accounts for both types of loops. For voice grade service, a voice grade card is used in either the switch or the DLC system. For ISDN-BRI, DS-0, or DS-1 loops, the voice grade cards in the DLC are replaced with the other types of cards. Sub-loop feeder consists of loop facilities from the CO to the Serving Area Interface (SAI) including the NGDLC. Sub-loop distribution consists of loop facilities from the SAI to the customer premises and does not include the NGDLC.

The loop element does not include switching or NID; these components are depicted for clarity.

3. Major Determinants of Cost

The major determinants of cost for unbundled loops are related to customer density, distance from the central office, terrain, weather, local market conditions, and material costs. Each cost determinant is explained below.

3.1 Customer Density

Customer density is the single largest factor impacting the cost of local loops. Customer density is commonly expressed in terms of customers or access lines per square mile. The density of customers impacts loop cost in an inverse manner: the higher the customer density, the lower the cost of the local loop. This relationship is linked to a few fundamental issues, the first being a trench, conduit or aerial pole route is required regardless of whether a 25 pair or 2400 pair cable is placed. From this it is obvious the greater the customer density the more customers that can be served along a feeder or distribution cable route. Therefore, customer density ultimately determines

how many customers or loops there are over which to spread the cost of digging the trench, and or placing conduit or placing aerial pole line.

Customer density also drives the unit cost of other equipment components associated with loops. Loop components such as Serving Area Interfaces (SAIs) (the point of interconnection between feeder and distribution cables), Digital Loop Carrier (DLC) devices, Drop Terminals for example, are all similarly impacted by customer density and exhibit lower per unit costs as customer density increases.

Structure type, or plant type, has a major impact on cost of loops. Sprint researched its network databases and developed per foot installation costs for all plant types. Sprint also varies structure inputs by density zone, due to the fact that different work activities will occur in a rural area compared to an urban area. For example, more sidewalks and streets must be dealt with in an urban area compared to a rural area. The more obstacles encountered when installing cable, the greater the cost.

3.2 Distance

The distance of a given customer location from the central office directly increases loop costs as the distance increases. This relationship results from the obvious need to place more cable, trenches, conduit and or aerial pole lines as the distance or length of the loop increases. As distance increases it generally increases the need for, and overall cost of, maintenance. Assuming constant customer density, longer cables have more splice points and resulting exposure to risk. Greater number of splice points means there are more areas for possible failure due to lightning, water, rodents, vandalism, and accidents.

3.3 Terrain

The type of terrain in which cable is placed impacts both the cost of the initial cable placement and the maintenance of the cable. The cost of below-ground cable construction increases as the presence and hardness of rock increases. Terrain factors such as the water table, trees, mountains, all affect both the initial construction cost of loops and subsequent maintenance expense.

3.4 Weather

The extremes of weather affect the cost of maintaining cable and therefore figures significantly into the type of cable placed (buried, aerial or underground). The cost of maintaining aerial plant in geographic areas that

frequently experience ice storms or tropical hurricanes is certainly greater than those areas that seldom encounter these conditions.

3.5 Local Market Conditions

Issues such as local zoning laws requiring below-ground plant, screening and landscaping around SAI and DLC sites, construction permits and restrictions, heavy presence of concrete and asphalt, traffic flows, and local labor costs, all impact the construction and maintenance costs of loop plant and will vary between locations.

3.6 Material Costs

Sprint uses current vendor material costs for cable and electronics. Material costs are a determinant of the cost of UNEs as they are the basic components that make up the network, such as cable, NGDLC, SAI, drop terminals, and drop.

3.7 Other Determinants

For ISDN-BRI, PRI, DS-0 56/64K, and DS-1 loops, the three determinants of cost are circuit equipment, if the loop is served via NGDLC, and bandwidth. If the loop is behind a DLC, greater investment is required to obtain the cards for the central office terminal and remote terminal. ISDN and DS-1 also require more bandwidth than a voice grade loop. Therefore, more of the feeder capacity is utilized, which requires more investment compared to a VG loop.

4. Inputs

4.1 Loop Inputs Overview

Sprint's company specific inputs reflect the realities of providing local service in its operating territory. Sprint's recent experience with actual purchase, installation, and ongoing maintenance of telephone plant equipment provides the best information for predicting the forward-looking UNE costs within Sprint's service territory. The material inputs are based upon current vendor prices for material and equipment plus Sprint-specific labor costs for engineering, plant supervision, and installation. State specific sales tax is also included in the material calculations.

Recent factual and objective data provides the best basis for predicting the forward-looking cost of constructing telephone plant in Sprint's service territory. Inputs developed in this fashion provide the most verifiable data possible for estimating the cost of rebuilding a network in that same market.

After the inputs are developed, they are entered into the Sprint Loop Cost Model (SLCM) in the following tabs:

- Loop Cost Inputs
- Structure Inputs
- Manhole Inputs
- Spacing Inputs
- Loop Percent Table Inputs
- DLC & Electronic Inputs
- Miscellaneous Inputs
- State Specific Inputs

Definitions and development of the inputs may be found in Section 4.2 of this document. Workpapers showing the development of the inputs may be found in Section 4.3 of this document. The inputs used in this cost study may be found in Section 4.4 of this document.

4.2 Loop Input Definitions and Development

4.2.1 Cable Costs

4.2.1.1 Copper cable

Costs are based on filled, single sheathed cable for all applications. The model allows for 24 and 26 gauge cable. Twenty-four (24) gauge aerial and buried cables of 3,000 pairs and above are not standard production sizes, so the cost of 26 gauge cable is used for these sizes. For underground cable, Sprint uses 26 gauge cable for 2,100 pairs and above. The cable cost includes materials, sales tax, placement, splicing, and engineering costs.

$$\text{Cable Cost} = \text{material} * (1 + \text{exempt material}) * (1 + \text{sales tax rate}) + \text{placement} + (\text{splicing} * \text{number of pairs}) + \text{engineering}$$

The placement additive is restricted to the placement of aerial cable onto the support strand and the rodding of the ducts and the pulling of underground cable into its duct. Buried cable placement is included with the structure costs.

Workpaper 1 shows the detailed cost of each additive into the cost of the cables.

4.2.1.2 Fiber Cable

Sprint uses filled fiber cable for all fiber applications. Per foot costs are developed for standard size aerial, buried and underground fiber cables ranging from 12 to 288 fibers. Workpaper 1 shows the detailed cost development of fiber cable.

4.2.1.3 Cable Material Costs

Material cost is the cost of the copper or fiber cable.

4.2.1.4 Sales Tax

Sales tax is the tax paid on the purchase of materials and exempt materials. It represents all state and local taxes that would be applied to the purchase of goods.

4.2.1.5 Cost Calculations – All Cable

Engineering cost per foot was based on the actual Sprint loaded labor rate for Outside Plant Engineering and an estimate of engineering hours per mile of cable placed, by type of placement. Sprint reviewed its records of cable placement for 1998-2000 to develop an average per foot cost of engineering cable. The expenses incurred in engineering cable were divided by the total feet of cable placed by copper and fiber and by plant type. An overhead factor was applied to the cost per foot of engineering to develop a cost of engineering labor per foot of cable.

Splicing cost accounts for joining two or more cables together by connecting the conductors. To obtain a per pair foot cost of splicing, Sprint reviewed its records of cable placement by type of cable and plant type. The total number of pairs placed in addition to the total number of feet placed was determined. The total expenses incurred to splice cable was then divided by the total number of pair feet placed to determine a cost per cable foot of splicing. An overhead factor was then applied to the splicing cost to determine a cost of splicing per pair per foot of cable.

Placing accounts for placing the cable on a pole line, in a trench or in a conduit. To determine the cost of labor per foot for splicing, Sprint reviewed its records of cable placement by type of cable and plant type. The total expense incurred to place cable was then divided by the total number of feet placed.

The placement cost for buried installation was set to zero to reflect the fact that buried cable is placed simultaneously with the creation of the buried structure (i.e., trench) and the cost of buried structure includes the cost of placing the cable. The placement cost for aerial installation was varied by cable size as more labor effort is required to place larger cables than smaller cables; additional equipment and/or manpower may be required.

4.2.1.6 Cost Components – Aerial Cable

Aerial cable costs include the cost of the cable, splice closures, miscellaneous materials, such as lashing wire and mounting hardware, the cost to purchase and ship the cable, acceptance testing as needed, engineering, and the cost of procuring any permits. Splicing occurs at cable junctions, cable size changes, where side legs intersect, where the reel ends, or at cable closures. The cost of engineering includes route layout, obtaining permits, securing rights-of-way and joint use coordination.

4.2.1.7 Cost Components – Buried Cable

The cost of buried cable includes cable material, miscellaneous minor material such as connectors, splice closures and clamps, permits, right of ways, flagging or other safety personnel as needed, engineering, splicing, and any necessary equipment to facilitate the placement of buried cable. The cost of placing buried cable does not generally vary in relation to pair (or fiber) size. Therefore, placement of buried cable is calculated on a per foot basis. Buried cable placement is included in the structure inputs. The cost of engineering includes route layout, obtaining permits, securing rights-of-way and joint use coordination.

4.2.1.8 Cost Components – Underground Cable

The costs of underground cable include the cable material, miscellaneous minor materials, splicing, engineering, and placing. Splicing can occur at cable segment ends and junctions. Placement costs for underground cable include:

- work site make ready and safety
- equipment set up
- testing for poisonous gases in each manhole
- pumping and ventilating each manhole
- rodding and cleaning the duct
- pulling in the cable
- pick up and delivery of cable and materials to the work site

- procurement of any permits
- pressure testing of splice cases

The cost of placing underground cable does not generally vary in relation to pair (or fiber) size. Therefore, placement of the underground cable is calculated on a per foot basis. Splicing is calculated on a per pair (or fiber) foot basis to capture the increasing cost of splicing as size increases. The cost of engineering includes route layout, obtaining permits, securing rights-of-way and joint use coordination with other utilities. The cost of these activities does not increase in relation to pair size. Therefore, engineering is calculated on a per foot basis.

4.2.2 Serving Area Interface

4.2.2.1 Definition

Serving Area Interfaces (SAIs) are used as the interface between feeder and distribution cables; it may also be known as a feeder distribution interface or FDI. The SAI connects copper feeder and copper distribution. It is used to increase the utilization of the pair count in the feeder. It may be located at the feeder/distribution connection point in an all copper loop or between the fiber feeder cable extending from a digital loop carrier (DLC) and the copper distribution cables. It is at the SAI that the jumper connections are made between the feeder and distribution cables. Sprint uses ready access cabinets for its SAIs which give quick access to both the feeder and distribution cables terminations. Jumper wires are able to connect any feeder pair to any distribution pair. Jumpers are changed as necessary when service is requested. SAIs provide a reduction in cost when compared to direct cable splicing since maximum use can be made of all available feeder pairs without any re-splicing.

Workpaper 2 contains the detailed calculations for indoor and outdoor SAIs.

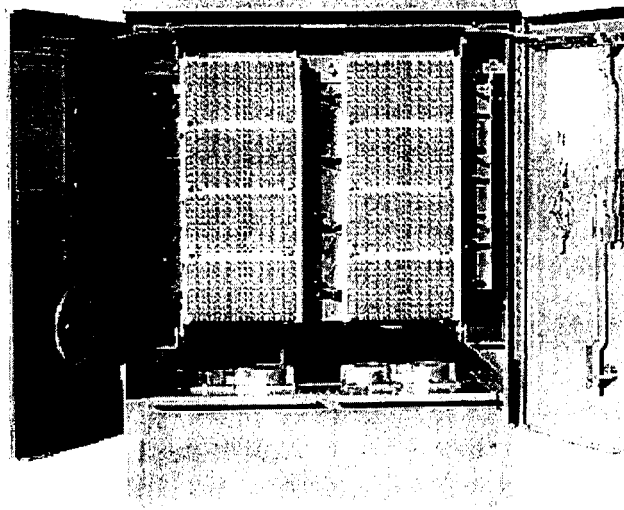
4.2.2.2 Indoor SAI

Indoor building terminals/cross connects are placed in multi-tenant buildings and are sized for the number of lines terminated at that location. Indoor SAI's generally consist of terminal blocks fastened to a plywood board located in the basement of a building. Since the indoor SAI is a cable entrance point into a building, electrical surge protection is included in the indoor SAI design and cost.

4.2.2.3 Outdoor SAI

The outdoor SAI is the interface between copper feeder cables and copper distribution cables. SAI sizes range from 25 to 4200 pairs. A typical pad-mounted outdoor SAI is shown in picture 1.

Picture 1 – Outdoor SAI



4.2.2.4 SAI Cost Calculations

4.2.2.4.1 Indoor SAI

Material costs include terminals (or Distribution Frames for very large pair sizes) with 40-foot tip cables, wall-mounted brackets, 5-pin protection modules, splice cases, tie cables, and punch down blocks. The labor times include splicing and installation of the terminals and travel time, and were determined by an outside plant expert. Sprint-specific labor rates and tax rates were utilized.

4.2.2.4.2 Outdoor SAI

The material costs include the following components: a cabinet, template, punch down blocks, and frame as seen in the diagram above. Installation time was estimated by a subject matter expert. The labor costs include workplace setup and protection time and the times to place the cabinet, terminate the feeder and distribution cables, and travel. The cost for a concrete mounting pad that is installed by an outside vendor is added. The material and labor costs for the mounting pads were estimated by a Sprint

outside plant expert State specific labor rates and tax rates were utilized in calculating the investment for SAI. Workpaper 2 shows the details of the material and labor estimates and costs for SAIs.

4.2.3 Drop Terminal

4.2.3.1 Definition

4.2.3.1.1 Aerial Drop Terminals

Aerial drop terminals, shown in Picture 2, provide the point of interconnection between the cable pair in an aerial distribution cable and an aerial drop wire. The terminal mounts on the cable suspension strand near the pole, or on the pole, and consists of a weatherproof cover that contains binding posts, which are spliced via a stub cable to the distribution cable. The aerial drop wire connects to one set of binding posts on a terminal block within the terminal.

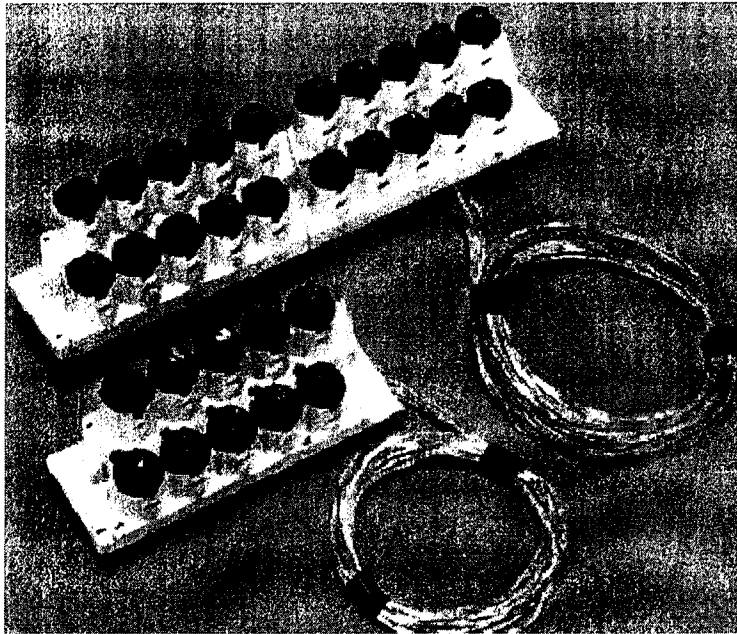
Terminal costs in the model reflect ready access enclosures that will accommodate up to 25 pair terminal blocks. Terminals placed by the model are sized according to the number of connecting drops, and will contain a 6 pair, 12 pair or 25 pair terminal block

4.2.3.1.2 Buried Drop Terminals

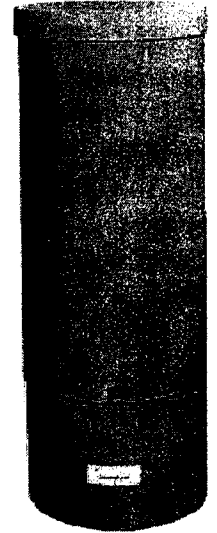
Buried drop terminals, shown in Picture 3, provide the point of interconnection between the cable pair in a buried or underground distribution cable and a buried drop wire. Terminal blocks are placed above ground in a pedestal, which is a free standing metal or plastic housing in which the distribution cable is accessible. Similar to aerial drop terminals, buried terminal blocks are spliced to the buried or underground distribution cable via a stub cable. Buried drop wires are then connected to one set of the binding posts on the terminal block.

Terminal costs in the model reflect accessible enclosures that will accommodate up to 25 pair terminal blocks. Terminal blocks placed by the model are sized based on the number of connecting drops and will be a 6 pair, 12 pair or 25 pair terminal block.

**Picture 2 –
Aerial Drop Blocks**



**Picture 3 –
Buried Drop Terminal**



4.2.3.1.3 Aerial Drop Terminal

The installed cost of the aerial drop terminal includes the splice closure, terminal blocks, and labor for installation and splicing. Installation costs are based upon time estimates from a Sprint outside plant expert applied to Sprint specific labor rates. See Workpaper 3 for the detailed calculations.

4.2.3.1.4 Buried Drop Terminal

The installed cost of the buried drop terminal includes the splice closure, terminal blocks, and labor for installation and splicing. Installation costs are based upon time estimates from an outside plant expert that are applied to state specific labor rates. See Workpaper 3 for the detailed calculations.

4.2.4 Drop Costs

4.2.4.1 Definition

4.2.4.1.1 Aerial Drop

Aerial drop costs include the cost of the drop wire that is placed from the terminal on or near a pole, to the customer's location, terminating at the NID.

Included in this cost are the attachment devices and the labor to install the drop. The aerial drop material cost is a weighted composite cost of a 2 pair 18 ½ gauge copper drop for residential customers and a 6 pair 22 gauge copper drop for business customers. These drop types are weighted using a ratio of residential and business lines to total lines in the serving territory. See Workpaper 4 for the detailed calculations.

4.2.4.1.2 Buried Drop

Buried drop costs are the costs of the drop that is buried from the pedestal to the NID attached to the customer's premises. The buried drop material costs are a weighted composite of the cost of 4 pair, 18 ½ gauge copper drop for residential customers, and 6 pair, 22 gauge copper drop for business customers. These two drop types were weighted using a ratio of residential and business lines to total lines in the serving area. See Workpaper 4 for the detailed calculations.

4.2.4.2 Cost Calculations

4.2.4.2.1 Aerial Drop

The cost of aerial drops is an installed cost, which includes the material cost and the labor cost to install the cable. To determine the labor portion, average installation time and drop length were determined by an outside plant expert. A state specific loaded labor rate was then applied to the installation time to determine the installation cost per drop. The installation cost per drop is then divided by the drop length to determine a labor cost per foot. Sprint I & R Technicians generally complete the installation of aerial drops.

The aerial drop material is a weighted average cost of the 6 pair cable used for business drops and a 2 pair cable used for residential drops. These two cable types were weighted using a ratio of residential and business lines to total lines. This weighted material cost is added to the per foot labor charge to determine the aerial drop cost per foot. Please see Workpaper 4 for the detailed calculations of this input.

4.2.4.2.2 Buried Drop

The cost of buried drops includes the material cost and the labor cost to install the cable. Labor costs are based on company-specific contracts for burying drops which are paid on a per drop basis -not a per foot basis. The per-foot labor cost is calculated by dividing the contract installation cost per drop by the average buried drop length. The average buried drop length is based on the average feet plowed for a buried drop.

The buried drop material is the weighted cost of the 6 pair cable used for business drops and a 4 pair cable used for residential drops. These two cable types were weighted using a ratio of residential and business lines to total lines. This weighted material cost is then added to the per foot labor charge to determine the aerial drop cost per foot. Please see Workpaper 4 for the detailed calculations of this input.

4.2.4.2.3 Strand

The cost of the strand investment includes the material cost and the applicable sales tax. The strands are necessary for the support of aerial cable and attachments such as strand mounted load coil cases or terminals. The material costs for various sized strands can be seen in Workpaper 5.

4.2.5 Digital Loop Carrier

4.2.5.1 Definition

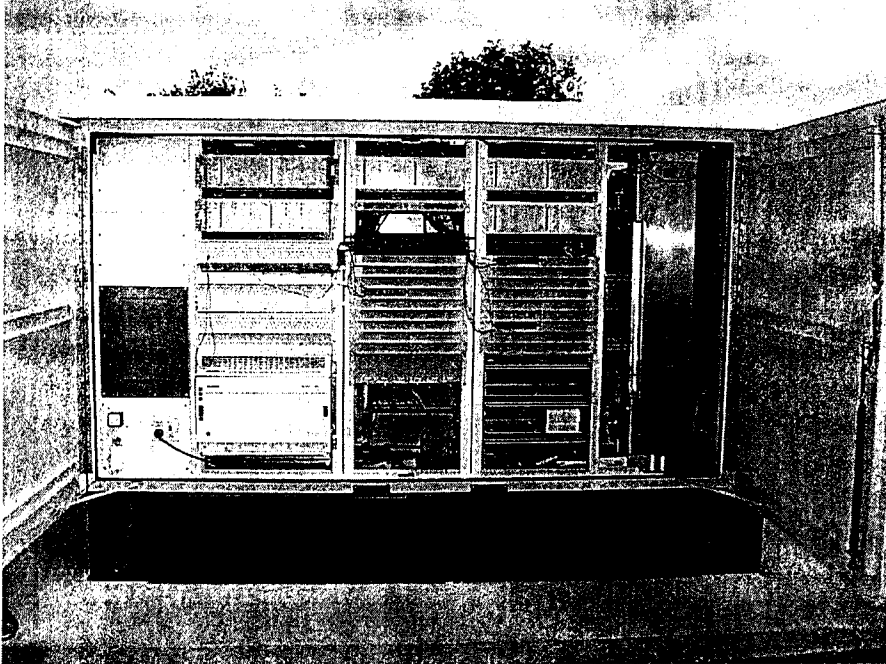
Digital Loop Carrier is network transmission equipment that is used to reduce the number of copper feeder pairs or cables needed to activate the necessary distribution pairs. It multiplexes multiple voice grade channels onto one fiber facility to the central office. The cost of a DLC is broken down into three components:

- DLC Central Office Terminal (COT) Investment
- Fixed Digital Loop carrier remote terminal (RT) investment
- Variable Digital Loop carrier remote system investment (cards)

DLCs are classified as either High Density or Low Density. Within SLCM, the crossover point between high and low-density systems is user adjustable. Sprint uses a crossover of 672 lines. Sprint currently places DLC remote terminal cabinets no smaller than 672 lines of capacity. If there are fewer than 672 lines to be served in the Carrier Serving Area (CSA), Sprint will place line cards and shelves required to serve the area. Beyond 672 lines, Sprint will place the larger size RTs as required. For example, if Sprint's network planners expect that 1,500 lines will be served in a CSA, Sprint will place a DLC RT capable of serving 2016 lines with the appropriate number of line cards and shelving.

The DLC COT looks much like other central office equipment with it being comprised of relay racks and channel bank shelves. Each shelf will hold various card types. A DLC RT is pictured below:

Picture 4 – DLC Remote Terminal – Fiber Side



Picture 5 – DLC RT – Line Side



4.2.5.2 Cost Calculations

Material investment for both the high and low density DLC systems includes the central office and remote common equipment and cards. State specific sales tax was added to the material cost. Labor costs for the DLCs include the engineering, outside plant technician, and Central Office technician labor necessary to install and test the equipment. A power factor is added to the material costs of the COT to account for the recovery of backup power for the central office. The power factor is not included in the cost of the DLC RT as the material investment includes batteries for backup power. Also in the cost of the DLC RT is site preparation. Site preparation includes installation of a concrete pad and any landscaping or protection required by local ordinances. Workpaper 8 shows the detail for the material, labor, and site preparation fees for both the large and small DLCs.

4.2.5.3 High Density DLC Configuration

4.2.5.3.1 DLC Central Office Investment

DLC Central Office investment includes material and labor costs for installing Central Office DLC Equipment and an OC3 Fiber Optic Central office terminal. Workpaper 8 shows the costs for both the large and small DLCs.

4.2.5.3.1.1 Central Office Equipment

End user connection to a CLEC requires line cards in the DLC Central Office Terminal to provide a physical connection to the customer (known as a Double Ended or Universal configuration) in addition to the line cards in the remote terminal. This equipment provides the ability to break out or hand off an individual voice or data circuit coming from the DLC field Remote Terminal (RT) where the customer circuit resides to a CLEC at the Central Office. For UNE-P, cost of a single ended DLC system is used. For single ended DLC systems, central office DLC equipment is integrated with the voice switch. By using an integrated system, the cost for the central office end of the DLC is reduced. No voice grade card is required within the central office. Rather the COT is connected directly to the voice switch via T-1 links.

4.2.5.3.1.2 OC3 Fiber Optic Central Office Equipment

OC3 Fiber Optic Central Office Terminal equipment is installed with the Central Office Terminal and is required to provide the optical capacity from the COT to the RT. This equipment sends and receives the optical light signals on the central office end of the DLC system fibers. The OC3 standard provides 2016 voice channel capacity to the DLC.

4.2.5.3.2 Digital Loop Carrier Remote System Cost – Fixed Cost

Digital Loop Carrier Remote System Fixed Cost includes material and labor for the Remote DLC Terminal that is equipped with an OC3 Fiber Optic Remote Terminal, the DLC Cabinet, equipment shelves, batteries, cable termination blocks, and concrete mounting pad.

4.2.5.3.2.1 OC3 Fiber Optic Remote Terminal

This equipment is located at the DLC cabinet and is used to provide OC3 fiber capacity from the COT to the RT. This equipment sends and receives the optical light signals on the subscriber end of the DLC system fibers. It performs the optical/digital signal conversion.

4.2.5.3.2.2 DLC Cabinet

The DLC cabinet is an environmentally hardened enclosure that houses the field end DLC Terminal electronics and batteries. It is generally located in easements on a cement pad. The site preparation is part of the DLC cabinet cost and is based upon Sprint specific costs and local zoning ordinances.

4.2.5.3.2.3 Batteries

Batteries are for emergency power backup in the event of a commercial power outage. A charger installed in the DLC Cabinet recharges the batteries.

4.2.5.3.2.4 Remote DLC Terminal

The DLC Terminal is the electronic equipment that provides ring generation and dial tone, and converts high frequency digital signals into single voice or data circuits to the customers. This equipment is installed in the DLC Cabinet located in the field location.

4.2.5.3.3 Digital Loop Carrier Remote System Cost – Variable Cost

4.2.5.3.3.1 Line Card

DLC Line Cards are plug-in printed circuit boards that provide either analog voice grade or digital data interfaces for private or public network use. Although there are various card types listed in the input tables, only the voice grade or POTS card is used in calculating the UNE pricing for a POTS loop. Other service type cards are used in calculating ISDN-BRI, DS-1, and DS-0 loop costs.

4.2.5.4 Low Density DLC
4.2.5.4.1 DLC Central Office Investment

DLC Central Office investment includes material and labor costs for the Central Office Terminal Equipment.

4.2.5.4.2 Central Office Equipment

End user connection to a CLEC requires line cards in the DLC Central Office Terminal to provide a physical connection into the fiber optic cable, which serves the feeder portion of the facility (known as a Double Ended or a Universal configuration since cards are required at both the Central Office and remote locations). This equipment provides the ability to break out an individual voice or data circuit coming from the DLC field Remote Terminal (RT), where the customer circuit resides, across the optical feeder cable for a hand-off of those individual circuits at the Central Office to a CLEC. For single ended systems, the company equipment is integrated with the switch via T-1 links. No voice grade line card is required in the central office for a single ended DLC system.

4.2.5.5 Digital Loop Carrier Remote System Cost – Fixed Cost

Digital Loop Carrier Remote System Fixed Cost includes material and labor for the Remote DLC Terminal that is equipped with an OC3 Fiber Optic Remote Terminal, the DLC Cabinet, equipment shelves, batteries, cable termination blocks, and concrete mounting pad.

4.2.5.5.1 DLC Cabinet

The DLC cabinet is an environmentally hardened enclosure that houses the Field end DLC Terminal electronics and batteries. It is generally located in easements on a cement pad. The site preparation is part of the DLC cabinet cost and is based upon state specific costs and local zoning ordinances.

4.2.5.5.2 Batteries

Batteries are for emergency power backup in the event of a commercial power outage. A charger installed in the DLC Cabinet recharges the batteries.

4.2.5.5.3 Remote DLC Terminal

The DLC Terminal is the electronic equipment that provides ring generation and dial tone and converts high frequency digital signals into single voice or data circuits to serve the customers. This equipment is installed in the DLC Cabinet located in the field location.

4.2.5.6 Digital Loop Carrier Remote System Cost – Variable Cost 4.2.5.6.1 Line Card

DLC Line Cards are plug-in printed circuit boards that provide either analog voice grade or digital data interfaces for private or public network use. Although there are various card types listed in the input table, only the voice grade or POTS card is used in calculating voice grade UNE pricing. Other service type cards are used in calculating ISDN-BRI, DS-1, and DS-0 loop costs.

4.2.6 Structure 4.2.6.1 Definition

Structure costs are those costs related to the construction supporting the copper and fiber cables comprising the telephone loop network. These structures are the poles and associated anchors/guys for aerial plant, the conduit and manhole system for underground plant, and the trenching or other placement cost for buried plant. Structure costs for aerial and underground plant include the labor required for placement of the structure as well as the related materials (e.g., poles, anchors/guys, conduit, and manholes), while structure costs for buried plant include only the labor necessary to create the opening in the ground. Sharing occurs when more than one facility provider occupies the same structure.

Workpaper 9 shows the detail of the calculations for all three structure types (aerial, buried, and underground).

4.2.6.2 Cost Calculations 4.2.6.2.1 Cost Calculations – Aerial Structure

Aerial structure costs consist of the material and installation cost of poles and the associated anchors and guys. They are converted to a per-pole cost based on the frequency of anchors and guys input (expressed in terms of the number of poles between each placement of an anchor and guy).

The cost of the poles is calculated by summing the loaded material and installation costs per pole and applying the percent assigned to telephone fraction to recognize that other entities (power, CATV) share the cost of the pole structure.

The percent of pole costs assigned to telephone was calculated based on the number of poles owned by Sprint, the carrying cost per pole, the number and cost of Sprint's attachments to other entities' poles, less the number and cost of other entities' attachments to Sprint poles. See Workpaper 9 for details of this calculation.

The pole, anchor, and guy material costs are the current prices Sprint pays for those materials. Sales tax is calculated using the appropriate state tax rate.

Installation costs are based on actual contract costs for the total activities comprising pole, anchor, and guy placement. Engineering and plant supervision overheads are derived from actual company accounting and productive hour data.

Pole spacing inputs range from 150' to 250' with the closer spacing occurring in more densely populated areas because of street clearance requirements and support requirements for larger cables. Anchor and Guy spacing inputs range by density zone from 500' to 1500' primarily due to right-of-way curvature or changes in elevation. Anchors and guys are placed only where horizontal or vertical direction changes occur or a pole line ends. As with poles, the spacing is closer in more dense areas because of the greater number of pole line terminations necessary in urban areas. The spacing inputs are based on engineering judgment and company experience in placing aerial plant.

4.2.6.2.2 Cost Calculations – Underground Structure

The cost of underground structure includes the costs for opening and closing any ground or surface necessary to place the conduit and manhole system. This may include cutting and restoring asphalt or concrete streets and sidewalks. The material and installation costs of the conduit and the manholes and/or handholes is also included.

The cost for opening and closing the ground is dependent on three variables: the type of placement activity necessary to open and close the ground (e.g., trench & backfill, boring, cut & restore pavement), the cost for each activity, and the percent assigned to telephone to reflect any sharing of the conduit structure by multiple companies.

The cost per foot, frequency of activity, and percent assigned to telephone for each activity type may be varied by density zone. The percent assigned to telephone generally decreases as density increases to reflect additional sharing opportunities in more urban areas.

The cost per foot and frequency of use for each item are based on the total level of actual placement activities performed by Sprint and its contractors. The percent assigned to telephone was based on the experience of Sprint related to construction sharing with other entities, taking into account the presence of others as well as the probability of coordination. Since the model assumes economies of scale related to all plant placements occurring at one time, the ability to coordinate multiple simultaneous placements is limited.

4.2.6.2.3 Cost Calculations – Conduit per duct foot

The cost of conduit consists of the loaded material cost of 4" PVC conduit, with no sharing assumed since the model does not build extra ducts that can be made available to other companies. The cost of installing the PVC pipe is included in the structure costs discussed above.

4.2.6.2.4 Cost Calculation – Manhole Inputs

The cost of manholes consists of the loaded material and installation cost of appropriately sized manholes and/or handholes. The manholes are sized based on the required number of ducts in the conduit system. Manholes and handholes are spaced at user-defined distances, and multiplied by the percent assigned to telephone to reflect any sharing of the manhole by other entities. Manhole and handhole spacing is based upon the average distance between access points (Manholes and handholes). This is calculated by dividing total actual trench feet by the total number of actual access points (manholes and handholes).

4.2.6.2.5 Cost Calculations – Buried Structure

The cost of buried structure consists of the costs for opening and closing the ground, including any surface restoration required.

The cost for opening and closing the ground is dependent on three variables: the type of activity used to open and close the ground (e.g., plowing, trench & backfill, boring, cut & restore pavement), the cost for each activity, and the percent assigned to telephone to reflect sharing of the buried structure by multiple companies. No sharing is assumed for plowing activities since this activity closes the ground immediately after placement of the cable, thus

eliminating the possibility of other cables in the same plow slit since there is limited opportunity for placement coordination between companies.

The cost per foot, frequency of activity, and percent assigned to telephone may be varied by density zone. The percent assigned to telephone generally decreases as density increases to reflect additional sharing opportunities in more urban areas.

The cost per foot and frequency of use for each item are based on the average level of actual placement activities performed by Sprint and its contractors between 1998 and 2000. The percent assigned to telephone was based on the experience of Sprint related to construction sharing with other entities, taking into account the presence of others as well as the probability of simultaneous placement coordination.

4.2.7 Plant Mix

Cable plant mix inputs are the percentages of aerial, underground and buried cable placements within each of the density groups. Separate inputs are developed for cable type (copper or fiber), usage (distribution or feeder), and terrain (normal, soft rock, or hard rock).

Plant mix is driven by many region specific factors. Factors considered in selecting the type of outside facilities include maintenance cost considerations, potential service disruptions, and initial first cost considerations. These considerations apply to both feeder and distribution cables.

Maintenance cost considerations are evaluated for each type of cable facility before a cable type is selected. Acts of nature and acts caused by man become an important consideration when evaluating potential maintenance costs. Aerial cables are subjected to many types of damage including fallen trees or limbs, animals, high winds, automobile accidents and lightning. Underground or buried cables are subject to rapid deterioration caused by an area having a high water table.

Service disruptions differ from maintenance considerations. In the case of buried cable or underground cables, a common example of this would be a cable cut by contractors digging or trenching without having existing cable locations identified. This damage usually results in a temporary loss of service for customers served by the cable

The cost to build the job without considering the future costs or benefits is defined as the initial first cost. Although an important consideration because

it impacts today's money, initial first costs are not the only consideration. The evaluation of the remaining considerations may indicate a low initial first cost but excessive future costs due to future excessive maintenance costs. For example the initial first cost of an aerial cable would be far less expensive compared to an underground cable requiring the construction of a conduit. However, if facilities were placed in a high growth area, underground facilities would probably be more conducive to continual reinforcement.

Since the factors of future maintenance, initial first costs, and potential service disruptions from either nature or man have already been considered by the Sprint engineers, actual plant mix provides the best starting point in determining a forward looking network

The source of data for plant mix calculations is Sprint's outside plant record system. Sheath miles by type and size of cable are extracted from the records by wire center for the service territory. The sheath miles are then sorted by cable size. Copper cables of 400 pairs and greater are considered feeder cables. Copper cables of less than 400 pairs are considered distribution cables. All fiber cables are considered feeder.

After the cables are divided between feeder and distribution the percentages of type are derived for each wire center. The total sheath miles for all copper feeder cable equals total aerial sheath miles plus total buried sheath miles plus total underground sheath miles. Each structure type is totaled and divided by total sheath miles to calculate the percentage of each structure type. The end result is feeder structure by type for the three structure types for a particular wire center. This methodology is completed for all wire centers in Sprint's serving territory. The same methodology is used for fiber feeder and distribution cables.

Once the percentages for the types of feeder and distribution cables are calculated, these percentages are weighted by the number of access lines in each density zone. The weighting is completed with the grid information from SLCM. Each wire center has a number of grids containing the number of lines being served and the density zone in that grid. Lines of a grid are multiplied by the percentage of each wire type for the appropriate wire center. The weightings are done for each grid. The weighted lines are then summed by density zone.

The line weightings for all structure types are then smoothed using regression analysis. The smoothed results from aerial, buried and underground are totaled to give a representative total line count per density zone. For each density zone, the smoothed weighted lines from structure type is divided by

the representative total lines, which yields a percentage for each structure type.

The calculations can be seen in Workpaper 10.

4.2.8 Cable Sizing Factor

4.2.8.1 Definition

Cable sizing factors reflect the percentage of available network capacity utilized by feeder and distribution cables. Proper cable sizing allows uninterrupted provision of new service and maintenance between cable additions. Cables are engineered to be filled to capacity (less pairs for maintenance) in 3 to 5 years based on a forecast of anticipated demand. This means that cables are sized larger than initially needed to fill service requests until the next cable addition.

4.2.8.2 Density Cable Sizing Methodology

Care must be used in selecting cable capacity to avoid under sizing, which results in unnecessary rework or over sizing which results in capacity never being used.

There are additional factors to consider in cable sizing. One is the lag time required to engineer and construct a new cable. Cable additions are added far enough in advance of cable pair exhaustion, to enable the continued provision of new service.

Another factor to consider is the standard pair sizes of cables. Cables are available in a wide range of pair complements, however cables of larger pair sizes increase by 600 pair increments (2400, 3000, 3600, 4200). This means that if the forecasted demand for a new cable called for 3500 pairs, a 3600 pair cable would be placed. This limitation caused by standard cable sizes will increase unused capacity.

Cable sizing factors are developed separately for feeder and distribution cables. Feeder fill factors are developed from company specific data by wire center. Feeder fill factors are calculated by taking feeder pairs in service and dividing by feeder pairs available for each wire center.

The feeder fill for a wire center is then weighted by density zone. In SLCM, each grid contains a number of access lines and each grid is classified by density zone. All grids in each wire center are multiplied by the percentage of feeder cable fill for the appropriate wire center, to develop a weighted fill. The

weightings are summed by density zone to develop a weighted feeder fill percentage by density zone. The weighted feeder fill percentages are then smoothed using regression analysis to develop a feeder fill percentage by density zone. An average overall feeder fill percentage is developed as well.

To calculate the feeder pairs required for each grid, the following formula is used:

$$\text{total pairs served in the grid} / \text{feeder fill.}$$

This number is then grossed up to the next cable size to determine what size cable would be placed. Dividing the standard cable size into working pairs served in the grid results in the effective fill.

The effective fill numbers are summarized by density group, and compared to the Sprint's actual feeder fill. The result of this first comparison always results in an effective feeder fill being less than the actual feeder fill and therefore must be adjusted so that the effective feeder fill is as close as possible to Sprint's actual feeder fill in the operating territory. Recognizing that SLCM will build a cable network reflecting the actual effective fill one additional calculation must be made to increase the effective fill by density group to equal the actual fill. Increasing the feeder fill input percentages equally until the effective fill percentage equals the Sprint actual fill factor completes this process.

Distribution cables are sized to allow for 2 pairs per housing unit (see Miscellaneous Inputs, Cable and Wire Inputs). Since the model builds 2 lines per housing unit, the fill factor is set to 100% for distribution cables as there is maintenance and growth capacity resulting from the second pair not yet being in use for some of the customers.

The calculations and fill percentages can be seen in Workpaper 11.

4.2.9 Miscellaneous Inputs

4.2.9.1 Pairs per Housing Unit

This input is used in the calculation to determine distribution cable sizes. Sprint's current engineering guideline is to build 2 lines per residential housing unit. This is based upon the increasing demand of second phone lines that Sprint has experienced in its serving territories. The 2 lines per housing unit also allow for maintenance pairs.

4.2.9.2 Pairs per Business Location

This input is used in the calculation to determine distribution cable sizes. Sprint's current engineering guidelines is to build 6 lines per business location. As noted in the model methodology guidelines, if the actual business line count per location is greater than this input, then the actual line count per location will be used. The 6 lines per business unit represents the current engineering guidelines minimum being used by Sprint for provisioning lines to business areas.

4.2.9.3 Maximum Size Feeder Distribution Interface

Allows the user to enter the company's maximum SAI size normally deployed as long as it does not exceed 4,200 pairs. Sprint's input is 4,200 pairs.

4.2.9.4 Maximum Fiber Size

Allows the user to enter the company's maximum fiber size normally deployed as long as it does not exceed 288 strands.

4.2.9.5 Maximum Feeder Size

Allows the user to enter the company's maximum copper feeder cable size normally deployed as long as it does not exceed 4,200 pairs. Sprint's input is 4,200 pairs.

4.2.9.6 Maximum Distribution Size

Allows the user to enter the company's maximum copper distribution cable size normally deployed as long as it does not exceed the maximum copper cable size. Sprint's input is 3,600 pairs.

4.2.9.7 Copper Maximum Distribution

The 12,000 feet input is used to match the size of an industry standard Customer Service Area (CSA). The maximum length of copper cable being used from either a Central Office or a DLC determines the size of a CSA. Sprint has set the input at 12,000 feet based upon Sprint practices that are consistent with the industry standard Bellcore and Lucent outside plant engineering practices.

The maximum loop length of a CSA is 12kft for 19-, 22-, or 24-gauge cables and 9kft for 26 gauge cables. All CSA loops must be unloaded and should not consist of more than two gauges of cable.¹

4.2.9.8 Fiber Cable Discount

This input is used in concert with the fiber cable costs and represents any purchase discounts that a company may receive. Since Sprint has applied its cost of cable in the fiber cable cost inputs, this input is set to 0%.

4.2.9.9 Copper Cable Discount

This input is used in concert with the copper cable costs and represents any additional discounts that a company may receive. Since Sprint has applied its cost of cable in the copper cable cost inputs, this input is set to 0%.

4.2.9.10 Investment Loop Cap

The investment loop cap is used to limit the investment costs of loops and assumes a non-modeled technology is available at the cap price. Sprint uses a loop cap of \$10,000. In other words, if the model produces a wire center loop cost of \$12,000, only \$10,000 of that cost would be carried to the loop output cost sheet.

4.2.9.11 Break Point

This input is similar to Copper Maximum Distribution, which does not allow for any copper loops to be in excess of 12,000 feet. This breakpoint value represents the longest copper central office to subscriber total loop length permitted in a grid. Any loop longer than this value triggers the model to change from a copper served grid to a fiber and DLC served grid. This distance is based upon industry and Bellcore CSA standards. Please see documentation for Copper Maximum Distribution above.

4.2.9.12 Critical Water Depth

When the water table depth of an effective grid cell is at or closer to the surface than the critical water depth, additional costs will be required to build the structure. Any placement of facilities in water saturated area incurs additional cost either for the water placement or additional distance to place the cable around the water. Sprint has set this input to three feet, which is equal to the depth at which fiber cable is placed.

¹ *Bellcore Notes on the Networks, SR-2275, Issue 3, December 1997, Section 12.1.4 page 12-5.*

4.2.9.13 Water Factor

This input represents the percent of additional cost associated with the placement of facilities in or around the water occupied area. Sprint has set this factor to 30% based upon engineering judgment and experience with placements under these conditions.

4.2.9.14 Minimum Slope Trigger

Minimum slope is the LEAST amount of slope present in each geographical area. The Minimum Slope trigger is set at the point where slope causes facilities to be placed along the contours of the slope rather than in a point-to-point placement. This is one of three different slope triggers used within the model to adjust distance. The minimum slope trigger is set at 12 degrees. When this average is exceeded the distance is adjusted by the minimum slope factor (see below). For example, if the average terrain within a given grid is 12 degrees or less, no additional adjustment for cable distance, and hence cost, is required.

The slope information is taken from the Soil Conservation Service (STATSGO) database produced by the United States Department of Agriculture.

Since more cable and structure are required when winding along contours of hillsides rather than cable placement in straight flat terrain, this input allows for the additional distance that facilities will require when traveling along this higher sloped terrain. This is comparable to a road climbing a mountain. If a hill is too steep then switchbacks are required which adds to the total distance traveled.

4.2.9.15 Minimum Slope Factor

Slope factors are the multipliers used to add the additional distance that the facilities must travel as they wind their way across the higher slope terrain. This factor comes in to play ONLY when the minimum slope trigger is exceeded (section 2.9.16), thereby, adjusting the cable distance using this minimum slope factor.

Since more cable is required when winding along contours of hillsides rather than cable placement in straight flat terrain, this input allows for the additional distance that facilities will require when traveling along this higher sloped terrain.

4.2.9.16 Maximum Slope Trigger

The Maximum Slope data shows that there are one or more points within the geographical area that may rise rapidly or peak while the area around this terrain may be flat or more gently sloped. The Maximum slope trigger sets the degrees of slope at which facilities must be placed along the contours of the large slope with much greater variation in the direction than with the minimum slope terrain or in a point-to-point placement. The maximum slope trigger is set at 30 degrees. When this maximum is exceeded the distance is adjusted by the maximum slope factor. For example, if the maximum terrain within a given grid is 30 degrees or less, no additional adjustment for cable distance above that which comes from the minimum slope adjustment, and hence cost, is required.

The slope information is taken from the Soil Conservation Service (STATSGO) database produced by the United States Department of Agriculture.

Since significantly more cable is required when transversing steep slopes rather than cable placement in straight flat terrain, this input allows for the additional facility distance required.

4.2.9.17 Maximum Slope Factor

This value is the distance multiplier when maximum slope causes cables to be extended to “switchback” on a slope or go around sharply sloping areas. Since this tends to be a small area within the geographical grid, its impact on cost is generally less than an entire area sloping as happens with the minimum slope.

Since more cable is required when winding along sharply sloping contours, this input allows for the cost of the additional distance required.

4.2.9.18 Combination Slope Factor

This combination factor comes into play when both the minimum and maximum slope triggers are exceeded. The cable distance is adjusted by the combined slope factor. NOTE: The minimum slope factor of 1.10 and maximum slope factors of 1.05 will never add to the combined slope factor of 1.20. The combination of both triggers indicates that the terrain within the area has a major slope overall but also contains one or more rapid changes in even the general slope. This can best be described as severely undulating terrain with significant cost penalties when placing facilities. Often there is not any road access to the placement area causing further increased costs.

These inputs were obtained from Outside Plant planning or engineering experts for the company.

4.2.9.19 Normal Underground/Buried Cover (Copper)

This input represents the depth at which copper cable is to be buried. Sprint uses a placement depth of 24 inches. This placement depth is confirmed in engineering guidelines set by AT&T on the table labeled *Recommended Depths for Placing PIC Cable*². The table indicates that copper feeder and distribution cables should be covered by a minimum of 24 inches.

4.2.9.20 Normal Fiber Cover

This input represents the depth at which fiber cable is to be buried. Sprint uses a placement depth of 36 inches. This placement depth choice is confirmed in the engineering guidelines set by AT&T on the table labeled *Recommended Depths for Placing PIC Cable*³. The table indicates that fiber cable should be covered by a minimum of 36 inches.

4.2.9.21 Fill Factors for Electronics

This input represents the amount of fill allowed to occur in DLCs. At the fill specified, Sprint begins planning for reinforcement of the DLC.

4.2.9.22 Small DLC Electronics Discount

This input is used in concert with the small DLC Investment inputs and represents any normal discounts that a company may receive. Since Sprint has applied its material costs in the DLC inputs this input is set to 0%.

4.2.9.23 Large DLC Electronics Discount

This input is used in concert with the large DLC Investments and represents any normal discounts that a company may receive. Since Sprint has applied its material costs in the DLC inputs this input is set to 0%.

² AT&T Network Systems Customer Education and Training, *Outside Plant Engineering Handbook*, AT&T, 1994, Page 9-12.

³ AT&T Network Systems Customer Education and Training, *Outside Plant Engineering Handbook*, AT&T, 1994, Page 9-12.

4.2.9.24 Maximum Central Office Terminal DLC-L Size

This represents the largest Central Office terminal that will be placed to serve one or more Large DLCs. After this point an additional terminal would need to be added. This input is based upon the terminal capacity normally purchased.

4.2.9.25 Maximum Central Office Terminal DLC-S Size

This represents the largest Central Office terminal that will be placed to serve one or more Small DLCs. After this point, a second small DLC CO terminal would need to be added.

4.2.10 Dark Fiber Inputs

With FCC 99-238, the FCC clarified the definitions of all UNEs. Among the element definitions that were clarified was Dark Fiber. Inputs necessary to determine the cost of dark fiber were added to SLCM, which include customers served via fiber DS-3s and interoffice fiber. The inputs may be found within the DLC and Electronic Inputs, Miscellaneous Inputs, and State Specific Inputs tabs.

4.2.10.1 Plug-in Bandwidth Table

These inputs identify the DS-0 equivalents of various services. Voice grade equals one DS-0, while a DS-1 is equivalent to 24 DS-0s. Inputs are populated for 4-wire, DS-0, DS-1, and ISDN-BRI. This input is used in calculating the bandwidth required to serve a DLC that provides these services. More detail on the methodology in SLCM may be found in the SLCM User's Manual, SLCM Model Methodology, and SLCM System Flow.

4.2.10.2 DS-3 Fiber and Electronics Table

This input table defines SONET system requirements for providing DS-3 service to customers. The least cost, most efficient system is used to provide various numbers of DS-3s. The optimal number of fibers is used to determine how many fibers will be utilized to provide the DS-3 service. Any excess fiber capacity to those customers that is not used in providing other services is dark fiber.

4.2.10.3 Common Costs

This is the cost of common equipment for the SONET terminals such as channel shelves and software.

4.2.10.4 Card Cost Per DS-3

The amount per DS-3 of the cards needed to provide DS-3 service out of a terminal.

4.2.10.5 DS-3 Grid Table

Customer DS-3 locations may be geocoded and directly entered into the location databases for SLCM. The model also is able to place the DS-3s based on census data. This table will be used if DS-3 customer locations are geocoded. It must include the SWCLLI, FDI Number (grid number), and the quantity of DS-3s in that grid..

4.2.10.5.1 SWCLLI

Identifies the serving CLLI code of the geocoded DS-3 location.

4.2.10.5.2 FDI Code

Identifies the grid serving the DS-3.

4.2.10.5.3 DS-3 Count

Number of DS-3s in that grid.

4.2.10.6 Study Criteria and Additional Factor Table

This table provides triggers that indicate the type of study being run.

4.2.10.6.1 If this study is for IX Dark Fiber-

Triggers calculations related to determine costs for dark fiber. DS-3s and interoffice fiber will be included in the investment calculations.

4.2.10.6.2 If DS-3 quantities by grid are entered as an input table-

Triggers model logic to obtain DS-3s from manual entry of geocoded data in the DS-3 grid table or entry in the lines file. Sprint determined the appearance of DS-3s by grid to more accurately determine the cost. The input table described in Section 4.2.10.5 is populated for dark fiber cost studies.

4.2.10.6.3 Number of business single lines per business single line location

Average number of business lines at a small business location derived from state specific counts of small business locations to small business lines.

4.2.10.6.4 If DS-3s are computed as Dark Fiber-

Triggers model to include fiber for serving DS-3s in Dark Fiber calculations.

4.2.10.6.5 If service is provided to unoccupied housing units –

Triggers the model to build facilities to census defined housing units, i.e., vacant apartments, vacation homes, and second dwellings. If not triggered, the model will only build to occupied households and business locations. This input trigger is set to build to unoccupied housing units.

4.2.10.6.6 If this study for USF purposes –

When this input is 1, the NID is included in the aggregated loop investment. If the input is 0, the NID is not included in the loop investment and is treated as a distinct element.

4.2.10.7 Non Voice Grade Copper Table

4.2.10.7.1 Service

Identifies the service/loop type.

4.2.10.7.2 Pairs Per Unit

Number of copper pairs the loop type requires.

4.2.10.7.3 Termination Equipment Cost

Engineered, Finished and Installed cost of the equipment required to terminate services/loops provided on copper. The input includes both the central office end and any equipment on the company side of the demarcation point.

4.2.11 Lines

SLCM has the capability of using census data to determine customer locations needing to be served, or the user may enter current line count information by various service types to ensure that the network is built to serve current lines.

Sprint obtains wire center specific line count information from its billing systems for residential, business, multi-line business, company official lines, and DS-0, DS-1, and DS-3 special access channel terminations. The model has the capability of using line counts for ISDN-BRI and PRI, DS-0, and DS-1, and ADSL/HDSL services. Other than bandwidth requirements in fiber feeder, there is no difference between a 2-wire loop used to serve a residential customer compared to the 2-wire loop required to serve ISDN-BRI. Because the bandwidth differences between services is calculated in the DLC electronics costs, Sprint does not populate the demand for all loop types, but uses the 2-wire loop as a base for the ISDN-BRI, DS-0, and 4-wire calculations. If specific line counts for enhanced service types are not populated the model makes the necessary calculations to provide those types of services using the 2-wire loop and 4-wire loop as the base and adds the necessary electronics to provide those services.

For Dark Fiber, additional information is required to build the fiber interoffice routes. Sprint studied where the fiber interoffice routes are in its network, determined the direction that the fiber leaves the central office, the size of the fiber cables, and the last SAI through which the fiber would pass in a wire center to route to an adjacent wire center's central office. SLCM then builds fiber based on the routes.

5. Outputs

5.1 Assumptions

- Assumptions behind inputs are discussed in the above.
- Assumptions for forward-looking network investment development are discussed in the SLCM documentation.
- DS-0 loops provide either 56 or 64Kbps of bandwidth.
- DS-1 loops provide 1.544Mbps of bandwidth and are provisioned on 4-wire copper loops or on copper/fiber combinations using DS-1 cards in the NGDLC.
- The loop does not include investment for any other elements.

5.2 Global Methodology

Global results and exchange specific results are obtained from SLCM and are then fed into the Sprint TELRIC UNE Model (TELRIC Model). Using the review mode of SLCM, the Loop.xls file is reviewed for investment related to loop plant. Within the loop.xls file for each wire center data found on the TELRIC model input tab is pulled for various types of loops. The investment data pulled includes

- Circuit Equipment or Electronics Investment
- Buried Cable Metallic
- Aerial Cable Metallic
- Underground Cable Metallic
- Buried Metallic Drop
- Buried Fiber
- Underground Fiber
- Buried Fiber/Fiber Drop
- Conduit
- Pole Lines
- Aerial Fiber
- Total lines served in the wire center

At a statewide level, these results are utilized to calculate Annual Charge Factors (ACFs) that reflect annual cost recovery requirements. For the loop annual charge factors, the investment for DS-3 loops and IX dark fiber is also included to calculate weighted annual charge factors for those services. For a discussion on the methodology of ACF calculation, please refer to the section on ACFs.

The wire center specific variables entered into the TELRIC Model also include the above referenced variables. However, at a wire center level, average investment per line is used. CO Termination inputs are based on data found in the SCIS Common Investment Table and totaled to determine a total per line investment.

The TELRIC Model is used to calculate cost by wire center from the investments developed in SLCM. In the LOOP0X.xls file of the TELRIC Model, the first two tabs are present for administrative purposes. The remaining tabs contain the cost calculations for various types of loops. Within each tab, annual cost factors are multiplied times the investment to determine annual cost recovery requirements for each account. Once annual cost recovery requirements are determined for each account, the results are summed and divided by 12 to obtain monthly cost. Common cost is also applied.

Once monthly cost by wire center is identified, the costs are grouped into rate bands. Within the Loop Banding tab of LOOP0X.xls, the exchange specific results are sorted lowest cost to highest. Further discussion on banding and pricing may be found in Section 6 of this document.

5.3 4-Wire Loops

Using the 2-wire loop cost as a base, the cost for 4-wire loops is the incremental cost of an additional pair of copper wires.

To determine investment for 4-wire loops, overall investment in copper, fiber, and circuit equipment is identified from SLCM. The additional cost of 4-wire loops is related to an additional cable pair for any copper portion of the loop and the expanded bandwidth on the fiber based on user bandwidth inputs when fiber is used to provision the service.

5.4 DS-0 56/64K Loop

Assumptions:

- Costs for providing the loop on copper and behind a DLC are included in the study.
- Loop conditioning costs are not included in the monthly recurring charges.
- A DS-0 56/64Kbps loop is a dedicated facility that provides either 56Kbps or 64Kbps of bandwidth.
- Customer premises equipment is not included in the study.

The purpose of the DS-0 loop cost study is to determine the TELRIC of a DS-0 grade loop.

To determine the TELRIC of DS-0 56/64K loops, the costs for providing DS-0 on copper and fiber were identified. The cost to serve DS-0s on copper includes channel bank capacity and DS-0 cards. DS-0 56/64K loops served through digital loop carrier systems require additional investment to account for cards in the DLC. The costs for DS-0 loops served through DLCs represent the line cards in the central office terminal and remote terminal necessary for DS-0 loops. Average investment per DS-0 loop was obtained from SLCM and the monthly cost is calculated using methodology described above.

5.5 DS-1 Loop

Assumptions:

- The DS-1 loop is provided over a 4-wire facility.
- Costs for providing the loop on copper and behind a DLC are included in the study.
- Loop conditioning costs are not included in the monthly recurring charges.
- A DS-1 loop is a dedicated facility that provides 1.544 Mbps of bandwidth.
- A DS-1 loop may be used to provision ISDN-PRI. Additional costs related to switching are required for ISDN-PRI and are not accounted for in the DS-1 loop cost study.
- The investment does not include the NID or Smartjack.

To determine the TELRIC of DS-1 loops, the costs for providing DS-1 on copper and DS1 on fiber were identified. The DS1s on copper are based on the costs for channel bank capacity and HDSL equipment, which is the least cost, most efficient technology currently available that can provision DS-1 bandwidth. DS-1s served through digital loop carrier systems require additional investment to account for cards in the DLC. The costs for DS-1s served through DLCs represent the line cards in the central office terminal and remote terminal necessary to provision DS-1s. Using SLCM results, a weighted average investment per line was determined.

The monthly cost is calculated using methodology described above.

5.6 ISDN-BRI/IDSL Loop

The following assumptions were used in the ISDN-BRI/IDSL Additive cost study:

- ISDN-BRI/IDSL provides 144Kbps bandwidth.
- The cost does not include customer premises equipment.
- Universal DLCs are assumed to provide the unbundled loop. However, a UNE-P ISDN-BRI loop may also be provisioned using singled ended DLC systems.
- IDSL is the digital subscriber line equivalent of ISDN-BRI.
- The ISDN-BRI loop does not include any investment for switching functionality.

To determine the TELRIC of ISDN-BRI loops, the costs for providing ISDN-BRI on copper and ISDN-BRI of fiber were identified. ISDN-BRI loops served through digital loop carrier systems require additional investment to account for cards in the DLC. The costs for ISDN-BRI loops served through DLCs represent the line cards in the central office terminal and remote terminal necessary to ISDN-BRI loops. Average investment per ISDN-BRI loop was obtained from SLCM and the monthly cost is calculated using methodology described above.

5.7 Sub-Loops

The assumptions used in the local loop cost study also apply to the sub loop cost study.

The costs were developed from SLCM. From the data pulled for 2-wire voice grade loop, the investment is summed to feeder, distribution and serving area interface. Investment for SAI is included in both the feeder and distribution as it is the interface to the ILEC network whether the CLEC purchases feeder or distribution. Feeder sub-loop includes the costs of the DLC systems and SAI, while distribution sub-loop includes the SAI and distribution facilities. The annual charge factors from the Sprint TELRIC UNE model are then applied to determine the cost per sub-loop feeder by wire center.

The monthly cost is calculated using methodology described above.

5.8 Non-recurring Charges

Non-recurring charges for the loops discussed above are presented in detail in the NRC section of this document.

6. Pricing (Deaveraging)

Both the 1996 Telecommunications Act and the FCC TELRIC pricing rules require UNE prices to be based on cost. The degree of cost variation between specific UNE geographic locations impacts the degree of price deaveraging necessary to result in an acceptable relationship between the price charged for that geographic specific UNE and its forward-looking cost. It is neither practical nor necessary to deal with as many individual prices as wire centers in order to strike an acceptable balance between price and cost relationships. Both CLECs and ILECs desire and require that a balance be struck between deaveraged pricing and administrative ease of CLEC ordering and ILEC billing of those prices. Therefore, Sprint has developed price bands for UNE loops which strike the appropriate balance between price and cost while at the same time avoiding unnecessary administrative complexity that would result from having individual wire center prices. Sprint identifies wire center specific costs and then groups the wire centers such that the cost of the loop in the wire center is not greater or less than 20 percent of the weighted average of the price. Weighting should be based on lines served. Upon completion of the deaveraging methodology above, the wire center distribution within the zones is reviewed. In the event a zone has a small number of wire centers and/or lines compared to the other zones, those wire centers are combined with another zone to more evenly spread the distribution of wire centers and lines. This reflects the methodology applied to BellSouth's loop price and creates an accurate reflection of cost balanced with administrative ease.

III. C. Dark Fiber

1. FCC Definition

The Telecommunications Act of 1996 (Act) states:

Provide to any requesting carrier non-discriminatory access to network elements:

- On an unbundled basis
- At any technically feasible point
- At rates and terms that are just, reasonable and non-discriminatory
- In accordance with the interconnection agreement
- In a manner that allows the requesting carrier to combine network elements to provide its telecommunications service (251(c)(3)).

In paragraph 174 of FCC 99-238, the FCC states:

Dark Fiber. We also modify the loop definition to specify that the loop facility includes dark fiber. Dark Fiber is fiber that has not been activated through connection to the electronics that “light” it, and thereby render it capable of carrying communications services.

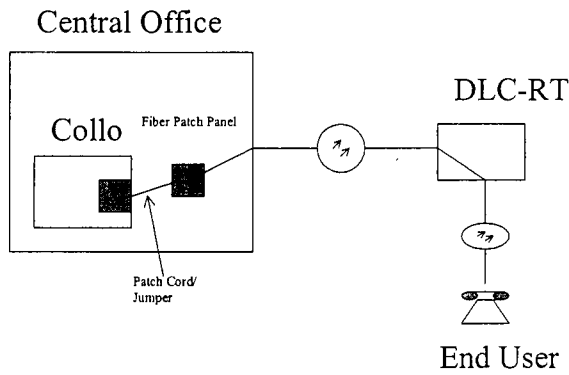
The FCC further states in paragraph 325,

Dark Fiber. In addition, we modify the definition of dedicated transport to include dark fiber. Dark Fiber is deployed, unlit fiber optic cable that connects two points within the incumbent LEC’s network...Because dark fiber is already installed and easily called into service, we find that it is similar to the unused capacity of other network elements, such as switches or “dead count” or “vacant” copper wire that is dormant until carriers put it in service.

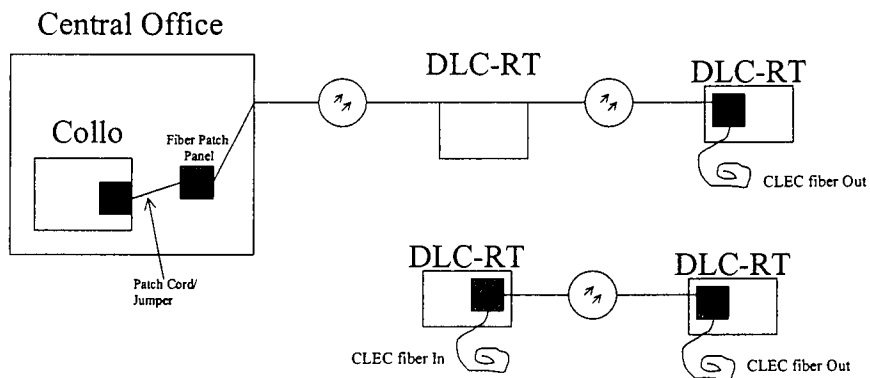
2. Detailed Network Element Diagram

The cost characteristics of dark fiber vary by where it is found within the network. The FCC defined dark fiber to be present in the loop and interoffice pieces of the network. Because of the differences in costs between loop and interoffice dark fiber, Sprint has developed costs for loop, sub-loop, and interoffice dark fiber. Each type of dark fiber is depicted below.

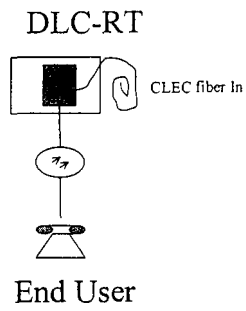
Dark Fiber Loop



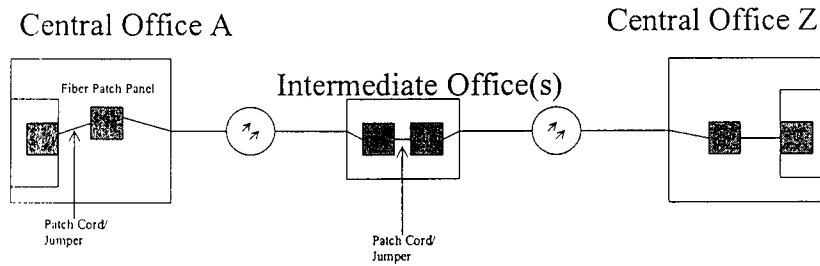
Dark Fiber Sub-loop Feeder



Dark Fiber Sub-loop Distribution



Dark Fiber Interoffice/Transport



3. Major Determinants of Cost

Dark fiber is essentially fiber used for loops or interoffice facilities. As such, it has the same determinants of cost as loop. For a description of the cost determinants of loop, refer to Section III.B.3.

4. Inputs

See Section III.B.4 - Loop Inputs for a description of the inputs.

5. Outputs

Assumptions:

- All Voice Grade through DS-1 loops over 12,000 feet are served with fiber optic-based plant. All less than 12,000 feet are served with all copper facilities.
- All DS3 facilities are served with fiber regardless of distance from the central office.
- Actual central office line quantities including DS-3s are utilized in the model.
- All existing DS-3 service locations are geo-coded to determine the appropriate facility segments to be used in the network modeling.
- The most cost efficient optical terminal(s) is used to serve all DS3s at a single location.

- Fiber quantities assume an active link and hot spare at each terminal location.
- All Next Generation Digital Loop Carrier (NGDLC) systems, where possible, share fiber bandwidth up to manufacturer constrained fiber capacity.
- IX fibers are embedded in feeder cable quantities and share structure for the appropriate main feeder distances between offices.
- Additional monthly recurring charges relative to dark fiber (fiber patch panels and fiber patch cords) are developed outside of the SLCM on a separate Excel spreadsheet.

Methodology - General

The SLCM is a modified version of the Benchmark Cost Proxy Model used by Sprint in earlier proceedings. Refer to the SLCM Model Methodology for the detailed model description.

Some of the major changes incorporated into SLCM are:

- InterExchange (IX) fibers are included in the loop facility composition and are a part of the main feeder facilities to the end of the main feeder that points most closely at the distant wire center. From there, an IX fiber cable is constructed to the nearest feeder emanating from the distant wire center. It then becomes a part of that feeder until it reaches the distant office.
- The number of fibers and feet are tracked for each fiber cable segment so that an investment per fiber or fiber feet is produced.
- DS3 customer service locations were geo-coded to the appropriate Customer Serving Area (CSA)/grid. Fiber cable is placed in the distribution area for grids that contain DS3 customers.
- The SLCM produces investment per fiber or per fiber foot, which are then passed to an external worksheet for application of annual charge factors and final cost development.

Customer Data

The wire center lines input table adds specific inputs for switched or non-switched DS1s, DS3s, and other non-voice grade services, as well as the voice grade residence, business single, and business multi-line units. The geo-coded DS3s are entered via a separate input table that shows the wire center, grid identifier, and quantity. A separate input is provided as a toggle to use the DS3 wire center quantities if the geo-code table is not available.

****Note: Sprint has filed a Proprietary worksheet with a populated DS-3 input table. These wire center-specific DS-3s must be input into the

“Miscellaneous Inputs” worksheet, and the model must be reprocessed in order to replicate any results filed by Sprint.

All CSA voice grade unit quantities are wire center actuals that are distributed to the CSAs using census unit data.

NGDLC Sizing

Each NGDLC is sized to the total bandwidth capacity of services provided in the CSA up to, and including, DS-1 services. The bandwidth required for each service times the service quantity is used to calculate the total bandwidth requirements at the terminal. The appropriate terminal size or sizes are placed to serve the CSA. In cases of high bandwidth or unit quantities, multiple terminals may be required. For this particular study, only voice grade and DS-1 quantities are used at the NGDLC. All other services show zero units.

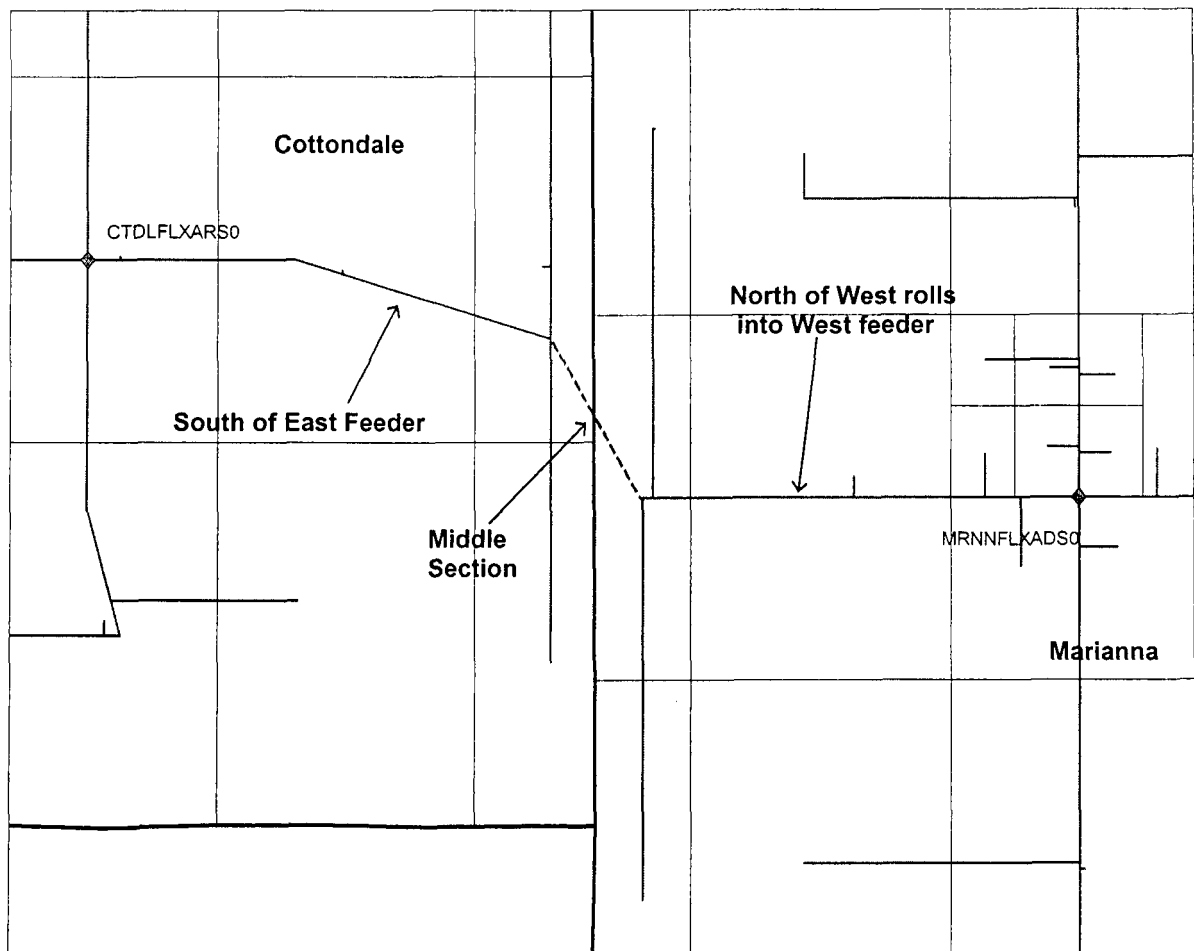
Fiber Counts

Large and small NGDLCs that are not at capacity are tested along the feeder routes to determine if multiple like units can share fiber capacity (subject to vendor equipment limitations). For example, Sprint’s vendor-specific small NGDLCs have a backplane capacity of 672 voice grade channels. If three systems are along the same subfeeder and each is serving 100 channels, all three systems will ride the same four fibers to the central office. Shared fibers appear as a collapsed ring for the NGDLCs sharing the fibers. Fiber capacity is capped at the backplane capacity times a fill factor input.

Separate fibers are provided in the feeder counts to serve locations with DS-3s. A DS-3 system table is populated with the number of DS-3s per location, the least cost terminal type configured to serve that quantity, the quantity of terminals of that type required, and the number of fibers including “hot spares” to serve those terminals. The number of fibers required for the terminal(s) at the location are added to the NGDLC fiber quantities, are accumulated along the feeders, and segment cable sizes are set to serve each segment. The DS-3 terminal fibers are also placed in a separate cable from the NGDLC into the appropriate quadrant. The separate cable is placed from the NGDLC to the quadrant centroid and half of the distribution cable distance. If DS-3s are required in a grid served with copper, the needed fibers ride any fiber feeder for as long as possible. They then break off as a separate fiber cable sized to the terminal fiber count and share the same structure as the copper.

IX fiber counts are input into a table that shows the wire center CLLI, the direction from the central office, and the working fibers required for each route. Sprint’s reviewed its interoffice transport routes to determine the number of working fibers in the “middle section” of the IX routes. The “middle

section” can be defined as the portion of the route that is no longer sharing the sheath with loop fibers. In other words, it is the fiber that extends from the last DLC in a wire center to the first DLC in the adjacent wire center. All IX routes were then placed into one of three categories based on working DS-3 demand, and the working fibers for each route within each of the three categories were averaged. The input table contains the average working fibers for every IX route associated with each wire center. Utilizing interoffice facility maps provided by Network Planning and MapInfo, the actual direction of each route was determined. SLCM adds the number of fibers from the input table to the feeder route fibers in the designated direction(s). All IX, DS-3, and NGDLC fibers along a route are included in the sheath sizing for each cable section. Since feeder cables stop short of the wire center boundary, a separate cable is placed to the wire center boundary. Comparable facilities are built in the reverse direction from the connecting wire center.

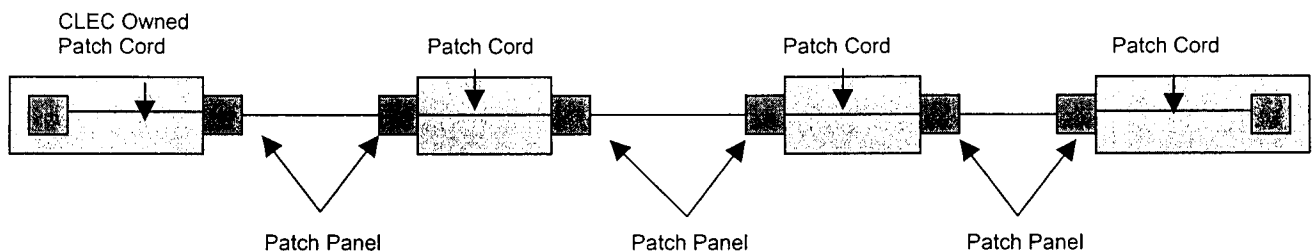


Structure Sharing

Any facility segment that contains both fiber and copper cables shares all structure costs between the fiber and copper. An input table sets the sharing percentages. The structure costs are then allocated to the CSAs served by copper or fiber on the basis of the number of pairs or fiber used in each CSA. Structure costs reflect the density and terrain characteristics for each CSA, through which it passes or serves.

Fiber Patch Panels/Fiber Patch Cords

In addition to the monthly recurring charges related to fiber itself, additional monthly recurring charges exist for the use of Sprint's fiber patch panels and fiber patch cords. The monthly recurring cost for a 72 position patch panel has been developed on a per position basis and the cost for a 50 meter patch cord has been developed on a per fiber basis. The total patch panel cost includes two patch panel positions at every intermediate office through which the fiber passes, as well as one patch panel position at both the originating and terminating office when the CLEC is collocated. The total patch cord cost includes a per fiber patch cord cost at every collocated office, as well as every intermediate office the fiber passes through. At the time of order, the total price relative to the patch panels and patch cords will be developed according to the number of intermediate offices the fiber passes through.



Dark Fiber Feeder – Central Office to DLC Site

The average feeder investment per fiber is produced by the SLCM on the "Allocations, Statistics, & Costs" worksheet and extracted into an Excel spreadsheet by wire center. Based on the total investment of aerial fiber, buried fiber, underground fiber, poles and conduit, an annual charge factor is developed and applied to the per fiber investment to calculate the monthly cost per fiber of dark fiber feeder for each wire center. Common costs were also applied to determine the total cost per fiber for each wire center.

Dark Fiber Distribution – DLC to Customer Premise

The average distribution investment per fiber is produced by the SLCM on the "Allocations, Statistics, & Costs" worksheet and extracted into an Excel

spreadsheet by wire center. Based on the total investment of aerial fiber, buried fiber, underground fiber, poles and conduit, an annual charge factor is developed and applied to the per fiber investment to calculate the monthly cost per fiber of dark fiber distribution for each wire center with DS3 demand. Common costs were also applied to determine the total cost per fiber.

Dark Fiber Interoffice (IX)

The average IX investment per foot per fiber is produced by the SLCM on the "Allocations, Statistics, & Costs" worksheet and extracted into an Excel spreadsheet by wire center. Based on the total investment of aerial fiber, buried fiber, underground fiber, poles and conduit, an annual charge factor is developed and applied to the per foot per fiber investment to calculate the monthly cost per foot per fiber of IX dark fiber for each wire center. Common costs were also applied to determine the total cost per foot per fiber for each wire center.

6. Pricing (Deaveraging)

Pricing reflects the recommendations of the Florida Public Service Commission staff for BellSouth. Non-recurring charges for provisioning are discussed in the NRC cost study. Pricing results may be found in the Cost Summary.

III. D. High Capacity Loop Module

1. FCC Definition

The Telecommunications Act of 1996 (Act) states:

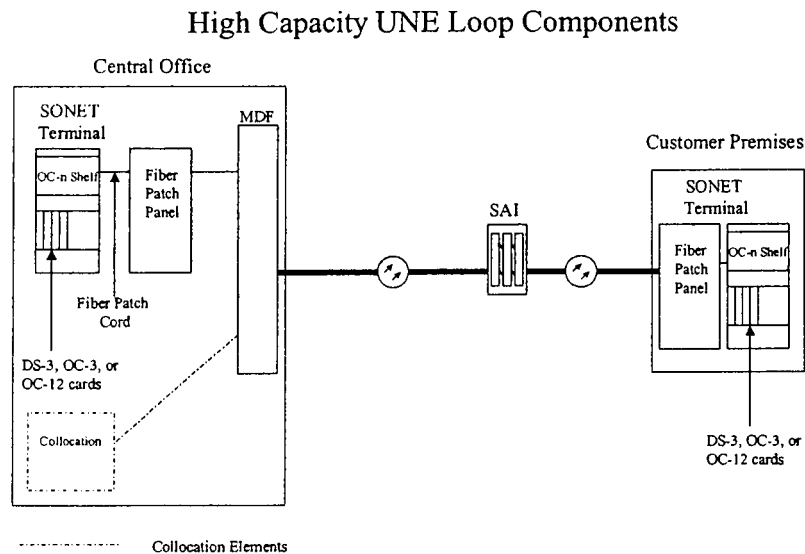
Provide to any requesting carrier non-discriminatory access to network elements:

- On an unbundled basis
- At any technically feasible point
- At rates and terms that are just, reasonable and non-discriminatory
- In accordance with the interconnection agreement
- In a manner that allows the requesting carrier to combine network elements to provide its telecommunications service (251(c)(3)).

In paragraph 167 of FCC 99-238, the FCC states:

We modify the definition of the loop network element to include all features, functions, and capabilities of the transmission facilities, including dark fiber and attached electronics (except those used for the provision of advanced services, such as DSLAMs) owned by the incumbent LEC, between an incumbent LEC's central office and the loop demarcation point at the customer premises.

2. Detailed Network Diagram



3. Major Determinants of Cost

The major determinants of cost for high capacity loops include Fiber Optic terminal equipment and fiber. The Fiber Optic terminal equipment includes the lasers and modules that provide the various levels of bandwidth. For DS-3 service, the primary cost driver is the terminal size. For example, DS-3s served out of an OC-48 system are less expensive than DS-3s served out of an OC-3 system. Since high capacity loops are dedicated to a specific customer, the fiber that carries the signals is also dedicated to that customer. As such, prices for dark fiber also apply.

4. Inputs

For definitions of the inputs, please see the Inputs described in the interoffice transport cost study. The SONET terminal equipment in the high capacity loop studies is the same as used in the transport cost studies.

5. Outputs

Assumptions:

- Use of Fiber Optic facilities is assumed for provisioning high capacity loops. Based on forward-looking plant design, this consists primarily of shared Fiber Optic feeder facilities; fiber distribution facilities are also required to terminate to each end user location. Use of forward-looking SONET technology and least cost network unit costs are assumed.
- Current DS-3 customer locations in Sprint's local network are used as the basis of deriving unit costs and associated terminal characteristics.
- Forward-looking network design incorporates the use of common fiber routes serving Digital Loop Carrier Systems (DLCs) and other customers, as applicable, to create the most efficient network design model.

Methodology

A Total Element Long Run Incremental Cost (TELRIC) study methodology was used to identify the cost of high capacity loops. The cost of a high capacity loop is comprised of fiber cable, terminal equipment, and labor for engineering and installation. The costs developed for the dark fiber UNE are the applicable fiber costs for high capacity loops. The circuit terminal cost for a high capacity loop consists of common material and labor costs; which include such things as power, fiber patch panels, patch cords, cable racking, and labor; and incremental costs, consisting of the plug-in circuit cards required to provide the site-specific bandwidth requirements.

In order to distribute common equipment costs and ensure cost recovery, Sprint determined appropriate levels of demand by obtaining state-specific data from its Carrier Access Information System (CAIMS) and Customer Record Billing (CRB) systems. The information from these systems allowed identification of wire center, service address and circuit quantity information for high capacity loops. This information was geo-coded and entered into the Sprint Loop Cost Model (SLCM), which constructs the forward-looking plant design required to support high capacity and other loop demand.

The SLCM results include wire center-specific investment based actual demand to each grid location within a wire center. The SLCM demand information, audited to ensure separate customer locations are properly identified for terminal count purposes, is used to determine statewide terminal fill factors for high capacity loop demand. A statewide average level of demand is determined by terminal size. This process is detailed in Schedule A¹.

Current vendor pricing was used to determine the common material and labor cost of each terminal size: OC-3, OC-12, and OC-48 unidirectional. The common material and labor cost of each terminal size is then distributed over the average fill for the terminal.

The incremental circuit costs apply based on the specific bandwidth requirements for a particular application. This is recovered via a circuit card charge, which consists of DS-3 cards that act as a direct circuit interface to customer owned facilities. Two DS-3 interface circuit cards are required per DS-3 circuit for OC-3 terminals: one working and one on standby. For OC-12 and larger systems, two DS-3 interface circuit cards are required for four or fewer DS-3 circuits: one working and one standby. These are referred to as quad cards.

In addition to the interface circuit card, line driver / receivers are required. Each DS-3 requires two line driver / receivers: one for incoming and one for outgoing transmission. Each pair of DS-3 interface cards are outfitted with a pair of line driver / receivers for each working DS-3 provided by the interface card. Therefore, the OC-3 incremental circuit costs include two line driver / receivers, and the OC-12 and larger systems' incremental circuit costs include eight line driver / receivers.

The cost of each pair of DS-3 interface circuit cards, and the necessary number of line drivers / receivers for the entire working interface card, must

¹ Schedules A, B, and C are in the High Capacity Loop Cost Study

thus be recovered based on the specific DS-3 quantity requested, even though in some cases additional incremental circuit capacity may exist.

For example, if a CLEC requires 6 DS-3s to a specific location, an OC-12 system equipped with two pairs of DS-3 quad cards is required. The common material and labor cost for an OC-12 system divided by the average fill for an OC-12 system will apply. The circuit terminal costs of two pairs of DS-3 quad cards and sixteen line drivers / receivers, providing a total capacity of eight DS-3s, will apply.

The high capacity loop cost study shows the common material and labor cost and circuit terminal card cost calculations specific to recovery of terminal investment only. Card costs for various card types are also determined. Fiber costs for DS-3s from SLCM are included in the cost of DS-3s. It is assumed that customers using OC-3 and above services are on dedicated fiber routes, therefore, dark fiber prices also apply to account for the costs of fiber.

Similar calculations for the fiber costs can be found on the similar worksheet used for the dark fiber UNE. Additional costs must be included to recover the fiber investment associated with each terminal. The SLCM results also include a wire center-specific per fiber investment which is based upon the average feeder plus distribution fiber optic cable length required to meet the sample DS-3 demand that was geo-coded and input into the model. The investment is multiplied by four fibers (required to service each terminal).

The total cost result will be a combination of the wire center-specific fiber costs plus appropriate terminal costs based on specific bandwidth requirements.

6. Pricing (Deaveraging)

Pricing reflects the recommendations of the Florida Public Service Commission staff for BellSouth. Results can be found in the Cost Summary.

III. E. Inside Wire

1. FCC Definition

The Telecommunications Act of 1996 (Act) states:

Provide to any requesting carrier non-discriminatory access to network elements:

- On an unbundled basis
- At any technically feasible point
- At rates and terms that are just, reasonable and non-discriminatory
- In accordance with the interconnection agreement
- In a manner that allows the requesting carrier to combine network elements to provide its telecommunications service (251(c)(3)).

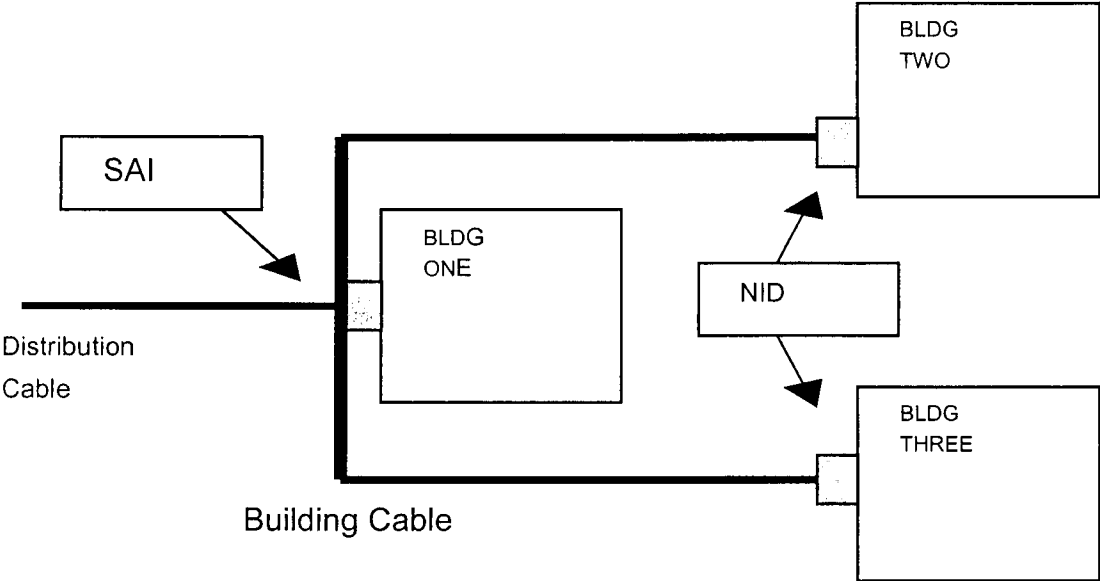
The FCC's Third Report & Order (FCC 99-238), regarding Unbundled Network Elements (UNEs), defines sub-loops as "portions of the loop, at any accessible point." The FCC also expands upon the definition of loops to include "inside wire owned by the incumbent LEC". Section 51.319(a)(2)(A) states:

Inside Wire. Inside wire is defined as all loop plant owned by the incumbent LEC on the end-user customer premises as far as the point of demarcation as defined in §68.3, including the loop plant near the end-user customer premises. Carriers may access the inside wire sub-loop at any technically feasible point including but not limited to, the network interface device, the minimum point of entry, the single point of interconnection, the pedestal, or the pole.

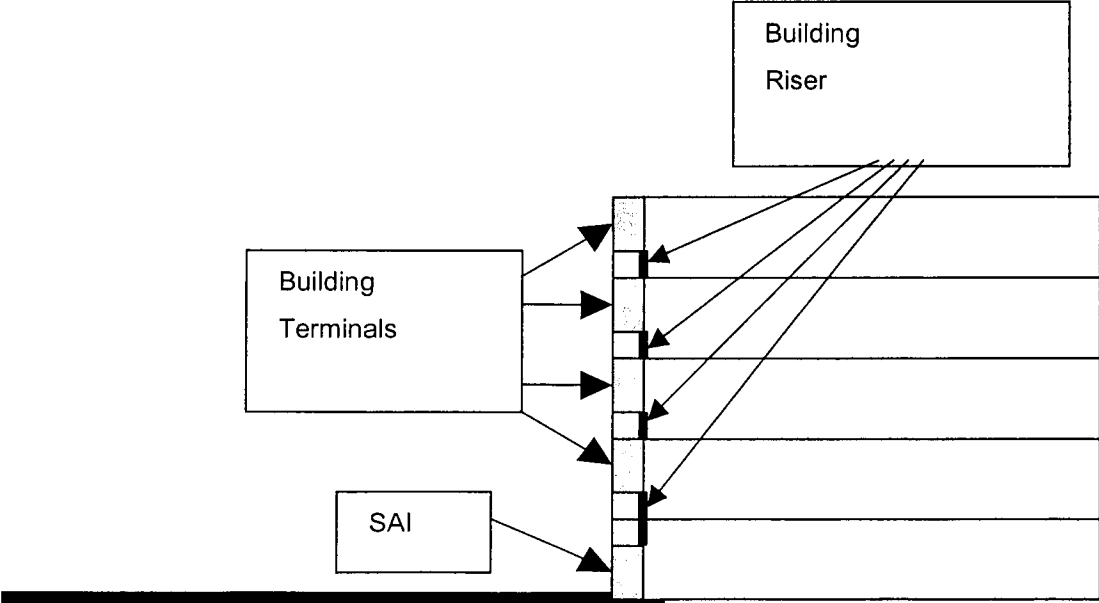
Strictly defined, Inside Wire is all telephone wire that is inside a telephone company customer's premise and is located on the customer's side of the Network Interface (NI). Sprint, however, owns intrabuilding cable connecting separate floors of multi-story buildings, and also connecting multi-tenant buildings in areas such as business parks.

2. Detailed Network Element Diagram

Interbuilding Configuration - Building Addition Scenario



Intrabuilding Configuration - Multi-business Scenario



3. Major Determinants of Cost

The major cost determinants of inside wire are the characteristics of the location and material. Because of the highly variable nature of inside wire, the application of prices is based on the individual components of cable and serving area interfaces.

4. Inputs

The inputs for interbuilding cable are the same as those used for the loop and are taken from the loop inputs in SLCM. Intrabuilding cable inputs are based on current vendor quotes for riser and plenum cabling.

5. Outputs

The following assumptions were used in the inside wire cost study:

- Each location for where Sprint owns inside wire is unique.
- The major determinants of the cost are cable size, plant type, and cable length; SAI type results from the cable size and plant type.
- Due to the unpredictable nature of deployment for the Interbuilding and Intrabuilding scenarios, fixed and variable building-block costs (the variable being by costs per foot of cable) will be established. These are to be applied on a location specific basis to develop prices.
- Costs are identified for cable and NID/SAI for each scenario and each location separately
- Per foot cable cost and structure cost (buried, underground, and aerial) developed in SLCM will be utilized for the interbuilding scenarios.
- Terminal costs for SAI will be the same inputs as used in SLCM.
- Costs for all cabling will be the forward looking costs as if the cabling were installed today or in the near future.
- If fiber is present in the customer's premises, the costs for dark fiber sub-loop will apply.

Methodology – Global

Separate costs for cable and NID/SAI were separately identified for campus cable and for riser cable, due to the nature of the cabling used. The costs were based on an analysis of the type of cable used within Sprint's territory and current material and labor costs for the cable and installation. From the analysis, the type of cable that would be provisioned on a forward-looking basis was determined. Cost development is discussed below for each scenario.

Interbuilding Cable

Campus cable or interbuilding cable consists of the cable used to connect multiple buildings at a customer location. To develop the costs of campus cable, the sizes of cable used within a campus were identified. 24 gauge copper wire is assumed to be used. The cabling used in the interbuilding scenario is the same type of cable used in the loop plant. Current material and installation costs were identified for each cable size that would appear in a campus setting. Installed costs for all of the cable were calculated; these installed costs are the same as the cable cost inputs for SLCM. Structure costs have been added to all of the cable types, which are the costs associated with cable installation above or below ground other than the costs of cable splicing, placing, and engineering. Factors for taxes, capital costs, and maintenance were applied to the investment per foot to determine annual cost recovery requirements. Monthly recurring costs were calculated and common costs were applied to determine prices.

Costs for NID/SAI by pair size were determined in the same fashion.

Intrabuilding Cable

Intrabuilding cable consists of riser cable and plenum cable. Riser cable is the cable running vertically within a building, connecting different floors. Plenum cable is the cable that runs horizontally within a building and connects end users to the building terminals.

Cable types and sizes for intrabuilding cable were identified by researching recent purchases of inside wire. Costs for corresponding Sprint standard NIDs and SAIs were also identified. Current material costs and installation costs were identified to determine the investment per foot of each category of cable by pair size. The cost per foot to install, based on a simple average of buried and underground installation cost, was added to the material cost. Cost factors and taxes were then applied to the investment. A common cost factor was then applied to develop an annual investment, which was then converted to a monthly recurring rate.

Inside Wire Non-recurring Charges

Because of the highly variable nature of inside wire from location to location, generic provisioning costs cannot be applied. Non-recurring charges for inside wire will be developed based on specific site needs including at a minimum the provisioning of facilities for interconnecting Sprint's network to the CLEC network, travel charges, and engineering charges.

5. Pricing (Deaveraging)

The pricing for Inside Wire will be location specific and will be derived from the component list of cable and NID/SAI costs.

IV. A. SCIS

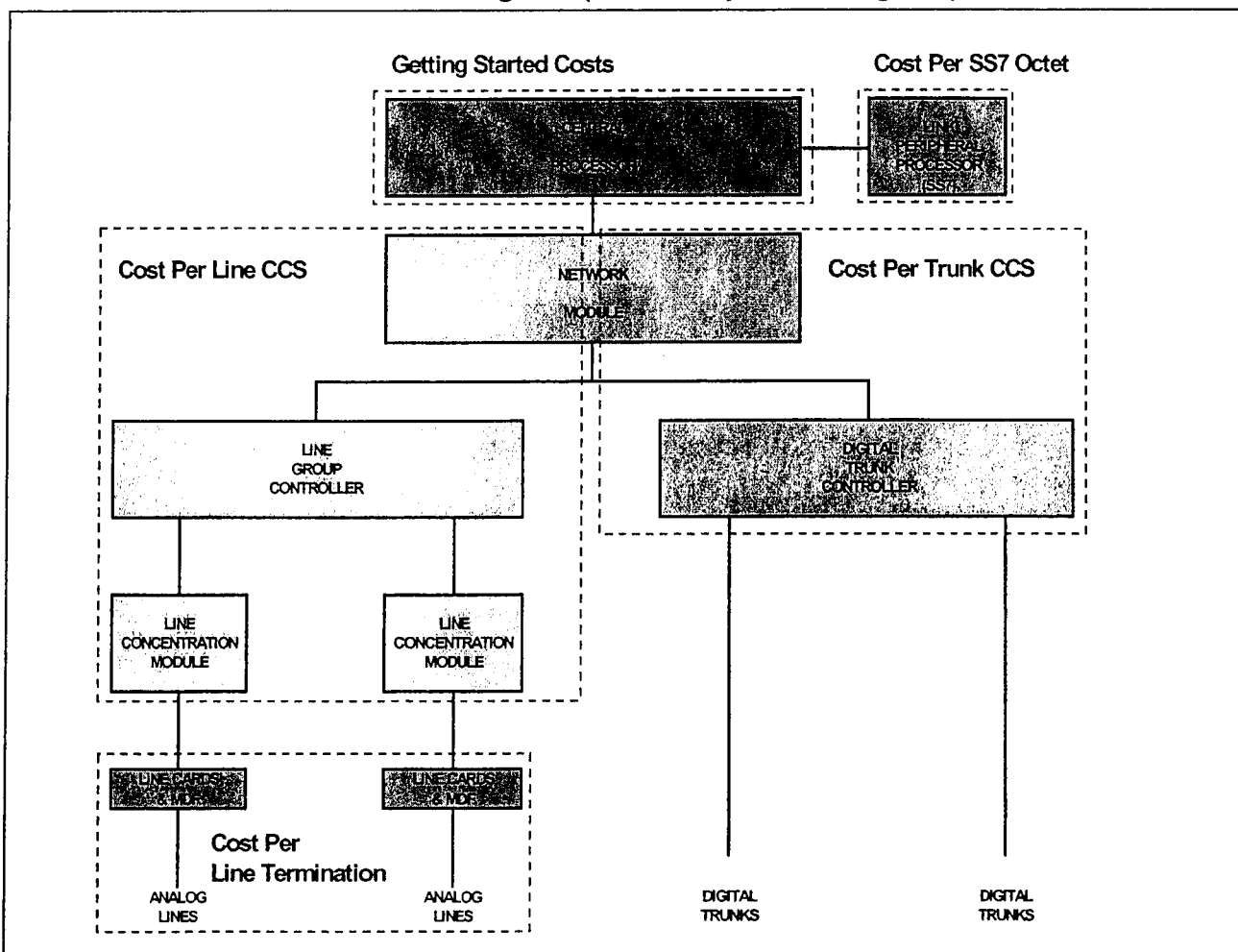
- SCIS/MO (Switch Cost Information System/Model Office)
- SCIS/IN (Switch Cost Information System/Intelligent network)

1. SCIS Definition

The Switch Cost Information System/Model Office (SCIS/MO), developed by Telcordia (formerly Bellcore), is the most widely used switch costing tool in the telecommunications industry today. This switch costing tool is used to calculate investments for Nortel DMS and Lucent 5ESS switches and the vendor's various remote types. The switch investments calculated in SCIS/MO provide the investment inputs used in the Sprint Switching Module to calculate statewide average switching costs.

Telcordia's SCIS Intelligent Network (SCIS/IN) is a costing model that uses SCIS/MO results and specific feature inputs to calculate feature specific costs.

2. Detail Network Element Diagram (DMS Simplified Diagram)



3. Major Determinants of Cost

The SCIS/MO Model Office applies user inputs to SCIS investment drivers in order to calculate costs associated with the office functional cost categories. In doing this, the model incorporates the economic perspectives and technical data selected by the user. The objective is to determine investments created by applying engineering methods to telco demand from the perspective of the functional capabilities the investments provide.

The SCIS/IN vertical features objective is to clearly reflect switching cost causal relationship in a manner that permits application of these costs to the services provided, and to the degree required.

4. Inputs

Host and Remote Switch Inputs

There are numerous host and remote inputs used in SCIS/MO to calculate switching investments. The following input areas must be populated in the data fields in order to calculate investments with SCIS/MO.

- General Study and System Parameters
- Model Office – Host Data (per Host)
 - General
 - Central Processor Utilization (CPU)
 - Lines (total number)
 - Trunks (total number of analog and digital)
 - Link Peripheral Processor (LPP)
 - Automatic Message Accounting (AMA)
- Model Office – SS7
 - Used when the standalone host office has Signaling System 7 (SS7) capability
- Model Office – Host Integrated Services Digital Network (ISDN) & GR303
 - ISDN Basic Rate Interface (BRI)
 - Plain Old Telephone Service (POTS)
 - Non-Digital Loop Carrier (DLC)
 - ISDN Primary Rate Interface (PRI)
 - Packet Trunking
 - BRI/POTS on Integrated Digital Loop Carrier (IDLC)
 - GR-303
- Model Office – Remote Data (per Remote)
 - General/Umbilical
 - CPU (Central Processing Unit)
 - Lines
 - Trunks
- Model Office – Remote ISDN Data (only when the remote is ISDN equip.)
 - BRI & POTS (Non-DLC)

Feature Inputs

SCIS/IN requires feature specific inputs to calculate vertical service costs. These inputs generally include busy hour activations, busy hour deactivations, calls per line, holding time, digits dialed and sessions per line.

5. Outputs

Host Switch Outputs

SCIS/MO investment outputs for host offices are as follows:

Note: 5ESS pertains to the Lucent 5ESS switch type and references to DMS-100 are to the Nortel DMS-100F switch type. The Nortel DMS-10 switch is closely identified with the DMS-100 in functionality except that it does not provide tandem trunk services. Some SCIS/MO investment results are specific to the 5ESS switch and are noted.

1. Getting Started Investment (GSI)
GSI is the fixed investment of establishing a new Host/Standalone office including the initial processor community along with, spares, breakage, maintenance, test and miscellaneous equipment.
2. Switching Module Investment Per EPHC (Equivalent POTS Half Call (5ESS))
This investment represents the capacity unit investment of Switching Module equipment based on the real-time capacity of the Switching Module processor.
3. Switching Module-2000 Investment Per EPHC (5ESS only)
Represents the capacity unit investment of Switching Module 2000 (SM-2000) equipment based on the real-time capacity of the Switching Module-2000 processor.
4. Line Termination Investment
This investment category reflects the cost of serving lines in an office. The investment components of the Line Termination Investment include the primary elements for analog and digital lines.
5. Investment per Trunk CCS
Is the investment associated with the local trunk usage for interoffice calls that are recovered in the Trunk CCS category, which represents the weighting of the analog and digital trunk investments. The DMS-100F provides an interface for the following trunk types: analog trunks, digital trunks (56 KBPS), and DS0 CCC digital trunks (64 KBPS). The 5ESS calculation will weight the additional Excess Switching Module Processor Capacity, which adjust for analog and digital trunks.

6. Investment per Tandem Trunk CCS

This investment is the cost associated with tandem trunk usage (analog, digital and DS0 CCC digital) for interoffice calls. A weighted average is calculated from the analog, digital and DS0 trunk mix of the office(s) being studied.

7. Investment per SS7 Signaling Octet

To properly allocate the investment with SS7 signaling capability at the end office or tandem switch, a constant or levelized investment per signaling octet was developed. The signaling resource investment coefficient was developed in a manner consistent with SCIS methodology and is used to determine the signaling investment associated with those services and capabilities that use the SS7 signaling network.

Remote Switch Outputs

Remote switches provide an economical and efficient means to increase the serving area from a host switch.

There are two types of remotes served by a DMS-100F.

- Remote Line Concentration Module (RLCM) (up to 639 subscribers capacity)
- Remote Switching Center-Sonet (RSC-S) (up to 12,780 analog lines can be interfaced)
 - Single
 - Dual

The 5ESS remote types provide the same set of service and features as the 5ESS Host. These remotes have the ability to transmit traffic and other administrative data to the Host and the ability to switch calls within the remote. These remotes have the standalone capability to provide autonomous local switching if facilities at or between the Host and the remote fail.

There are three types of remotes served by a 5ESS switch:

- Remote Switch Modules (RSM) which is defined by the number of Collocated Switch Modules. Serves remote locations (1-104 miles). Single classic SM serves 5,120 lines maximum. Connects via T-umbilicals.
- Optical Remote Switching Modules (ORM) which is defined by the ORM Mileage Type. Serves remote locations (2-100 miles). Single classic SM serves 5,120 lines maximum. Connects to host via NCT link umbilicals.
- SM-2000 Extended Module (EXM) Serves remote locations up to 100 miles. Serves 27,520 lines maximum. Connects to host via NCT link umbilicals.

The Remote Model Office investment categories and sub-categories are as follows.

Note: the following detailed discussion applies to DMS-100 remote switches with similar investment results applying to 5ESS remote switches.

1. Getting Started Investment

When a remote is served from a host, there is a Getting Started Investment (GSI) for each remote. 5ESS switch computations include additional investment for Switch Module EPHC and SM-2000 EPHC.

2. Line Termination Investment

The investment components of the Line Termination Investment include the following primary elements for RLCM and RSC-S.

- RLCM
 - Distribution Frame /Protection
 - analog line requires one termination
 - digital interface on T-1 requires two terminations
 - Line Card
 - one to terminate each individual wire pair
 - dedicated (not usage sensitive)
 - Line Concentrating Module
 - provides drawers to mount 640 line cards
 - connected to the host via 2 - DS-1 links
 - has blockage probability (usage sensitive component)
- RSC-S
 - Distribution/Protection Frame
 - analog line requires one termination
 - digital interface requires two terminations
 - Line Card
 - one to terminate each individual wire pair
 - dedicated-not usage sensitive
 - Line Concentrating Module for analog lines
 - served by a Remote Cluster Controller
 - connected via 2-6 speech links
 - has blockage probability (usage sensitive component)
 - DS-1 Termination Port for digital lines

- Subscriber Carrier Modules (SCM) for digital lines
 - peripheral module that allows for the integration of Digital Loop Carrier Systems into a DMS-100F switch
 - connected to the RCC2 via speech links
 - line-side traffic terminates via DS-1 links
 - can interface with Lucent SLC-96 Modes I & II
 - Remote Cluster Controller (RCC2)
 - Minimum Investment per Line
 - reflects a weighted average of all analog and digital POTS lines in the office
3. Switching Module Investment Per EPHC (O + I Umbilical) (5ESS)
This investment represents the capacity unit investment of the Switching Module equipment.
4. Investment per Umbilical Trunk CCS (Outgoing or Incoming)
Represents the switch resources used to route traffic between a remote and a host switch. The Average Investment per Umbilical Trunk CCS is based upon the number of umbilical T1 links from the remote to its hosting entity as well as the total ABSBH CCS umbilical traffic. T-span umbilical links from an RSC-S or RLCM can terminate in the host on an LGC or LTC. RSC-Ss with trunking capability must be terminated at an LTC.

Feature Outputs

The SCIS/IN module aggregates resource costs for the resources consumed, along with costs for any additional hardware required to provide the feature. The investment output categories for vertical features are as follows:

- Getting Started
- CCS
- Call
- Minimum Line Investment
- Hardware
- Memory
- SSP Octet

6. Pricing

Not Applicable.

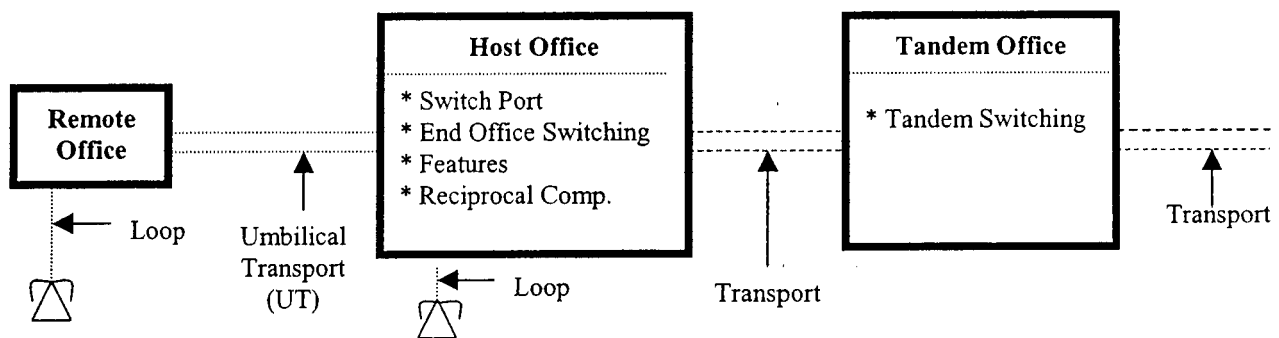
IV. B. Switching Module

1. FCC Definition

In Paragraph 412 of FCC 96-325, the FCC states:

“We defined the local switching element to encompass line-side and trunk-side facilities plus the features, functions, and capabilities of the switch. The line-side facilities include the connection between a loop termination at, for example, a main distribution frame (MDF), and a switch line card. Trunk-side facilities include the connection between, for example, trunk termination at a trunk-side cross-connect panel and a trunk card. The “features, and capabilities” of the local switch include the basic switching function of connecting lines to lines, lines to trunks, trunks to lines, trunks to trunks. It also includes the same basic capabilities that are available to the incumbent LEC’s customers, such as a telephone number, directory listing, dial tone, signaling, and access to 911, operator services and directory assistance. In addition, the local switching element includes all vertical features that the switch is capable of providing, including custom calling, CLASS features, and Centrex, as well as any technically feasible customized routing functions. Thus when a requesting carrier purchases the unbundled local switching element, it obtains all switching features in a single element on a per-line basis. A requesting carrier will deploy individual vertical features on its customers’ lines by designating, via an electronic ordering interface, which features the incumbent LEC is to activate the particular customer lines.”

2. Detailed Network Element Diagram



Switching elements:

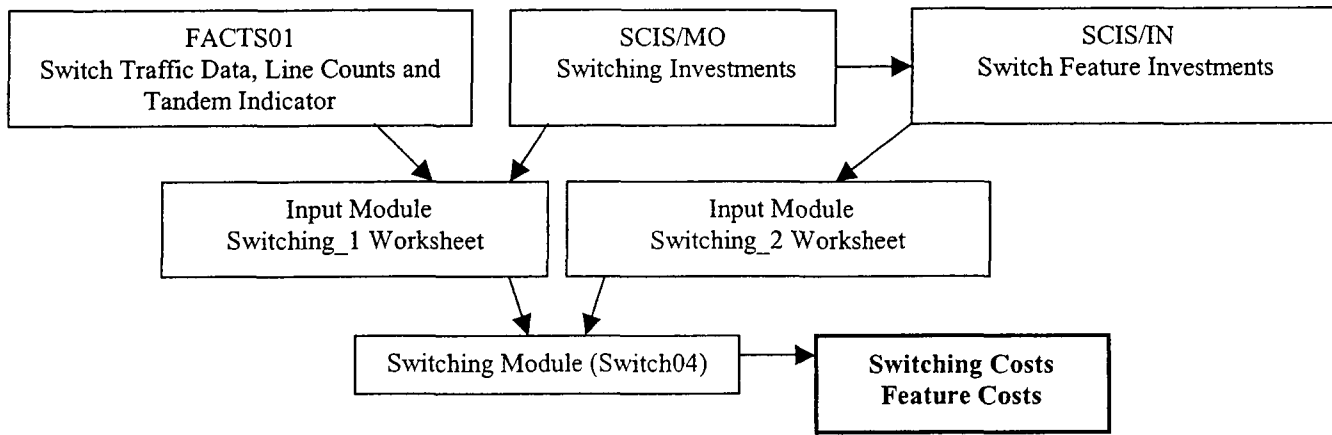
- Switch Port
- End Office Switching
- Features
- Reciprocal Compensation
- Tandem Switching

3. Major Determinants of Cost

Some of the major determinants of switching costs are:

1. Host/Remote office type
2. Number of access lines
3. Amount of line usage and call attempts
4. Amount of trunk usage and call attempts
5. Quantity and type of features served by the switch

Flow chart of switch costing inputs:



Switching Module Overview

The Switching_1 and Switching_2 worksheets in the Input Module contain information necessary to run the Switching Module to calculate switching and feature costs. The top section of the Switching_1 worksheet contains area-wide inputs, which apply to all host and remote offices. Some of this information is vendor proprietary. The remainder of the worksheet contains office specific information such as study-derived traffic data and Switch Cost Information System (SCIS) derived investment data. Sprint identifies hosts and remotes based on their actual deployment in the network and identifies usage characteristics specific to each wire center in the calculation of costs. The Switching_2 worksheet contains the feature investments developed in SCIS/IN, which are inputs to the Switching Module for calculating feature costs.

The Switching Module uses the Switching_1 worksheet which contains total switch investments calculated in SCIS to derive Total Element Long Run Incremental Cost (TELRIC) results for each host and host/remote complex. These SCIS switch costs are the basis to calculate and provided statewide-weighted average costs for each switching element. In the Switching Module, each host office complex results are posted to the various investments calculating worksheets as the model runs its iterations. The process is repeated for each host office complex and results are posted to summary reports that

calculate the statewide average cost. The data associated with the last office in the file remains in the Switching Module allowing the analyst to easily review the calculations.

The following describes the several major steps taken to generate switching costs using the Switching Module.

First Step: Determine the total forward-looking switch investment and demand for each central office. Forward-looking investment is determined using the Telcordia developed SCIS model which is processed with Sprint's switch specific inputs. Each switch is modeled assuming a minimum processor capability. The Supernode 60 (SN60) is the minimum processor size currently supported by Nortel and represents forward-looking technology as required by TELRIC standards. The SN60 is the smallest processor used for switch costing by Sprint.

Switching investments calculated by SCIS are based on six investment elements:

1. Processor: the investment associated with the set-up of calls.
2. Fixed Line: the investment required to terminate the local loop in the central office. It is composed primarily of a line card, the main distribution frame (MDF) and protector.
3. Line Usage: the investment associated with usage sensitive line-side switching. It is composed primarily of the line concentrating module (LCM), line group controller (LGC), DS-30A links and the network module.
4. Trunk Usage: the investment associated with usage sensitive trunk-side switching. It is composed primarily of digital trunk controllers (DTC), DS1 links and the network module (NM).
5. Umbilical Usage: the usage sensitive investment necessary to operate the host-remote links.
6. SS7 Link: the investment associated with the SSP (Service Signaling Point) located in the central office.

The SCIS model considers only the hardware investment in the central office. One-time software investment required to provide basic switching functionality is included in the cost and is provided to Sprint by the vendors. The demand data for minutes-of-use (MOU) and call set-ups (also known as call attempts or CA) are derived from switch traffic studies. All this information is shown in the "Variables" worksheet and is carried forward from the Input Module.

Second Step: Determine the number of processor milliseconds required to process each type (line or trunk) of call. This information is shown in the "Processor" worksheet and is proprietary to the vendor.

Third Step: Derive monthly expense per investment category by multiplying the investment by the appropriate forward-looking annual charge factor (ACF). This is shown in the "Expenses" worksheet.

Fourth Step: Calculate the cost per line side and trunk side call set-up by determining the total processor cost per line side and trunk side call and dividing by the appropriate MOU. This calculation is shown in the "SetUp" worksheet.

Fifth Step: Calculate the cost per MOU per call type by determining the total Centum Call Seconds (CCS) investment by call type and dividing by the appropriate MOU (actual studied MOU demand). The result is a cost per MOU for both the line-side and trunk-side of the office. This calculation is shown in the "MOU" worksheet.

4. Inputs

The Switching_1 Inputs that are uploaded into the Switching Module to calculate TELRIC switching and feature costs are:

1. Digital Switching Annual Cost Factor (ACF)
2. Software ACF
3. Software Costs
4. Percent (%) of Investment that is Switching Related
5. Sales Tax Rate
6. Total POTS + Suburban + Residential Lines
7. Total Urban + Business Lines
8. Local Engineering Factor (E,F&I)
9. SS7 Investment Per Octet
10. Octets Per Call Set-up
11. Processor Milliseconds per Call Type (Line, Trunk, SS7)
12. Annual Investment for UNE Port Types
13. Tandem Indicator (Indicates Local or Access Tandem)
14. Traffic Data
 - Line Call Attempts
 - Trunk Call Attempts
 - Line MOU
 - Trunk MOU
 - Host Line Counts
 - Remote Line Counts
15. SCIS Investment Inputs
 - Host Investments
 1. Getting Started
 - SCIS/Getting Started Investment
 - SCIS/Switch Module EPHC Investment (5ESS)
 - SCIS/SM-2000 EPHC Investment (5ESS)

2. Working Line
 - SCIS/Total Working Line Investment
3. Reserve CCS
 - SCIS/Excess CCS Capacity Investment
4. Line CCS
 - SCIS/Total Line CCS Investment (O+T)
5. Trunk CCS
 - SCIS/Total Trunk CCS Investment (O+I)
6. Tandem Trunk CCS
 - SCIS/Total Tandem Trunk CCS Investment (O+I)
7. SS7
 - SCIS/Initial SS7 Link Pair(s) Investment

Remote Investments

1. Getting Started
 - SCIS/ Total Getting Started Investment
2. Working Line
 - SCIS/Total Working Line Investment
3. Reserve CCS
 - SCIS/Excess CCS Capacity Investment
4. Line CCS
 - SCIS/Total Line CCS Investment (O+T)
5. Trunk CCS
 - SCIS/Total Trunk CCS Investment (O+I)
6. Umbilical CCS
 - SCIS/Total Umbilical Trunk CCS Investment (O+I)

5. Outputs

The Switching Module cost output worksheets are:

1. Cost_Summary
 - Summary sheet lists the cost elements and associated costs calculated within the Switching Module.
2. Local_Switching
 - Calculates the UNE weighted average local switching MOU cost for each office complex and the port cost.
3. LS_Rate_Bands
 - Calculates the UNE statewide average port cost.
4. UNE_Port
 - Calculates the UNE port cost by port type and statewide average.
5. Call_Termination
 - Calculates the call termination costs per call attempt and call termination per MOU by host complex.
6. CT_MOU_Summary
 - Calculates the statewide average call termination cost per MOU.

7. CT_CA_Summary
Calculates the statewide average call termination cost per call attempt.
8. Tandem Switching
Calculates the tandem switching costs per call attempt and tandem switching cost per MOU by host complex.
9. TS_MOU_Summary
Calculates the statewide average tandem switching cost per MOU.
10. TS_CA_Summary
Calculates the statewide average tandem switching cost per call attempt.
11. TS_UNE_Summary
Summarizes the statewide average UNE tandem switching cost.
12. CCF
Calculates the custom calling features package cost.
13. CLASS_Features
Calculates the CLASS calling features package cost.
14. Centrex_Features
Calculates the Centrex features package cost and the individual Centrex feature costs.
15. ISDN_Features
Calculates the ISDN features package cost.

Each wire center reflects the cost characteristics associated with the host switch and if applicable the remote switch (es) providing service to that exchange; and for remote switch (es) providing service to other exchanges via umbilicals to the host. Host switches generally require less investment per line than remotes due to economies of scale. There are other costs associated with remote switches such as processor, power and umbilical investment, which generally cause the cost per remote line to be higher. Each host/remote complex, once calculated and posted to the appropriate worksheet is totaled to calculate the statewide-weighted average cost for each element. The common cost factor is applied consistent with TELRIC costing principles.

6. Pricing

Results are shown on the Cost Summary.

V. Transport

A. Transport Module

1. FCC Definition

The Telecommunications Act of 1996 (Act) states:

Provide to any requesting carrier non-discriminatory access to network elements

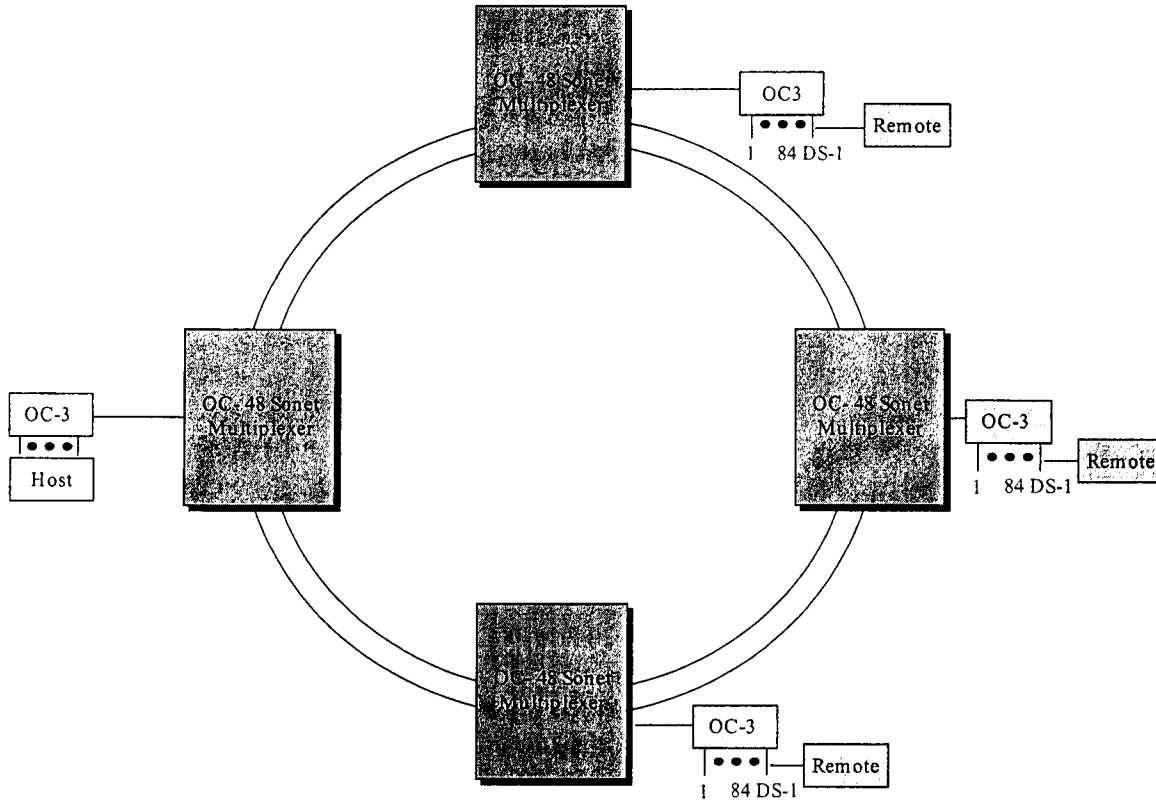
- On an unbundled basis
- At any technically feasible point
- At rates and terms that are just, reasonable and non-discriminatory
- In accordance with the interconnection agreement
- In a manner that allows the requesting carrier to combine network elements to provide its telecommunications service (251(c)(3))

The Federal Communications Commission states in FCC 96 - 325 Paragraph 440

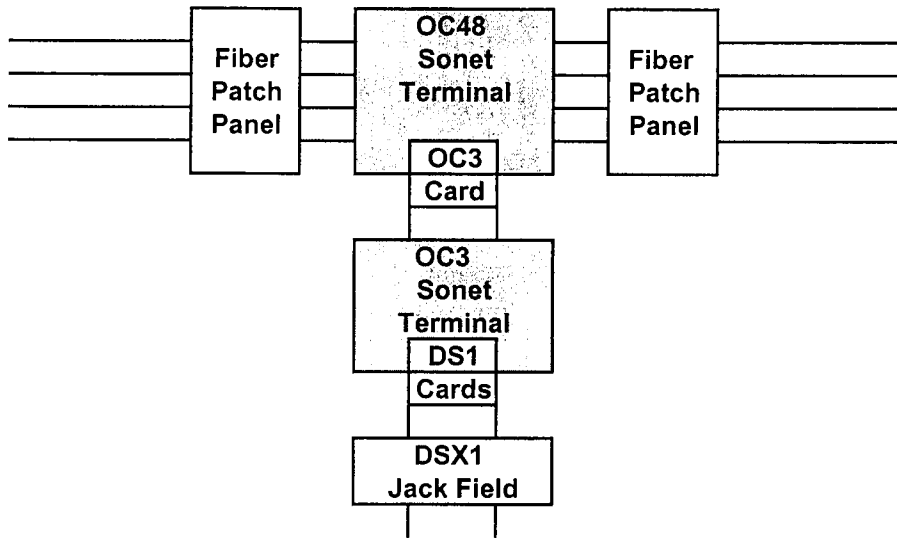
“We require incumbent LECs to provide unbundled access to shared transmission facilities between end offices and the tandem switch. Further, incumbent LECs must provide unbundled access to dedicated transmission facilities between LEC central offices or between such offices and those of competing carriers. This includes, at a minimum, interoffice facilities between end offices and serving wire centers (SWCs), SWCs and IXC POPs, tandem switches and SWCs, end offices or tandems of the incumbent LEC, and the wire centers of incumbent LECs and requesting carriers. The incumbent LEC must also provide, to the extent discussed below, all technically feasible transmission capabilities, such as DS1, DS3, and Optical Carrier levels (e.g. OC-3/12/48/96) that the competing provider could use to provide telecommunications services. We conclude that an incumbent LEC may not limit the facilities to which such interoffice facilities are connected, provided such interconnection is technically feasible, or the use of such facilities. In general, this means that incumbent LECs must provide interoffice facilities between wire centers owned by incumbent LECs or requesting carriers, or between switches owned by incumbent LECs or requesting carriers. For example, an interoffice facility could be used by a competitor to connect to the incumbent LEC’s switch or to the competitor’s collocated equipment.”

2. Detailed Network Element Diagram

NETWORK RING DIAGRAM



Transport Node Configuration



3. Major Determinants of Cost

The major determinants of cost in the Transport Cost Study are EF & I Investments, terminal bandwidth, utilization and mileage as applied to Extended Area Service (EAS) routes in the provision of common and dedicated transport. The inputs to the transport cost study, which form the basis of the major determinants of cost are discussed at length in the following Inputs section.

4. Inputs

Trans Inputs

The Trans_Inputs worksheet includes Material Costs, Annual Charge Factors, and Miscellaneous Factors. Material Costs and Miscellaneous Factors are inputs to the Transport Cost Model. The Annual Charge factors are calculated in the Annual Charge Factor Model.

Material Costs

Material cost inputs include termination and mileage equipment costs. The material input column represents the total dollar investment amount for each piece of equipment itemized in the equipment column. The values for fiber patch cord and fiber patch panel are expressed on a "per fiber" basis. The terminal equipment investments represent the investment for the entire shelf and common equipment. The related terminal card investments represent the cost per DS1 (for DS1 cards) or per DS3 (for DS3 cards). The material investment amounts have been developed with the assistance of Sprint engineers familiar with Synchronous Optical Network (SONET) transmission equipment. SONET transmission equipment is the forward-looking transport network configuration utilized in the costing of transport. All investment amounts represent preferred-vendor costs for equipment configured for typical usage. Shipping and handling are state specific, and are included in the investment amount shown.

The Engineering/Installation Labor input column represents the total dollar amount of engineering and installation labor for each piece of equipment itemized in the equipment column. These were determined using engineering and installation hours for each piece of equipment as developed by Sprint Engineering as typical work durations and are considered appropriate for this cost study. State specific fully loaded labor rates were applied to the typical work duration.

The Sales Tax column is calculated using inputs discussed in the Miscellaneous Factors later in this section.

EF&I Investment per Unit is the sum of Material, Engineering/Installation Labor and Sales Tax.

The following represents a list of the inputs to the module:

Fiber Patch Cord -

This is a piece of fiber cable used to connect the fiber from the SONET terminal to a patch panel. Patch cords are available in a variety of lengths. The cord modeled here was chosen by Network Planning as the median value among the lengths available and in common use. These costs are included in the monthly termination costs calculated by the model for all size SONET facilities.

Fiber Patch Panel

All fibers coming into or out of a SONET terminal are connected to a patch panel in the central office, from which they are connected to other central office equipment. Patch panels are available in a variety of sizes. The panel modeled here is a 72-fiber patch panel, chosen as being representative of the panels currently installed by Sprint for the majority of its operations. These costs are included in the monthly termination costs calculated by the model for all size SONET facilities.

SONET Terminal Shelf (OC3)

The OC3 terminal line item includes the shelf, bay, transmitters and receivers, spares, cabling, and all other common equipment such as software used in a typical OC3 SONET terminal configuration. The costs associated with this item are included in the monthly termination costs for OC3 rings.

DS3 Card

The DS3 card is the card required to add or terminate traffic on an OC3 terminal at the DS3 bandwidth level. The costs associated with this item are included in the monthly termination costs per DS3 for an OC3 terminal.

DS1 Card

The DS1 card is the card required to add or terminate traffic on an OC3 terminal at the DS1 bandwidth level. The costs associated with this item are included in the monthly termination costs per DS1.

SONET Terminal Shelf (OC12)

The OC12 terminal line item includes the shelf, bay, transmitters and receivers, spares, cabling, and all other common equipment such as software used in a typical OC12 SONET terminal configuration. The costs associated with this item are included in the monthly termination costs for OC12 rings.

OC3 Card

The OC3 card is the card required to add or terminate traffic on an OC12 terminal at the OC3 bandwidth level.

Quad DS3 Card

The Quad DS3 Card is required to add or terminate traffic on an OC12 terminal at the DS3 bandwidth. The costs associated with this card are included in DS3 termination costs for OC12 rings.

SONET Terminal Shelf (OC48 2-Fiber)

The OC48 2-fiber terminal line item includes the shelf, bay, transmitters and receivers, spares, cabling, and all other common equipment used in a typical OC48 2-fiber SONET terminal configuration. The costs associated with this item are included in the monthly termination costs for the OC48 2-fiber rings.

OC12 Card

The OC12 card is the card required to add or terminate traffic on an OC48 2-fiber terminal at the OC12 bandwidth level.

OC3 Card

The OC3 card is the card required to add or terminate traffic on an OC48 2-fiber terminal at the OC3 bandwidth level.

3DS3 Card

The 3DS3 card is required to add or terminate traffic on an OC48 2-fiber terminal at the DS3 bandwidth level. The costs associated with this card are included in DS3 termination costs for OC48 rings.

SONET Terminal Shelf (OC48 4-Fiber)

The OC48 4-fiber terminal line item includes the shelf, bay, transmitters and receivers, spares, cabling, and all other common equipment used in a typical OC48 4-fiber SONET terminal configuration. The costs associated with this item are included in the monthly termination costs for OC48 4-fiber rings.

OC12 Card

The OC12 card is the card required to add or terminate traffic on an OC48 4-fiber terminal at the OC12 bandwidth level.

OC3 Card

The OC3 card is the card required to add or terminate traffic on an OC48 4-fiber terminal at the OC3 bandwidth level.

3DS3 Card

The 3DS3 card is required to add or terminate traffic on an OC48 4-fiber terminal at the DS3 bandwidth level.

DSX3 Cross Connect Shelf

The Cross Connect Shelf item comprises all the common equipment of a DSX3 cross connect. This is used for arranging, rearranging, and testing circuits at the DS3 level.

DSX3 Cross Connect Card

The DSX3 card used in the DSX3 cross connect has a capacity of one DS3.

DSX1 Cross Connect Jack Field

The Cross Connect Jack Field is a cross connect used for arranging, rearranging, and testing circuits at the DS1 level. The entire cross connect used has a total capacity of 84 DS1s.

Channel Bank

The channel bank is required to convert digital signals to analog signals at the voice channel DS0 (64 kpbs) level. The channel bank line item consists of the common equipment for providing DS0 circuits.

Channel Bank Card

Each DS0 requires one card in the channel bank. The input cost is representative of voice grade service.

Mileage Equipment: Aerial Fiber (per fiber)

This input is the cost of one mile of only aerial fiber (installation and sheath excluded). Using fiber costs developed from the Loop Module, a regression analysis was used to determine the cost of only the fiber for aerial, underground, and buried cable. A 36 fiber cable was used for the analysis. (Please see earlier discussion of Cable Costs in the Loop Section.)

Mileage Equipment: Underground Fiber (per fiber)

This input is the cost of one mile of only underground fiber (installation and sheath excluded). Using fiber costs developed from the Loop Module, a regression analysis was used to determine the cost of only the fiber for aerial, underground, and buried cable. A 36 fiber cable is used for the analysis. (Please see earlier discussion of Cable Costs in the Loop Section.)

Mileage Equipment: Buried Fiber (per fiber)

This input is the cost of one mile of only buried fiber (installation and sheath excluded). Using fiber costs developed from the Loop Module, a regression analysis was used to determine the cost of only the fiber for aerial, underground, and buried cable. A 36 fiber cable was used for the analysis. (Please see earlier discussion of Cable Costs in the Loop Section.)

Installation & Sheath (OC3, OC12, & OC48 2 Fiber): Aerial Fiber (per fiber)

This input is the cost of one mile of installation and sheath for aerial fiber. Using fiber costs developed from the Loop Module, a regression analysis is used to determine the cost of only the fiber for aerial, underground, and buried cable. A 36 fiber cable is used for the analysis. The cost of fiber is subtracted from the cost of the total cable. The difference is converted to a per mile cost for a two fiber system which becomes the input for installation and sheath.

Installation & Sheath (OC3, OC12, & OC 48 2 Fiber): Underground Fiber (per fiber)

This input is the cost of one mile of installation and sheath for underground fiber. Using fiber costs developed from the Loop Module, a regression analysis is used to determine the cost of only the fiber for aerial, underground, and buried cable. A 36 fiber cable is used for the analysis. The cost of fiber is subtracted from the cost of the total cable. The difference is converted to a per mile cost for a

two fiber system which becomes the input for installation and sheath.

Installation & Sheath (OC3, OC12, & OC48 2 Fiber): Buried Fiber (per fiber)

This input is the cost of one mile of installation and sheath for buried fiber. Using fiber costs developed from the Loop Module, a regression analysis is used to determine the cost of only the fiber for aerial, underground, and buried cable. A 36 fiber cable is used for the analysis. The cost of fiber is subtracted from the cost of the total cable. The difference is converted to a per mile cost for a four fiber system which becomes the input for installation and sheath.

Installation & Sheath (OC48 4 Fiber): Aerial Fiber (per fiber)

This input is the cost of one mile of installation and sheath for aerial fiber. Using fiber costs developed from the Loop Module, a regression analysis is used to determine the cost of only the fiber for aerial, underground, and buried cable. A 36 fiber cable is used for the analysis. The cost of fiber is subtracted from the cost of the total cable. The difference is converted to a per mile cost for a four fiber system which becomes the input for installation and sheath.

Installation & Sheath (OC48 4 Fiber): Underground Fiber (per fiber)

This input is the cost of one mile of installation and sheath for underground fiber. Using fiber costs developed from the Loop Module, a regression analysis is used to determine the cost of only the fiber for aerial, underground, and buried cable. A 36 fiber cable is used for the analysis. The cost of fiber is subtracted from the cost of the total cable. The difference is converted to a per mile cost for a four fiber system which becomes the input for installation and sheath.

Installation & Sheath (OC48 4 Fiber): Buried Fiber (per fiber)

This input is the cost of one mile of installation and sheath for buried fiber. Using fiber costs developed from the Loop Module, a regression analysis is used to determine the cost of only the fiber for aerial, underground, and buried cable. A 36 fiber cable is used for the analysis. The cost of fiber is subtracted from the cost of the total cable. The difference is the input for sheath. The Engineering/Installation Labor is calculated using the labor costs from the Loop Module to determine the cost for one mile of four fibers. (Please see earlier discussion of Cable Costs in the Loop Section.)

Fiber Repeater (OC3)

Optical regenerators are used when the distance between terminals exceeds recommended limits. The need for regenerators is a ring specific input.

Fiber Repeater (OC12)

Optical regenerators are used when the distance between terminals exceeds recommended limits. The need for regenerators is a ring specific input.

Fiber Repeater (OC48 2 Fiber)

Optical regenerators are used when the distance between terminals exceeds recommended limits. The need for regenerators is a ring specific input.

Fiber Repeater (OC48 4 Fiber)

Optical regenerators are used when the distance between terminals exceeds recommended limits. The need for regenerators is a ring specific input.

Miscellaneous Factors

Miscellaneous Factors are inputs to address a variety of factors and caps.

Fiber Pole Factor

This factor represents the dollar investment in poles for each dollar investment in aerial fiber. This factor is calculated from year-end, company specific investment data taken from the PeopleSoft Asset Management Database.

Fiber Conduit Factor

This factor represents the dollar investment in conduit for each dollar investment in underground cable. This factor is calculated from year-end, company specific investment data taken from the PeopleSoft Asset Management Database.

Miscellaneous Equipment & Power Factor

This value was calculated from ARMIS data for all Sprint companies. It is the ratio of Power and Common Central Office Equipment expenses, to all other Central Office expenses.

Fiber Mix: Aerial, Underground, Buried

These three inputs must sum to 100% and represent the relative percentage of interoffice fiber facilities that are aerial, underground and buried. A state specific Plant Mix study is performed by state.

Sales Tax Rate

This input is the state specific sales tax. Application of the sales tax to material only or material and labor is also an input.

Maximum Utilization Level: OC48 2 Fiber, OC48 4 Fiber

These two inputs cap the maximum utilization level allowed for the OC48 terminals. These inputs represent the maximum utilization at which the terminals are capable of operating.

DS1 Monthly MOU

This input is the industry accepted total number of minutes of use a DS1 can handle for one month.

Assumptions Worksheet

The Assumption Worksheet includes the following items:

Number of Units Required is an input of the number of each piece of equipment that is necessary for one termination.

DS1 System Capacity is the number of DS1s each piece of equipment is designed to accommodate

TransRings

The TransRings worksheet is used to input details for each ring. Rings are designed using forward-looking plans and known traffic demand. The inputs include the following ring-specific information:

Route Name

Each ring is assigned a unique route name.

Ring Number

Each ring is given a unique ring number.

Segment Name

Each segment of each ring is entered.

Ring Type

The type of ring, ("S" for a Self-healing Ring, or "F" for a folded ring).

Segment Beginning

This input identifies the type of terminal connection at the segment origination (DS1, DS3, OC3, OC12, SONET, Fiber, or Point of Connection (POC).)

Termination End

This input identifies the type of terminal connection at the segment termination (DS1, DS3, OC3, OC12, SONET, Fiber, or Point of Connection (POC).)

Segment Actual Miles

The route miles for each segment in each ring.

Number of Repeaters

The number of repeaters, or regenerators, used in the ring.

Terminal Size (OC3-48)

This input identifies the terminal size for each ring. The following four terminal sizes are used: OC3, OC12, OC 48L (2-fiber) and OC48A (4-fiber).

Number of DS1 Terminations

This input provides for the distinction between a complete ring and a point of connection to another LEC. The input for a complete ring is 2 DS1 terminations. A POC ring receives an input of 1 DS1 terminations. This input controls the number of terminations included in the cost of the ring.

Fiber Patch Cord (Per Fiber)

This is the utilization of the fiber patch cords for the ring.

Fiber Patch Panel (Per Fiber)

This is the utilization of the fiber patch panel for the ring.

SONET Terminal Shelf (OC3)

This is the utilization for each specific OC3 ring. Utilizations are calculated using known traffic levels and include an anticipated 20% growth. Each of the other rings (OC12, OC48 will require an OC3 SONET terminal shelf when costing DS1 bandwidth).

DS3 Card

This is the utilization of DS3 card for the OC3 rings.

DS1 Card

This is the utilization of DS1 card for the OC3 rings.

SONET Terminal Shelf (OC12)

This is the utilization for each specific OC12 ring. Utilizations are calculated using known traffic levels and include an anticipated 20% growth.

OC3 Card

This is the utilization of OC3 card for the OC12 rings.

Quad DS3 Card Set (OC12)

This is the utilization of a DS3 Quad Card Set for an OC12 ring.

SONET Terminal Shelf (OC48 2-Fiber)

This is the utilization for each specific OC48 2-fiber ring. Utilizations are calculated using known traffic levels and include an anticipated 20% growth.

OC12 Card

This is the utilization of OC12 card for the OC48 2-fiber rings.

OC3 Card

This is the utilization of OC3 card for the OC48 2-fiber rings.

3 DS3 Card (OC48 2-Fiber)

This is the utilization of 3 DS3 Card Set for an OC48 2-fiber ring.

SONET Terminal Shelf (OC48 4-fiber)

This is the utilization for each specific OC48 4-fiber ring. Utilizations are calculated using known traffic levels and include an anticipated 20% growth.

OC12 Card

This is the utilization of OC12 card for the OC48 4-fiber rings.

OC3 Card

This is the utilization of OC3 card for the OC48 4-fiber rings.

3DS3 Card (OC48 4-Fiber)

This is the utilization of a 3DS3 Card Set for an OC48 4-fiber ring.

DSX3 Cross Connect Shelf

This is the utilization of the DSX3 Cross Connect Shelf for all rings.

DSX3 Cross Connect Card

This is the utilization of the DSX3 Cross Connect Card for all rings.

DSX1 Cross Connect Jack Field

This is the utilization of the DSX1 Cross Connect Jack Field for all rings.

Channel Bank Shelf

This is the utilization of the Channel Bank Shelf for all rings.

Channel Bank Card

This is the utilization of the Channel Bank Card for all rings.

Mileage Equipment - Aerial Fiber (per fiber); Underground Fiber (per fiber); Buried Fiber (per fiber)

These inputs represent the utilization factors for the three different types of fiber. These factors are for the fiber only.

Installation and Sheath (2-fiber) - Aerial Fiber (per fiber); Underground Fiber (per fiber); Buried Fiber (per fiber) and Installation and Sheath (4-fiber) - Aerial Fiber (per fiber); Underground Fiber (per fiber); Buried Fiber (per fiber)

These inputs represent the amount of sheath used for transport fibers and the prorated cost of installation. Fibers for various purposes are often placed in the same sheath. The factor represents a state specific sheath-sharing factor. The factor was calculated using historical data for the three different types of fiber.

OC 3 Card (For Ded. OC3 Service)

This is the utilization of an OC3 Card used for dedicated service.

TransRoutes

This input page is used to input information regarding Extended Area Service (EAS) routes. Each EAS route listed in Sprint's Local Exchange Tariff for the state being studied is entered on this worksheet. Each ring used to carry traffic from the originating to the terminating exchange are

entered. Rings used for an EAS route that connect to another LEC are entered in the Non-Sprint Node column. The EAS routes are used to calculate the Common Transport cost and to calculate route specific Dedicated Transport Prices.

5. Outputs

The Transport Cost Module produces the following output documents:

- Transport Investment
- Common Transport Costs at DS1 level.
- Dedicated Transport Costs at DS1, DS3, OC3 and OC12 levels.

6. Pricing

Common and dedicated transport results, including Common Costs, are shown on the Cost Summary. Common transport is shared transport which is reflected on a per minute of use basis. The Transport Cost Study uses 216,000 monthly minutes to calculate the per minute of use common transport rate. Dedicated transport is point to point transport, which is reflected on a monthly basis.

V. Transport

B. Multiplexing Module

1. Definition or FCC Definition

The Telecommunications Act of 1996 (Act) states:

Provide to any requesting carrier non-discriminatory access to network elements

- On an unbundled basis
- At any technically feasible point
- At rates and terms that are just, reasonable and non-discriminatory
- In accordance with the interconnection agreement
- In a manner that allows the requesting carrier to combine network elements to provide its telecommunications service (251(c)(3))

The following definitions relative to the Multiplexing Module are from Newton's Telecom Dictionary 16th Expanded & Updated Edition.

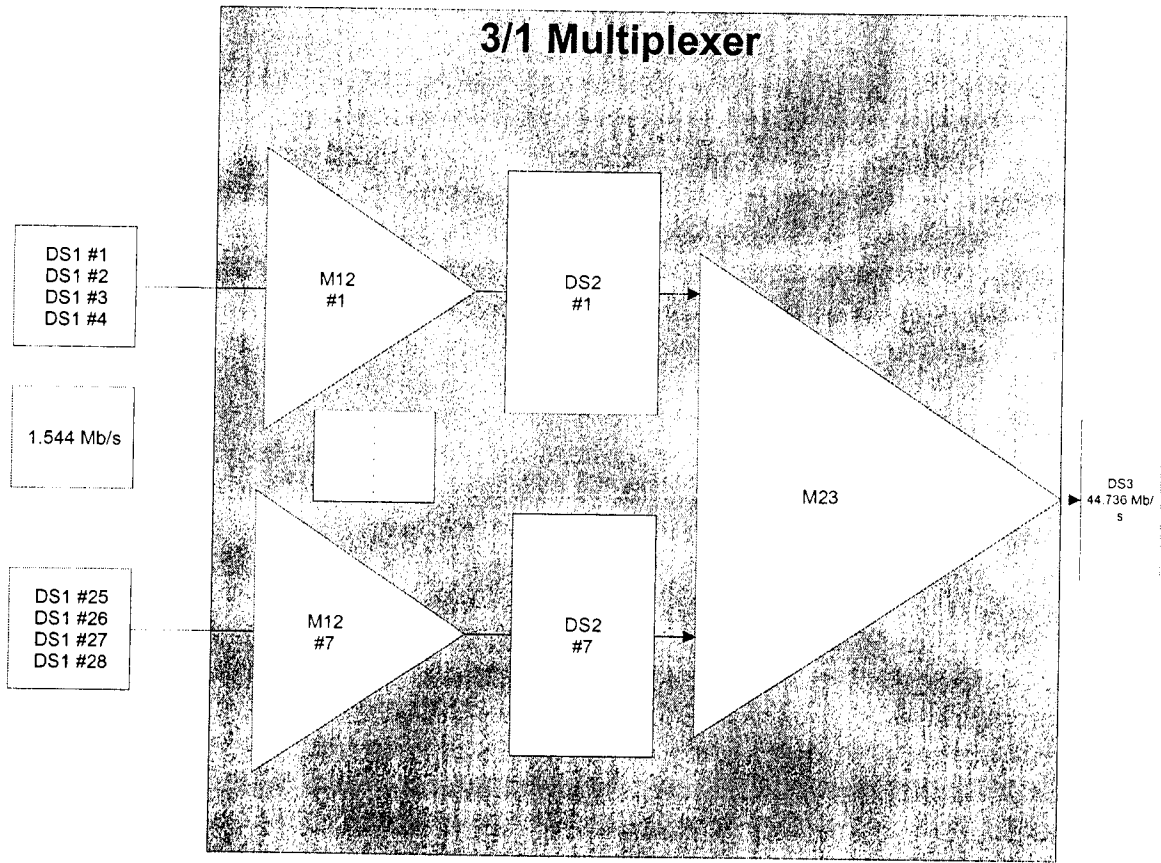
3/1 Multiplexer

"M13 The multiplexer equivalent of T-1. In the U.S. digital hierarchy, multiplexers are called by the digital signal levels they interface with. For example, a multiplexer which joins DS-1 channels to DS-3 is called a M1-3. A M1-3 takes 28 DS-1 inputs and combines them into a single 45 megabit per second stream. (The bit stream is actually 44.736 megabits.)"

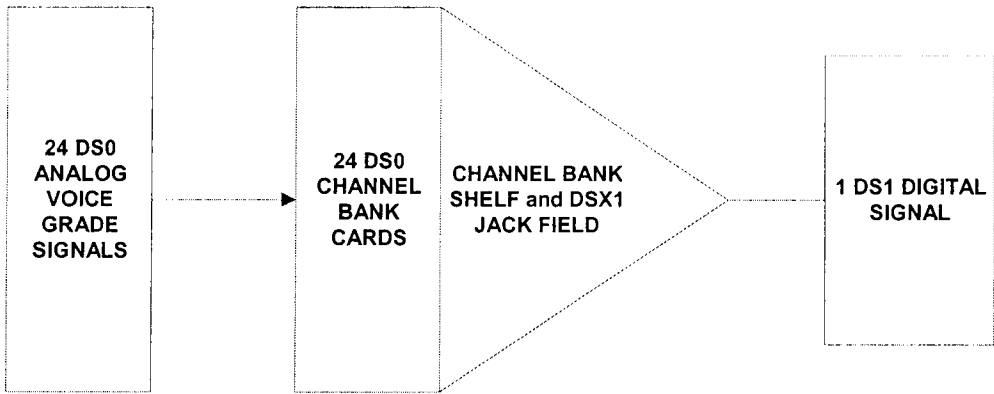
1/0 Multiplexer

"Channel Bank A Multiplexer. A device which puts many slow speed voice or data conversations onto one high-speed link and controls the flow of those "conversations". Typically the device that sits between a digital circuit-say a T-1-and a couple of dozen voice grade lines coming out of a PBX."

2. Detailed Network Element Diagram



1/0 MULTIPLEXER



3. Major Determinants of Cost

The major determinant of cost in the Multiplexing Cost Study is EF & I Investment per unit. EF&I Investment per Unit is the sum of Material, Engineering/Installation Labor and Sales Tax.

4. Inputs

3/1 Multiplexer Inputs

The 3/1 Multiplexer Inputs include Material Costs, Annual Charge Factors, and Miscellaneous Factors. Material Costs and Miscellaneous Factors are inputs to the Multiplexing Cost Model. The Annual Charge factors are calculated in the Annual Charge Factor Model.

Material Costs

The Material Unit Investment input column represents the total dollar investment amount for each piece of equipment itemized in the equipment column. The material investment amounts have been developed with the assistance of Sprint engineers familiar with multiplexing equipment. All investment amounts represent preferred-vendor costs for equipment configured for typical usage. Shipping and handling are state specific, and are included in the investment amount shown.

Units is an input of the number of each piece of equipment that is required for the 3/1 Multiplexer.

Engineering and Installation Labor Rates

The Engineering and Installation Labor Rates are state specific fully loaded labor rates. The Engineering and Installation Labor Hours were determined using engineering and installation hours for a 3/1 Multiplexer Per DS3 as developed by Sprint Engineering as typical work durations and are considered appropriate for this cost study.

Description of Equipment

3/1 Multiplexer – Per DS3

A 3/1 Multiplexer separates the bit stream of a DS3 into 28 DS1 channels. One DS3 cable, from a DS3 cross connect, is linked to this equipment and 28

DS1 cables are made available. Each end office termination of a DS3 (fiber or radio) requires one 3/1 Multiplexer.

Miscellaneous Factors

Miscellaneous Factors are inputs to address the following:

Miscellaneous Equipment & Power Factor

This value is the ratio of Power and Common Equipment expenses, to all other Central Office expenses.

Sales Tax Rate

This input is the state specific sales tax. Application of the sales tax to material only or material and labor is also an input.

Channel Bank Inputs

The Channel Bank Inputs include Material Costs, Annual Charge Factors, and Miscellaneous Factors. Material Costs and Miscellaneous Factors are inputs to the Multiplexing Cost Model. The Annual Charge factors are calculated in the Annual Charge Factor Model.

Material Costs

The Material Unit Investment input column represents the total dollar investment amount for each piece of equipment itemized in the equipment column. The material investment amounts have been developed with the assistance of Sprint engineers familiar with multiplexing equipment. All investment amounts represent preferred-vendor costs for equipment configured for typical usage. Shipping and handling are state specific, and are included in the investment amount shown.

Units is an input of the number of each piece of equipment that is required for the following: MUX 1/0 Common Equipment and D4 Channel Units.

The Engineering and Installation Labor Rates are state specific fully loaded labor rates. The Engineering and Installation Labor Hours were determined using engineering and installation hours for the MUX 1/0 Common Equipment and D4 Channel Unit as developed by Sprint Engineering as typical work durations and are considered appropriate for this cost study.

Description of Equipment

1/0 Multiplexer

The 1/0 Multiplexer is used to multiplex 1 DS1 digital signal into 24 DS0 analog voice grade signals. One Channel Bank accepts one DS1. Each end office DSO termination requires one Channel Bank.

Miscellaneous Factors

Miscellaneous Factors are inputs to address a variety of factors and caps.

Miscellaneous Equipment & Power Factor

This value is the ratio of Power and Common Equipment expenses, to all other Central Office expenses.

Sales Tax Rate

This input is the state specific sales tax. Application of the sales tax to material only or material and labor is also an input.

5. Outputs

The Multiplexing Cost Module produces the following output documents:

MUX 1/0 Common Equipment Monthly Cost
D4 Channel Unit Monthly Cost
M 1 3 Multiplexer - Per DS3 Monthly Cost
MUX 1/0 Common Equipment Investment
D4 Channel Unit Investment
M 1 3 Multiplexer - Per DS3 Investment

6. Pricing (Deaveraging)

The MUX 1/0 Common Equipment, D4 Channel Unit, and M 1 3 Multiplexer – Per DS3 monthly rates, including Common Costs, are summarized on the Cost Summary.

IV. A. Network Interface Device (NID)

1. FCC Definition

The Telecommunications Act of 1996 (Act) states:

Provide to any requesting carrier non-discriminatory access to network elements

- On an unbundled basis
- At any technically feasible point
- At rates and terms that are just, reasonable and non-discriminatory
- In accordance with the interconnection agreement
- In a manner that allows the requesting carrier to combine network elements to provide its telecommunications service (251(c)(3)).

In paragraph 233 of FCC 99-238, the FCC states:

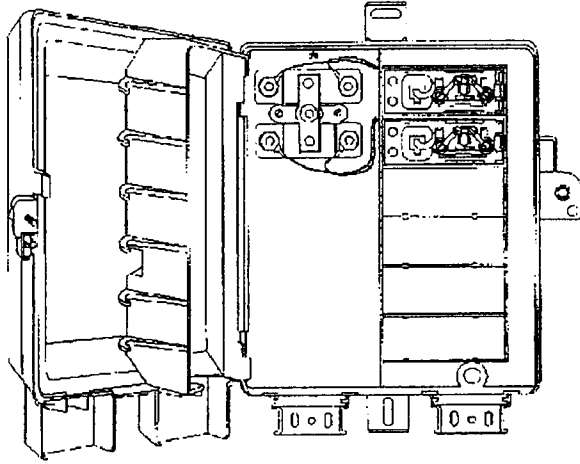
In the Local Competition First Report and Order, the Commission defined the NID as a cross-connect device used to connect loop facilities to inside wiring. We modify that definition of the NID to include all features, functions, and capabilities of the facilities used to connect the loop distribution plant to the customer premises wiring, regardless of the particular design of the NID mechanism. Specifically, we define the NID to include any means of interconnection of customer premises wiring to the incumbent LEC's distribution plant, such as a cross-connect device used for that purpose.

In this cost study, Sprint is providing cost for NIDs only. For other cross-connection devices at customer premises locations, refer to the Inside Wire Cost Study.

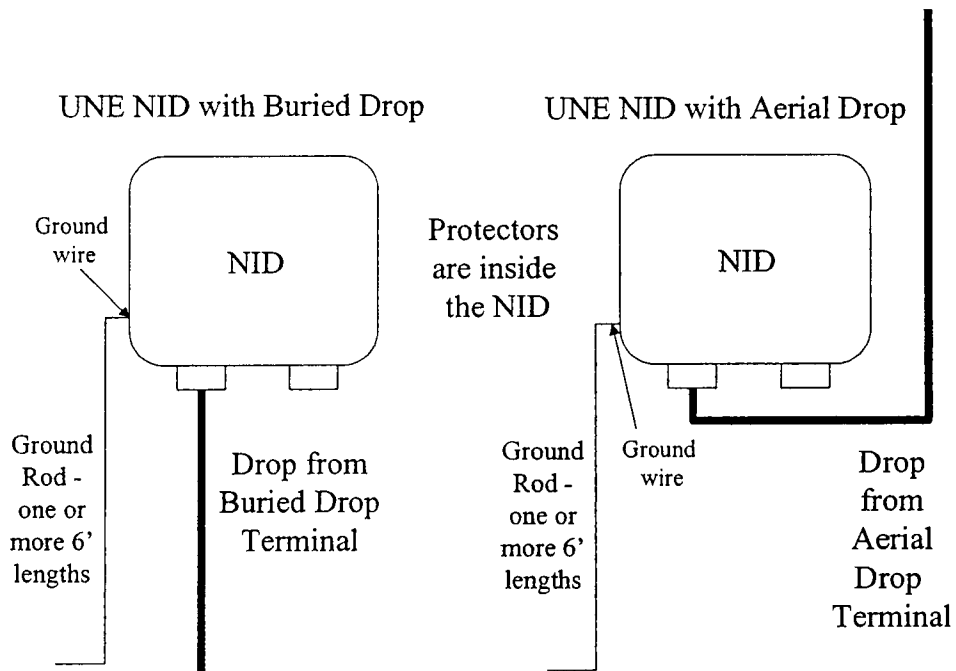
2. Detailed Network Element Diagram

Depicted below is a picture of a 6-line NID with two protectors and a diagram of the components of a NID cost study.

Picture 1. 6-Line NID, with 2 protectors



Picture 2. NID with Drop



3. Major Determinants of Cost

- Material

4. Inputs

6-Line NID

- Network Interface Device – 2-Line Gel Jack: This is the standard NID housing Sprint uses in its network. It consists of a housing with a capacity of six lines. Two protectors are used, which allows two lines to be served.
- Ground Wire: provides a connection between the ground rod and the NID
- Ground Rod: provides grounding protection for the NID

25-Line NID

- Building Terminal: housing for the protective modules
- 5-Pin Protect Module: provides the connection point for the cabling
- Wall Mount Bracket: support structure for the terminal housing
- Ground Wire: provides a connection between the ground rod and the NID
- Ground Rod: provides grounding protection for the NID
- Smart Jack: provides loop back testing for T-1 level services

5. Outputs

Assumptions

- The costs account for the NID only.
- Current material charges and labor charges are used to determine investment.
- It is assumed that the CLEC will purchase a loop or provide its own facilities to the NID.
- The NIDs used in the cost study represent the types of NIDs Sprint currently installs for its customers.

Methodology

The calculations for determining the monthly recurring costs for a NID are completed in the Sprint TELRIC UNE Model (TELRIC Model). Inputs for material and installation are identified and entered into the model. Calculations may be found in the NID04.xls file. For each type of NID, the following calculations are made:

- Determine total installed investment, which includes the network interface device, ground wire, and ground rod.
- Obtain ACF from the annual charge factor calculations.
- Multiply installed investment by the annual charge factor to determine annual cost recovery requirements.
- The monthly rate is calculated by dividing the annual cost by twelve and applying the common cost factor.

The result is a monthly per line cost of a NID. The same calculation is used for 6-line, 25-line, and Smart Jack type NIDS. 6-line and 25-line NIDs apply for POTS. Smart Jacks apply to DS-1 applications and are needed in addition to a NID.

6. Pricing

A statewide average price is developed for each type of NID. Results are posted in the Cost Summary.

VI. B.1 Common Channel Signaling Interconnection Service

1. FCC Definition of Service

The FCC defines signaling systems in paragraph 455 and 456 of FCC Order 96-98.

Signaling systems facilitate the routing of telephone calls between switches. Most LECs employ signaling networks that are physically separate from their voice networks, and these “out-of-band” signaling networks simultaneously carry signaling messages for multiple calls. In general, most LEC’s signaling networks adhere to a Bellcore standard Signaling System 7(SS7) protocol.

SS7 networks use signaling links to transmit routing messages between switches, and between switches and call-related databases. A typical SS7 network includes a signaling link, which transmits signaling information in packets, from a local switch to a signaling transfer point (STP), which is a high capacity packet switch. The STP switches packets onto other links according to the address information contained in the packet. These additional links extend to other switches, databases, and STPs in the LEC’s network. A switch routing a call to another switch will initiate a series of signaling messages via signaling links through an STP to establish a call path on the voice network between switches.

CCS/SS7 Interconnection Service is used by the customer to interconnect to an ILEC’s out-of-band signaling network to support call setup using the SS7 protocol rather than the in-band multi-frequency signaling. The SS7 protocol also allows for the transmission of additional data between networks for use by inter-exchange carriers and local exchange carriers to provide services to end users such as calling number and calling name delivery. Interconnection for these purposes can occur at each mated pair of STPs deployed in the Sprint Local network.

2. Detailed Network Element Diagram

A network diagram appears at the end of this section. The major components of Sprint’s SS7 network are described below.

SSP

Service Switching Point - a switching system such as the DMS-100 or 5ESS including any remote modules hosted by that switch that is equipped with SS7 hardware, software and signaling links. SSPs convert dialed digits to messages for SS7. They are found with the switches that the actual voice path of the call would travel through.

STP

Signal Transfer Point - a high speed, ultra-reliable special packet switch for signaling messages in the SS7 network. STPs are configured in redundant pairs.

Sprint National Signal Transfer Point (STP) Pair

A single pair of STPs is located in Johnson City and one in Bristol, Tennessee. The National STPs perform the Global Title Translations and provide access to the Sprint databases (Service Control Point).

Sprint Regional STP

STP pairs located in nine states (FL, MN, MO, NV, NJ, NC, OH, PA, TX) comprising the Sprint SS7 network, all connected with D-links to the National STP pair in Tennessee.

Service Control Point (SCP)

Service Control Point - a highly reliable computer and database system used to provide advanced information services such as Calling Name (CNAM) delivery, Toll Free Calling (TFC) and Local Number Portability (LNP).

Links

Links are 56.0 KBPS transport facilities that carries data between STPs, STPs and SSPs within the SS7 network.

Access Links (A-Links)

A-Links connect regional STPs to SCPs. They also connect local STPs to SSPs. A-Links are always installed in pairs form signaling points with one link to each mate to each mate STP. A-Links must be provided on diverse routes to each STP in the mated pair.

Bridge Links (B-Links)

B-Links connect mated STP pairs to mated STP pairs in other networks. They are always installed in quads and are provisioned over traverse routes.

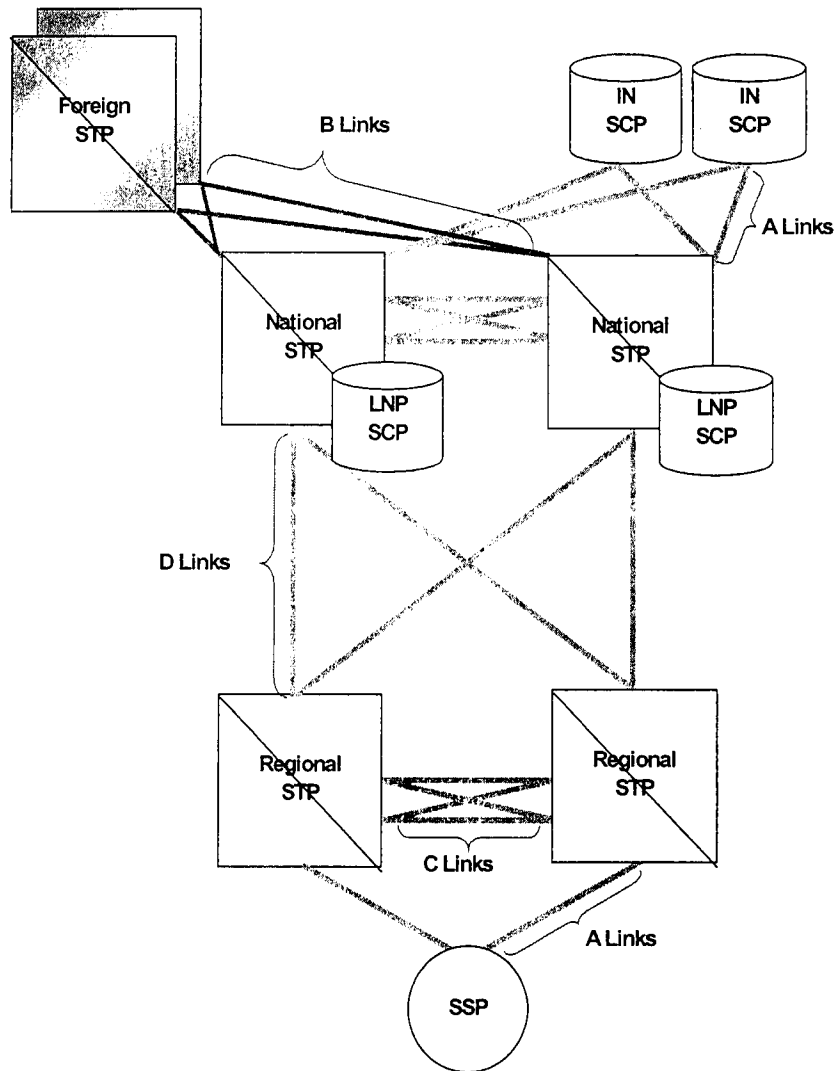
Cross Links (C-Links)

C-Links connect mated STP pairs. C-Links are always provisioned over diverse routes.

Diagonal Links (D-Links)

D-Links connect mated STPs to other mated STPs of a different hierarchy within the same Network. D-Links are always installed in quads and are provisioned over traverse routes.

Simplified SS7 Network Diagram



3. Major Determinants of Cost

The major determinant of cost on the SS7 network is octet demand on all traffic sensitive components of the network. Monthly traffic studies were performed on each link in Sprint's SS7 network. Total cost associated with each traffic sensitive component of the network is divided by total demand for that component to arrive at the cost per unit of demand.

4. Inputs

STP Port Related Inputs

Those components of the STP that vary in quantity with the number of links supported by the STP are identified in the input worksheet for the SS7 Module. Investment dollars, capacity (number of links supported per component), and actual percent fill for the STPs under study figure into the calculation of the SS7 port charge.

STP Switching Inputs

The cost of routing ISDN Users Part messages through the STP is recovered on the basis of equivalent 56.0 KBPS trunks per month. The T-1 rate would be equal to 24 times the STP switching rate per 56.0 KBPS trunk per month.

5. Outputs

STP Ports

The STP Port is the interface equipment contained in the STP that the interconnecting link terminates. Determining the cost of an STP port consists of the following steps:

First, material costs are grossed up to include E, F&I and any applicable state sales tax.

Next, the investment per link is determined by dividing investment by the number of links that each component is engineered to support. Average fill factors are then applied and translation expenses are added.

Finally, a state-specific annual charge and common cost factor are applied to arrive at the STP port rate.

STP Switching

The STP switching service is for the routing of the ISDN Users Part (ISUP) message through the STP. The rate for switching is applied on the basis of

equivalent 56.0 KBPS trunks per month. The T-1 rate would be equal to 24 times the STP switching rate per 56.0 KBPS trunk per month. Determining the cost of an STP switching service consists of the following steps:

First, the state-specific annual charge factor for SS7 investments is applied to STP switching investment to arrive at annual SS7 TELRIC switching cost.

Next, the number of trunks is calculated by multiplying the number of Sprint access lines being served by SSPs supported by the STPs by the line-to-trunk ratio.

The resulting number of trunks is divided into the annual cost to arrive at the annual cost per trunk, which is then divided by twelve to calculate the monthly cost per trunk.

Finally, state-specific common cost factor is applied to monthly cost to calculate the monthly STP switching rate per trunk.

6. Pricing

Refer to the Cost Summary for results.

VI.B.2 Database Services

1. FCC Definition of Service

Paragraph 404 of the FCC's Third Report and Order defines call-related database services.

In the *Local Competition First Report and Order*, the Commission defined call-related databases as "databases, other than operations support systems, that are used in signaling networks for billing and collection or the transmission, routing, or other provision of telecommunication services". The Commission required the incumbent LEC to provide unbundled access to their call-related databases, including but not limited to: the Line Information database (LIDB), the Toll Free Calling database, the Local Number Portability database, and Advanced Intelligent Network database.

2. Detailed Network Element Diagram

Sprint provides SS7 database query services via two separate SCP platforms. Sprint LTD's Intelligent Network (IN) database supports Line Information Database (LIDB), Calling Name (CNAM), and Toll Free Code (TFC) 800/888/877 services. These SCPs is located in Johnson City and Bristol, Tennessee. The LNP database resides on separate SCPs, which are also located in Johnson City and Bristol, Tennessee.

Connectivity to the SCPs is accomplished through diverse SS7 network routing via a mated pair of national Service Transfer Points (STP). Sprint's service areas are supported by regionally located mated-pairs of regional STPs, which are connected to the national STPs via numerous diversely routed links known as D-Links.

A simplified network diagram as well as a description of each of the elements of the SS7 network appears in section B.1.2 of this document.

3. Major Determinants of Cost

The major determinant of cost on the SS7 network is query/message demand on all traffic sensitive components of the network. Monthly traffic studies were performed on each link in Sprint's SS7 network. Total cost associated with each traffic sensitive component of the network is divided by total demand for that component to arrive at the cost per unit of demand.

4. Inputs

Inputs used in the calculation of database services reside in the Query Services worksheet of the Input Module. The inputs are grouped based on the network element that each pertains to (national STPs, regional STPs, or SCPs). Inputs include forward-looking investment amounts and demand quantities, which were derived from an annual study performed on Sprint's SS7 network.

5. Outputs

The SS7 Module produces monthly recurring charges for four database services (LIDB, Toll Free Access, Calling Name, and Local Number Portability). The monthly recurring rates are on a per-query basis.

LIDB Database Service

The SS7 Module produces two per query charges related to the LIDB service. Query transport rate element is charged per query for the use of transmission facilities between the Regional STP and the Intelligent Network (IN) SCP where the LIDB resides. The LIDB Query rate element provides for the validation of calling card and toll billing exception data and performance of public telephone checks. For these validation purposes, LIDB Access Service customers will query the LIDB database, which resides in the IN SCP, via Sprint's SS7 network. The LIDB will respond with a verification signal message back to the LIDB Access Service customer via Sprint's SS7 network. State specific annual charge and common cost factors are applied.

Toll Free Code (TFC) Access Service

The SS7 Module produces a per query charge for the TFC service. TFC Access Service provides for the forwarding of end user dialed TFC calls to a Company's Service Switching Point (SSP) which will initiate a query to Sprint's TFC database to perform the routing instructions to the appropriate carrier based on the dialed TFC number. The query rate element includes the cost to transport the query and response from Sprint's regional STP through the national STP to the IN SCP. State specific annual charge and common cost factors are applied.

Calling Name Access (CNAM) Service

The SS7 Module produces a per query charge for the CNAM service. CNAM provides the calling party name associated with the calling number and is transmitted as part of the call set up process. The query rate element includes the cost to transport the query and response from Sprint's regional STP through the national STP to the IN SCP. State specific annual charge and common cost factors are applied.

Local Number Portability (LNP) Service

The SS7 Module produces a per query charge for the LNP service. The LNP service provides call routing for ported telephone numbers. The query rate element includes the cost to transport the query and response from Sprint's regional STP through the national STP to the IN SCP. State specific annual charge and common cost factors are applied.

6. Pricing

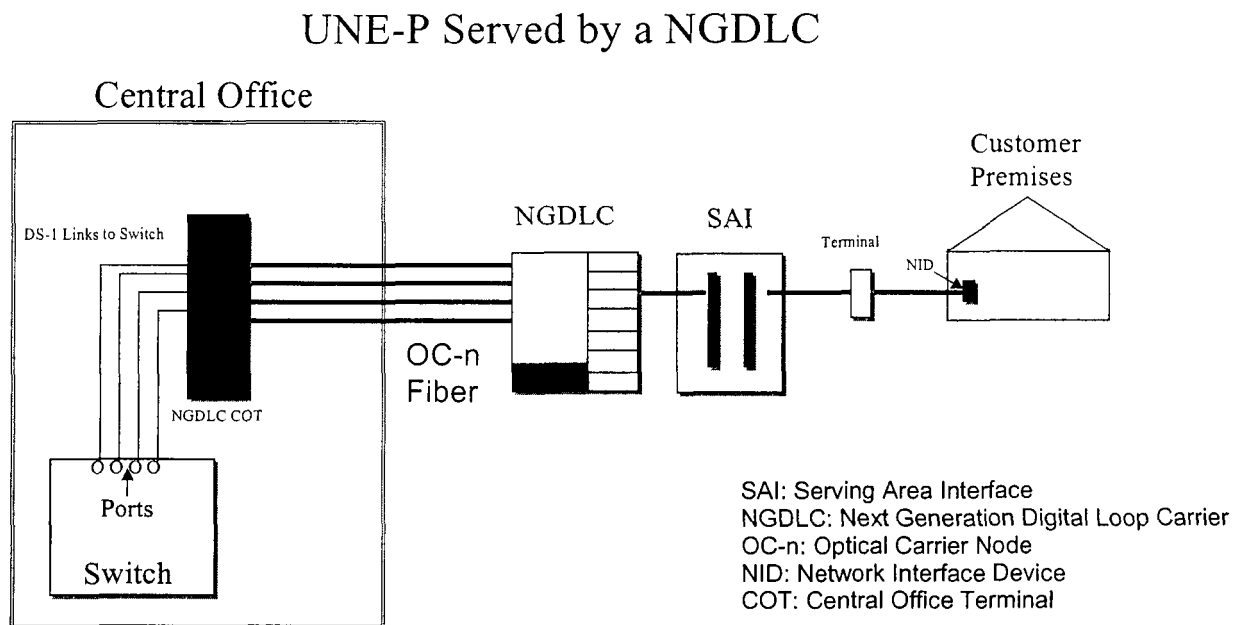
Refer to the Cost Summary for results.

VI. C. Unbundled Network Element Platform (UNE-P)

1. Definition

The Unbundled Network Element Platform (UNE-P) has been defined as a combination of one or more network elements. For the purpose of the cost study, UNE-P includes all components shown below from the switch port in the central office up to the NID.

2. Diagram



3. Major Determinants of Cost

UNE-P is comprised of a loop and switch port combination. Essentially, the cost for UNE-P is the sum of the cost of all the elements in the platform. This cost study accounts for the combination of loops and switch ports.

The elements of UNE-P for this filing consist of a 2-wire loop and switching port. The benefits that result are related to using a GR-303 switch interface. The primary difference between the cost of a loop and port that are sold in combination (UNE-P) and those elements purchased on a stand alone basis, is the result of the technology used to provide the

elements. The technical difference between unbundled loops and ports purchased as part of UNE-P is that the GR-303 interface is used in place of an analog interface for loops served via NGDLC. With GR-303, the IDLC Central Office Terminal (COT) is integrated with the central office switch. This permits connectivity between the switch and COT at the DS-1 level in lieu of individual switch and COT line cards connected back to back with analog jumpers. The positive economies for loops sold in combination with switching are related to the differences in labor and material in the IDLC system and to the substitution of DS-1 level for line level switch and COT interfaces.

A detailed discussion of the determinants of cost for loops can be found in Section III.B.3 and a detailed discussion of the determinants of cost for switching can be found in Section IV.B.3.

4. Inputs

- All assumptions applicable to the loop cost study are applicable to the UNE-P cost study with the exception that the NGDLC has an integrated interface to the CO switch. Integrated Digital Loop Carrier (IDLC) systems utilize GR-303 technology, which is a "trunk type" interface with the switch. This interface is more economical and results in positive economies (cost savings).
- All assumptions applicable to the switching cost study are applicable to the UNE-P cost study with the exception that an adjustment is made to account for the positive economies realized by using GR-303.
- Combining other loop and/or switching elements does not result in cost savings. The cost of a platform for elements other than 2-wire loops and switching ports will be the sum of the costs of each element.

5. Outputs

Loop Methodology

For an overview of the process to determine loop costs, refer to the loop cost study in III.B. The material costs of DLCs using GR-303 were entered into SLCM with all other inputs being unchanged from the calculations used for standalone loops. The investment results for the loop to be sold in combination with switching were then entered into the Sprint TELRIC UNE Model (TELRIC Model) where loop costs were derived by exchange. A discussion on how the TELRIC Model calculates cost can be found in the Local Loop Cost Study – Methods. Once loop cost calculated, the results are added to switch port cost to form the UNE-P 2-wire loop and switching elements.

Switch Cost Methodology

For an overview of the process on how the TELRIC Model calculates switching costs, refer to the Switching Module in section IV.

UNE-P local switching costs consist of the two elements, those being switch port and switch usage. The usage element is a per minute of use (MOU) cost and is identical to the UNE end office switching cost. The UNE-P port cost is calculated by subtracting the "UNE-P discount" from the UNE port cost. Because the loop is integrated into the switch the cost savings are realized in the switch port through the UNE-P port discount. Once the UNE-P switching costs are calculated, the results are added to UNE-P loop cost to form the 2-wire UNE-P (platform).

6. Pricing

Results are shown on the Cost Summary.

IV. D. Enhanced Extended Loop (EEL)

1. FCC Definition

Paragraph 144 of the FCC's Third Report & Order (FCC 99-238) regarding Unbundled Network Elements (UNEs) defines the Enhanced Extended Loop (EEL) as:

“...a network element comprised of unbundled loop, multiplexing/concentrating equipment, and dedicated transport”.

Sprint has developed three EEL combinations that consist of

- (1) DS-0 loop, DS-0/1 multiplexing, DS-1 interoffice transport;
- (2) DS-1 loop, DS-1 interoffice transport;
- (3) DS-1 loop, DS-1/3 multiplexing, DS-3 interoffice transport;

2. Detailed Network Element Diagram

See below.

3. Major Determinants of Cost

EELs are comprised of loops, transport and multiplexing. The major determinants of cost for loops are discussed Section III.B.3, while the major determinants of costs for transport are discussed in Section V.B.3.

4. Inputs

Please see the appropriate sections for the components of EELs.

5. Outputs

Assumptions:

- Costs for the EEL combination (1) as defined above were developed using a Channel Bank to multiplex DS-1 interoffice transport to a DS-0 loop.
- Costs for the EEL combination (3) as defined above were developed using a M1/3 multiplexer to multiplex DS-3 interoffice transport to a DS-1 Loop.
- The material costs used in the model for the Channel Bank and M1/3 are based on the costs to Sprint for those materials.

Costing Methodology – General

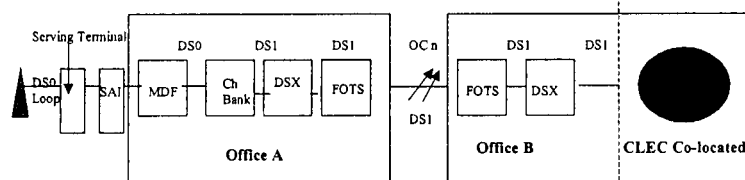
Scenario 1 – DS-0 loop, DS-0/1 multiplexing, DS-1 interoffice transport:

- **DS-0 loop** – The cost of the loop in the EEL combination was taken from the standalone loop UNE study. Refer to the Loop documentation for details regarding UNE loop cost development.
- **DS-1 Interoffice Transport** – The cost of DS-1 Interoffice Transport in the EEL combination was taken from the Transport

UNE study. Refer to the Transport documentation for details regarding UNE Interoffice Transport cost development.

- **DS-0/1 multiplexing (Channel Bank)** -The total material investment includes the common equipment relative to the Channel Bank, as well as other miscellaneous components and spares that are typical to Channel Bank deployment. The Utilized EF&I investment reflects the calculated investment after applying utilization factors, as well as other miscellaneous factors such as sales tax, supply expense and labor costs. The Digital – Circuit annual charge factor was applied to the Utilized EF&I investment to determine a monthly cost. The monthly costs for the common equipment relative to the Channel Bank have been developed per DS-1. The channel unit costs, however, have been developed per DS-0 and will be applied according to the number of DS-0 loops purchased. A Common Cost Factors was also applied.
- **Non-Recurring Charges (NRCs)**– Refer to the NRC documentation for details regarding NRCs related to combination (1).

Scenario 1:
DS-0 Loop, DS-0/1 Multiplexing,
DS-1 Interoffice Transport

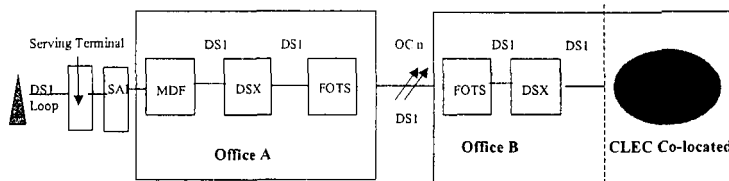


Scenario 2 – DS-1 loop, DS-1 interoffice transport:

- **DS-1 loop** – The cost of the loop in the EEL combination was taken from the standalone DS-1 Loop UNE study. Refer to the Loop documentation for details regarding DS-1 Loop cost development.

- **DS-1 Interoffice Transport** – The cost of DS-1 Interoffice Transport in the EEL combination was taken from the Transport UNE study. Refer to the Transport documentation for details regarding UNE Interoffice Transport cost development.
- **Non-Recurring Charges (NRCs)**– Refer to the NRC documentation for details regarding NRCs related to combination (2).

Scenario 2:
DS-1 Loop,
DS-1 Interoffice Transport



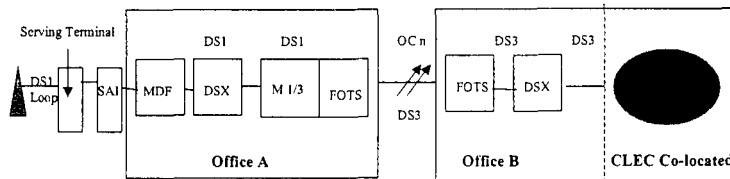
Scenario 3 – DS-1 loop, DS-1/3 multiplexing, DS-3 interoffice transport:

- **DS-1 loop** – The cost of the loop in the EEL combination was taken from the standalone DS-1 Loop UNE study. Refer to the Loop documentation for details regarding DS-1 Loop cost development.
- **DS-3 Interoffice Transport** – The cost of DS-3 Interoffice Transport in the EEL combination was taken from the Transport UNE study. Refer to the Transport documentation for details regarding UNE Interoffice Transport cost development.
- **DS-1/3 multiplexing (3/1 Multiplexer)** - The Utilized EF&I investment reflects the calculated investment after applying utilization factors, as well as other miscellaneous factors such as sales tax, supply expense and labor costs for a 3/1 multiplexer. The Digital – Circuit annual charge factor was applied to the Utilized EF&I investment to determine a monthly cost. The monthly

cost for the 3/1 multiplexer has been developed per DS-3 for the common equipment (equipped to provide 28 DS-1s), as well as any other miscellaneous components and spares necessary when deploying a 3/1 multiplexer. A Common Cost Factor was also applied.

- **Non-Recurring Charges (NRCs)**– Refer to the NRC documentation for details regarding NRCs related to combination (3).

Scenario 3:
DS-1 Loop, DS-1/3 Multiplexing,
DS-3 Interoffice Transport



6. Pricing (Deaveraging)

Pricing for EELs is the result of adding the various components of the EEL. Pricing for loops is discussed in the loop documentation, while pricing for transport is discussed in the transport documentation.

IV. E. E911 Recurring Unbundled Network Elements

Definition of Service

The FCC's Third Report & Order (FCC 99-238) paragraph 406 states "that the definition of call-related databases includes, but is not limited to, the calling name (CNAM) database, as well as the 911 and E911 databases". Further, paragraph 410 states "Thus, we require incumbent LECs to provide non-discriminatory access to their call-related databases, including, but not limited to, the CNAM database, the 911 database, the LIDB, Toll Free Calling database, AIN databases, and downstream number portability databases, by means of physical access at the signaling transfer point linked to the unbundled database....".

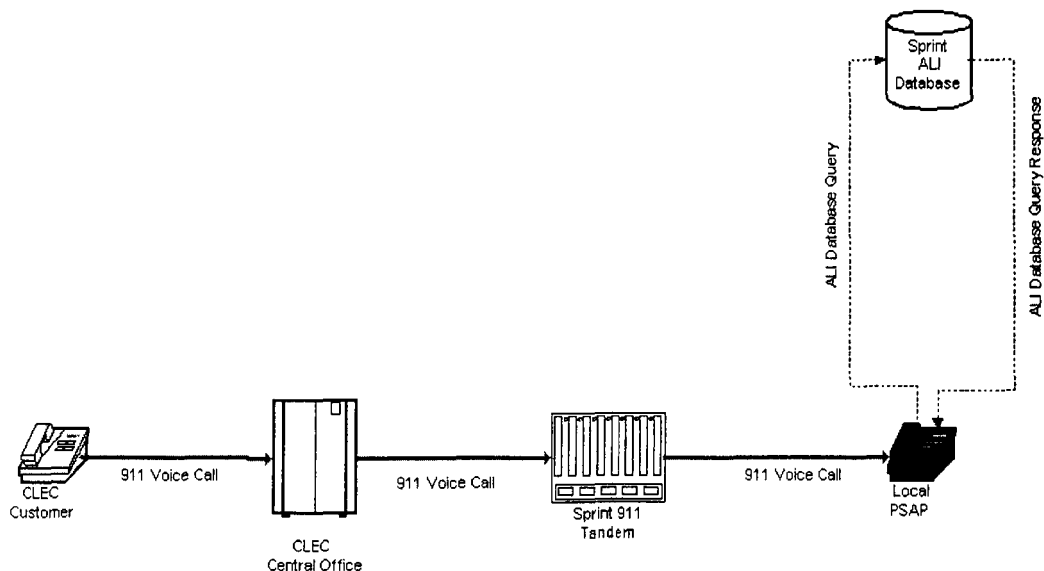
Therefore, where Sprint is the lead company providing 911 selective routing service to an emergency response agency, the CLEC will need to provision adequate trunks from the CLEC switch to Sprint's selective routing tandem.

Network Diagram

Sprint does not utilize the SS7 network to update or retrieve information from the Automatic Location Identifier (ALI) database as suggested by the FCC's Third Report and Order. A secure data network is utilized to link the local Public Safety Answering Point (PSAP) and the ALI database for incoming queries and outgoing responses to the local PSAP initiating the query.

Major Determinants of Cost

Refer to the Transport Module and the NRC Cost Study documentation for a description of transport and NRC cost elements.



Inputs

Refer to the Transport Module documentation for a description of the inputs related to transport cost elements.

Outputs

Refer to the Transport Module documentation for a description of the inputs related to transport cost elements.

Pricing

In the State of Florida Sprint's arrangement with the local Public Safety Answering Point (PSAP) recovers all costs of this service outside of any transport required by the CLEC. The monthly recurring charges for the necessary transport from the CLEC switch to Sprint's 911 tandem are provided in the Transport section of the Cost Summary. The nonrecurring charges (NRC) may be found in the NRC section of the Cost Summary.

VII. UNE Expense Factors

A. ODC (Other Direct and Common Expenses) Module

1. Definition

The purpose of the Other Direct & Common (ODC) cost study is to identify two non-capital components of the annual charge factors: one for the Other Direct expenses associated with unbundled elements, and another which provides a contribution to recover common costs.

Other Direct factors are developed for each unbundled element and then added to the Annual Charge Factor(ACF) to arrive at a Total TELRIC ACF.

A single annual Common factor is identified for all categories of unbundled elements. Adding the Common factor to unbundled elements recognizes that common costs are a necessary component of the Total Economic cost for each unbundled element.

2. Detailed Network Element Diagram

Not applicable.

3. Major Determinants of Cost

Other Direct and Common factors reflect the most recent year's operating activities of the Sprint operating telephone company under study. Direct expenses, such as maintenance expenses, are a component of the ACF and therefore are not included in the expenses that are represented by either the Other Direct or Common factors. Additionally, expenses that are non-UNE related, such as those that support Sprint's retail operation, are also excluded from the expenses that are represented by either the Other Direct or Common factors.

The Inputs section further describes the derivation of the Other Direct and Common factors.

4. Inputs (Input Workbook, ODC Worksheet)

The input and the Avoided Cost Study workbooks contain all of the necessary inputs for the ODC Module. The Avoided Cost Study is described in a separate

section of this filing. The inputs stored in the ODC worksheet of the input workbook are described below.

a. Service Connection Cost/Retail Gross Factor

Input value.

b. Property Taxes

Input value,

c. Access Lines

Input value.

d. Income Tax Factor

This factor determines the amount of income taxes necessary for each dollar of return. The derivation of this factor is described fully in the documentation of the ACF inputs, which is where the factor is developed.

e. Return on Gross Investment (Weighted Equated Cost of Money)

The Return on Gross Investment (RGI) rate is the return on investments, weighted by asset account balances for all plant accounts.

f. Telephone Plant in Service Account Balances

Input values.

g. Depreciation and Amortization Reserve

Input values.

h. Building Usage Analysis Inputs

Input values.

i. Common Factor Cap

Input value.

j. TELRIC Investment Inputs

TELRIC investment for the Loop, SS7, NID, and Transport is calculated by their respective cost modules.

5. Outputs

The ODC Module uses avoided expenses from the Avoided Cost Study and actual General Ledger investment and expense information and creates two types of factors. First are the Other Direct factors which are added to the direct

costs determined in the ACF Module to create a total TELRIC Annual Charge Factor for each type of plant.

The second factor is the Common Cost factor, which is added to the TELRIC cost to derive the total economic cost of the network element, which is also the price.

The ODC Module consists of seven worksheets, which are described below.

a. Expenses Worksheet

The ODC methodology consists of four steps. The first step is to identify each General Ledger account as either a direct cost, other direct cost, common cost, or excluded (non-UNE related). Each account is labeled "D", "O", "C", or "E", accordingly. Examples of direct expenses include,

- Central office switching (621X)
- Operator systems (6220)
- Central office transmission (623X)
- Cable & wire facilities (64XX)
- Depreciation associated with direct investment (656X)

Other direct costs include,

- Network support (excluding aircraft) (611X)
- Provisioning (6512)
- Network operations (653X)
- Portions of following accounts:
 - Land and Building associated with used CO (6121)
 - Marketing (661X)
 - Services (662X)
- Depreciation associated with indirect investment (656X)
- Return and taxes associated with indirect investment, Accts 211X & 2121
- Revenues (contra expenses) associated with service connection, pole attachments and rent revenue

Common costs include,

- Furniture (6122)
- Office Equipment (6123)
- General Purpose Computers (6124)
- Executive and Planning (671X)
- General and Administrative (672X)
- Return and taxes associated with Accounts 2113 and 2122-2124.

Excluded expenses include,

- Land and building associated with unused CO (6121)
- Station apparatus (6311)
- Large PBX (6341)
- Public Telephone Terminal Equipment (6351)
- Other terminal equipment (6362)
- Access expense (6540)
- Foreign Directory (portion of 6622)
- Avoided portion of Accounts: 6121-6124, 661X, 6623, 671X and 672X

Direct expenses are reflected in the direct capital cost ACF, which is calculated in the ACF Module of the Sprint TELRIC UNE Model. Direct costs are identified here and removed from the analysis to prevent double-recovery of these expenses.

b. Investment Worksheet

The second step is to develop a direct investment base for each network element. The General Ledger investment accounts are identified as direct, other direct, common, or excluded, in the same manner as the expense accounts. Each investment account is assigned to a network element based upon one of several drivers, as indicated in the "Assignment Driver" column. The drivers themselves are found on the "Drivers" Worksheet.

c. Other Direct Expenses Worksheet

The third step is to assign each other direct expense account to the network elements based upon one of several drivers, as indicated in the "Assignment Driver" column. The assignment drivers themselves may be a driver found on the "Drivers" worksheet, or an investment account.

Return and taxes are also accounted for in this spreadsheet.

In the fourth step, the total other direct expenses associated with each network element is divided by the TELRIC investment (found on the "Drivers" worksheet) associated with that network element to derive the other direct factor. Since this is stated as a percent of investment, it can be added to the direct expense factor developed in the ACF Module to derive a total TELRIC Annual Charge Factor

d. Drivers Worksheet

The "Drivers" worksheet shows the four main drivers used to assign expenses and investments to the individual network elements. These four drivers are:

- TELRIC Investment – The TELRIC investment associated with each network element is calculated by the corresponding module within the Sprint TELRIC UNE Model.
- TELRIC Cost – The total expenses associated with the network element, including return and taxes.
- TELRIC Expenses – The total expenses associated with the network element, excluding return and taxes.
- Building Usage Analysis – A one-time special study of building use.

e. Common Expenses Worksheet

Common costs cannot be logically allocated to individual network elements. Thus the Sprint TELRIC UNE Model develops a single common cost factor which is applied to each network element. Since common costs are applied to the TELRIC cost (not investment), the common cost factor is calculated and applied on a percent of TELRIC cost basis

f. Exclusions Worksheet

Not all general ledger expenses are included in this analysis. Excluded expenses, as detailed on this worksheet, are as follows:

- Direct Expenses – As already discussed, direct expenses are excluded from the analysis because they are included in the direct capital cost annual charge factors.
- Other Direct Expenses – Three types of expenses are excluded. First, the expenses associated with non-recurring revenue and shared facilities (service connection and rent revenues) are deleted from the other direct expenses to prevent double-recovery of these expenses.

Second, all direct retail marketing and service expenses (Avoided expenses, which are the majority of accounts 6611, 6612, 6613, and 6623) are excluded from the other direct expenses.

Third, a portion of other direct expenses are excluded because they are assigned to the excluded accounts such as CPE.

- Common Costs – Two types of expenses are excluded. First, retail general support and corporate operations expenses from the Avoided Cost Study are excluded from common expenses. Second, since a portion of Other Direct expenses are excluded due to their being non-UNE

related, it is assumed that an equal proportion of common expenses will also be excluded.

g. Summary Worksheet

The "Summary" worksheet is simply a one-page exhibit which shows the results of the other direct and common cost factor calculations in an abbreviated form.

6. Pricing

Not Applicable.

VII. UNE Expense Factors

B. ACF (Annual Charge Factor) Module

1. Definition

The Annual Charge Factor (ACF) is a rate which converts an investment amount into an annual recurring cost that includes capital recovery, return income, ad valorem taxes, and direct maintenance expenses. A monthly recurring cost is obtained by dividing the annual recurring cost by twelve.

ACFs are developed in the module for each type of plant included in the TELRIC studies (i.e. digital switching, circuit equipment, and underground metallic cable etc). They, therefore, reflect the unique attributes of the underlying asset such as varying economic and tax lives, maintenance expenses, and salvage values.

2. Detailed Network Element Diagram

Not applicable.

3. Major Determinants of Cost

The ACF calculation is a three-step process. First, the annual direct costs per dollar of gross investment for each year of the economic life of the asset is determined. These costs, net of any tax benefits, are discounted back using Sprint's weighted cost of capital. The ACF is then calculated by taking the average of all of these discounted costs. Therefore, the ACF represents the average of the annual levelized direct costs for each dollar of investment in a given asset.

4. Inputs (Input Workbook, ACF Worksheet)

The input workbook contains all of the necessary inputs for the ACF Module. Those inputs are stored in a worksheet entitled ACF.

Column A. Row #

Column B. Description

Column C. -

Item A. Rate of Return

Input value equal to the overall weighted cost of capital.

Item B. Debt Ratio
Input value.

Item C. Equity Ratio
Input value.

Item D. Debt Cost
Input value.

Item E. Federal Income Tax Rate
Input value.

Item F. State Income Tax Rate
Input value, state specific.

Item G. Composite Income Tax Rate
For description, see Income Tax Worksheet, Item M.

Item H. Ad Valorem Tax Rate
Input value, state specific.

Column C. Maintenance Expenses
Maintenance expenses as a percent of average investment.

Column D. Book Life (Years)
The economic life of each plant category.

Column E. Salvage Value
Value of the asset at the end of its book life, stated as a percent of original value. A negative net salvage value indicates that the cost of removal is greater than the salvage.

Column F. Tax Life (Years)
The tax depreciation life of each plant category.

When the Sprint TELRIC UNE Model is run, all loads to input files are pulled into the ACF module for final cost study calculations. The resulting charge factors developed by the module are posted back into this input worksheet to be applied to network investments in the remaining element specific modules of the Sprint TELRIC UNE Model. These results should be reviewed as to their reasonableness by comparing them to previously performed studies.

5. Outputs

The ACF module workbook contains all of the calculated outputs (ACF factors). The output/results file of this module calculates and stores annual charge factors for each of the classes of plant.

a. Summary Worksheet

This worksheet compiles the ACF for each of the classes of plant found in the study.

Column A – Row #

Provides the worksheet row number.

Column B – Description

Lists the categories of plant under study.

Column C – Economic Rate First Cost

Represents the annual straight-line depreciation rate without considering the affect of salvage value or cost of removal. These rates are calculated on the "ROR" worksheet of this module.

Column D – Economic Rate Future Salvage

Accounts for the affect of future salvage value or cost of removal over the life of the asset. These rates are calculated on the "ROR" worksheet of this module.

Column E – Total Economic Rate Depreciation

This is the sum of the "Economic Rate Future Salvage" and the "Economic Rate First Cost" (Column C + Column D).

Column F – Rate of Return

Represents the total cost of the investment less depreciation and salvage/cost of removal. The total cost of investment represents the annual cost of carrying the investment, which includes return of invested capital, return on invested capital, and the cost or benefit of removal or salvage value respectively. The rate of return is calculated on the "ROR" worksheet of this module.

Column G – Income Tax

Accounts for the affect of state and federal income taxes on the return on investment. This factor takes in consideration the affects differences in

Economic and tax depreciation as well as the company's capital structure. The income tax rate is calculated on the "Income_Taxes" worksheet of this module.

Column H – Maintenance Expenses

This factor represents the annual maintenance expense for each dollar of investment. The Maintenance Expense Factor is based on actual maintenance expense activity recorded in the general ledger of the company.

Column I – Ad Valorem Taxes

Accounts for the annual property tax paid by the company on investments located in the state under study.

Column J – Annual Charge Factor

This is the sum of columns E through I of this worksheet.

b. Rate of Return Worksheet

This worksheet arrives at the rate of return portion of the annual charge factor.

Column A – Row #

Provides the worksheet row number.

Column B – Description

Lists the categories of plant under study.

Column C – Economic Life (Years)

This column lists the life by which the asset is depreciated in the study.

Column D – Salvage Value

This column lists the cost of removal or value of the retired asset as a percent of gross investment.

Column E – Economic Depreciation First Cost

This column calculates the straight-line depreciation rate without regard to any future salvage value or cost of removal.

Column F – Economic Depreciation Net Salvage

This column calculates the straight-line depreciation rate of the salvage value or cost of removal.

Column G – Total Economic Depreciation Rate

This is the sum the straight-line depreciation rate of the asset and the straight-line depreciation rate of the salvage value/cost of removal appearing in columns E and F, respectively.

Column H – Investment Annual Cost

Investment Cost represents the annuity needed to recover \$1 of investment and the associated salvage value or cost of removal.

Column I – Rate of Return Annual Cost

Rate of return is the difference between the total investment cost appearing in column H and total Economic depreciation appearing in column G.

c. Income Taxes Worksheet

Column A – Row #

Provides the worksheet row number.

Column B – Description

Lists the categories of plant under study.

Column C – Economic Life (Years)

This column lists the life by which the asset is depreciated in the study.

Column D – Total Economic Depreciation Rate

This is the sum the straight-line depreciation rate of the asset and the straight-line depreciation rate of the salvage value/cost of removal and is calculated in the ROR worksheet.

Column E – Salvage Value

This column lists the cost of removal or value of the retired asset as a percent of gross investment.

Column F – Tax Life (Years)

This column lists the appropriate tax life for each class of plant.

Column G – PV Tax Depreciation

Present value of tax depreciation is equal to the present value of the annual tax depreciation. Since tax depreciation is not straight line, a table appearing on the Tax_Dep worksheet is used to calculate the present value.

Column H – Annual Cost Tax Depreciation

Represents the annuity necessary to arrive at the present value of tax depreciation appearing in column G.

Column I – Annual Cost of Salvage

Annual cost of salvage represents the annuity necessary to arrive at the future salvage or cost of removal value.

Column J – Investment Annual Cost

Investment Cost represents the annuity needed to recover \$1 of investment and the associated salvage value or cost of removal and is calculated in the ROR worksheet.

Column K – Income Tax Annual Cost

Income tax annual cost represents the income tax on the equity portion of return on investment taking into consideration the affect of Economic / tax depreciation differences.

d. Tax Depreciation Worksheet

This worksheet presents the MACRs depreciation rates and calculates the present value of these depreciation rates.

Column A – Year

This column indicates the year.

Column B – Discount

This column calculates the present value of \$1 given the number of years appearing in column A and given rate of return.

Columns C – I – Tax Depreciation Rates

These columns list the MACRs yearly depreciation rates for each of the given tax lives.

Columns J – P – Present Value of Tax Depreciation

These columns represent the present value of the MACRs yearly depreciation rates appearing in columns C-I. The discount factor appearing in column B is multiplied by MACRs depreciation rate.

6. Pricing

Not Applicable.

VII. UNE Expense Factors

C. ACS (Avoided Cost Study) Module

1. Definition

The Avoided Cost Study is used by Sprint to calculate wholesale discounts for retail services, as required by § 252(d)(3) of the Telecommunications Act of 1996 (Act). Within the Sprint TELRIC UNE Model, the Avoided Cost Study is used to identify retail-related marketing expenses, which are subsequently excluded from the TELRIC cost study.

The Avoided Cost Study was developed utilizing the Act as a methodology guideline. The Avoided Cost Study determines the level of avoided expenses associated with establishing wholesale rates for the resale of bundled services and for the sale of unbundled network elements (UNE's). Since the Act specifically refers to "marketing, billing, collection, and other expenses that will be avoided", the avoided cost study concentrates on those types of expenses. General support, corporate operations expense and uncollectible revenues are also assumed to be indirectly avoided in the same proportion as directly avoided expenses.

Sprint believes that the identification of avoided expenses should be based on the expense and revenue data available that is identified through an Activity Based Costing procedure. Sprint's Avoided Cost Study utilizes an activity-based cost approach, which identifies the avoided expense by expense category (sub-account) and assigns these expenses to service groups, based on an activity driver.

The Avoided Cost Study uses general ledger expense and revenue data. These revenues and expenses are assigned to a service group based on the actual activity, which creates or drives a specific type of expense.

2. Detailed Network Element Diagram

Not Applicable.

3. Major Determinants of Cost

The following accounts contain expenses, which may be directly avoided in a wholesale environment. An analysis of each account was conducted which resulted in the determination that some sub-accounts are avoided and some are non-avoided.

- 6611.XXX Product Management
- 6612.XXX Sales
- 6613.XXX Product Advertising
- 6623.XXX Customer Services

In addition, Sprint believes that general support expenses (accts 6121-6124), corporate operations expenses (accts 6711-6728) and uncollectible revenues (acct 5301) are avoided in the same overall proportion as directly avoided costs.

Sprint believes that the identification of avoided expense should be based on expense and revenue data that is identified through an Activity Based Costing procedure. These revenues and expenses are assigned to service groups based on the actual activity which creates or drives a specific type of expense.

The following expense categories are not avoided.

Depreciation (General Ledger (GL) accounts 6561 to 6565) relates directly to Sprint's capital assets used to provide service to both its own customers and those of the CLEC. Sprint will continue to provide the physical facilities (switching, cable and wire, and circuit equipment) necessary to provide service or UNE's to the CLEC as well as its own customers. Depreciation expenses will not be avoided.

Access expense (acct 6540) is a plant non-specific expense. In accordance with FCC Order 96-325, paragraph 919, plant non-specific expenses are not avoidable.

Rate of Return is a cost of doing business. Investors must earn a fair return on their investment or capital will not be available for the company. Return is directly related to the level of investment. Because there will be no effect on investment, there will be no effect on return. Rate of Return is not avoided.

Taxes will not be avoided because Sprint must still pay taxes on profits earned on services or UNE's that it provides for resale. Because the avoided expenses will be used to determine wholesale rates the expense will be deducted on an expense dollar for revenue dollar basis, the net effect on profit is effectively zero and will have relatively no effect on taxes. Taxes are not avoided.

Maintenance expenses (GL accounts 6211 to 6441) are related to the facilities used to provide the services or UNE's that competitors will resell. Because Sprint will continue to own these facilities, the maintenance functions will remain with Sprint. The existence of a competitor reselling Sprint services will not alter Sprint's responsibility to maintain its network for the benefit of both its customers and those of the reseller. Sprint will continue to repair, monitor, test, and maintain equipment, and meet all safety requirements. Maintenance expenses are not avoided.

The following accounts contain expenses, which are not avoided in a wholesale environment. An analysis of each account was conducted which resulted in the determination that some sub-accounts are avoided and some are non-avoided.

- 6611 - Product Management
- 6612 - Sales
- 6621 - Call Completion Services
- 6622 - Number Services
- 6623 - Customer Services

A. Product Management (6611)

- **Forecasting - ICSC**

This account shall include the pay, office, travel, and other expenses of employees whose responsibilities include coordinating planning sessions between the company and carriers for determining access facility requirements.

Exchange access services is not subject to resell, therefore the expense is not avoided. (FCC Order 96-325, Paragraph 874)

- **Forecasting - Other**

This account consists of the following four functions:

1. Forecasts of customer demand for all services affecting central office equipment, outside plant, and interexchange facilities.
2. Administrative forecasts, such as toll message and revenue forecasts and forecasts of movement and gain used in the preparation of the company construction program.
3. Local economic forecasts.
4. Special purpose forecasts, such as those used for determining interexchange service requirements.

The above functions will be required for all services including wholesale/resell services.

B. Sales (6612)

- **Interexchange Carrier Service Center**

This account shall include the administrative staff and direct expenses incurred to promote access orders from interexchange carriers and implementing the associated marketing strategies.

Exchange access service is not subject to resale. The above expenses are not avoided. (FCC Order 96-325, Paragraph 874)

- **Engineering and Project Management - BMO**

This account shall include the expenses incurred by personnel that support project management and administration of sales projects, and shall include provisioning and installation. The positions charged to this account will be the managers-Technical Support, Senior Sales Engineers, Sales Engineers and Project Managers and Customer Service Specialist.

These functions will be required for the provisioning and installation of wholesale services.

C. Call Completion Services (6621)

This account shall include expenses incurred in helping customers place and complete calls, except directory assistance. This includes handling and recording, intercept, quoting rates, time and charges, and all other activities involved in the manual handling of calls.

If a reseller resells these services, these expenses are not avoided. If a reseller provides these services themselves, this is not a resold service and there are no expenses to be avoided.

D. Number Services (6622)

This account shall include expenses incurred in providing customer number and classified listings. This includes preparing or purchasing, compiling, and disseminating those listings through directory assistance or other means.

If a CLEC resells these services, these expenses are not avoided. If a CLEC provides these services themselves, this is not a resold service and there are no expenses to be avoided.

- **Alphabetical Directory Expense**

This account shall include alphabetical expenses associated with compilation, printing, binding, distribution, advertising commissions, etc., for the white page section.

A white page listing is part of the basic access line service and the expense is not avoided.

E. Customer Services (6623)

This account shall include expenses incurred in establishing and servicing customer accounts. This includes:

- Initiating customer service orders and records.
- Maintaining and billing customer accounts.
- Collecting and investigating customer accounts, including collecting revenues, reporting receipts, administering collection treatment, and handling contacts with customers regarding adjustments of bills.
- Collecting and reporting pay station receipts.
- Instructing customers in the use of products and services.

This account shall also include amounts paid by interexchange carriers or other exchange carriers to another exchange carrier for billing and collection services.

The following activities within the Customer Services account were defined as having non-avoided expenses.

- **Business Office**

Business office expenses associated with equal access, directory advertising, public telephone and E911 activities are not retail expenses. Therefore, these expenses are not avoided.

- **Interexchange Customer Service Center**

This includes the expenses of Interexchange Customer Service Center (ICSC) employees engaged in the work functions of establishing and servicing customer accounts pertaining to switched and special access and interexchange private line.

1. Serving as the initial point of contact with the carriers for receiving and processing customers' requests for service.
2. Administering documented standard intervals for service by coordinating company activities as required.
3. Creating and maintaining records of carrier services and handling customer complaints and requests.
4. Administering the company's credit, deposit, advance payment and account treatment policies.
5. Coordinating and handling all carrier billing inquiries and dispute resolutions.
6. Providing for and making billing adjustments or special billings; and ensuring the accuracy of the billing data.
7. Administering applicable interstate, intrastate, and general subscriber tariffs pertaining to provisioning and billing.
8. Coordinating internal and external equal access conversion and post conversion PIC processing maintenance.

The only part of this service that will be avoided is the portion assigned to intraLATA private line. The portion attributable to switched and special access is not avoided. (FCC Order 96-325, Paragraph 874)

- **End User Billing**

The portion of end user billing expense associated with toll billing for IXC's when Sprint receives billing & collection revenue for providing the billing service is not a retail service. These expenses are not avoidable.

- **Toll Processing and Control**

This includes the expense of the accounting staff necessary to operate the Toll Processing and Control module.

The only part of this service that will be avoided is the portion assigned to intraLATA toll. The portion attributable to switched and special access is not avoided.

- **Carrier Access Billing**

This includes:

1. The expenses associated with billing interexchange carriers for use of the company's network.
2. The expenses associated with the accounting staff necessary to support the Carrier Access Billing System (this would include expenses of reconciling general ledger accounts and investigating and correcting the billing of errors).
3. Division of revenue matters - monthly interchange of toll settlements with Bell or other connecting companies.

The portion attributable to switched and special access is not avoided.

- **Paystation Commissions**

This includes amounts paid to the owners or tenants of premises upon which attended or non-attended public telephone stations and public toll stations are located, as general compensation for occupancy privileges, light, heat, attendance, and all services rendered incident to the furnishing of service from such stations.

Paystations are not a retail service. There will be no avoided expenses.

4. Inputs

The following sections list the inputs with brief descriptions.

- **Revenue**

Revenues are taken from Sprint's General Ledger. Several accounts are further broken down to the function and market levels. The revenue is assigned to product families for further processing in the development of resale discounts.

- **Expenses**
Expenses are taken from Sprint's General Ledger. The expenses are assigned to product families based on the avoided drivers.
- **Cost Drivers - Product Management, Sales, and Product Advertising**
The Marketing Department performed an informed judgment analysis of the product management, sales, and product advertising functions. Based upon the results of their analysis, these expenses are assigned to the service groups.
- **Local Message Processing (LMP)**
A ratio of LMP system message errors was used to assign costs by LATA to the service groups.
- **NASC Service Orders**
The NASC has replaced the Interexchange Carrier Services Center (ICSC). The NASC provided a count of service order activity which allows assignment of NASC activity to the service groups.
- **Customer Perception Survey (CPS)**
A Customer Perception Survey is conducted regularly and based on the number and type of contacts. Based upon the summary of this information, Customer Services - Telephone Survey System expenses were assigned to the service groups.
- **Billing Statistics**
An analysis of numbers of customer accounts billed for each service type was used to assign end user billing expenses to each service.
- **Business Office Study**
An annual Business Office time and motion study is conducted by Sprint. The most recent report (excluding non-regulated products) is used to assign Business Office Production - Incoming Demand - Consumer expenses to the service groups.
- **Business Service Center**
An annual Business Service Center time and motion study is conducted by Sprint. The most recent report (excluding non-regulated products) is used to assign Business Office Production - Incoming Demand - Simple and Complex Business expenses to the service groups.

- **Carrier Account Service System (CASS) Expense Classification**
Switched and special access revenues were used to assign CASS expenses to service groups.
- **Message Processing System (MPS)**
ARMIS Telephone calls from Report 43-08 were used to assign Message Processing System expenses to service groups.
- **Operator Surcharges**
This worksheet reclassifies operator surcharge revenues from the toll revenue product to the operator/DA product. A recent sample of operator/DA revenues was used to arrive at an estimated annual amount.

5. Outputs

The Avoided Cost Study identifies retail-related marketing expenses, which are excluded from the TELRIC cost study within the ODC (Other Direct and Common Expenses) Module.

- ## 6. Pricing
- Not Applicable.

Nonrecurring Cost Study (NRC)

Documentation for the Nonrecurring Cost Study is included with the NRC rate elements.