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BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

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MCI WORLDCOM COMMUNICATIONS, INC., a Delaware corporation; and MCIMETRO ACCESS TRANSMISSION SERVICES LLC, a Delaware corporation, Appellants, v. BELLSOUTH TELECOMMUNICATIONS INC., a Georgia corporation; the FLORIDA PUBLIC SERVICE COMMISSION; E. LEON JACOBS, JR., in his official capacity as Chairman of the Florida Public Service Commission; and J. TERRY DEASON, LILA A. JABER, BRAULIO L. BAEZ and MICHAEL A. PALECKI, in their official capacities as Commissioners of the Florida Public Service Commission, Appellees.	In re: <u>Investigation into pricing of unbundled network elements,</u> Docket No. 990649-TP -A- FILED: November 19, 2001

NOTICE OF ADMINISTRATIVE APPEAL

NOTICE IS GIVEN that MCI WORLDCOM Communications, Inc., and MCImetro Access Transmission Services LLC, Appellants (collectively "WorldCom"), pursuant to Rule 9.030(a)(1)(B)(ii), Florida Rules of Appellate Procedure and Section 364.381, Florida Statutes, appeal to the Florida Supreme Court the Florida Public

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Service Commission's Orders No. PSC-01-1181-FOF-TP and No. PSC-01-2051-FOF-TP, rendered Oct. 18, 2001, in Docket No. 990649-TP, In re: Investigation into pricing of unbundled network elements. Those final orders require Appellants to purchase unbundled network elements from BellSouth Telecommunications, Inc., based on a cost model, inputs and assumptions that result in rates. that violate the federal Telecommunications Act of 1996 and its implementing regulations, that were arbitrarily and capriciously determined without regard for the evidence before the PSC, and that are otherwise contrary to law. Copies of the orders are attached hereto as Exhibits A and B, respectively.

WorldCom hereby reserves for independent adjudication in federal court, as provided by the holdings of England v. Louisiana State Board of Medical Examiners, 375 U.S. 411 (1964), and its progeny, all federal questions raised in this appeal. WorldCom informs the Court of the existence of its complaint containing claims based on federal law filed today in the United States District Court for the Northern District of Florida, MCI WORLDCOM Communications, Inc., and MCImetro Access Transmission Services LLC v. BellSouth Telecommunications, Inc., et al., in order to permit this Court, to the extent it ultimately retains jurisdiction over this matter, to resolve WorldCom's state law claims in light of the pending federal claims, as required by the holding in Government & Civic Employees Organizing Committee v. Windsor, 353 U.S. 365 (1957).

Respectfully submitted,

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IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF FLORIDA
TALLAHASSEE DIVISION

MCI WORLDCOM COMMUNICATIONS, INC., A Delaware corporation; and MCIMETRO ACCESS TRANSMISSION SERVICES LLC, a Delaware corporation,

Plaintiffs,

v.

BELLSOUTH TELECOMMUNICATIONS INC., a Georgia corporation; the FLORIDA PUBLIC SERVICE COMMISSION; E. LEON JACOBS, JR., in his official capacity as Chairman of the Florida Public Service Commission; and J. TERRY DEASON, LILA A. JABER, BRAULIO L. BAEZ and MICHAEL A. PALECKI, in their official capacities as Commissioners of the Florida Public Service Commission,

Defendants.

Civil Action No. ______________

COMPLAINT
FOR DECLARATORY AND EQUITABLE RELIEF

EXHIBITS

A

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BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Investigation into pricing of unbundled network elements.	DOCKET NO. 990649-TP ORDER NO. PSC-01-1181-FOF-TP ISSUED: May 25, 2001

The following Commissioners participated in the disposition of this matter:

E. LEON JACOBS, JR., Chairman
J. TERRY DEASON
LILA A. JABER

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FINAL ORDER ON RATES FOR UNBUNDLED NETWORK ELEMENTS PROVIDED BY BELLSOUTH

BY THE COMMISSION:

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ii. ACRONYMS AND ABBREVIATION

ACRONYMS AND ABBREVIATIONS	
AA	Allocation Area
ACAC	Access Customer Advocate Center
ADSL	Asymmetrical Digital Subscriber Line
ADUF	Access Daily Usage File
AFIG	Address and Facility Inventory
AIN	Advanced Intelligent Network
ALEC	Alternative Local Exchange Company
ALLTEL	ALLTEL Communications Services, Inc.
AM	Administrative Module
AT&T	AT&T Communications of the Southern States
ATM	Asynchronous Transfer Mode
BARRA	A financial data firm that provides beta estimates
BCC	BellSouth Cost Calculator
BCPM	Benchmark Cost Proxy Model
BR	Brief
BRI	Basic Rate Interface (i.e., Integrated Services Digital Network - ISDN-BRI)
BSCC	BellSouth Cost Calculator
BellSouth	BellSouth Telecommunications, Inc.
BSTLM	BellSouth Telecommunications Loop Model
BT	Building Terminal
Caller ID	Caller Identification
CAPM	Capital Asset Pricing Model

ACRONYMS AND ABBREVIATIONS	
CATV	Cable Television
CC	Common Carrier
CCP	Change Control Process
CCS	100 call seconds
CCS7	Common Channel Signaling Network
CFR	Code of Federal Regulations
CMP	Communications Module Processor
CNAM	Calling Name Database Service
CO	Central Office
CO I&M	Central Office Installation and Maintenance
COMAP	Central Office Monthly Allocation Process
Comptel	Competitive Telecommunications Association
COMPUSTAT	A financial database
CPG	Circuit Provisioning Group
CRSG	Complex Resale Services Group
CSA	Carrier Serving Area
DA	Directory Assistance or Distribution Area
DAML	Digital Added Main Lines
d/b/a	Doing business as
DCF	Discounted Cash Flow
DCOP	Dedicated Central Office Plant
DLC	Digital Loop Concentrator or Digital Loop Carrier
DLR	Design Layout Record
DN	Docket Number

ACRONYMS AND ABBREVIATIONS	
DSL	Digital Subscriber Line
DSLAM	Digital Subscriber Line Access Modems
DT	Distribution Terminal
EBAC	Equipment Billing Accuracy Center
EDS	Electronic Data Systems, Inc.
EEL	Extended Link
EF&I	Engineered, Furnished, and Installed
E&I	Engineer and Install
EODUF	Enhanced Optional Daily Usage File
EXH	Exhibit
FCC	Federal Communications Commission
FCCA	Florida Competitive Carriers Association
FCTA	Florida Cable Telecommunications Association, Inc.
FDI	Feeder Distribution Interface
FITL	Fiber-In-The-Loop
FLEC	Forward-Looking Economic Cost
Florida Digital Network	Florida Digital Network, Inc.
FOC	Firm Order Confirmation
FRN	Facility Reservation Number
Ft.	Feet
GAAP	Generally Accepted Accounting Principles
GIS	Geographic Information System
GTEFL	GTE Florida Incorporated

ACRONYMS AND ABBREVIATIONS	
HAI model	Formerly Hatfield model
HCPM	Hybrid Cost Proxy Model
HDSL	High Bit-Rate Digital Subscriber Line
IBES	Institutional Brokerage Estimate System
ICB	Individual Case Basis
ID	Identification
IDLC	Integrated Digital Loop Carrier
IDSL	Integrated Services Digital Network Digital Subscriber Line
IDST	Integrated Digital Service Terminal
ILEC	Incumbent Local Exchange Company
INC	Intra-building Network Cable
Intermedia	Intermedia Communications Inc.
IOF	Interoffice
ISDL	Integrated Services Network Digital Subscriber Line
ISDN	Integrated Services Digital Network
ISUP	Integrated Services Digital Network
IXC	Interexchange carrier
Kft.	Kilofeet (Also Kft.)
L&B	Land and Building
LCC	Line Class Code
LCSC	Local Carrier Service Center
LEC	Local Exchange Company
LENS	Local Exchange Navigation System

ACRONYMS AND ABBREVIATIONS	
LFACS	Loop Facility Assignment Control System
LIDB	Line Information Data Base
LMU	Loop Make-Up
LMS	Link Monitoring System
LNP	Local Number Portability
LSR	Local Service Request
WorldCom	MCIMetro Access Transmission Services, LLC, and WorldCom Technologies, Inc.
MDF	Main Distribution Frame
MDTE	Massachusetts Department of Telecommunications and Energy
MDU	Multiple Dwelling Unit
MGC	MGC Communications, Inc.
MOU	Minutes of Use
MPOE	Minimum Point of Entry to the Customer Premises
MSA	Metropolitan Statistical Area
MST	Minimum Spanning Tree
MSRT	Minimum Spanning Road Tree
MTU	Mulitple Tenant Unit
NCAT	Network Cost Tool Analysis
NED	Network Interface Device
NGDLC	Next Generation Digital Loop Carrier
NID	Network Interface Device
No.	Number
Northpoint	Northpoint Communications, Inc.

ACRONYMS AND ABBREVIATIONS	
NRC	Non-Recurring Charge
NTW	Network Terminating Wire
ODUF	Optional Daily Usage File
OPSE	Outside Plant Engineering
PSPC	Outside Plant Construction
OSP	outside plant
OSS	Operation Support Systems
O&T	One Plus Terminating Usage
PBX	Private Branch Exchange
PIC	Polyethylene Insulated Cable
PICS	Network Planning & Engineering
POD	Production of Documents
POTS	Plain Old Telephone Service
PSC	Public Service Commission
PSE	Plant Specific Expense
RBHC	Regional Bell Holding Companies
RAF	Regulatory Assessment Fee
RBHCs	Regional Bell Holding Companies
RC	Recurring Charge
RCF	Remote Call Forwarding
RMA	Requiring Manual Intervention
RRD	Revised Resistance Design
Rservice	Report Services
RT	Remote Terminal

ACRONYMS AND ABBREVIATIONS	
RTAP	Resource Tracking Analysis and Planning
RTU Fee	Right-To-Use Fee
SAC	Service Advocacy Center
SAI	Serving Area Interface
SAIC	Science Applications International Corporation
SBC	Southwestern Bell Telephone Company
SCIS/IN	Switching Cost Information System/Intelligent Network
SCIS/MO	Switching Cost Information System/Model Office
SCP	Service Control Point
SCR	Selective Carrier Routing
SDSL	Symmetric Digital Subscriber Line
SE&P	Supporting Equipment and Power Loadings
SEC	Securities and Exchange Commission
SI	Service Inquiry
SL	Service Level
SM	Switch Module
SMEs	Subject Matter Experts
SMS	Service Management System or Switch Modules
SONET	Synchronous Optical Network
S & P	Standard & Poor's Industry Survey
Sprint	Sprint-Florida, Incorporated
SRT	Service Readiness Testing
SST	Simplified Switching Tool

ACRONYMS AND ABBREVIATIONS	
SST-U	Simplified Switching Tool - Usage
SST-P	Simplified Switching Tool - Ports
SS7	Signaling System 7
SSI&M	Special Services Installation & Management
STI	Standard Time Increment
STP	Signaling Transfer Point
Supra	Supra Telecommunications and Information Systems
TAG	Telecommunications Access Gateway
TCAP	Transaction Capabilities Application Part
TELRIC	Total Element Long Run Incremental Cost
TFP	Total Factor Productivity
TIRKS	Trunk Integrated Recordkeeping System
TNM	Total Network Management
TPI	Telephone Plant Index
TR	Transcript
TRA	Telecommunications Resellers, Inc.
TSLRIC	Total Service Long Run Incremental Cost Study
UCL	Unbundled Copper Loop
UCL-L	Unbundled Copper Loop-Long
UCL-Short	Unbundled Copper Loop-Short
UDC	Universal Digital Channel
UDLC	Universal Digital Loop Carrier
UL	Unbundled Loop

ACRONYMS AND ABBREVIATIONS	
ULM	Unbundled Loop Modification
ULM-BT	Unbundled Loop Modification-Bridged Tap
ULM/LC-L	Unbundled Loop Modification Load Coil-Long
ULM/LC-S	Unbundled Loop Modification Load Coil-Short
ULM-BT	ULM Bridged Tap
UNE	Unbundled Network Element
UNEC	Unbundled Network Element Center or UNE Center
USF	Universal Service Fund
USL-D	Sub-Loop Distribution
USL-F	Sub-Loop Feeder
USLC	Unbundled Subloop Concentration
USA	United States Telephone Association
USOA	Uniform System of Accounts
USTA	United States Telephone Association
Verizon	Formerly GTE Florida Incorporated
VG	Voice Grade
WEFA	Wharton Econometric Forecasting Associates
WFA	Work Force Administration
WMC	Work Management Center
xDSL	"x" distinguishes various types of DSL
Zacks	A firm that provides earnings estimates

I. CASE BACKGROUND

The federal Telecommunications Act of 1996 (Act) made sweeping changes to the regulation of telecommunications common carriers in this country. Of particular importance, it provided for the abolishment nationwide of the incumbent local exchange carriers' monopolies over the provision of local exchange service. The Act envisioned three entry strategies by firms into the local exchange services market: (1) through resale of the incumbent's services; (2) via pure facilities-based offerings, thus only requiring a competitor to interconnect with the incumbent's network; and (3) through a hybrid involving the leasing of unbundled network elements (UNEs) of the incumbent's network facilities, typically in conjunction with network facilities owned by the entrant.

Although the Act generally spelled out the broad policy terms, the implementation details were left to the Federal Communications Commission (FCC). Specifically, the Act required that the FCC promulgate rules to implement the resale, interconnection, and UNE requirements within six months after passage of the Act. The rules subsequently established by the FCC provided detailed implementation requirements for pricing and provision of services. Of particular importance to our proceeding, the FCC's Local Competition Order, released August 8, 1996, included in its pricing rules a rule, 51.507(f), which requires each state commission to establish rate zones for UNEs (the deaveraging rule). That rule states:

> State commissions shall establish different rates for elements in at least three defined geographic areas within the state to reflect geographic cost differences.

47 C.F.R. §51.507(f).

Since the establishment of the pricing rules, these rules have been the subject of a number of court decisions and FCC actions, which have directly impacted this issue and its resolution. The legal challenges continue to this day.

In response to various appeals, including that of this Commission, the U.S. Court of Appeals for the Eighth Circuit (Eighth Circuit) stayed the FCC's pricing rules on September 27, 1996. On July 18, 1997, the Eighth Circuit vacated the pricing rules on the grounds that the FCC lacked jurisdiction. However, on January 25, 1999, the U.S. Supreme Court reversed the Eighth Circuit's decision with regard to the FCC's jurisdiction over the pricing rules.

In FCC Order 99-86, released May 7, 1999, in CC Docket No. 96-98, the FCC stayed its deaveraging rule, stating:

> In this Order we issue a *sua sponte* stay of the effectiveness of section 51.507(f) of the [FCC's] rules. Section 51.507(f) requires each state commission to establish at least three geographic rate zones for unbundled network elements and interconnection that reflect cost differences. The stay shall remain in effect until six months after the [FCC] issues its order in CC Docket No. 96-45 finalizing and ordering implementation of high-cost universal service support for non-rural local exchange carriers (LECs) under section 254 of the Communication Act of 1934, as amended.

FCC Order 99-86 at ¶1.

. . . .

> Because of the Eighth Circuit's decisions, the section 251 pricing rules were not in effect for approximately two-and-a-half years. During that time, not all states established at least three deaveraged rate zones for unbundled network elements and interconnection. Some have taken no action yet regarding deaveraging; others have affirmatively decided to adopt less than three zones. A temporary stay will ameliorate the disruption that would otherwise occur, and will afford the states an opportunity to bring their rules into compliance with section 51.507(f).

Id. at ¶4.

On November 2, 1999, the FCC released Order 99-306 in CC Docket No. 96-45, which lifted the stay of the deaveraging rule effective May 1, 2000, stating that:

> [B]y that date, states are required to establish different rates for interconnection and UNEs in at least three geographic areas pursuant to section 51.507(f) of the Commission's rules.

FCC Order 99-306 at ¶120.

Additionally, on November 5, 1999, the FCC released FCC Order 99-238 addressing the U.S. Supreme Court's remand of FCC Rule 47 C.F.R. §51.319 back to the FCC for proceedings to determine which unbundled network elements should be made unconditionally available consistent with the Court's interpretation of Sections 251(c)(3) and 251(d)(2) of the Act. See AT&T Corp. v. Iowa Utils. Bd., 525 U.S. 366 (1999).

On July 18, 2000, the Eighth Circuit rendered a decision in which it vacated many of the FCC's UNE pricing rules, including Rule 51.505(b)(1). That decision provides in part that "[t]he total element long-run incremental cost of an element should be measured based on the use of the most efficient telecommunications technology currently available and the lowest cost network configuration, given the existing location of the incumbent LEC's wire centers." The Court held the FCC's TELRIC standard to be impermissibly hypothetical, in violation of "the plain meaning of the Act." See Iowa Utilities Bd. v. FCC, 219 F.3d 744. The Order explained that Congress intended UNE rates to be based on "the cost of providing the actual facilities and equipment that will be used by the competitor, and not some state of the art presently available technology ideally configured but neither deployed by the ILEC nor to be used by the competitor." Id.

The Eighth Circuit, however, stayed its order on FCC Rule 51.505(b)(1) on September 22, 2000, pending review by the Supreme Court, which granted the petitions for certiorari filed regarding the Eighth Circuit's decision.

A. PETITION OF THE COMPETITIVE CARRIERS

On December 10, 1998, the Florida Competitive Carriers Association (FCCA), the Telecommunications Resellers, Inc. (TRA), AT&T Communications of the Southern States, Inc. (AT&T), MCIMetro Access Transmission Services, LLC and WorldCom Technologies, Inc. (WorldCom), the Competitive Telecommunications Association (Comptel), MGC Communications, Inc. (MGC), Intermedia Communications Inc. (Intermedia), Supra Telecommunications and Information Systems (Supra), Florida Digital Network, Inc. (Florida Digital Network), and Northpoint Communications, Inc. (Northpoint) (collectively, "Competitive Carriers") filed their Petition of Competitive Carriers for Commission Action to Support Local Competition in BellSouth's Service Territory. Among other matters, the Competitive Carriers' Petition asked that we set deaveraged unbundled network element (UNE) rates. The petition was addressed in Docket No. 981834-TP.

On May 26, 1999, we issued Order No. PSC-99-1078-PCO-TP, granting in part and denying in part the Competitive Carriers' petition. Specifically, we granted the request to open a generic UNE pricing docket for the three major incumbent local exchange providers, BellSouth Telecommunications, Inc. (BellSouth), Sprint-Florida, Incorporated (Sprint), and GTE Florida Incorporated (GTEFL, now Verizon). Accordingly, Docket No. 990649-TP was opened to address the deaveraged pricing of UNEs, as well as the pricing of UNE combinations and nonrecurring charges. The matter was subsequently set for an administrative hearing on December 13-15, 1999.

A prehearing conference was held on December 2, 1999. At the prehearing conference, the parties and our staff indicated that a procedural stipulation had been proposed to deal with the requirements of the FCC's orders. However, it became clear during discussions that additional time was required in order to finalize the document. Subsequently, on December 7, 1999, the parties filed a Stipulation of Certain Issues and Schedule of Events (Stipulation). The Stipulation addressed procedural aspects of this proceeding in response to the FCC's Order No. 99-238. All of the parties to this proceeding at that time signed the stipulation.

Among other things, the stipulation addressed ground rules by which UNEs should be considered for deaveraging and the type of cost studies upon which the prices for the deaveraged UNEs should be based. The stipulation also addressed the filing of cost studies for UNE combinations, cost studies for UNEs, the information that should be filed with the cost studies, and the time frames for filing these cost studies. Finally, the parties included a proposed revised schedule for hearings in this proceeding.

By Order No. PSC-99-2467-PCO-TP, issued December 17, 1999, the joint stipulation was approved, and the hearing, then scheduled for December 13-15, 1999, was canceled.

By Order No. PSC-00-0380-S-TP, issued February 22, 2000, the Commission approved an Interim Rate Stipulation pending the completion of the permanent pricing proceedings in this docket.

The Interim Rate Stipulation provides for interim deaveraged loop rates for BellSouth, Verizon, and Sprint-Florida. The interim deaveraged rates became effective on May 1, 2000. Under the Interim Rate Stipulation, those rates will remain in effect until this Commission sets permanent deaveraged rates, or until June 30, 2001, whichever is sooner. Such rates are available to parties which have an interconnection agreement with the respective incumbent local exchange carrier. The interim rates will not be subject to true-up once permanent rates have been set.

B. THE HEARINGS

In its Second Revised Order on Procedure, Order No. PSC-00-0540-PCO-TP, issued March 16, 2000, an administrative hearing was scheduled for July 17 through July 21, 2000, in which all ILECs would participate. A second hearing would be held on September 20 through 22, 2000, that would cover Verizon's costs for UNE combinations, dark fiber, and sub-loops, including intra-building cable owned by the ILEC.

On April 17, 2000, BellSouth, Sprint and Verizon (collectively, the ILECs) filed cost studies to be used in the establishment of recurring UNE rates. On May 1, 2000, the ILECs filed cost studies for non-recurring rates, along with direct testimony and exhibits. Pursuant to Order No. PSC-00-0540-PCO-TP, ALECs were scheduled to file rebuttal testimony and exhibits on

June 1, 2000, and ILECs were to file rebuttal testimony on June 26, 2000.

A Commission workshop was held on June 2, 2000, to discuss purported problems with the BellSouth cost models, to facilitate the dissemination of information regarding possible adjustments to allow the model to perform in the manner prescribed, and to discuss the motions for continuance and for extension of time. Following the workshop, an Oral Argument was convened to address the Joint Motion for Extension of Time and the Motion for Continuance. As a result of the workshop, BellSouth agreed to give further direction on ways to remedy the problems with its cost models and to disseminate any updates through e-mail to the parties and our staff.

BellSouth's loop cost model appeared to be the primary stumbling block in moving this docket forward. However, the parties generally agreed that the BellSouth model appeared to be fundamentally sound. Some ALECs admitted in the workshop that they simply did not have the resources to analyze the BellSouth cost model, and were deferring to AT&T to perform any necessary analysis.

As a result, the hearing was bifurcated, such that issues which did not significantly hinge upon the BellSouth cost model for loops would be addressed at the hearing beginning July 17, 2000. The remaining issues were to be addressed at a separate hearing to take place from September 19 through September 22, 2000.

Prehearing statements were filed by the parties on June 26, 2000. Verizon, BellSouth, Sprint, ALLTEL, FCTA, Supra, and Time Warner filed prehearing statements individually. The FCCA, AT&T, WorldCom, Intermedia, and Z-Tel, referred to herein as the "FCCA" filed a joint prehearing statement. BlueStar Networks, Inc., DIECA Communications, Inc. d/b/a Covad Communications Company, and Rhythms Links Inc. also filed a joint prehearing statement. This group is referenced herein as the "Data ALECs." On June 28, 2000, Time Warner and FCTA each filed a supplemental prehearing statement. A prehearing was held on July 6, 2000.

An administrative hearing was held on July 17, 2000, on the Part One issues identified in Order No. PSC-00-2015-PCO-TP, issued June 8, 2000.

Pursuant to a stipulation of the parties, only certain witnesses were required to appear at the July 17-19, 2000, hearing. The prefiled testimony of the witnesses that did not appear was entered into the record and cross-examination was waived. BellSouth's witnesses were Alphonso J. Varner, Daonne Caldwell, Dr. Randall S. Billingsley, G. David Cunningham, and W. Keith Milner. Verizon's witnesses were Dennis B. Trimble, Allen E. Sovereign, Gregory D. Jacobson, and Michael R. Norris. Sprint's witnesses were Kent W. Dickerson, James W. Sichter, John D. Quackenbush, and John A. Holmes. AT&T/WorldCom jointly sponsored John I. Hirshleifer, Jeffrey King, and Michael J. Majoros, Jr. Supra's witnesses were David Nilson and Carol Bentley. Z-Tel's witness was Dr. George S. Ford. The Data ALECs jointly sponsored Terry L. Murray and FCTA sponsored William J. Barta.

In addition to the problems that arose as a result of perceived difficulties with BellSouth's cost model, the Eighth Circuit's July 18, 2000, had a profound impact on the docket. As noted above, that decision vacated many of the FCC's UNE pricing rules.

On August 2, 2000, Verizon filed a Motion to Bifurcate and Suspend Proceedings. Verizon asked that the proceedings be bifurcated, and that the remaining procedural events with regard to Verizon be suspended until the issue of the appropriate methodology for pricing unbundled network elements is resolved at the federal level.

Also on August 2, 2000, Sprint-Florida, Incorporated (Sprint-Florida) and Sprint Communications Company Limited Partnership (Sprint) filed a Motion to Bifurcate Proceeding, For a Continuance and Leave to Withdraw Cost Studies and Certain Testimony. Sprint-Florida and Sprint also requested that the proceeding be bifurcated and that Sprint-Florida be granted a continuance and leave to withdraw its cost studies and certain testimony.

Both Verizon and Sprint-Florida described their cost studies as consistent with the then vacated FCC pricing rules and concluded that until it is precisely known whether the FCC's mandated use of a hypothetical network violates the 1996 Act, or if it does, what alternative methodology must be used, their cost studies are not in compliance with the law as interpreted by the Eighth Circuit.

On August 4, 2000, BellSouth Telecommunications Inc. filed its Response to Verizon and Sprint's Motions. On August 7, 2000, the FCCA filed its Response to Verizon's Motion to Bifurcate and Suspend Proceedings and Sprint's Motion to Bifurcate Proceedings, for a Continuance and Leave to Withdraw Cost Studies and Certain Testimony. Finally, on August 8, 2000, ALLTEL Communications Services Inc. (ALLTEL) filed its Response to Verizon's and Sprint-Florida's Motion to Bifurcate and Suspend Proceedings. Also on August 8, 2000, Sprint-Florida responded to BellSouth's Response. Generally, the parties did not object to a limited delay for Verizon and Sprint-Florida, although they did not necessarily agree with the reasoning provided by the two companies.

On August 18, 2000, prior to the second hearing, Order No. PSC-00-1486-PCO-TP was issued granting Verizon Florida Inc.'s (formerly GTE Florida Incorporated) Motion to Bifurcate and Suspend Proceedings, as well as Sprint-Florida Incorporated's and Sprint Communications Company Limited Partnership's Motion to Bifurcate Proceedings, for a Continuance and Leave to Withdraw Cost Studies and Certain Testimony. Verizon and Sprint were ordered to file cost studies on April 2, 2001.

C. REFILING OF BELLSOUTH'S COST STUDIES

As noted above, during the course of a conference call to discuss the Eighth Circuit decision, it came to light that BellSouth might need to file revisions to its cost studies but had not yet provided a list of the specific changes that might be made. It appeared that the change would require additional time for the parties to file testimony and for discovery. By Order No. PSC-00-1335-PCO-TP, issued July 24, 2000, BellSouth was granted leave to file revisions to its filings in this proceeding by August 16, 2000, and the procedural schedule was again revised.

On August 16, 2000, BellSouth filed the changes to its cost studies. BellSouth also filed a Motion for Extension of Time to file modifications to its direct testimony necessitated by changes made to its other filings in this proceeding.

In its Motion, BellSouth argued that Order No. PSC-00-1335-PCO-TP only required BellSouth to file changes to its cost studies by August 16, 2000, since that Order did not specifically address the filing of any revised direct testimony that might be necessitated by the changes to the cost studies. BellSouth asked that it be granted an extension of time to file its revised direct testimony by close of business on Friday, August 18, 2000. Responses were filed on August 17, 2000.

BellSouth's request for an extension of time was granted, in part, by Order No. PSC-00-1485-PCO-TP, issued August 18, 2000. BellSouth was required to file any revisions to its direct testimony and exhibits necessitated by the changes to its cost studies by 12:00 p.m., Friday, August 18, 2000. The date for ALEC supplemental rebuttal testimony responsive to BellSouth's revised filings was extended to Monday, August 28, 2000.

The extreme level of changes to BellSouth's filing and the late date at which it was performed, appears to have rendered much of the previously filed discovery and testimony obsolete. Where parties had addressed certain rates, and filed their own rate proposals, the rate elements are now different. This also resulted in numerous changes to testimony being filed.

D. SEPTEMBER 19 THROUGH 21, 2000, HEARINGS

The hearing was held on September 19-21, 2000, on the Part Two issues, identified in Order No. PSC-00-2015-PCO-TP. Although the hearing was scheduled to be completed on September 22, 2000, state offices were closed that day, because of a hurricane. Telephonic cross-examination of the remaining witnesses was conducted on October 10 and 18, 2000. The hearing was reconvened on October 20, 2000 to admit the remaining testimony, exhibits, and telephonic cross examination into the record.

At the September portion of the hearing, AT&T and WorldCom jointly sponsored the testimony of John C. Donovan and Brian F. Pitkin (testifying as a panel), Catherine E. Pitts, Greg Darnell, Brenda J. Kahn, and Jeffrey King. BellSouth's witnesses were

Alphonso J. Varner, D. Daonne Caldwell, James W. Stegeman, Joseph H. Page, Ronald M. Pate, William H. B. Greer, Wiley G. Latham, Walter S. Reid, and W. Keith Milner. The Data ALECs jointly sponsored Terry L. Murray and Joseph P. Riolo. FCCA sponsored Joseph Gillan. FCTA sponsored William J. Barta. The Joint ALECS sponsored Eric McPeak and Mark Stacy. Sprint's witnesses were James W. Sichter, Kent W. Dickerson, Steven M. McMahon, and Talmage O. Cox. Z-Tel's witness was Dr. George S. Ford. Prior to the hearing, Supra withdrew from the case.

Parties filed briefs on November 21, 2000. The briefs covered the issues taken up at both the July and the September hearings. Sprint and BellSouth filed individual briefs. Rhythms, Covad, and BlueStar filed a joint brief. Their positions are shown as Data ALECs in the recommendation. FCCA, AT&T, Broadslate, Cleartel, FCTA, Florida Digital, Intermedia, WorldCom, and Z-Tel also filed a joint brief. Their positions are shown as FCCA in the recommendation. Although these parties filed joint briefs, some individual parties took different positions, or no position, on certain issues.

II. JURISDICTION

A. Current State of Law

In Iowa Utilities Board v. FCC, 219 F.3d 744 (8th Cir. 2000) (Iowa Utilities), the 8th Circuit Court, on remand from the Supreme Court's decision in AT&T Corp. V. Iowa Utils. Bd.,525 US 366(1999), reviewed the FCC's pricing methodology on the merits as put forth in FCC Rule 51.505. That review vacated the FCC's pricing rule requiring "the most efficient telecommunications technology currently available and the lowest cost network configuration, given the existing location of the incumbent LEC's wire centers" (Rule 51.505(b)(1)). The 8th Circuit held that this rule was inconsistent with the plain meaning of the Telecom Act. Iowa Utilities, at 750. The vacating of Rule 51.505(b)(1) did not, however, affect the contemporaneous rules surrounding it. These rules remain in full force and effect. Rule 51.505(b)(1) also remains in effect, by virtue of the Eighth Circuit's stay of its decision pending review by the Supreme Court. The 8th Circuit did speak directly on the subject of a forward-looking cost methodology, stating that:

> Forward-looking costs have long been recognized as promoting a competitive environment which is one of the stated purposes of the Act. The Seventh Circuit, for example, explained, "[I]t is current and anticipated cost, rather than historical cost that is relevant to business decisions to enter markets...historical costs associated with the plant already in place are essentially irrelevant to this decision since these costs are 'sunk' and unavoidable and are unaffected by the new production decision . . . Here, the FCC's use of a forward-looking cost methodology was reasonable. Iowa Utilities at 752.

Thus, under either the FCC's rule or under the decision of the 8th Circuit, if affirmed by the Supreme Court, the Commission is guided to use a forward-looking cost methodology for computing rates for unbundled network elements. The Supreme Court's decision may affect the nature and makeup of the appropriate forward looking cost methodology, but until that decision is handed down, the FCC's rules, including the use of a TELRIC model incorporating an efficient network configuration, remain in full effect.

B. Commission Authority

Pursuant to 47 U.S.C. §§ 251(c)(2)(D), 251(c)(3), and 252(d), as well as Sections 364.161 and 364.162, Florida Statutes, the Commission has the authority to establish rates for unbundled network elements. Section 364.161(1) provides:

> Upon request, each local exchange telecommunications company shall unbundle all of its network features, function, and capabilities, including access to signaling databases, systems and routing processes, and offer them to any other telecommunication provider requesting such features, functions or capabilities for resale to the extent technically feasible. The parties shall negotiate the terms, conditions, and prices of

> any feasible unbundling request. If the parties cannot reach a satisfactory resolution within 60 days, either party may petition the commission to arbitrate the dispute and the commission shall make a determination within 120 days...[t]he prices, rates, terms, and conditions for the unbundled services shall be established by the procedure set forth in Section 364.162 and shall be equally applicable to both the local exchange telecommunications company and its affiliates in the provisioning of their own service, until such time as the local exchange telecommunications company petitions the commission and the commission determines otherwise, but in no event prior to July 1, 1999.

Section 364.162(2) provides in pertinent part:

> In the event that the commission receives a single petition relation to either interconnection or resale of services and facilities, is shall vote, within 120 days following such filing, to set nondiscriminatory rates, terms, and conditions, except that the rates shall not be below cost. If the commission receives one or more petitions relating to both interconnection and resale of services and facilities, the commission shall conduct separate proceedings for each and, within 120 days following such filing, make two separate determinations setting such nondiscriminatory rates, terms and conditions, except that the rates shall not be below cost.

As outlined above, the FCC's rules regarding pricing methodology remain in effect as a result of the Eighth Circuit's stay of its decision invalidating the use of the most efficient network configuration. Thus, our decision on appropriate UNE rates is bound by the FCC rules as they currently stand. We note that it is likely that the decision of this Commission will not, in the context of the telecommunications industry, be a short-lived one. The Supreme Court has granted certiorari on the Eighth Circuit's ruling, and the expected time frame for a decision to be forthcoming is eighteen months, based upon the time frame in AT&T Corp. V. Iowa Util. Bd. 525 U.S. 366 (1999). Even if the Supreme Court's ultimate decision necessitates that this Commission revisit its decision on rates, during the pendency of a proceeding to implement the Supreme Court's ruling, our original decision would remain in effect. Thus, it appears that our decision could remain effective for as much as two years. As such, the this decision will lend stability and guidance to the industry for a reasonable period of time.

III. FACTORS IN ESTABLISHING UNE RATES AND CHARGES

The parties generally agree that the most important factor this Commission should consider is the use of forward-looking economic costs to establish rates and charges for UNEs. However, a major point of contention is whether UNE rates based on the FCC-prescribed methodology are too low, as stated by BellSouth, or whether UNE rates are too high, thus thwarting competition, as the ALECs contend. BellSouth witness Varner complains that the FCC-prescribed methodology produces UNE rates that are too low. He also contends that local rates must be rebalanced before UNE rates are deaveraged.

A. Impact of UNE Rates

BellSouth witness Varner asserts that the rates established in this proceeding will have profound effects on the continued development of competition in Florida. He contends that the outcome of this docket will affect how local competition will continue to develop, which companies will choose to compete, which customers will benefit from local competition, and how advanced technologies will be deployed.

Witness Varner further opines that if rates for UNEs are set either too high or too low, efficient competition in the local market will not occur, and consumers will not benefit. He argues that understated prices deter ILEC investment in new technology or willingness to expand and upgrade network facilities because the ILEC will not be able to recover its costs. He asserts that ALECs will have no incentive to build their own facilities; rather, they will over-consume the ILECs' facilities. He states that, as a result, "[t]he ALECs in effect get a 'free ride' on BellSouth's network" without having to make any substantial investment. He warns that ILECs would be forced to recoup any unrecovered costs from their own end users, which would primarily be rural residential customers. Therefore, witness Varner argues, UNE prices must be set to cover the actual costs incurred by ILECs.

Witness Varner urges us to consider that the FCC regulations "already mandate that rates will be below the appropriate level. Any further reductions will only exacerbate the negative consequences" that he discusses in his testimony.

Witness Varner provides one argument against setting UNE prices too high--that it would discourage ALECs from purchasing the elements from ILECs. At the same time, he argues that high UNE rates would maximize the ALECs' incentive to construct their own facilities. Therefore, he opines that facilities-based competition would be available sooner with prices that are too high than under other pricing scenarios.

Sprint witness Sichter notes that Congress recognized that there are "substantial barriers to entry into the local exchange market" due to the capital-intensive nature of the network. He emphasizes that the availability of UNEs gives new entrants an alternative to constructing an entire new network.

Witness Sichter points out, similar to the position of BellSouth, that if UNE prices are priced above economic costs, competitors will have an incentive to build their own facilities. However, he contends that if UNEs are priced below cost, competitors will be inclined to use LEC facilities.

FCCA witness Gillan argues, in contrast to witness Varner, that this Commission has set UNE prices that are too high, due to caution and the lack of adequate data. He contends that the result has been negligible competition.

B. Cost Methodology

Sprint witness Sichter testifies that UNE rates should be based on forward-looking economic costs. He argues that not only is this the economically appropriate basis for UNE pricing, but also it is required by the Act, which states that network element rates:

> (A) shall be--
>
> > (i) based on the cost (determined without reference to a rate-of-return or other rate-based proceeding) of providing the interconnection or network element whichever is applicable), and
> >
> > (ii) nondiscriminatory, and
>
> (B) may include a reasonable profit.

§252(d)(1), 1996 Telecommunications Act.

Witness Sichter points out that the FCC, in its August 8, 1996, First Report and Order in CC Docket 96-98, interpreted cost to mean TELRIC. He explains that this form of forward-looking cost applies to the costing of "discrete network elements or facilities, rather than the cost of a service or services provided over that facility."

Witness Sichter notes that the appropriate methodology is set forth in 47 C.F.R., Chapter 1, Part 51.505(b). He adds that these federal regulations define TELRIC as:

> the forward-looking cost over the long run of the total quantity of the facilities and functions that are directly attributable to, or reasonably identifiable as incremental to

> such element, calculated taking as given the incumbent LEC's provision of other elements. . . . The total element long-run incremental cost of an element should be measured based on the use of the most efficient telecommunications technology currently available and the lowest cost network configuration, given the existing location of the incumbent LEC's wire centers.

Witness Sichter explains that the federal regulations further provide that a forward-looking cost of capital and economic depreciation rates must be used. He adds that Section 51.505(a) provides that the forward-looking cost of a UNE should include, "a reasonable allocation of forward-looking common costs. . . ."

Witness Sichter agrees with BellSouth that forward-looking economic costs are the economically appropriate basis for pricing unbundled network elements because they provide "a measure of the costs that would be incurred by an efficient supplier to provide a particular network element." He argues that retail rates should not be factored in when setting UNE rates. He explains that retail rates and rate structures are not necessarily based upon forward-looking economic costs. Thus, he contends it would be inconsistent with the requirements of the Telecom Act to base UNE prices on retail rates. Rather, he opines that retail rates should move toward economic cost levels.

Witness Sichter argues that forward-looking costs are also the appropriate basis for pricing of non-recurring charges for UNEs. Non-recurring charges also impact a competitor's build-or-buy decision, just as recurring charges do. Witness Sichter states that "[t]he forward-looking costs for non-recurring charges should reflect the costs that would be incurred in performing those functions in relation to the forward-looking network that is the basis for calculating the recurring costs and rates for the unbundled network element."

Witness Sichter notes that the same criteria that apply for UNE rates also apply to combinations of UNEs. He opines that "[a]s a general principle, the rate for a UNE combination should be the sum of the rates for those UNE elements that comprise the combination." Nevertheless, he argues that "there are occasions where simply summing those individual UNE costs is inappropriate."

BellSouth witness Varner states that Section 251(c)(3) of the Act establishes the pricing standard for UNEs. He agrees that prices must be just, reasonable, and nondiscriminatory. He states that section 252(d)(1) of the Act provides guidelines for determining just and reasonable rates, but he contends that the FCC's pricing regulations require prices for UNEs to be set below actual cost. He asserts that those regulations "limit prices for UNEs and interconnection to the forward looking economic cost of the element." He defines economic cost as "the sum of the long run incremental cost plus a reasonable allocation of forward-looking common costs."

Witness Varner argues that the Commission should not limit prices to economic costs, even though that is what the FCC regulations require. Although he agrees that prices should be based on cost, witness Varner submits that cost is not the only factor that should be considered. He states that "prices should be functional in the marketplace and be consistent with prices for similar services." He contends that BellSouth should be permitted to recover all of its costs, including shared costs, common costs, and historical costs.

FCTA witness Barta argues that the primary consideration of the Commission should be to base rates "upon fully supported cost studies that closely follow the appropriate costing methodology." He asserts that "appropriate cost based rates will promote fair and responsible competitive entry under the requirements of the Telecommunications Act of 1996 and will protect the [ILECs] as the providers of the facilities necessary to provision the unbundled network elements and UNE combinations."

Witness Barta states that a forward-looking cost methodology is the appropriate method to replicate the conditions of a competitive market. He reasons that pricing of UNEs at an ILEC's forward-looking economic costs allows competitors "the opportunity to capture the same types of economies of scale and scope that the [ILEC] benefits from."

FCCA witness Gillan asserts that the most critical aspect of a cost study is that it be forward-looking. He explains that "[b]ecause a forward-looking economic cost model must look to the future, it is unavoidably built from assumptions about future investment."

Witness Gillan also argues that the Eighth Circuit vacated Rule 47 C.F.R. 51.505(b)(1). He acknowledges that at the time it was "unclear whether the decision will be stayed or even reversed." Nevertheless, he asserts that the decision is of little relevance with regard to UNE rate levels. He opines that "the Court effectively rejected the view that the cost of the entire network should be considered in a forward-looking analysis because the only portion of the network relevant to the analysis is that increment being used by the entrant." He contends that the Court appears to say that the network components should not be part of the forward-looking analysis; rather, only the portion to be used by competitors should be optimized.

The parties are in agreement that UNE prices should be priced neither too high nor too low. Based on the testimony, it appears that both scenarios send incorrect pricing signals to competitors. Both Sprint and BellSouth agree that prices that are too high cause new entrants to build new facilities. However, we believe this might occur in instances where the incumbent could provide service at a lower price. BellSouth and Sprint also agree that prices that are too low will lead competitors to utilize ILEC facilities, rather than build their own. We note two problems associated with this scenario. First, competitors will not have an incentive to build new facilities, because they can purchase UNEs at a lower price than what they can provide for themselves. Second, the ILEC will not be able to cover its costs. As a result, the burden of cost recovery must be shifted to other customers.

We believe that a forward-looking cost methodology should be used as prescribed by the FCC, subject to the oversight of the courts. BellSouth has provided no support for its contention that actual costs should be used instead of the forward looking cost model.

Since witness Gillan's testimony was written, the Eighth Circuit's decision rejecting the TELRIC standard has been stayed, pending the disposition of any petitions for certiorari. These petitions have been granted by the Supreme Court. However, the FCC and the Eighth Circuit are in agreement on the use of a forward-looking cost methodology, and that discrete aspect of FCC Rule 51.505(b) will be unaffected by the Supreme Court's review.

C. Universal Service

BellSouth witness Varner warns that incorrectly set UNE rates will place upward pressure on local rates, "particularly in rural areas where costs are higher," which could jeopardize universal service. He also states that geographically deaveraged pricing will place an additional burden on universal service.

Witness Varner states that, due to statutory restrictions in Florida, BellSouth cannot sufficiently rebalance rates to mitigate the burden on universal service. He argues that "[u]ntil BellSouth can adjust . . . retail rates to better match their underlying costs, deaveraging simply increases an ALECs [sic] profit margins in urban areas without increasing the level of competition in rural or other areas of Florida." He contends that ALECs will attract high-revenue, low-cost customers in urban areas, leaving BellSouth with low-revenue, high-cost customers. He continues that such a policy will also give the ALECs an artificial pricing advantage, because they can purchase UNEs to provide service at a rate that is below BellSouth's cost.

Although witness Varner argues that rate rebalancing should happen concurrent with or before deaveraging, he urges that "the most important issue is to immediately address the implementation of an appropriate state universal service fund." He notes that only the Florida Legislature can establish a permanent state universal service fund. He points out that the FCC required geographic deaveraging of UNEs to take place by May 1, 2000. Thus, a permanent universal service fund will not likely be in place before permanent UNEs are deaveraged. He urges the Commission to establish an interim fund.

FCTA witness Barta states that "BellSouth's urgency to establish a state universal service fund in conjunction with the geographic deaveraging of UNEs strays from the purpose of the instant proceeding." He argues that the pressure on universal service BellSouth believes will result from implementation of deaveraged UNE rates is unsubstantiated. He opines that the appropriate forum for universal service to be addressed is in a separate docket.

While witness Varner argues that incorrectly set UNE rates will put upward pressure on local rates, he nevertheless suggests that BellSouth be permitted to rebalance rates, which would likely increase the very rates that he claims to be concerned about. BellSouth's concern stems from its belief that, without a state Universal Service mechanism, deaveraged rates will allow ALECs to purchase UNEs to provide local service in low cost areas at low rates. At the same time, ALECs will have no incentive to purchase UNEs in high cost areas, where those UNEs may be priced above the rate the ILEC charges for service.

We agree with witness Barta that BellSouth's concern strays from the purpose of this proceeding. The FCC requires deaveraging without regard to whether the states have established a universal service mechanism. In Florida, the legislature has until January 1, 2004 to do so. (Chapter 364.025(4)(a), Florida Statutes) While BellSouth's concern is laudable, we have not been afforded the opportunity to decide whether the setting of deaveraged UNE rates should wait until the legislature establishes a universal service mechanism.

We find, therefore, that UNE rates shall be set using the forward-looking cost standards authorized by Section 252(d)(1) of the 1996 Telecommunications Act, the FCC's rules and orders implementing that section of the Act, and the court decisions that affect those rules and orders.

IV. DEAVERAGING

A. Appropriate Methodology

Section 51.507 of the FCC's rules specifies general rate design requirements for the pricing of interconnection and unbundled network elements (UNEs). In particular, §51.507(f) requires that such rates be geographically deaveraged:

> (f) State commissions shall establish different rates for elements in at least three defined geographic areas within the state to reflect geographic cost differences.
>
> (1) To establish geographically-deaveraged rates, state commissions may use existing density-related zone pricing plans described in § 69.123 of this chapter, or other such cost-related zone plans established pursuant to state law.
>
> (2) In states not using such existing plans, state commissions must create a minimum of three cost-related rate zones.

47 C.F.R. §51.507(f).

In this portion of our Order, we address the approach that should be used to arrive at deaveraged UNE rate zones, and the specific design of the zones, e.g., the number of rate zones.

BellSouth witness Varner observes that historically, regulators established retail rates for basic service in an inverse relationship to costs, by setting the highest rates in those areas which were the lowest cost to serve. In contrast, deaveraged rates for UNEs will need to be cost-based. Accordingly, he contends that there will be a mismatch between the rate structure for deaveraged UNEs and that of retail basic local exchange service. To remedy these problems, witness Varner recommends that this commission should encourage local rate rebalancing and the creation of an intrastate universal service fund. Unless these steps are taken, because of the abovementioned pricing anomaly deaveraging of UNE rates ". . . simply creates another opportunity for ALECs to engage in inappropriate arbitrage of the pricing schedule. This arbitrage will ultimately lead to higher prices for rural customers as ALECs usurp the contribution contained in the prices charged in urban areas that currently make lower rural prices possible."

In order to provide relative consistency between BellSouth's retail and UNE rate structures, witness Varner asserts that it is appropriate to map the company's existing retail rate groups onto three proposed UNE rate zones. He further explains why this proposal is reasonable:

> Utilizing local exchange rate groups to deaverage UNEs provides consistency between the structure of BellSouth's retail, resale and UNE prices. Further, customers who are located in the same geographic areas and who have similar calling areas will be in the same deaveraged zone for UNE pricing. Simply using existing rate groups as the basis for establishing pricing zones results in consistent prices for consumers within the same geographic markets.

BellSouth witness Caldwell explains how the company aggregated the wire center-level costs into its proposed zones. First, all Florida wire centers were assigned to retail rate groups based on BellSouth's General Subscriber Tariff. Second, the rate groups were collapsed into one of three zones. Third, to arrive at the average monthly cost for a particular loop or local channel in each zone, the wire center level costs for the UNE were weighted by the associated wire center line counts.

BellSouth witness Varner contends that deaveraging UNEs based simply on wire center costs can lead to inconsistencies. He notes that under the current interim deaveraged UNE loop rates for BellSouth, two wire centers in Sebastian, Florida, are assigned to distinct pricing zones. The witness opines that an ALEC who chose to serve customers throughout Sebastian ". . . would most likely charge rates that could vary by over $20 per month to end users that reside in close proximity to one another." However, he asserts that such an inconsistency is less likely to occur by deaveraging based on retail rate groups.

AT&T/WorldCom witness Darnell asserts that the ". . . only item that can be considered in determining deaveraged UNE rates is the forward-looking economic cost (FLEC) differences caused by different geographic areas." The witness believes that if something other than FLEC is used to deaverage an existing rate, the results could not be cost-based. Witness Darnell objects to BellSouth's proposal to deaverage UNE rates by retail rate group, and asserts that deaveraging by rate group violates the FCC rules and the Act, will yield non-cost based rates that send erroneous economic signals to consumers, and will insulate BellSouth's retail rates from cost-based competition. According to the AT&T/WorldCom witness, by grouping wire centers by rate group, BellSouth's approach effectively raises UNE rates where BellSouth's retail rates are high. Witness Darnell explains how this phenomenon occurs:

> BellSouth takes all the wire centers that serve areas in certain rate groups and lumps all of them together in one basket or zone. For example, BellSouth's methodology would take all of the wire centers that serve areas that correspond to its rate groups 7 & 6, i.e., its highest retail rates, and group all of these wire centers into zone 1. BellSouth then develops an average loop cost for all of the wire centers that serve those rate groups. However, wire centers in rate groups 7 & 6 often are made up by both low cost wire centers and high cost wire centers. By placing low cost wire centers and high cost wire centers in the same zone, the weighted average cost of each zone is inappropriately skewed. Although Al Varner states that BellSouth's rate group to zone mapping "provides consistency between the structure of BellSouth's retail, resale and UNE rates," [footnote omitted] the goal of this Commission

> should not be to make UNE rates consistent with non-cost based pricing or to protect BellSouth's non-cost based retail rate structure. Rather, the goal of this Commission should be to let competition drive retail rates toward their underlying cost and allow competition to eliminate the inefficiencies caused by non-cost based pricing.

In his rebuttal testimony BellSouth witness Varner disputes witness Darnell's contention that BellSouth's deaveraging approach does not comply with the FCC's rules. He asserts that merely because retail rates were based on a rate group structure does not automatically result in non-cost based deaveraged UNE rates. Further, he observes that the FCC acknowledged that existing deaveraged zones for other services can be an appropriate basis for the deaveraged zones to use for UNEs. Witness Varner notes that Rule 51.507(f)(1) states that UNE zones may be established based on "existing density-related zone pricing plans described in § 69.123 of this chapter, <u>or other such cost-related zone plans established pursuant to state law</u>." (emphasis by witness) He therefore concludes that the FCC must have agreed that geographic zones that exist for retail services must be reasonable to use to deaverage UNEs.

Witness Varner also responds to witness Darnell's allegation that BellSouth's deaveraging proposal insulates BellSouth's existing retail rate structure. The BellSouth witness states that the intent of the BellSouth proposal is to align retail and wholesale rates so as to recognize the proximity of customers. Since BellSouth is unable to rebalance local rates to reflect the actual cost to serve, and in the absence of an intrastate universal service fund, witness Varner believes that "deaveraged UNE retail prices based on the existing rate group structure best correlates with the retail market environment in Florida, thereby promoting competition in all areas of Florida." Moreover, since BellSouth's business local rate in rate group 12 is $29.10, and BellSouth's proposed deaveraged UNE loop rate for that associated rate group is $16.17, he opines that even after the costs of switching and transport are included, little insulation is provided for the company's retail rates.

Sprint witness Sichter testifies that "As a general principle, rates should be deaveraged to the degree necessary to achieve a result wherein the averaged rate does not deviate significantly from the actual forward-looking cost of providing that element anywhere within the defined zone." While acknowledging that quantifying what constitutes a "significant" deviation cannot be done with absolute precision, witness Sichter asserts that differences between rates and costs greater than 20% would be sufficient to distort providers' investment decisions. Using this criterion, the witness proposes that ". . . each incumbent LEC should be required to construct a deaveraged rate schedule such that the average rate in each zone is no more than 20% higher or 20% less than the forward-looking cost of providing that element.".

Witness Sichter offers four criteria that he believes should underlay this commission's requirements for ILEC deaveraging of UNEs. First, prices for a UNE should be deaveraged where required in order to avoid distortions between the rate charged for the UNE and the FLEC of the UNE in a given geographic area. Consequently, whether to deaverage a particular UNE can vary by element and between ILECs. 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." Third, each incumbent LEC should be required to develop its FLEC at the wire center level, as this is the most reasonable unit of analysis. Fourth, wire centers should be grouped into zones and rates developed based on the weighted average cost of a UNE in a given zone. Although the witness asserts that his 20% criterion generally should be adhered to, he agrees that a greater deviation between cost and price may be appropriate in the highest cost zone.

AT&T/WorldCom witness Darnell comments that Sprint's deaveraging methodology can be applied objectively and equally to all incumbent LECs, and he believes that it is superior to any other approaches to deaveraging that he has seen. Consequently, he recommends that we apply Sprint's approach to deaverage UNE loop costs by wire center in this proceeding for BellSouth.

BellSouth witness Varner contends that Sprint witness' Sichter's banding criterion of no more than a 20% difference between a zones's rate and the cost of a wire center included in that zone is arbitrary. Witness Varner notes that Sprint's proposal yields eight zones for loops, and he observes that this proposal decreases the likelihood of competition in high-cost zones while affording ALECs serving low-cost areas a windfall. He disputes the need for having more than three zones, stating that " . . . all that is accomplished by having more than three zones is that the contribution margin for ALECs is increased in the lowest cost zones."

Decision

At the outset, we note that we believe we have some discretion in this area, but that we must also take into account at least three conditions, derivable from FCC Rule 51.507(f). First, we acknowledge that we are required to establish deaveraged UNE rates in at least three geographic areas. Second, we may base our geographic zones on "existing density-related zone pricing plans . . . . or other such cost-related zone plans established pursuant to state law." 47 C.F.R. § 51.507(f)(1). Third, if we opt not to use any existing density-related zones to arrive at the zones for UNEs, the plan selected must have at least three "cost-related rate zones." 47 C.F.R. § 51.507(f)(2).

Upon consideration of the record, we find that BellSouth's proposal satisfies the first condition noted above, but fails the other two. By assigning wire centers to existing retail rate groups, BellSouth's proposal commingles and averages together the costs of both low-cost and high-cost wire centers; the result cannot be meaningfully considered "cost-based."

As for Sprint's proposal, while it comports with the FCC's deaveraging rule, we shall not adopt it at this time. Although Sprint's proposal is cost-based and preferable to the approach advocated by BellSouth in this proceeding, we have some misgivings.

As noted above, 47 C.F.R. §51.507(f) requires that deaveraged rates be established for at least three rate bands or zones. We believe that the cost data available in this proceeding implies that three zones is the most reasonable choice for BellSouth. We find that Sprint's proposal, taken as a whole, creates too many zones, which would be administratively burdensome and is not necessary to reflect the level of variation in BellSouth's costs.

Nevertheless, we do believe that Sprint's 20% distribution methodology is acceptable when used in conjunction with a lesser number of zones. Thus, we shall apply Sprint's 20% methodology, but shall collapse the number of geographic zones to three. We find that the record supports this methodology and that it is within our discretion to accept it. See United Telephone Co. v. Mayo, 345 So. 2d 648, 654 (Fla. 1977)(PSC has prerogative to evaluate testimony of competing experts and accord the weight due). and Gulf Power Company v. Florida Public Service Commission, 453 So. 2d 799, 805 (Fla. 1984)(sufficient evidence can enable PSC to choose alternative).

Attached and incorporated in this Order are Appendix B, which shows the wire centers contained in each of our three approved zones, and Appendix A, which contains the final deaveraged rates using our approved methodology.

B. Application of Deaveraging Methodology to Specific UNEs

BellSouth witness Varner testifies that the only UNEs that should be deaveraged are the recurring cost of the local loop and the local channel, because those are the only elements that display significant cost variations according to geographic location. He believes that it is unnecessary to deaverage unbundled switching prices because switching costs do not exhibit major cost variations by geography, and are not subject to the same factors that cause cost variability in loops. Moreover, to the extent that the costs of other UNEs do vary by geography, witness Varner notes that such variability is reflected in the rate structure. As an example, the witness points to interoffice transport, which is priced on a per mile basis. The primary cost driver of this element is the length of the transmission facility, which is captured in the rate structure.

Witness Varner observes that due to the reinstatement of FCC Rule 51.315(b), BellSouth is obligated to provide ALECs access to UNE combinations which are in fact combined in BellSouth's network to provide service to a specific customer. Since many combinations involve either a loop or a local channel, the witness recommends that deaveraged rates should be set for all UNE combinations that include a loop or local channel.

BellSouth witness Caldwell expanded on and clarified the company's recommendation, stating the following elements should be deaveraged: all local loops and local channels below DS3 speeds; sub-loops; and combinations "currently combined" that have a loop as a component. She notes that it is unnecessary to deaverage loops and local channels above DS1 because their costs, and therefore prices, are on a per mile basis.

With the exception of Sprint, all other parties appear to be in agreement that loops, and combinations containing loops, should be deaveraged. Although Sprint throughout this proceeding advocated that various UNEs in addition to loops exhibit cost characteristics that vary based on geography, in their post-hearing brief Sprint now suggests that we only require that loops and related combinations be deaveraged.

Decision

Upon consideration, we find that all varieties of loops, sub-loops, and combinations containing loops, shall be deaveraged in this proceeding. All parties now are apparently in agreement on this point. We find no compelling reason in the record to differ from this consensus. We note that while BellSouth proposes to deaverage all loops below DS3, all other parties merely contend that "loops" be deaveraged. Since the rate structure for loops and local channels whose bandwidth is DS3 and above resembles that of interoffice transport in that it is priced on a mileage-sensitive basis, we find that it is sufficient to deaverage only loops below DS3.

V. COST STUDY FOR xDSL-CAPABLE LOOPS

A. xDSL-Capability

"DSL" is the acronym for Digital Subscriber Line. As various witnesses explained, "x" is a variable, meant to encompass the various types of DSL technologies, and is used when referring generally to DSL. The parties all agree that, to date, DSL services have been provisioned over copper loops and these loops must be free of devices that impede the xDSL frequency signaling, such as repeaters, load coils, or excess bridged tap. However, witnesses Milner, Riolo, Murray, and Dickerson all indicated that DSL technologies are now evolving such that DSL services may be deployed over fiber-fed loops. They do disagree, though, on whether DSL-capable loops should be distinguished and priced based on loop length and/or the different DSL technologies.

Specifically, according to BellSouth's witnesses Caldwell, Latham, and Milner, DSL-capable loops are designed loops distinguished by loop length and the type of DSL technology being provisioned. As these witnesses explained, these DSL loops include the following:

> High Bit-Rate Digital Subscriber Line (HDSL) Compatible Loop - These loops are best suited for HDSL services. The technical characteristics of a loop are screened to ensure that the loop meets stringent industry standards for Carrier Serving Area (CSA) transmission specifications to support HDSL services. The strict requirements for these loops mean that the end user must be served by a non-loaded copper pair, and the loop typically cannot be more than 12,000 feet long on 24 gauge copper wire. If 26 gauge copper wire is used, the limit is 9,000 feet or less. In either case, the loop may have up to 2,500 feet of bridged tap exceeding 2,000 feet.

> <u>Asymmetrical Digital Subscriber Line (ADSL) Compatible Loop</u> - These copper loops are provisioned according to the Revised Resistance Design (RRD) industry standards which means they may be up to 18,000 feet long and may have up to 6,000 feet of bridged tap which is inclusive of the loop length. This means that for every foot of bridged tap, the loop length is reduced by an equal amount. Therefore, an RRD loop that has 4,000 feet of bridged tap could be no longer than 14,000 feet.
>
> <u>Unbundled Copper Loop (UCL)</u> - These loops provide a "dry" copper pair (that is, without using electronic devices) to an end user using the Resistance Design (RD) industry standard. These loops may be up to 18,000 feet long and may have up to 6,000 feet of bridged tap, which is exclusive of the loop length. This means the loop length is not reduced by the bridged tap amount. Therefore, in some cases, the loop length may be 18,000 feet long and have up to 6,000 feet of bridged tap. BellSouth is not able to ensure that these loops will function properly for DSL service since their physical characteristics may be beyond the maximum distance for some DSL services and equipment. However, BellSouth will ensure that these loops have electrical continuity and balance relative to the tip and ring.

BellSouth's witness Latham explains that the ADSL loop is a 2-wire copper loop whereas the HDSL and UCL loops can be 2-wire and 4-wire loops. Also, the witness indicates that UCLs are segmented between loops less than 18 Kilofeet (Kft.) (UCL-Short) and loops greater than 18 Kft. (UCL-Long). BellSouth witness Milner further notes that the UCL was developed at the ALECs' request and has been available since the second quarter of 1999.

Additionally, witness Milner contends that BellSouth offers an Integrated Services Digital Network (ISDN)-capable loop and is developing the Universal Digital Channel (UDC)-capable loop, both of which may support the DSL service known as Integrated Services Digital Subscriber Line (IDSL). Witness Milner explains that BellSouth provisions ISDN-capable loops according to applicable industry standards, which means the loops may be provisioned over copper or via a Digital Loop Carrier (DLC) system. The witness further explains that these loops are free of any load coils but are not referred to as "clean copper loops" because they may be provisioned via DLC systems, which are compatible with ISDN service. As described by witnesses Latham, Murray, and Milner, the UDC loop is identical to the ISDN loop, except that it is provisioned uniquely to support IDSL service. BellSouth's copper only scenario of the BellSouth TELRIC Loop Model (BSTLM) applies only to UDC-Long loops and the length limitation was placed at a distance of a million feet.

The Data ALECs' witness Riolo explains that DSL technologies are:

> . . . [T]ransmission technologies used on circuits that run between a customer's premises and the central office and provide the end-user "broadband" service capability - essentially, the ability to receive and/or transmit data at substantially higher rates than the modem-based technology on which many customers rely today. To date, most DSL services have been deployed on loops that are copper end-to-end from the central office to the customer premises. However, DSL technologies are now evolving such that DSL services may be deployed on fiber-fed loops. Such loops consist of copper facilities from the customer's premises to a mid-point equipment location, known as a remote terminal (RT), where signals are combined and transmitted over fiber optics from the RT to the central office.

Witness Riolo asserts that DSL service requires the same "basic" loop as does basic analog or voice grade service, either an all-copper pair or a fiber-fed loop with appropriate plug-in electronics. Witness Murray further asserts that BellSouth should not make distinctions among DSL-capable loops, but, instead, should simply provide the data that allow competitors to know the characteristics of the loops that are available and to determine the suitability of any given loop. The Data ALECS recommend that BellSouth offer a single type of 2-wire and 4-wire DSL loop, for which the recurring costs and prices are the same those as for a Service Level (SL)-1 loop.

Sprint's witness Dickerson testifies that DSL loops, at the current time, are copper loops that are 18 Kft. or shorter and have no interferers, or have been conditioned to remove such impeding devices. For loops in excess of 18 Kft. for which ALECs request DSL, the witness states that Sprint will perform any loop conditioning requested by the ALEC, and the ALEC will be charged for the loop conditioning work. Witness Dickerson further asserts that currently, the DSL technology requires a copper loop connecting the DSL access modems (DSLAM) with the customer's premises.

In concert with the Data ALECs' witness Riolo, witness Dickerson also asserts that there are technological developments underway, which may permit certain DSL services to be provided behind certain types of DLCs. Additionally, witness Dickerson opines that there are DSLAM technologies available, which allow the provisioning of DSL services over copper loops that are in excess of 18 Kft.. The witness explains that the copper loop cannot be located behind a DLC system, and it cannot contain any impediments or interferers such as repeaters, load coils, or excessive bridged taps. Sprint argues, as set forth in its hearing exhibit, that an all-copper DSL loop is no different that a 2-wire voice grade loop. Additionally, in that same exhibit, Sprint indicates that the fact that DSL services currently require a copper loop does not provide a basis for BellSouth to offer a copper-only UNE, which must be used by ALECS, like Sprint, to provision DSL services.

The Coalition's witness McPeak describes DSL as a technology initially developed to increase the digital transmission speeds over traditional copper-based loop facilities. The witness explains that, "DSL has the capability of voice and data on the same cable pair." As discussed by other witnesses and further illustrated by witness McPeak, the characteristics of the copper loop as far as resistance, length, and attenuation can affect how DSL services work. Also, witness McPeak affirms that technical guidelines can vary for each type of DSL service because the services are distant-sensitive [sic].

B. <u>Cost Study Requirements</u>

1. BellSouth's Arguments

a. DSL Loop Types

BellSouth's witness Latham notes that the types of DSL loops offered by BellSouth are capable of supporting all current DSL technologies in use. He asserts that DSL services are highly dependent upon the equipment to provide the particular service, which is why BellSouth cannot guarantee that a DSL service will work at any particular rate or even function at all on every unbundled loop. However, BellSouth does guarantee that the DSL loops it offers will meet a pre-defined set of transmission characteristics. Also, BellSouth publishes a technical reference document containing a detailed listing of the loops' characteristics so a requesting carrier can determine for itself how its equipment will operate on any given loop type.

Witness Latham asserts that the rates BellSouth has proposed for the loops intended to support DSL services correspond to the loops BellSouth actually offers to requesting carriers that can and do purchase from BellSouth. In fact, BellSouth explains that it developed the UCL-Long loop in response to a request by at least one ALEC for the ability to obtain an unbundled copper loop that was unlimited in length. The witness indicates that BellSouth is also prepared to develop additional types of DSL loops as technology or ALEC needs dictate. Additionally, witness Latham asserts that each of BellSouth's DSL product offerings is different, which he believes is ignored by the Data ALECS' argument to have a "one rate fits all."

BellSouth witness Greer contends that BellSouth offers a full array of unbundled loop types such that ALECS have a choice of loop types over which they can provision their services. The witness explains that ALECS have not come to the DSL market with a "one size fits all" approach, and BellSouth has appropriately responded to ALECS' requests for specialized loop types with differing technical capabilities.

b. SL-1 versus DSL

BellSouth's witness Latham explains that an SL-1 loop is a 2-wire voice grade non-designed loop that is intended to support Plain Old Telephone Service (POTS)-like voice grade services. He states that it may be provisioned using any voice grade technology, whether that be copper, fiber, or DLC systems. He contends that there is no verification of the design of an SL-1 loop and there are also no test points. By contrast, he explains, an SL-2 loop is a designed loop that is available in 2-wire and 4-wire versions and may be provisioned using any type of loop technology.

According to BellSouth's witness Greer, an SL-2 loop has the following attributes that an SL-1 loop does not:

1. Test points are installed that are used to sectionalize a trouble condition;

2. Design Layout Record (DLR) is documented and provided to the ALEC. The DLR provides details of the actual loop makeup; and

3. A coordinated cutover process is used to minimize end user outage when the loop is moved from BellSouth's switch to the ALEC's switch.

Witness Latham notes that SL-1 and SL-2 loops are designed to support voice grade services while DSL loops are intended to support the transmission of higher frequency signals. While he agrees that it is possible to provide DSL service using either an SL-1 or an SL-2 loop, witness Latham notes that the DSL service may or may not work, depending upon the type of SL-1 or SL-2 loop facilities. He emphasizes that:

> If the SL-1 or SL-2 loop is provided using a DLC system, is provided using loaded copper pairs, or if the SL-1 or SL-2 has excessive bridged tap, the xDSL service may not function properly. If, on the other hand, the requesting carrier knows that the SL-1 or SL-2 loop is provisioned over non-loaded copper plant and the loop is within the distance limitations for the xDSL technology being utilized, or if the carrier utilizes BellSouth's loop makeup process to screen the loop facility at a particular customer address, the carrier may decide to use an SL-1 or SL-2 loop for its DSL service. In cases where bridged tap may pose a problem, the requesting carrier may order bridged tap removal as a UNE. In short, SL-1 and SL-2 loop are available for a requesting carrier as a means to support its xDSL service (although not recommended by BellSouth), but there are very real differences between these offerings. . . .

According to witness Latham, BellSouth designates all DSL loops it offers as designed loops. BellSouth's witnesses Greer and Caldwell further explain that DSL-capable loops are designed mainly due to the technical parameters and transmission requirements that the loops need to meet.

BellSouth notes in its brief that the Data ALECs' witness Murray acknowledges that an ALEC can provide voice grade service over an SL-1 loop that is unlimited in length, whereas loop length "can affect the type of DSL service and speed of service that could be offered." Similarly, witness Murray agrees that an ALEC can provide voice grade service over an SL-1 loop that contains bridged tap, load coils, and DLC, whereas these same facilities would disrupt DSL service.

BellSouth asserts that the Data ALECs always have the option to purchase an SL-1 loop to support their DSL service, rather than purchasing one of BellSouth's specifically defined DSL loops. However, BellSouth will only maintain and repair the loop to the standards to which it was ordered. As a result, if an ALEC orders an SL-1 loop, BellSouth will maintain and repair it as an SL-1 loop. By contrast, if an ALEC orders an ADSL-compatible loop, BellSouth will maintain and repair it as an ADSL-compatible loop.

Witness Latham argues that an ADSL loop is actually a subset of the larger group of SL-1 loops. He maintains that if a loop inquiry found ten loops going from a residence to the central office and those loops all had the identical components, i. e., 15 Kft., no bridged tap, no load coils, and they were all copper, the loops could be labeled either as SL-1 or ADSL. He adds that voice service will always work on an ADSL capable loop, but ADSL service will not always work on a voice grade loop.

BellSouth concludes that the Data ALECs' theory that a "loop is a loop" is inconsistent with witness Murray's position that when an ALEC purchases an SL-1 loop, BellSouth should be precluded from making changes to the facilities that are being used to provision the loop. BellSouth argues that if a "loop is a loop", such a requirement is completely unnecessary. As further emphasized in its brief, BellSouth argues:

> For example, assume a BellSouth customer is being provided POTS service over an SL-1 loop from the customer's premises to the central office. The customer switches service to Covad, which purchases the unbundled SL-1 loop from BellSouth. One year later, as part of

> routine upgrades to its network, BellSouth installs a DLC system that will be used to serve Covad's end user. If Covad were using the SL-1 loop to provide voice service to the end user, this network change would have no affect on the end user, whereas that would not be the case if Covad were using the SL-1 loop to provide xDSL service.

c. DSL Loops are Designed Loops

According to BellSouth's witness Greer, BellSouth offers designed loops to provide greater specificity about what a given loop type will provide and greater certainty that a given service offering can be successfully provisioned. The witness explains:

> For example, if the ALEC wants to sell its data service to its end user, the ALEC can choose an SL-1 loop, an SL-2 loop, an ADSL-compatible loop, an unbundled copper loop-short or an unbundled copper loop-long in order to provision the service. Each of these loop types has different design criteria and thus different inherent technical capabilities. Correspondingly, there are different rates for each of these loop types reflective of the actual network elements used and the associated work required of BellSouth to provision them. It is up to the ALEC to determine in a particular situation which of these loop types offers the needed technical characteristics at the lowest rate.

By design, witness Greer explains that these loops are guaranteed to meet certain technical parameters and are documented on a Design Layout Record (DLR). Without such criteria, explains witness Greer, the ALEC cannot be assured that the loop it orders will be capable of supporting the technology that it intends to deploy to supply a service to its end user. BellSouth's witnesses Greer and Latham also note that the DLR is provided to the ALEC so the ALEC can be assured that the loop meets specified design parameters, and the test points, as explained by witness Latham, allow BellSouth to conduct certain tests in the event a trouble is reported on the line. Even though ALECS can now obtain loop make-up information as part of the preordering process, witness Latham claims the need for a DLR still exists to provide confirmation to the ALEC that it has actually received the loop it requested.

Witness Latham explains that all of BellSouth's unbundled loops offered are designed loops with the exception of the SL-1 voice grade loop. For ADSL and HDSL, the test point, the design layout, and the order coordination are included as part of the nonrecurring charge. Witness Latham also explains that the UCL-short loops are also designed loops, for the DSL comes as a by-product and the loops are provisioned with test points. However, the witness points out that BellSouth determined that, in most cases, the UCL represents additional lines rather than a replacement of existing service. For this reason, witness Latham states, order coordination is not included in the nonrecurring cost, but is offered as an optional item.

Witness Latham agrees that the ALEC may not desire a test point and DLR for all DSL loop types that BellSouth offers. He also agrees that there would be less cost associated with a nondesigned DSL loop because there would be no design work. During cross-examination, witness Latham admitted that he was aware of the difference in positions between BellSouth and the ALECS regarding a DSL loop. However, at the time unbundled loop product descriptions and assumptions were being developed for witness Caldwell to cost (address in the cost model), no consideration was given to a nondesigned unbundled loop. The witness notes:

> As product manager, I develop the unbundled loops that, again, as I said, are either required by regulatory mandate or that we have negotiated with ALECS individually.

Because a nondesigned loop is not a regulatory requirement and is not an element that has been negotiated with ALECS, witness Latham states that there was no reason to inform witness Caldwell of the difference in views between BellSouth and the ALECS.

The electronic prequalification or preordering tool allows the ALEC access to ten loop makeups of ten pairs of wires based on the type of loop the ALEC desires, states witness Latham, and the loop makeup information consists of how long the loop is, whether it has load coils or not, and how much bridged tap it has, among other things. Witness Latham contends that if the ALEC wants the loop, it can reserve the pair and then issue an order for a DSL capable loop for the reserved pair.

Once the order is placed, explains witness Latham, BellSouth designs the loop to make sure that the reserved pair of wires has all of the physical and electrical characteristics that it should. The output of the design process is the design layout record (DLR)..

In response to an inquiry at hearing as to whether it would be to BellSouth's advantage if the ALEC chose an SL-1 loop which provided a lower quality frequency and efficiency, because if the customer is not satisfied, he may return to BellSouth, witness Latham acknowledged that would, indeed, be advantageous to BellSouth.

However, witness Latham opines that BellSouth is not always shielded from the negative aspects of a lower quality loop because the ALEC still has high expectations, regardless of the transmission specifications they have been given. Even though the loop may be less expensive, and the ALEC has not asked for the design work, and there is no test point, the witness contends that the ALEC will still sometimes submit trouble tickets when there is service trouble.

If the ALEC utilizes BellSouth's loop makeup information, the carrier can choose to order an SL-1, an SL-2, or any kind of loop to provision DSL, adds witness Latham. He argues that BellSouth simply will not guarantee the specific parameters associated with its DSL products. He maintains that BellSouth does not restrict the type of services an ALEC can provide over UNE loops. However, witness Latham notes that if there is a trouble ticket turned in, the only thing assured is that the loop meets the specifications for the loop type that was ordered.

Witness Latham agrees that if an electronic loop makeup inquiry is performed, there is no need for a DLR. He asserts, nevertheless, that the DLR is a by-product of the loop being designed and some ALECS may want the DLR for confirmation that the designed loop still meets the parameters expected at the time the loop was reserved. If a stand-alone loop is ordered, he contends that there is no reason why the coordinate conversion is needed. The witness argues that this is why BellSouth, on the more recently developed DSL loops, is making order coordination optional.

d. Loop Makeup

BellSouth's witness Pate explains that BellSouth utilizes the term loop make-up in reference to its obligations to provide ALECS access to the underlying loop make-up information contained in its engineering records, plant records, and other office systems so that a requesting ALEC may determine for itself whether the facilities will support its DSL service offerings.

Witness Pate also testifies that in the FCC's 319 Remand Order[1], the FCC clarified that

> . . . the pre-ordering function includes access to loop qualification (make-up) information. This information identifies the physical attributes of the loop plant such as loop length, the presence of load coils and bridge taps, and the presence of Digital Loop Carrier. This enables carriers to determine whether the loop is capable of supporting xDSL and other advanced technologies.

[1] Order No. FCC 99-238, Local Competition Third Report and Order and Fourth Further Notice of Proposed Rulemaking, CC Docket No. 96-98, released November 5, 1999

Further, witness Pate asserts, the FCC found that the ILEC must provide the requesting carrier with nondiscriminatory access to the same detailed information about the loop that is available to the ILEC. This is so that the ALEC can make an independent judgment about whether the loop is capable of supporting the advanced services equipment it intends to install.

To comply with this FCC requirement, witness Pate explains that BellSouth is implementing a process to provide ALECS with electronic access to loop make-up information. Also, BellSouth has developed and implemented procedures to provide ALECS with detailed loop make-up information via a manual Service Inquiry (SI) process. Both the manual and electronic processes are available to any ALEC that is interested in incorporating these procedures in its interconnection agreement.

Witness Pate also explains that BellSouth is developing electronic access to its Loop Facility Assignment Control System (LFACS) as part of its pre-ordering process. The testing process began July 31, 2000 with selected ALECS. Once the beta testing is complete, BellSouth will begin Service Readiness Testing (SRT) for interested ALECS. The witness contends that this electronic access will provide sufficient information to allow the ALEC to determine if BellSouth has a loop that meets its needs according to BellSouth's DSL loop designations, and if so, reserve up to 10 pairs.

Currently, however, witness Pate explains that access to LFACS is made by manual query. The witness states that the ALEC completes the Customer Information section of the Loop Make-up SI form indicating if it wants the loop make-up by telephone number or address. The ALEC then submits the form to the Complex Resale Services Group (CRSG) who, in turn, forwards it to BellSouth's Outside Plant Engineering Service Activation Center (SAC), where the availability of loop facilities is verified.

The SAC supplies a suitable copper pair and a digital loop carrier make-up for the requested address or requested telephone number and returns the completed SI form to the CRSG. Witness Pate explains that the CRSG then reviews the SI form for completeness and forwards the loop make-up data to the ALEC via electronic mail. Witness Pate further explains that the manual loop make-up process will continue to be available for obtaining loop information, particularly for those situations where LFACS is not populated with the data needed to make a decision through electronic means.

Witness Pate asserts that the availability of facilities on selected services for both ALECS and BellSouth's retail units is determined via the SI process. The SI process provided to ALECS is accomplished in substantially the same time and manner as BellSouth does for itself. Witness Pate notes that nondiscriminatory access does not require that all Local Service Requests (LSRs) be submitted electronically and involve no manual handling. Many of BellSouth's retail services, primarily complex services, involve substantial manual handling by BellSouth Account Teams for BellSouth's own retail end user customers. Witness Pate argues that these processes are in compliance with the 1996 Telecommunications Act and the FCC's rules.

According to witness Pate, LFACS contains information such as the loop and pair type identifier assignments that exist for every loop within BellSouth. While all of BellSouth's Florida loops are in LFACS, more detailed information such as bridged taps and load coils is available for 75%-85% of the loops. The witness adds that there is not much detailed information in LFACS for loops in rural areas.

According to witness Greer, a portion of LFACS shows which loops are POTS loops, which are special services, and which are being used by ALECS for DSL. Witness Greer explains that the ALEC circuits have a unique identity, some of which have been identified by BellSouth as being copper only. An ALEC using an SL-1 loop to provide DSL services risks the loop being rolled over to fiber. Witness Greer explains that the SL-1 loop is defined as a simple POTS-like service and, therefore, can be served on DLC; it has a circuit ID that implies an intention of providing POTS service. Only by purchasing a designed DSL loop will BellSouth guarantee that the loop will not be rolled over to fiber. This, contends witness Greer, is because the particular DSL loop purchased has technical specifications it is designed to meet.

e. ALEC Choices

BellSouth witness Latham asserts that all of BellSouth's DSL loop offerings are optional. If a carrier desires to utilize BellSouth's SL-1 or SL-2 offerings to provide their DSL service, that is their choice. The witness contends that BellSouth's DSL-capable loops simply represent another service offering from which requesting carriers can choose.

In addition, BellSouth's witness Greer testified that an ALEC wanting to sell ADSL service to its end user can choose an SL-1 loop, an SL-2 loop, an ADSL-compatible loop, a UCL-Short, or a UCL-Long loop in order to provision the service. Each of these loop types has different design criteria and, thus, different inherent technical capabilities. Witness Greer asserts that it is up to the ALEC to determine, in a particular situation, which of these loop types offers the needed technical characteristics at the lowest rate.

Witness Latham further explains that one reason BellSouth offers a number of different loop types is so each carrier can decide for itself which particular loop type will support its particular DSL service. Recognizing that DSL services are highly dependent upon the equipment used to provide the service, the witness notes that BellSouth publishes a technical reference document that contains a detailed listing of the loops' characteristics. This allows the requesting carrier to determine for itself how its equipment will operate on any given loop type.

f. Loop Length and Technology

BellSouth's witness Milner asserts that loop length and the particular DSL technology involved affect the cost of a DSL loop. The usefulness of BellSouth's unbundled loops depends on a variety of factors, including the end user's distance from the serving wire center, as well as the length and gauge of the copper wire that serves the customer. As the FCC recognized:

> . . . provision of xDSL service is subject to a variety of important technical constraints. One is the length of the subscriber loop: ADSL, the most widely deployed xDSL-based service, generally requires loops of less than 18,000 feet using current technology. Another is the quality of the loop, which must be free of excessive bridged taps, loading coils, and other devices commonly used to aid in the provision of analog voice and data transmission, but which interfere with the provision of xDSL services. 'Conditioning' loops to remove those impediments, or constructing fiber-based digital loop carrier systems to overcome loop length difficulties, can be expensive.

Third Report and Order, In re: Deployment of Wireline Services Offering Advanced Telecommunications Capability, CC Docket No. 98-147, released December 9, 1999.

BellSouth in its brief argues that taking loop length into account in developing costs is not a "pricing scheme" as the Data ALECS' witness Murray alleges. Rather, it is a reflection of the physical make-up of the loop, since the cost of copper loops increases almost linearly with the length. As BellSouth's witness Caldwell notes, the average length for a 2-wire UCL-Short in the BSTLM is 10,139 feet and the forward-looking cost is $18.06. By contrast, the average length for the 2-wire UCL-Long is 42,844 feet and the forward-looking cost is $53.24. The witness explains that a similar relationship is evidenced in the average length and cost of the 4-wire UCL. Therefore, in its brief, BellSouth concludes that the cost of DSL loops is a function of loop length, and it is appropriate for a cost study to take such consideration into account in developing forward-looking costs.

g. Pricing

As previously discussed, the difference between an SL-1 loop and an ADSL loop is that the ADSL loop is all copper with a length limitation of 18 Kft., whereas the SL-1 loop can be a mixture of copper and DLC and has no length limitation. Both ADSL and HDSL loops are provisioned over copper but have different length limitations. The HDSL loop is limited to 12 Kft.. Witness Caldwell states:

> Everyone recognizes that loop length is a major cost driver. However, this is especially true for loops that are 100% copper, where digital loop carrier costs and fiber cable costs are not considered in the calculations. In fact, the cost of copper loops increases practically linearly with length.

Witness Caldwell also notes that the cost of the 2-wire UCL-Long is three times the cost of the 2-wire UCL-Short solely because of the difference in the lengths of the loops. The average loop length implicit in the long copper loop can be anywhere from around 30,000 feet, depending on the overall loop length.

BellSouth's witness Caldwell asserts that Order No. PSC-98-0604-FOF-TP, issued in Dockets Nos. 960833-TP, 960846-TP, and 960916-TP, validated BellSouth's definition of DSL types of loops by establishing rates for ADSL and HDSL compatible loops based upon BellSouth's proposal. Therefore, for this Commission to establish rates in this proceeding for these same types of DSL loops, witness Caldwell contends would neither be new nor controversial. In addition, BellSouth's witness Latham testified that the rates BellSouth has proposed for the loops intended to support DSL services correspond to the loops BellSouth actually offers to requesting carriers and that requesting carriers can and do purchase from BellSouth. In this instant proceeding, witness Caldwell notes that BellSouth has developed recurring and nonrecurring costs for 2-wire and 4-wire UCLs.

Based on this consideration and the fact that the FCC has recognized that the provision of DSL service is constrained by the length and quality of the loop, witness Milner asserts that BellSouth believes the cost of provisioning DSL services is a function of both the loop length and the particular DSL technology to be deployed. Additionally, he states that the same copper loops that are used to provide DSL services are also utilized to provide voice service to BellSouth's customers, as well as to other ALECS' customers.

BellSouth's witness Latham asserts that voice grade loops and DSL capable loops have different requirements to ensure that they work properly for their intended services. Accordingly, BellSouth argues that loops should be priced reflecting those requirements. Just as it would be inappropriate for the rate of a DS-3 loop to the same as a DS-1 loop, BellSouth witness Latham opines that it would also be inappropriate for a DSL loop to be priced at the same rate as a voice grade loop.

2. DATA ALECs' Arguments

a. DSL Loop Types

The Data ALECs's witnesses Murray and Riolo assert that DSL capable loops are essentially the same as voice-grade Sl-1 loops. While there are a variety of DSL technologies available today, witness Riolo contends that some of the major categories are characterized by different line coding approaches, such as data transmission protocol or practice, or amounts of bandwidth. Witness Murray further contends that BellSouth's various "flavors" of DSL dictate the services a competitor may provide over an unbundled loop.

The Data ALECs' witness Murray asserts that in response to discovery, BellSouth stated the following:

> BellSouth does not have sufficient information on the ALEC's proposed use of the loop or the specific ALEC equipment limitations to qualify loops for a specific ALEC service.

Witness Murray asserts that this admission by BellSouth is appropriate, because BellSouth should not be in the business of qualifying loops for ALECs. Instead, she argues, ALECS should be able to use an unbundled loop to provide any technically feasible service over that loop, without "artificial" restrictions.

With access to loop makeup information, Data ALECs will be able to determine themselves, based on their own equipment and technical requirements, whether the facility is indeed a DSL capable loop. Once that determination is made, DSL providers will decide to reserve and order particular qualified loops. At that point, argues the witness, ALECs need BellSouth to mark those loops to prevent the selected and ordered loop from being rolled to another facility, such as fiber. Thus, the Data ALECs' witnesses Riolo and Murray surmise, a DSL-capable loop is essentially the same as an SL-1 loop, except that the ALEC specifies the particular loop ordered after obtaining loop makeup information from BellSouth.

The Data ALECs assert that Order No. PSC-98-0604-FOF-TP in Docket No. 960833-TP did not address the fundamental issue of what an DSL loop is and how, if at all, such a definition should impact the rates that BellSouth is permitted to charge ALECs. Therefore, the witness argues, the decision in that case should not be taken as a validation of BellSouth's various DSL categories or prices. Instead, witness Murray proposes that DSL loops be defined as a single type of 2-wire DSL capable loop without any limitation on length.

Witness Murray explains that the practical length limit for providing DSL services over all copper loops varies somewhat depending upon the gauge of the copper cable, but today, generally does not exceed 21 Kft.. Further, argues the witness, the majority of all copper loops over 18 Kft. that competitors would seek to obtain to provision DSL services may be only slightly over the 18 Kft. limit that BellSouth has used to distinguish its proposed UCL-Short and UCL-Long elements.

b. SL-1 versus DSL

The Data ALECs also argue that in a forward-looking local exchange network, the facilities used to provide DSL services are identical, or nearly identical, to those used to provide voice-grade services. In fact, for loops provisioned entirely on copper facilities, given current engineering practices, the Data ALECs' witness Riolo asserts that DSL-capable loops are identical to loops used to provide voice-grade service. Witness Riolo also notes that BellSouth's witness Milner and Sprint's witness Dickerson both agree. We note that BellSouth's witness Milner does seem to agree, as reflected by his following statement:

> Significantly, the same copper loops that are used to provide DSL services are also utilized to provide voice service to BellSouth's customers, as well as to other ALECs' customers.

Additionally, we note that Sprint's witness Dickerson opines that the forward-looking network design used within BSTLM to develop the 2-wire voice grade loop is also capable of supporting DSL for those loops served on copper.

As for the DATA ALECs, witness Riolo further argues that ALECs providing DSL services over all-copper loops up to 18 Kft. need nothing more than a basic loop free of impediments such as load coils, excessive bridged tap, repeaters, Digital Added Main Lines (DAMLs), noise, or any other condition that has a deleterious effect on DSL-based services. Also, witness Riolo asserts that BellSouth's process involved to provision or design the loop is neither useful nor desirable for DSL providers.

Witness Riolo asserts that the predominant method for provisioning DSL-based services today is to use a clean copper loop, which is a loop free of impediments. However, witness Riolo argues that forward-looking DLC equipment also allows carriers to provide DSL-based services over fiber/DLC loops in the same manner as ISDN is provided over those facilities. With suitable line cards, witness Riolo opines that these DLCs can accommodate voice, ISDN, and a wide variety of DSL-based services such as ADSL, HDSL and Symmetric Digital Subscriber Line (SDSL). In fact, witness Riolo notes that BellSouth is currently testing DLC systems to provision DSL services, and such deployment will be available in the near future. Additionally, witness Riolo notes that BellSouth's Loop Technology Deployment Directives provide evidence that BellSouth has been moving in this direction since at least 1998, if not longer.

c. DSL Loops are Designed Loops

The Data ALECs' witness Murray asserts that one reason for the cost difference between DSL-capable loops and voice-grade loops is BellSouth's assumption that all ADSL-compatible loops need to be designed to provide the loop with a test point. Witness Murray argues that BellSouth does not need to design such capabilities into the loop, and that BellSouth's design process serves nothing more than to increase the price to DSL competitors. If each DSL-capable loop is designed, witness Murray argues that BellSouth would likely find it difficult to meet the growing demand for DSL-based services.

The Data ALECs' witness Riolo asserts that DSL services do not require a loop to be designed as is BellSouth's current practice. He argues that a DSL service requires the same basic loop as does voice grade service, whether a simple all-copper pair or a fiber-fed loop with plug-in electronics.

Witness Riolo further asserts that BellSouth should model DSL and ISDN loops in the same manner that it models basic analog loops. Witness Riolo adds that DSL and ISDN loops do not need to be designed in any way.

d. Loop Makeup

With regard to loop makeup, the Data ALECs' witness Murray explains that loop makeup information is information that identifies the physical characteristics of a loop. She states that:

> This information includes loop length, loop medium, (e.g., fiber or copper), the existence and location of accretions such as load coils, bridged taps and repeaters on the loop, and other information about the physical makeup of the loop. A competitor uses such information to determine the suitability of that loop for provisioning DSL-based services.

Witness Murray also opines that the loop's characteristics determine whether the loop is usable for providing DSL services and if any modifications are needed to condition the loop to provide the services. Additionally, the loop's characteristics determine the type and speed of DSL service that may be offered over the loop, with or without conditioning. Witnesses Murray and Riolo assert that such determinations are specific to the DSL technology and equipment that a particular ALEC deploys, not BellSouth.

Witness Murray further notes that the FCC, in its UNE Remand Order, states that incumbents must provide ALECs access to all available information relating to loop makeup information for DSL services. As she explains:

> . . . the components of the transmission medium, fiber optics or copper; the existence, location and type of any electronic or other equipment on the loop, including but not limited to, digital loop carrier or other remote concentration devices, feeder/distribution interfaces, bridge taps, load coils, pair-gain devices, disturbers in the same or adjacent binder groups; the loop length, including the length and location of

> each type of transmission medium; the wire gauge(s) of the loop; and the electrical parameters of the loop, which may determine the suitability of the loop for various technologies.

Witnesses Murray and Riolo assert that DSL providers will soon have electronic access to loop makeup information and, at that time, can determine which, if any, of its services existing loop facilities can support, with or without conditioning. In cases where the DSL provider finds and wishes to use an older loop that needs conditioning before it can support the DSL product, witness Riolo opines that the ALEC can order the conditioning and then order the loop on an unbundled basis. Witness Riolo argues that once the DSL carrier makes the determination whether conditioning work is necessary, the underlying loop and the process to order and install it are no different from that of a basic unbundled loop, and the cost is also identical. To illustrate, the witness notes that:

> DSL carriers are ordering the Ford Escort of loop facilities and should not be forced to pay for the Rolls Royce, inflated with unnecessary features and costs that add nothing to the essential functions of the loop.

Further, witness Riolo asserts that the only reason for segregating DSL loop costs in the manner in which BellSouth proposes would be for the minor process differences in the manner in which BellSouth qualifies each loop. However, as soon as BellSouth makes loop makeup data available directly to ALECS, as indicated in BellSouth's revised cost studies, witnesses Riolo and Murray conclude that any such distinction is irrelevant because ALECS can determine if they wish to take a given facility as is or to order conditioning and then take the conditioned loop. The witness believes that access to loop makeup information should enable the ALEC to determine for itself that a given loop is suitable for its purpose. At this time, the ALEC needs to be able to order that exact loop, contends witness Riolo.

We note here that BellSouth's witness Pate contends that there are designators in LFACS that indicate what different loop facilities are available based on BellSouth's technical characteristics. Once an ALEC accesses LFACS and identifies the loop it wants to obtain, the ALEC then needs to reserve that loop for its use. While BellSouth labels the loop as a UCL or an ADSL, the Data ALECs argue that they should be allowed to order the loop as a simple voice grade SL-1 loop. The record reflects, however, that LFACS will not allow ALECS to do that at the present time. When asked whether that restriction resulted from a technical limitation, witness Pate responded "[I]t's just a decision from a design standpoint." Through this design restriction, the Data ALECs' witness Riolo claims that BellSouth forces ALECs into using its designed loops rather than using the electronic loop makeup and ordering process to identify, select, reserve, and order a SL-1 voice grade loop that the ALEC understands will serve its needs.

e. ALEC Choices

Witness Murray argues that BellSouth should not dictate, through its various "flavors" of DSL, what services a competitor may provide over an unbundled loop. She asserts that BellSouth should not be in the business of qualifying loops for competitors. Instead, competitors should be able to use an unbundled loop to provide any technically feasible service over that loop, without restrictions.

Witness Murray also contends that the technology that an ALEC may choose to provide over a given loop is irrelevant to how loops should be priced. BellSouth's witness Latham testifies that ALECS may use any loop, not just DSL capable loops, to provide DSL services. If this is true, witness Murray contends there is no reason to use a different loop model to determine the rates for DSL capable loops than is used to determine rates for other unbundled loops.

Witness Murray further asserts that the ALEC, not BellSouth, should determine the type of technology that can and will be deployed over the loop. When ordering a loop, ALECs will access the loop's makeup information to determine the particular characteristics of that loop. As noted by witnesses Pate and Riolo, this information will allow an ALEC to determine which technology that ALEC wants to deploy over that loop. Witness Murray asserts that the risk that the loop is suitable for the ALECs' needs should be the ALECs, not BellSouth's, as long as BellSouth does not subsequently alter the physical loop ordered by adding DLC. Pursuant to the loop makeup information inquiry, the witness adds that the ALEC will know exactly what technology it may provide over the loop it ordered.

The Data ALECs argue that BellSouth has offered no evidence that ALECs want BellSouth to qualify loops as DSL capable according to a BellSouth pre-determined set of characteristics. To the contrary, the Data ALECS note that BellSouth's witness Pate testified that the ALEC will make its own decision about the service that the ALEC will provide over a given loop. Furthermore, witness Murray asserts that this is consistent with the ALECs' desire to make their own business decisions regarding how to utilize the UNEs they obtain from BellSouth.

Witness Riolo also asserts that BellSouth's proposed various DSL distinctions effectively impose artificial limits on the services that carriers can provide over specific facilities to specific customers. Yet, he argues, an all-copper loop is the same whether it is used for ADSL, HDSL, or any other (2-wire) DSL-type, or a voice service for that matter.

f. Loop Length and Technology

As for loop length and technology, the Data ALECs' witness Murray argues that neither the DSL technology deployed by the ALEC nor the length of a loop should impact the cost of the loop. While witness Murray agrees that loop length factors into the cost of a loop, she opines that it does so for all loop types, not just DSL capable loops. Witness Murray asserts BellSouth's various "flavors" of DSL capable loops translate into distance-sensitive pricing for only these loops. The witness asserts that BellSouth should not make distinctions among DSL-capable loops, but should, instead, simply provide the data that allow competitors to know the characteristics of the loops that are available and to determine the suitability of any given loop.

Witness Murray argues that DSL-capable loops alone being priced according to whether such loops are over or under 18 Kft. feet long - e.g., UCL-long v. UCL-short - is discriminatory. By proposing a recurring rate for long DSL-capable loops, which is approximately three times the recurring rate for short DSL-capable loops, which is a difference in prices of $52.66 versus $18.13, witness Murray argues that BellSouth effectively ensures that ALECS will only purchase short loops. Because BellSouth does not attempt to require ALECS to purchase only short loops for any other loop lengths, the Data ALECs argue that loop length is an inappropriate consideration in BellSouth's cost study for an DSL capable loop.

Witness Riolo asserts that all BellSouth-proposed DSL elements are based on the assumption of provisioning over dry copper loops. Witness Riolo claims that the only reason for segregating DSL loop costs into the many categories that BellSouth proposes, is due to the minor process differences in the manner in which BellSouth qualifies each loop. However, witness Riolo argues that as soon as BellSouth makes loop makeup data available directly to ALECs, any such distinction will be irrelevant. At that time, ALECs will be able to determine if they wish to take a given facility as is or to order loop conditioning and then take the conditioned loop.

Witness Murray asserts that the simple DSL loop offering and ordering procedure needed by Data ALECs is complicated due to BellSouth's array of DSL loop types, the ordering process, and the limitation of ALEC access to SL-1 voice grade loops. Additionally, BellSouth's loop makeup systems preclude Data ALECs from qualifying a single loop and then ordering that loop as a SL-1 voice grade loop. Finally, loops qualified and ordered by Data ALECs are not marked in some fashion to prevent them from being rolled to fiber, asserts the witness.

Witnesses Murray and Riolo opine that ALECS need to be able to locate and reserve, using BellSouth's loop makeup data, loops that meet their individual technical specifications. ALECs then need the ability to order the loop they choose, without the various array of BellSouth's loop products. If this were permitted, the only thing needed to distinguish between a voice loop and a DSL loop would be an identifier in BellSouth's records that indicates that the loop is supporting a DSL service, contends witness Riolo. Witness Murray and BellSouth's witness Caldwell point out that DSL providers and their customers will not be inadvertently rolled from a copper loop that supports DSL to a loop that does not support DSL services, since the IDSL/UDC loop is nothing more than an ISDN loop specifically identified as being used to provide DSL services.

Additionally, witness Murray asserts that a single type of 2-wire DSL capable loop without the limitations on loop length should be offered by BellSouth, just as Verizon and Sprint offer such loops in the state. As support, witnesses Murray and Riolo opine that in a forward looking network, the facilities used to provide DSL services are identical or nearly identical to those used to provide voice-grade services. The witnesses further note that BellSouth's witness Milner confirmed this when he testified, "[s]ignificantly, the same copper loops that are used to provide DSL services are also utilized to provide voice service to BellSouth's customers, as well as to other ALECS' customers." For these reasons, the Data ALECs argue in their brief that, irrespective of BellSouth's DSL loop labels, DSL loops are simple voice grade loops.

In addition, witness Murray contends that with the exception of the IDSL loop that BellSouth will provision over fiber, all of BellSouth's other DSL capable loops are defined by BellSouth as all-copper and are distinguished - - unlike the same loop used for voice - - according to loop length. The Data ALECs claim that BellSouth limits the services an ALEC can provide over the customer's existing loop through its DSL loop definitions.

We note that according to BellSouth's witness Milner, if the customer happens to have a loop that is 10 Kft. long, that loop could be labeled, according to BellSouth's loop products, a SL-1, an HDSL, a ADSL, or a UCL without any impact on how well the loop would support an ALEC's DSL service. However, if that same customer is 15 Kft. from the central office, BellSouth's witness testified that BellSouth will not sell, and ALECS cannot buy, an

HDSL loop to that customer. Nevertheless, the DATA ALECs argue in their brief that the 15 Kft. loop could be labeled SL-1, ADSL, or UCL and could be provided for DSL services.

It is noteworthy that BellSouth's witness Caldwell indicates that there is no additional cost whatsoever for identifying an ISDN loop as an IDSL/UDC loop. Just as the identification of a loop as supporting IDSL insures that the loop will be properly provisioned for IDSL services, the identification of a loop as supporting DSL will prevent that loop from being rolled to fiber, according to the witness. The Data ALECs assert that BellSouth has offered no evidence showing that this cannot or should not be done. In fact, BellSouth's witness Caldwell states that BellSouth is already making this type of identification of the IDSL loop. Thus, just as BellSouth identifies IDSL loops as distinct from ISDN loops without a cost difference, witness Murray asserts that so should BellSouth identify DSL capable loops as distinct from SL-1 loops without a cost difference.

g. Pricing

As for pricing, witness Riolo argues that BellSouth inflates the costs and prices of DSL loops by asserting that DSL services require a designed loop and other support processes. Further, witness Riolo contends that a DSL service requires the same basic loop as does a basic voice grade SL-1 loop. For this reason, witness Riolo recommends the prices for DSL-related rate elements be established at the same level as the corresponding price for the element's unbundled voice grade loop element.

Witness Murray asserts that BellSouth should offer a single type of 2-wire DSL-capable loop with the same recurring costs and prices as the costs and prices approved by this Commission for a nondesigned SL-1 voice-grade loop. The witness adds that 4-wire DSL-capable loops should be offered with the same recurring costs and prices as the 4-wire basic loop price. Witnesses Riolo and Murray also argue that BellSouth should model the DSL-capable loop the same as a non-designed SL-1 voice-grade loop, based on their assertion that an all-copper DSL-capable loop is no different from a voice-grade loop. Additionally, the recurring costs and prices for ISDN-capable loops should be the same as the recurring costs and prices for SL-1 loops, plus an increment to account for the higher cost of an ISDN card as compared to a POTS card. The increment should reflect the cost of the card, weighted by the percentage of loops that BellSouth would provision over fiber feeder in its forward-looking network architecture, according to witness Murray.

Witness Murray asserts that BellSouth's proposed prices for ADSL compatible loops and UCL-Short loops are essentially the same. Witness Murray explains that through discovery, BellSouth confirmed that "[t]he recurring costs are identical [for elements A.13.1 and A.6.1] and both cost elements are treated identically in the BSTLM© for development of recurring costs."

Witness Murray further asserts that BellSouth has based its proposed recurring charges for a variety of "flavors" of DSL-capable loops on cost studies that assume an all-copper network architecture. This, she argues, assumes the provisioning of all loops on copper feeder, regardless of length. Witness Murray argues that this is not the network architecture that BellSouth deploys today, much less the network architecture that the company plans to deploy in the future.

While witness Murray agrees that loop length is an important input underlying any loop cost study because costs for all loop types vary, at least to some degree, based on loop length, she asserts that DSL-capable loops are not unique in this respect. BellSouth's proposal to single out DSL-capable loops for what is, in effect, deaveraged pricing based on loop length is unduly discriminatory, contends witness Murray.

Witness Murray notes that BellSouth's proposed recurring price for a UCL-Long loop is $52.66, almost three times its proposed price for a UCL-Short loop, $18.13. Witness Murray asserts that this pricing scheme effectively restricts DSL providers to buying loops under 18 Kft. because the price of a longer loop is so high. Witness Murray argues that the price differential does not reasonably reflect the higher cost that BellSouth would experience to make available all-copper loops over 18 Kft. to DSL providers.

According to witness Murray, BellSouth's UCL-Long cost study purports to measure the weighted average cost for an all-copper configuration for all loops in its network over 18 Kft. long. Given the current technology, however, Data ALECs cannot use many of the long all-copper loops that BellSouth has modeled, because the practical length limit for providing DSL-based services over all-copper loops today generally does not exceed 21 Kft.. In fact, witness Murray asserts, the majority of all-copper loops over 18 Kft. that competitors would like to obtain to provision DSL services may be only slightly over the 18 Kft. limit BellSouth uses to distinguish between the proposed UCL-Short and UCL-Long elements. Thus, witness Murray argues that there is no cost basis for charging a competitor buying an 18,050-foot-long loop almost three times as much as a competitor buying a loop that is only 50 feet shorter.

Witness Murray also notes that BellSouth's proposed statewide average recurring charge for UCL-Short loops, $18.13, is greater than its proposed recurring charge for voice-grade loops, $17.88, even though the voice-grade loop price applies to loops of all lengths, not just the less costly loops under 18 Kft.. Even after paying a substantial nonrecurring charge for "conditioning," witness Murray asserts that a DSL competitor would still have to pay BellSouth a higher recurring charge than another competitor would have to pay for the same loop as an unconditioned voice-grade loop.

Regarding BellSouth's UDC loop, witness Murray explains that she is unable to comment because BellSouth did not provide a definition of this element and did not explain how the UDC loop differs from an ISDN-capable loop, if at all. However, witnesses Murray and Riolo assert that it appears that a UDC may be used to provide IDSL services. Because the plug-in card required for ISDN service provided over fiber/DLC is more expensive than the plug-in card required to support basic voice grade service, witnesses Murray and Riolo assert that recurring charges for ISDN/UDC loops should be set at the recurring charge for SL-1 basic loops, plus an increment to account for the higher cost of an ISDN card at the remote terminal as compared to a POTS card, weighted by the percentage of fiber feeder in the forward-looking network.

Furthermore, witness Riolo explains that, just as with ISDN loops, it is not necessary to "design" UDCs.

Witness Murray concludes that 2-wire DSL-capable loops should be priced at the 2-wire basic voice-grade loop price and four-wire DSL-capable loops should be priced at the four-wire basic loop price. Additionally, the witness asserts that BellSouth does not need to design DSL capabilities into the loop, and that rates we establish for DSL-capable loops should not be driven by the length or by the particular DSL technology that the ALEC will deploy over that loop. Rather, the witness contends that we should establish rates for the single, non-distance sensitive, non-technology sensitive, DSL-capable loop.

Finally, the Data ALECs's witnesses criticize BellSouth for not proposing rates for DSL capable loops in line with the ALECS' proposal to disregard loop length or the DSL technology the ALEC intends to deploy. They argue that despite the fact that BellSouth has been on notice since January 2000 that the definition of a DSL-capable loop was an open issue in this proceeding, BellSouth simply assumed that its distance and technology-sensitive definition was appropriate and made no attempt to generate rates based on an ALEC proposed definition. In fact, the Data ALECs' note in their brief that BellSouth's witnesses Latham and Caldwell acknowledge that the BellSouth UNE product manager did not inform the BellSouth cost team of the definition of DSL capable loops that ALECS desired. Accordingly, the cost team did not price that offering, according to witness Caldwell.

Decision

Based on the record, it appears that all parties agree that, at least for the present, DSL technologies are provided predominantly over an all-copper loop. Thus, upon consideration, we find that xDSL-capable loops are designed copper loops that are 18,000 feet in length or shorter that do not contain any impediments such as repeaters, load coils, or excessive bridged taps. A cost study for copper-based xDSL-capable loops may make distinctions based on loop length. As the parties have noted, however, provisioning over DLC systems is apparently on the horizon. In fact, for reference purposes only, we note that the FCC recently released an Order on line sharing in which the requirement to provide line sharing applies to the entire loop, even where the incumbent has deployed fiber in the loop.[2]

Regarding the Data ALECs' allegation that DSL loops are the same as voice grade SL-1 loops, we acknowledge that both BellSouth and the Data ALEC witnesses testified that an SL-1 loop is a voice-grade loop that is not effected by the presence of a DLC. However, the record reflects that a DLC may disrupt DSL service. For this reason, we find that the Data ALECs' proposition that "a loop is a loop" is not accurate. If it were, the evidence supports that the presence of a DLC would have no effect on the DSL service.

We have thoroughly considered the assertions of the Data ALECs hat there should be no distinctions among DSL loops, that the ALECs, rather than BellSouth, should judge the suitability of a given loop for DSL service, and that once the loop is identified through the loop makeup process, they should be able to reserve that loop and order it as a simple voice grade SL-1 loop. We note that this is a risk the ALECs have indicated that they are willing to take rather than paying the expense of purchasing a designed loop. We have also considered the DATA ALECs' arguments that there is no need, much less a desire, for a DLR, test points, or the order coordination that are provided with a designed loop, as well as their contention that the voice grade loop they purchase should be tagged in some fashion so as to guarantee that it will not be rolled over to fiber.

Furthermore, while BellSouth offers a variety of DSL loops at costs it asserts are distance-sensitive, as illustrated in BellSouth's proposed prices of $13.84 for an HDSL loop, $16.17 for an SL-1 loop, and $17.56 for an ADSL loop, based on the record, it appears that the HDSL loop should be priced lower than the SL-1

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[2] FCC Order 01-26 (Third Report and Order on Reconsideration in CC Docket No. 98-147, Fourth Report and Order on Reconsideration in CC Docket No. 96-98, Third Further Notice of Proposed Rulemaking in CC Docket No. 98-147, Sixth Further Notice of Proposed Rulemaking in CC Docket No. 96-98), released January 19, 2001.

and ADSL loops, given that the HDSL loop has the shortest loop characteristics. Also, we note that the UCL-Long as BellSouth has proposed makes very little sense. The UCL-Long is defined in the cost study as having an unlimited loop length, but the record reflects that a 42,000 foot loop would not likely be requested by an ALEC. We do, however, acknowledge BellSouth's contention that the Data ALECs have asked for this "unlimited length" loop, but even BellSouth has agreed that no DSL technology could be deployed over such long loops.

Upon consideration, we find that the ALECs, rather than BellSouth, should determine and take the responsibility for the DSL service being provisioned. However, we also emphasize that there was some testimony in this record regarding DSL service being provisioned over a hybrid copper/fiber loop. The Data ALECs apparently view this technology as one worthy of an UNE status. Nevertheless, there is insufficient record evidence in this proceeding to set rates for a hybrid copper/fiber xDSL-capable loop. In particular, there is insufficient evidence regarding the specific components of these loops, such as line cards, vendors, and their associated prices. Therefore, the only rates for xDSL-capable loops that can be set in this proceeding are for all-copper xDSL-capable loops. As such, our approved recurring and nonrecurring rates for all-copper xDSL loops, reflecting the various adjustments approved herein, are set forth in Appendix A to this Order.

Furthermore, because we believe that BellSouth is obligated, if technically feasible, to provide hybrid copper/fiber xDSL-capable loops to Data ALECs, BellSouth shall be required to submit a cost study for hybrid copper/fiber xDSL-capable loops within 120 days from the issuance of this Order for further consideration by this Commission.

In addition, we note that while certain witnesses repeatedly stated that Data ALECs have no need or desire for a designed loop, and that all xDSL-capable loops should be nondesigned loops except for a guarantee that the selected and ordered loop will not be rolled to another facility, such as fiber, these capabilities are, nevertheless, reflected in BellSouth's nonrecurring charges for certain xDSL loops. Thus, we shall require BellSouth to file modified versions of its xDSL nonrecurring cost studies, which exclude the following: 1) the DLR, 2) a test point, and 3) order coordination. The purpose of these modified cost studies is to provide us with sufficient information to set rates for a menu of separate provisioning options. These nonrecurring items shall be provided in conjunction with the aforementioned hybrid copper/fiber recurring cost study within 120 days of the date of the issuance of this Order. The revised model shall explicitly model the costs of hybrid fiber/copper xDSL-capable loops and incorporate all approved adjustments set forth herein, breaking out the additive costs for test points, order coordination, and DLR. Thereafter, we will schedule a hearing to address whether the final DSL rates we set in this proceeding should be revisited. The filing of these studies must include all BellSouth assumptions used in developing each rate, the basis and source data for the rates, and a clear identification and listing of all input values.

Furthermore, as noted above, although the Data ALECs want a nondesigned xDSL-capable loop, they also want a guarantee that the loop will not be rolled to another facility. We find this to be a reasonable request; therefore, based on record, we find it appropriate to require BellSouth to provision an SL-1 loop and guarantee not to roll it to another facility, or in other words, guarantee not to convert it to an alternative technology.

VI. SUBLOOP ELEMENTS

A. Unbundled Subloop Elements

1. Categories

The FCC has defined subloops as "portions of the loop that can be accessed at terminals in the incumbent's outside plant." FCC 99-238, ¶206. It adopted a broad definition for the subloop in order to allow requesting carriers "maximum flexibility to interconnect their own facilities" and to ensure that the definition will apply "to new as well as current technologies." FCC 99-238, ¶207. Also, the FCC specifically found that access to subloops "will facilitate rapid development of competition, encourage facilities-based competition, and promote the deployment of advanced services." FCC 99-238, ¶207.

BellSouth witness Milner defines subloop elements as "the individual elements that make up the entire loop that extends from the BellSouth central office to the demarcation point between BellSouth's network and the inside wire at the end user customer's premises." Specifically, BellSouth proposes to make available and has developed costs for six categories of unbundled subloop elements, which are as follows:

> Sub-Loop Feeder (USL-F), also referred to as the "first mile", is the first section of cable leaving a BellSouth central office headed towards a customer's premises.
>
> Sub-Loop Distribution (USL-D) facilities are known as the "last mile" to a customer's premises. Copper pairs of the loop feeder are individually cross-connected to pairs in smaller cables. These smaller cables disperse cable pairs and/or loop transmission channels from the loop feeder cables.
>
> The Network Interface Device (NID) serves as a connection and demarcation point between BellSouth's loop facilities and the customer's facilities (inside wire).
>
> Intra-building Network Cable (INC), also referred to as "riser cable", is found in multi-story buildings and is the part of BellSouth's loop facilities extending from a cross-connect terminal "at, or close to, the entrance point of the distribution cable." INC typically connects to Network Terminating Wire in a wiring closet prior to final termination at the customer's NID.
>
> Network Terminating Wire (NTW) is unshielded twisted copper wiring that provides the transmission path between distribution cable or INC, and is the point where the network branches out to serve individual customers.
>
> Unbundled Subloop Concentration (USLC) elements allow ALECs to "concentrate" their loop distribution elements on to multiple

DS1s and to connect the loop distribution elements (at a concentrated level) to BellSouth's feeder facilities. BellSouth will then transport the DS1s carrying the distribution circuits back to the serving wire center for termination on a BellSouth DSX1 block and to the ALEC's collocation space.

BellSouth witness Varner states that BellSouth's subloop element offerings are consistent with the requirements set forth in the FCC's Third Report and Order and "are more than sufficient to allow an efficient carrier a meaningful opportunity to compete." He states that it is unnecessary for us to require any subloop elements beyond what the FCC currently requires. Witness Varner also points out that should this Commission choose to consider imposing additional subloop unbundling obligations on BellSouth, the FCC noted that Section 251(d)(3) of the Act grants state commissions such authority as long as the "necessary and impair" standard is applied as required by FCC Rule 51.317.

We note that no party to this proceeding submitted testimony requesting that BellSouth's offering of subloop elements be expanded. Additionally, the FCC's approach to subloop unbundling "permits evaluation of the technical feasibility of subloop unbundling on a case-by-case basis, and takes into account the different loop plant that has been deployed in different states." FCC 99-238, ¶224. The FCC also states that:

> . . . issues of technical feasibility are best determined by state commissions, because state commissions can examine the incumbent's specific architecture and the particular technology used over the loop, and thus determine whether, in reality, it is technically feasible to unbundle the subloop where a competing carrier requests.

FCC 99-238, ¶224.

Upon consideration, we find that BellSouth's proposed list of subloop elements shall be accepted. In accepting BellSouth's list, we emphasize that the FCC's order permits state commissions to revisit subloop unbundling as necessary; therefore, nothing prohibits us from revisiting subloop unbundling issues as technology changes occur and new issues arise.

2. Pricing

As for pricing of these unbundled subloop elements, BellSouth witness Varner simply states that prices for subloop elements should be set using "the same methodology used for other unbundled network elements." Also, while FCCA ALEC witness King provided testimony regarding pricing issues for the ALECs, this testimony focused primarily on the pricing associated with accessing subloop elements more so than the elements themselves. This topic is addressed in the following section of this Order.

Therefore, upon consideration of the somewhat limited record addressing pricing for subloop elements, we find that the prices for unbundled subloop elements shall be set in accordance with the assumptions and inputs we approve herein Sections VI(B), IX, and X of this Order.

B. <u>Access to subloop elements</u>

1. Access Terminals

The FCC determined that ILECs must provide unbundled access to subloops where technically feasible and defined subloop elements as portions of the loop able to be accessed at terminals in the ILEC's outside plant. FCC 99-238, Third Report and Order and Fourth Notice of Proposed Rulemaking in CC Docket No. 96-98, ¶206. An accessible terminal is defined as "a point on the loop where technicians can access the wire or fiber within the cable without removing a splice case to reach the wire or fiber within." FCC 99-238, ¶206.

The FCC also provided examples of technically feasible points including: a point near the customer premises, such as the pole or pedestal, the Network Interface Device (NID) or the minimum point of entry to the customer premises (MPOE); the feeder distribution interface (FDI), where the trunk line, or "feeder," leading back to the central office, and the "distribution" plant, branching out to subscribers, meet, and "interface" and the main distribution frame in the incumbent's central office. FCC 99-238, ¶206.

Acknowledging that its approach to subloop unbundling reflects today's network, the FCC noted that technology might develop that would render its approach "too limiting" and would necessitate changes. FCC 99-238, ¶227. The FCC further stated:

> For that reason, we establish a further rebuttable presumption that, once one state has determined that it is technically feasible to unbundle subloops at a designated point, it will be presumed that it is technically feasible for any incumbent LEC, in any other state, to unbundle the loop at the same point everywhere.

FCC 99-238, ¶227.

The FCC also pointed out that its approach permits evaluation of the technical feasibility of subloop unbundling on a "case-by-case basis," and "takes into account the different loop plant that has been deployed in different states." FCC 99-238, ¶227.

The importance of the role of state commissions was also recognized with regard to determining issues of technical feasibility:

> . . . because state commissions can examine the incumbent's specific architecture and the particular technology used over the loop, and thus determine whether, in reality, it is technically feasible to unbundle the subloop where a competing carrier requests. We also note that we are considering legal issues regarding access to premises in the *Access to Competitive Networks* proceeding.

FCC 99-238, ¶227.

In the event that negotiations and disputes pertaining to space availability and technical feasibility of subloop unbundling arise and parties are unable to reach an agreement pursuant to voluntary negotiations, the ILEC will have the burden of demonstrating to the state that a lack of available space exists or that unbundling is technically infeasible in the context of a section 252 arbitration proceeding. FCC 99-238, ¶223.

The FCC determined that the availability of a single point of interconnection will promote competition. Where no single point of interconnection exists that can be feasibly accessed by a requesting carrier, the FCC directs parties "to cooperate in any reconfiguration of the network necessary to create one." FCC 99-238, ¶226. If parties are unable to negotiate a reconfigured single point of interconnection at multi-unit premises, the FCC requires the ILEC to construct "a single point of interconnection that will be fully accessible and suitable for use by multiple carriers." FCC 99-238, ¶226. Disputes regarding the implementation of a single point of interconnection requirement, "including the provision of compensation to the incumbent LEC under forward-looking pricing principles" shall also be subject to the Section 252 dispute resolution process. FCC 99-238, ¶226.

Addressing this issue, BellSouth witness Milner asserts that "BellSouth is, and has been, providing sub-loop unbundling at technically feasible points of access." He further states that BellSouth will provide access at such points of access per the FCC's UNE Remand Order, but points out that BellSouth sought additional clarification from the FCC on the order.

Witness Milner describes BellSouth's basic position regarding ALEC access to subloop elements:

> Because BellSouth's loop feeder, loop distribution, NTW, and INC constitute subloop elements, ALECs should obtain access to them in the same manner as it obtains access to any other network element -- by placing an order with BellSouth and paying a just and reasonable price for the element.

Witness Milner explains that BellSouth's proposal that access to subloop elements be provided via an access terminal is similar to the manner approved by this Commission in Docket No. 990149-TP. He asserts that BellSouth believes that the underlying issues in this docket are the same as those in Docket No. 990149-TP, "that is, providing an ALEC unbundled access to the other sub-loop elements while preserving network reliability and security. . . ."

Although much of the discussion regarding this issue focuses on accessing unbundled subloop elements in multiple dwelling units (MDUs) and multiple tenant units (MTUs), witness Milner states that:

> the considerations applicable to access a sub-loop element are the same whether the access point is at an MDU or at some other point in the network between an end-user's premises and the serving central office. Therefore, the concept of an access terminal . . . by which an ALEC can gain access to the unbundled sub-loop element provides an appropriate level of technical security for the networks of each company involved.

BellSouth's method for provisioning access to unbundled subloops is described in its entirety in Section 6 of its Cost Study. A summary of these procedures follows.

According to BellSouth's cost study documentation, an ALEC will provision a loop feeder system, including any needed concentration devices and cross-connection panels, or a loop distribution system, including drop/NID and customer premises devices, within a reasonable distance of a BellSouth cross-connect device. The BellSouth cross-connect device could be located within a remote terminal, stand-alone cross-connect box, pole, pedestal in the field, or in the equipment room of a building. The ALEC's cable must be of sufficient length to reach the existing BellSouth cross-connect device's splice point or termination point. BellSouth will terminate ALEC facilities in 25 pair increments.

As further demonstrated in the cost study documentation, in order to connect with BellSouth's cross-connect device in the field, the ALEC must provide a cable from its feeder or distribution system to the BellSouth cross-connect device. BellSouth will terminate the ALEC cable to an existing cross-connect panel within the BellSouth cross-connect device. If the device has no spare cross-connect panels, the ALEC will be required to pay special construction charges to "expand/replace the cross-connect facility to accommodate the ALEC request." BellSouth will then cross connect the ALEC feeder or distribution facility to the BellSouth unbundled sub-loop.

To connect with BellSouth's cross-connect device located in a building equipment room, the documentation shows that BellSouth will install a cross-connect panel on which the unbundled sub-loop (USL) will be accessed. The ALEC will be responsible for delivering its feeder facility to the cross-connect panel. BellSouth will connect the ALEC feeder facility to the cross-connect panel, then cross connect the ALEC facility to the BellSouth USL. This will then provide a pathway from the ALEC's feeder or distribution system, through the BellSouth cross-connect device, to the BellSouth loop distribution facility. The ALEC is responsible for ensuring that its feeder system is connected to its switch.

BellSouth has identified two subloop elements used specifically for the purpose of serving MDUs and MTUs - Network Terminating Wire and Intra-building Network Cable. Access to these two elements is where the majority of the discussion relating to subloop elements focused during this proceeding.

As explained in the previous section, Network Terminating Wire (NTW) is unshielded twisted copper wiring used to extend circuits from a building entrance terminal or intra-building network cable (riser cable) to the customer's point of demarcation. BellSouth's witnesses Caldwell and Milner explain that in MDUs and MTUs, NTW is the horizontal cable on each floor of a high-rise building at which the network branches out to serve individual customers. Provisioning NTW may occur in either of what BellSouth refers to as the "Wiring Closet" scenario or the "Garden Terminal" scenario.

BellSouth explains in an exhibit of discovery responses that a wiring closet is typically found on each tenant floor in a multi-story building and contains the cross-connect field that is the interface between NTW and INC. In the "Wiring Closet" scenario, BellSouth will first cross connect unbundled NTW pairs from its own cross-connect panel to the access terminal designed for ALEC access to NTW inside the wiring closet. The ALEC will deliver and connect its central office facilities to the unbundled NTW pairs on the access terminal.

In the same exhibit, BellSouth explains that garden terminals are generally found in garden or campus style MDUs/MTUs. Located either attached to a building or on a pedestal adjacent to the building, a garden terminal is equipped with building entrance protectors and is the interface between outside plant cable and NTW. In the "Garden Terminal" scenario, the ALEC will place its own garden terminal in close proximity to BellSouth's. BellSouth will install an access terminal near its own garden terminal, then connect the NTW pairs to the access terminal. Using tie cable from its garden terminal, the ALEC will then connect its cable to the access terminal.

According to witness Milner, BellSouth will pre-wire all the pairs necessary to serve each facility in both scenarios. Therefore, each cable pair available to serve customers in a building appears both on BellSouth's terminal and on the access terminal. Once the NTW pairs are connected to the access terminal, an ALEC can access any available NTW pair serving each MDU/MTU unit unless BellSouth is using the pair to concurrently provide service.

Witness Caldwell explains that Intra-building Network Cable (INC), also referred to as "riser cable," is found in multi-story, high rise buildings and represents all the cable between the equipment closet in the basement of a building all the way to the customer's demarcation point. INC typically connects to NTW in a wiring closet prior to final termination at the customer's NID, as explained by witness Milner. Witness Milner explains:

> Intrabuilding network cable is that cable that you would see most often in multistory

> buildings, and it runs from the basement to the first floor, from the basement to the second floor, from the basement to the fourth, and all other floors, for example.

Similarly, witness Caldwell agrees that BellSouth's offering of INC is "the whole amount of that cable from the basement all the way to an individual tenant." Therefore, INC includes NTW.

Access to INC will be provided at BellSouth's cross-connect device located in the building equipment room. BellSouth will install a cross-connect panel near its cross-connect device on which INC will be accessed. The ALEC will be responsible for delivering its feeder facility to the cross-connect panel. BellSouth will connect the ALEC feeder facility to the cross-connect panel, then cross connect the ALEC facility to the BellSouth INC.

As shown in another hearing exhibit, the manner in which ALECs will actually "access" the necessary pairs to serve customers in the INC proposal differs significantly from the NTW proposal. BellSouth will still build the access terminal. However, BellSouth will not pre-wire such terminal. Instead, BellSouth will only wire the necessary INC pairs requested from BellSouth's terminal to the ALEC's access terminal upon receiving an order for INC from the ALEC, explains witness Milner. Witness Milner reiterates, "We will prewire however many pairs the ALEC requests. What we will not do is prewire all of the pairs of INC over to the access terminal." As a point of clarification, witness Milner agrees that an ALEC either has to have a BellSouth technician come out every time it orders an INC or has to ask BellSouth to prewire INC in advance of having orders from its customers.

According to witness Milner, it is impractical for BellSouth to pre-wire each INC pair.

> The garden apartment terminal . . . might have 20 to 25 loops terminated on it, thus making pre-wiring each NTW pair to the access terminal something that can be done with a

> reasonable effort. On the other hand, high-rise buildings may have hundreds or even thousand [sic] of pairs, which would make pre-wiring the access terminal impractical.

Witness Milner defends BellSouth's position, citing network security and reliability issues that may arise with direct access to unbundled subloop elements:

> BellSouth believes that direct access by ALEC technicians could, intentionally or unintentionally, disrupt the service provided by BellSouth to end user customers, including both BellSouth's and ALECs' end user customers. The FCC requires that "each carrier must be able to retain responsibility for the management, control, and performance of its own network." First Report and Order in Docket 96-325 [sic], ¶203. If allowed, direct access would render BellSouth incapable of managing and controlling its network in the provision of service to its and certain ALECs' end user customers. For reasons of network reliability and security, BellSouth believes that direct access to its network facilities by ALECs is not in the best interests of the end user customer, whether they be end user customers of BellSouth or the ALECs.

Witness Milner then describes BellSouth's experiences with direct access:

> We have, unfortunately, encountered a number of cases in the southeast where ALECs have caused problems by their direct access unauthorized by BellSouth to our facility. . . . I can name you a number of cases where ALECs have decided for themselves to have direct access to our facilities. In some cases it's called [sic] service outages of other customers. In other cases, still, it's caused

> due dates to be missed, because facilities that we thought were available turned out not to be available.

He also states that BellSouth has had significant problems with ALECs arbitrarily taking BellSouth's NTW in Tennessee and Georgia, and that BellSouth has had problems in Miami with a company that was not certificated at the time.

Another potential threat to network security discussed by witness Milner is that ALECs would have direct access to INC records, which, he argues, are more complex to maintain than the NTW records. He emphasizes:

> . . . maintenance of INC cable records is more problematic . . . because, unlike NTW records, INC cable records are mechanized records not available at the access terminal. Keeping accurate records of what pairs are spare, working, or defective is critical to ensuring high quality service, both in provisioning new or additional customer lines and in repairing existing customers' service. NTW records consist generally as paper tags on each pair of wires that are present at the NTW garden terminal. A technician can usually determine the use to which a particular pair is being put while on-site either via the tag or by electrically testing the NTW. However, such "intrusive testing" by electrically testing the NTW is not recommended because such testing cannot be done without interrupting existing line transmissions. Of course, such disturbances could quickly lead to end user dissatisfaction.

In response, AT&T/WorldCom witness Kahn asserts that BellSouth's proposal for installing the 25 pair cross connect panel and requiring cross connections to existing cross connect devices "flatly conflicts with the FCC's UNE Remand order that calls for a single point of interconnection."

Witness Kahn further states that BellSouth's proposal requires additional equipment to be paid for by ALECs, while allowing BellSouth to maintain a direct connection to the existing basement terminals. She states that this approach "is not competitively neutral and does not satisfy the FCC requirement for a single point of interconnection." According to witness Kahn:

> ALECs should be allowed to cross connect directly to existing BellSouth basement terminal equipment. We recognize that in some cases, BellSouth may perform this function, although we believe that ALEC technicians should be allowed to perform the cross connections.

Witness Kahn also presented an exhibit which she contends demonstrates the appropriate method for accessing INC elements.

On the issues of network security and reliability, witness Kahn discusses a decision by the Georgia Public Service Commission (Georgia Commission) in its Docket No. 10418-U, addressing similar matters concerning MediaOne and BellSouth.[3] Witness Kahn states that in its order, the Georgia Commission concluded that appropriate procedures could be implemented to adequately address network security issues. She also points out that the Georgia Commission concluded that an ALEC may use its own technicians to perform the interconnections as long as the ALEC assumes full liability for its actions and for any adverse consequences that could result.

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[3] Full cite: Georgia Public Service Commission Order, Interconnection Agreement Between MediaOne Telecommunications of Georgia, LLC and BellSouth Telecommunications, Inc.: Docket 10418-U and in re: MediaOne Telecommunications of Georgia, LLC. v. BellSouth Telecommunications, Inc., 10135-U, December 21, 1999.

Coalition witness Stacy also disagrees with BellSouth's concerns regarding network security. He argues:

> In preparing my testimony, I had the opportunity to speak with Sandy Fitchet, Jr. who is the Vice President of Carrier Relations for CAIS Internet, a company that is related to Cleartel. Mr. Fitchet informed me that he spent over 17 years in the telecommunications industry, including 3 years as a policy witness for GTE. Mr. Fitchet also informed me that Cleartel, CAIS and its related entities (hereinafter referred to as "Cleartel") have directly connected its equipment to ILEC INC in over 100 MDUs across the country with absolutely no security or network problems. Moreover, when a MDU customer switches services, it is a Cleartel technician that provides the connection, not a technician of an incumbent LEC that would need to be dispatched every time a new customer in a MDU requires service.

The second portion of this issue asks how prices to access unbundled subloop elements should be set. BellSouth's cost study assumes access to subloop elements via the intermediary access terminal, while ALECs basically focused on the notion that direct access would be much less costly. Much of the testimony addresses the manner in which BellSouth has categorized NTW and INC and how it impacts access pricing.

2. Pricing

As for pricing, witness Varner asserts that the prices for unbundled subloop elements should be established using the same cost methodology used for other unbundled network elements. He notes that the recommended prices for the subloop elements BellSouth makes available are found in Exhibit 92. Witness Caldwell adds that the cost studies BellSouth filed support what it deems to be the appropriate cost methodology.

The table lists BellSouth's proposed subloop element rates for NTW and INC, on which most of the discussion in this proceeding was focused.

ELEMENT NUMBER	SUB-LOOP	RECURRING	NON-RECURRING Including First	NON-RECURRING Additional
A.2.14	2-Wire Intrabuilding Network Cable (INC)	$3.87	$113.62	$36.36
A.2.15	4-Wire Intrabuilding Network Cable (INC)	$7.32	$126.10	$48.84
A.2.17	Sub-Loop - Per Cross Box Location - CLEC Feeder Facility Set-Up		$711.78	
A.2.18	Sub-Loop - Per Cross Box Location - Per 25 Pair Panel Set-Up		$45.28	
A.2.19	Sub-Loop - Per Building Equipment Room - CLEC Feeder Facility Set-Up		$333.44	
A.2.20	Sub-Loop - Per Building Equipment Room - Per 25 Pair Panel Set-Up		$109.85	
A.2.21	Sub-Loop - Per Cross Box Location - CLEC Distribution Facility Set-Up		$711.78	
A.15.1	Unbundled Network Terminating Wire (NTW) per Pair	$0.4555	$65.35	

Witness Caldwell describes the costs recovered in the recurring and nonrecurring rates for NTW and INC. As explained in BellSouth's Cost Study documentation, recurring costs are the monthly costs resulting from capital investments deployed to provision network elements. Nonrecurring costs are one-time expenses associated with provisioning, installing and disconnecting an unbundled network element or combination.

Witness Caldwell also explains that the recurring $.4555 charge is composed of a maintenance expense and a subscriber line testing expense, while the nonrecurring $65.35 charge for NTW reflects labor costs associated with provisioning NTW and the cost of the access terminal. She adds that the cost of the access terminal is based on the average number of customers expected and is "spread over the users of that terminal." Witness Milner agrees that when an ALEC pays for NTW, it is paying through the nonrecurring rate the cost associated with the access terminal; that is, "the cost for the access terminal is prorated over the number of pairs of NTW that are present at that garden terminal." He also contends that "the cost of the access terminal itself has been loaded onto the rate for the NTW."

Witness Caldwell further explains that since BellSouth defines INC as including NTW, the recurring charges for unbundled INC reflect the NTW components, plus the costs associated with the intra-building cable and distribution terminal, and a building entrance terminal. The nonrecurring costs reflect the labor associated with provisioning unbundled INC.

However, just as access to INC differs from NTW, so does the pricing structure. While BellSouth has developed a single nonrecurring charge for NTW, it has established three nonrecurring charges for INC. Rate element A.2.14 is identified as "2-Wire Intrabuilding Network Cable," (A.2.15 is 4-wire INC) with a $3.87 recurring charge and a $113 nonrecurring charge. Rate element A.2.19 is "Sub-Loop - Per Building Equipment Room, ALEC Feeder Facility Set-Up", with a nonrecurring charge of $333.44 and A.2.20 is "Sub-Loop - Per Building Equipment Room, Per 25 Pair Panel Set-Up", with a nonrecurring charge of $109.85. As for rate element A.2.14, witness Caldwell notes that, "the point at which the ALEC gains access to BellSouth's intra-building cable is not included in this calculation, but instead is included in elements A.2.19 and A.2.20."

When asked why there are two additional rate elements for INC, witness Milner explains:

> The difference goes back to the amount of cabling between BellSouth's terminal and the access terminal that is done at the time of the installation of the access terminal. In the case of network terminating wire in a garden apartment setting, all of the NTW pairs

> are cross-connected over to the access terminal at the outset. So there is never a reason to go back and wire additional pairs between BellSouth's terminal and the access terminal because they were all done at the outset. That is different from the case of intrabuilding network cable because in that setting, as I mentioned earlier, just because of the sheer volume of those pairs and the fact that these things are inventoried in a mechanized system, BellSouth does not wire all of those across to the access terminal at the time we provide unbundled access to INC. So in that case there are steps along the way, and that's what these 25 pair panels and CLEC feeders are meant to recover is the work that BellSouth does sort of in incremental fashion that is appropriate for access to INC that are not appropriate for access to network terminating wire.

Witness Milner points out that the decision to prewire is an ALEC decision. As an example, he explains that if an ALEC chose to have five of the 25-pair panels established at once, it could do so. If the ALEC only wanted one, it would pay for one. Witness Milner was asked whether the work done by dispatching the BellSouth technician to set up the 25-pair panel is excluded from the basic nonrecurring charge for the INC rate element. He responded, "I believe you're right, yes. And, again, it really goes back to the point I made that with network terminating wire, we wire all those pairs to the access terminal at the very first." Furthermore, when asked why the basic nonrecurring charge for INC is approximately twice the nonrecurring charge for NTW if the work is represented in separate rate elements for INC, witness Milner indicated that he was unable to answer, because he did not know what fill factors the cost experts assumed for the access terminals.

The witness also agreed that an ALEC either has to have a BellSouth technician come out every time it orders an INC or has to ask BellSouth to prewire INC in advance of having orders from its customers.

In addition, the witness contends that the cost of the cross-connect panel for INC is borne entirely by the first ALEC that orders the INC, while for NTW, the cost of the access panel is allocated on a per line basis. Witness Milner explains:

> Well, it is allocated on a per line basis, and I understand although I can't quote what the assumptions were, but it was allocated on a per line basis with an assumption as to what the fill factor would be. So, yes, in Florida consistent with the Commission's rule that access terminals be dedicated for individual ALECs, rather than, let's say, the access terminal has got 100 terminals on it, rather than allocating 1/100th of the cost of the access terminal to each NTW pair, there was a recognition that the actual fill on the access terminal would be something less than that, and so that was plowed into the equation as to how the cost of the access terminal would be allocated over the used NTW pairs.

Witness Milner adds that ALECs have the option of deciding on the number of INC pairs to be prewired when making their request.

Witness Caldwell was also asked why BellSouth established different rate structures for NTW and INC. She responded that the reason was due to the rate structure approach employed by BellSouth. She added, "We came up with just a single-rate element for NTW that picks up everything on a per-pair basis. It also has to do with the fact that in NTW you prewire a repair to the access terminal. . . ."

The cost study documentation shows that the cost differences in NTW and INC arise from the contrasts in access. BellSouth prewires all NTW pairs on the access terminal, but does not prewire all pairs in the INC/highrise scenario. The ALEC delivers and performs the connection of its central office facilities to the NTW pairs on the access terminal. For INC, BellSouth installs a cross-connect panel (separate from its own cross connect device) on which INC will be accessed. When the ALEC delivers its feeder facility to the cross-connect panel, BellSouth performs the task of connecting the ALEC feeder facility to the cross-connect panel, then cross-connects the ALEC's facility to the BellSouth INC.

Illustrating the impact of the proposed differing methods of access, witness Varner's exhibits show that for NTW, an ALEC will pay a recurring rate of $0.4555 per pair and a nonrecurring rate of $65.35 per pair for NTW. ALECs are then able to access the same number of pairs available to BellSouth. In contrast, for 2-Wire INC, ALECs will pay a recurring charge of $3.87 and then a nonrecurring charge of $113.62. However, these charges do not include the nonrecurring charges for the facility set up ($333.44) and the charge for installing the 25-pair access panel ($109.84). As reflected by witness Caldwell's testimony, the ALEC ends up paying over $500 in nonrecurring charges and still does not have access to all the pairs in the building, unlike in the NTW situation where the pairs are all prewired.

In response, AT&T/WorldCom witnesses Kahn, King and Stacy made revisions to BellSouth's cost studies under the assumption that direct access would be much less costly. AT&T/WorldCom witness Kahn states that BellSouth's claimed costs for INC and NTW exceed forward-looking economic costs and otherwise conflict with the FCC's UNE Remand Order. Therefore, the witness contends that they should be rejected. Specifically, she argues that BellSouth's requirement "to build an additional panel flatly conflicts with the FCC's UNE Remand order that calls for a single point of interconnection." {Emphasis in the original] Witness Kahn further asserts that because BellSouth's approach will allow it to maintain a direct connection to existing basement terminals, but denies direct access to ALECs, the proposal is not competitively neutral.

Witness Kahn makes specific recommendations as to how BellSouth should be required to change its recurring and nonrecurring cost studies. Her recommendations contained information submitted as proprietary information; therefore, her recommendations will be discussed in general terms only.

Regarding BellSouth's investments, witness Kahn states that although she agrees that INC investment is incurred, she also believes that BellSouth's investment is overstated and estimates the amount of alleged overstatement. She uses restated investments developed by witnesses Pitkin and Donovan for Field Codes 12C and 52C, noting that the rationale for their investment restatement is described in their testimony.

Although she contends that BellSouth has "drastically" overstated costs for building terminals, she indicates that BellSouth's investment cannot be adjusted. She states that the limited documentation provided by BellSouth demonstrates that BellSouth included two terminals in the building equipment room. "At this time we can only guess whether Bell's existing terminal is the building entrance terminal or the building distribution terminal."

Witness Caldwell responds to witness Kahn's assumption that BellSouth included two terminals in the building equipment room by maintaining that:

> . . . BellSouth does not include two terminals in the building equipment room element (A.2.20). The input sheet to file FLUSL.xls reflects material costs that include one 25-pair connecting block, bridging clips, backboard, and wire guides. However, if Ms. Kahn is implying that BellSouth includes the cost of a terminal in the recurring cost associated with INC, then she is correct. This is BellSouth's terminal and the one in the building equipment room is the ALEC's point of access, two separate items that are required thus, two costs. . . .

Additionally, witness Caldwell clarifies the difference between the building entrance terminal and the building distribution terminal.

She states that the building terminal (Field Code 12C) is the first entrance or first terminal reached in the building when cable is brought in from the outside. She explains, "That's why it's coded as 12C, that's the first print you would have on the plan. The 52C is going to be the terminal that's actually located on the riser cable." She also states "The distribution terminal is located at the end of the riser cable." Witness Caldwell was also asked whether the distribution terminal is more or less the same kind of equipment as the building terminal, or if it is just a smaller piece of equipment that exists on each floor of the building. She responded that that is usually the situation.

Witness Kahn makes further recommendations for BellSouth's INC recurring cost study, as follows:

> Our costing approach would correct BellSouth's cost study by removing the investment associated with additional equipment and cross connections that BellSouth does not incur when it provided access to riser cable for itself. As a matter of policy, ALECs should be allowed to cross connect directly to existing BellSouth basement terminal equipment. We recognize that in some cases, BellSouth may perform this function, although we believe that ALEC technicians should be allowed to perform the cross connections.

Witness Kahn admits that in order to implement the single point of interconnection approach, replacement equipment or additional equipment may be required. However, she states that ". . . whatever the physical solution, additional charges could legitimately be included in monthly recurring charges for INC to accommodate the added functionality of being able to interconnect multiple carriers at a single point." She also points out that this does not mean that additional equipment and costs associated with such equipment are required for ALECs in most cases, but merely that there is a possibility that they may be required. Witness Kahn adds that BellSouth's costing approach calls for ALECs to "pay for fully duplicative, extremely underutilized equipment in monthly recurring rates, as well as pay for unneeded cross connections by Bell technicians in non-recurring rates."

Witness Kahn notes that the investments from the restated BSTLM run done by witnesses Pitkin and Donovan reflect that installed material cost of building entrance terminal and intrabuilding network cable would be the more appropriate investments. She applies what she describes as "a corrected monthly expense factor" to the installed investment, then removes the subscriber line testing expense, because she contends that all testing would be done by the ALEC.

Next, witness Kahn recommends removing BellSouth's assumption that a BellSouth technician must perform all cross-connections and conduct a turn-up test for all cross connections at a building equipment terminal. She asserts:

> This is unnecessary and duplicative. The ALEC technician can make the connections and perform a turn-up test just as readily as a BellSouth technician. Therefore, all of the network activities identified in BellSouth's non-recurring cost study are eliminated. The only non-recurring work activity still remaining is associated with the service order for this UNE.

She then states that the appropriate charge for this service order is $0.4316 for both 2-wire and 4-wire INC.

In response, however, witness Milner defends BellSouth's position, stating:

> . . . this is the sort of invasive practice explicitly rejected by the Florida Public Service Commission in its Order No. PSC-99-2009-FOF-TP dated October 14, 1999 in Docket No. 990149-TP ("MediaOne Order") when it found that MediaOne had no right to alter

> BellSouth's network without BellSouth's technicians being present.

Addressing what she perceives as other problems with recurring charges for NTW, witness Kahn states:

> In principle, it is appropriate to charge for the network cable expense, but it is unclear whether BellSouth applied appropriate depreciation lives, cost of the capital, etc. BellSouth must demonstrate that the appropriate forward looking inputs were used to establish the network cable costs and not fall back on embedded cost analyses. Since these same charges are included in the calculation of intrabuilding network cable, the same concerns apply to INC charges as well.

BellSouth's witness Caldwell responds, however, to this argument by contending that the witness's statement is not supported and that BellSouth will abide by this Commission's ruling. Witness Caldwell adds that these values are easily accessible in the BellSouth Cost Calculator.

As for nonrecurring NTW charges, witness Kahn states that the only appropriate nonrecurring NTW charge is the service ordering charge. Witness Kahn states that the nonrecurring charge for additional garden terminals and cross connect panels is inappropriate because it violates the FCC's requirement for a single point of interconnection for use by multiple carriers including BellSouth. She reiterates that in order to implement the single point of interconnection approach, additional or replacement equipment may be required -- the charges for which could legitimately be included in monthly recurring charges for NTW. She states that this inclusion of additional costs does not mean that she believes additional equipment is required for ALECs to interconnect to BellSouth in most cases. However, the inclusion of such costs only accounts for the possibility that additional equipment may be required. She asserts that this approach "differs drastically from BellSouth's costing approach under which ALECs pay for fully duplicative, extremely underutilized equipment in non-recurring rates" for "redundant garden terminals and cross connect panels in wiring closets."

In order to quantify her statement of "the extent of the duplication" in the equipment, witness Kahn uses an example assuming a 56% fill factor, which is higher than BellSouth's, and calculates a new monthly recurring rate of $0.1009. She states:

> Clearly the underutilization of investment is built into the BellSouth non-recurring charge. Moreover, BellSouth assumed that an additional garden terminal would be constructed for the sole use of ALECs rather than assuming that the garden terminal would be shared by all. If the garden terminal were to be shared by all, BellSouth would have developed a monthly recurring charge . . . similar to what BellSouth included for the garden terminal in the establishment of a complete UNE loop.

When questioned as to how disconnections would be handled in the event that AT&T acquires one of BellSouth's customers, witness Kahn explains:

> We would like for our technician to do it, but obviously we would contact BellSouth prior to our technician going out and try to determine from BellSouth if there are spare facilities that we could terminate to, or whether we would actually have to use -- the customer who wants to become the AT&T local customer would have to use their existing terminal strip.

In summary, witness King states "there should be a single point of interface available . . . there should not be duplicative equipment placed" in order to provide a separate demarcation point for the ALEC. He further contends "we have our own technicians that can go to these multiple dwelling units, and if there is a common interface we have the people that are doing the same work that Bell is trying to get us to pay for." For four-wire INC, he states "I make the same assumption that the ALEC will do most of the work." For NTW, he reiterates:

> You will not see any changes in the assumptions, just a structure change . . . . I believe a lot of the work that BellSouth has incorporated here is work associated with surveying a site, placing duplicate equipment. And my argument is that there is no need to place that equipment, so all work associated with placing that equipment is zeroed out.

Coalition witness Mark Stacy also argues that, "BellSouth has proposed significantly over-inflated rates" associated with INC.

Witness Stacy argues against BellSouth's assumption that ALECs are the cost causers of the access terminal and should pay for all actions and equipment necessary to access INC. He contends that it is BellSouth's security concerns that necessitate these costs. Therefore, the Coalition feels that we should, at a minimum, require BellSouth to share in the costs associated with additional security.

Although BellSouth's witness Milner disagrees with witness Stacy, contending that BellSouth does not benefit from the access terminal, witness Stacy emphasizes that by "charging every ALEC that orders a pair the full costs of installing an access terminal, BellSouth may double and triple recover its costs, particularly in MDUs where customers may switch their service one at a time." He adds that BellSouth also intends to charge each subsequent ALEC the full costs associated with the installation of an access terminal. In response, however, witness Milner maintains:

> BellSouth assesses the charges associated with the installation of an access terminal only once and only at the first request for access. Such charges would not be assessed again until the ALEC requests an additional 25-pair-panel,

> presumably when the first 25-pair panel is fully utilized.

He also explains that BellSouth's procedure entails prewiring all NTW pairs, eliminating the need for dispatches. For INC, BellSouth wires the particular INC pairs requested from BellSouth's terminal to the ALEC's access terminal.

Witness Stacy proposes a method for BellSouth to assess charges to ALECs for accessing INC and NTW, based on the capacity actually used by the ALEC and the assumption that BellSouth will prewire an entire MDU. Therefore, "each time an ALEC places an order for a pair, BellSouth would place a separate access terminal into a MDU to which it would cross-connect all available pairs within the MDU." Then, all ALECs would use this access terminal as the single point of interconnection described by witness Milner. He states that this scenario provides BellSouth with "absolute network security."

Witness Stacy also states that another benefit of prewiring an entire MDU is that if BellSouth prewires the access terminal, ALECs will not be required to await the dispatch of a BellSouth technician to connect the ALEC's network to its customer each time a new customer switches services. He states "This pre-wiring would result in cost savings to all parties, not just the requesting ALEC." He then describes his adjustments to BellSouth's costs:

> . . . [I]f an ALEC orders one pair, it should be charged 1/25 of the costs currently proposed by BellSouth and should not be responsible for the cost of the entire facility (if an ALEC orders three pairs, it would be charged 3/25 of the costs currently proposed by BellSouth).

Witness Milner responds to witness Stacy's concerns regarding the up-front costs of access terminal construction.

> The access terminal provided by BellSouth for which BellSouth is entitled to recover its

> costs is dedicated to the requesting ALEC. Thus, there is no other ALEC from which BellSouth would be able to recover its costs. Further, this Commission ordered BellSouth to provide a separate access terminal for ALEC access to unbundled sub-loop elements. Thus, contrary to Mr. Stacy's suggestion, pro-rating the cost of the access terminal based on the capacity of the terminal (expressed in quantity of pairs) is not appropriate. Indeed, if Mr. Stacy's proposal were adopted, BellSouth would be denied the recovery of its costs.

He further states that if we find this rationale acceptable, BellSouth would comply, but that "there may need to be adjustments made to BellSouth's study for the affected rate elements."

ALECs argue that BellSouth's requirement of an intermediary access terminal violates the FCC's collocation rules, which are referenced in the UNE Remand Order, as follows:

> MGC asserts, and we agree, that our collocation rules, which we recently clarified in the Advanced Services First Report and Order, apply to collocation at any technically feasible point, from the largest central office to the most compact FDI. This is because our collocation rules concern methods and standards of obtaining interconnection and access to unbundled network elements under section 251 of the Act, and thus are not directed to any one type of facility. . . .

FCC 99-238, ¶221.

Witness Stacy asserts that "federal law makes clear that ALECs should not be required to bear the entire financial burden associated with provisioning a 25-pair panel each time it orders one pair." He states:

> In its UNE Remand Order, the FCC specifically held that its collocation rules, as clarified in its Advanced Services First Report and Order ("Collocation Order"), are applicable to any technically feasible point of interconnection, including any point necessary to access subloops. In its Collocation Order, the FCC found that an incumbent LEC such as BellSouth was precluded from holding the first requesting ALEC responsible for the entire cost of preparing a site, as BellSouth proposes here. Specifically, the FCC stated that an incumbent LEC "must allocate space preparation . . . and other collocation charges on a pro-rated bases so the first collocator in a particular incumbent premises will not be responsible for the entire cost of sight preparation."
>
> . . . .
>
> Importantly the FCC recognized that, although a state Commission could adopt more stringent standards to ensure competition, at a bare minimum state Commissions must determine the proper pricing methodology to ensure that incumbent LECs allocate site preparation costs among new entrants.

Witness Stacy refers to FCC Order 99-48, the First Report and Order and Further Notice of Proposed Rulemaking in the Matter of Deployment of Wireline Services Offering Advanced Telecommunications Capability in CC Docket No. 98-147. In this order, also known as the "Collocation Order", the FCC stated in part:

> Incumbent LECs may not require competitors to use an intermediate interconnection arrangement in lieu of direct connection to the incumbent's network if technically

> feasible, because such intermediate points of interconnection simply increase collocation costs without a concomitant benefit to incumbents.

FCC 99-48, ¶42. However, in its March 17, 2000, decision[4], the United States Court of Appeals for the District of Columbia Circuit vacated the aforementioned paragraph stating in part:

> The sweeping language in paragraph 42 of the Collocation Order appears to favor the LECs' competitors in ways that exceed what is "necessary" to achieve reasonable "physical collocation" and in ways that may result in unnecessary takings of LEC property.. Once again we find that the FCC's interpretation of § 251(c)(6) goes too far and thus "diverges from any realistic meaning of the statute."

Based on this decision, it appears that witness Stacy's application of the cited Collocation Order principles as the means to justify direct access is not adequate support.

Witness Stacy indicates that analogs to his approach exist elsewhere in the TELRIC/TSLRIC studies for other UNEs. He states that ILECs generally deploy the feeder/distribution interface (FDI) between the feeder and distribution terminals of their outside plant network and that the FDI terminals

> . . . provide enhanced network flexibility and maintenance opportunities that are similar (if not identical) to the enhanced security and network reliability advantages espoused by BellSouth with respect to the construction of a separate terminal to be used for access to INC. For example, when an ALEC purchases an

[4] GTE Service Corporation, et al., v. Federal Communications Commission and United States of America, 205 F.3d 416, 2000 U.S.App. LEXIS 4111 (DC Circ. Ct. App., 2000).

> unbundled loop, the ALEC pays only for the portion of the FDI used by the loop it is purchasing . . . . Similarly, each ALEC pays only for the labor expenses associated with cross-connecting the particular feeder pair and distribution pair that comprise the unbundled loop it has purchases.

He states that this approach is fully consistent with the manner by which he is recommending that BellSouth recover expenses associated with placing a similar terminal within a MDU for purposes of connecting loop distribution and INC. Witness Stacy states that the UNE Remand Order made crystal clear that state commissions are required to pro-rate among all ALECs the cost of collocation necessary to gain access to subloops.

BellSouth's witness Caldwell disagrees, and contends that:

> . . . The Advanced Services Order was designed to address fixed costs that could potentially benefit multiple carriers, including ALECs and the incumbent. Access terminals for INC are dedicated to a particular ALEC. Thus multiple ALECs cannot utilize (benefit from) the placement of that terminal. BellSouth's structure reflects a feasible means of reflecting anticipated demand in a multi-unit location.

As for terminology, BellSouth has defined INC to include NTW. Specifically, INC represents all the cable between the equipment closet in the basement of a building all the way to the customer's demarcation point. Witness Caldwell agrees that BellSouth's offering of INC is "the whole amount of that cable from the basement all the way to an individual tenant." She also explains that, "INC includes NTW. So, it does go all the way to the customer location, if you want to buy that. But then you have customers that only want NTW, they don't want that intra-building." Witness Milner also agrees that ". . . even though the physical facilities known as unbundled INC includes both horizontal and vertical cable, it doesn't include all the cost elements that go with the rate element known as network terminating wire." He states that this is because the access terminal is in the basement. When questioned as to whether BellSouth's decision to define INC and NTW as separate elements has a cost basis or a technical basis, witness Caldwell replied, "They're two different items, so they have different costs."

Upon being asked whether she was aware of any ALECs that had approached BellSouth in a high-rise situation and had requested only the cable between the terminal on the floor and the customer's demarcation point, witness Caldwell indicated that she did not know.

Witness Milner, addressing why BellSouth chose not to create a single element called NTW that would include both the horizontal (NTW) and vertical (INC/riser cable) pieces, contends that if an ALEC had chosen to target primarily garden apartments, due to the cost structure, they would be paying for assets "that weren't even present in a garden apartment." Regarding BellSouth's chosen terminology for the element known as "intra-building network cable," witness Milner reflects:

> . . . if we had to do it over again I would come up with a new name, I guess, instead of UINC, we would call it something else. But our rationale was this, that an ALEC would choose one point that it wanted to place its facilities and then would want to use BellSouth's facilities on an unbundled basis beyond there. So in the case of INC where, let's say, the ALEC brings its facilities into the basement of the building, it was our belief that what the ALEC really wanted was to get from its facilities in the basement up to the tenants on each of the individual floors. And since our network to get you there includes both INC and NTW, that is why we made both of those things, pieceparts part of the unbundled network we call unbundled INC.

Witness Milner also points out the possibility that an ALEC could choose to provide its own INC rather than using BellSouth's, and only require use of the NTW at a specified floor. However, like witness Caldwell, witness Milner admits that BellSouth has not had a request to purchase only the horizontal cable (NTW) in a high-rise building.

As for the circumstances in which BellSouth would typically install INC or how to look at a building and determine whether it has NTW or whether it has INC, witness Milner indicates he is not sure, but that:

> . . . typically if we are talking about a one or a two-story building, and let's say there are 10 to 12 apartments or office suites in each building, then it would be rare that you would see INC in those settings. Where you have multistory buildings, let's say three stories or more, then there are efficiencies derived by having larger cables to get you from the basement to each of those floors and then cross-connecting those to smaller cables still to get you to each individual suite or apartment on a floor. So I'm not just aware of any hard and fast rule. But if the building had more than three floors, I would guess it had intrabuilding network cable as part of the loop makeup.

As another example, witness Milner explains that if AT&T requested unbundled INC in an apartment complex, in fulfilling the order, BellSouth might find that there is no INC used in that building and say that what AT&T really wants is unbundled NTW. When asked how AT&T would know, witness Milner stated that AT&T would probably already know that, because it would have already installed its facilities out to that same property.

The ALECs take issue with the notion that although they are basically trying to get to the NTW regardless of the building situation, BellSouth imposes different charges based on the terminology. AT&T/WorldCom witness Kahn criticizes the validity of BellSouth portraying INC and NTW as separate elements. Witness Kahn states that in her experience, "BellSouth is unique . . . in making a distinction between network terminating wiring and intrabuilding network cabling." Witness Kahn references an arbitration in North Carolina, stating that ". . . we heard about a distinction between what I think Mr. Beveridge was calling little INC and big INC, and network terminating wire being little INC." She also notes that "no one had any reason to believe that BellSouth would make this distinction because Verizon had not, SBC had not, Qwest had not, so we were taken by surprise."

Witness Kahn also expounds on the importance of addressing "the high-rise situation." When questioned during the hearing, witness Kahn acknowledged that at least in the garden terminal situation, an alternative exists. That is, in certain situations, AT&T may choose to build its own garden terminals if it finds that "the cost is prohibitive for the apartment scenario." However, when asked whether it is more important for us to address the high-rise situation, witness Kahn responded affirmatively.

<u>Decision</u>

In addressing this issue, we have had to consider two basic questions: the manner in which ALECs should access subloop elements and the prices for such access. BellSouth has proposed accessing subloop elements via an access terminal, arguing that direct access will subject BellSouth to network security and inventory control problems. ALECs contend that direct access is the only method that is competitively neutral and that meets the FCC's requirement for a single point of interconnection.

We note that while the FCC has given state commissions the discretion to decide various aspects of technical feasibility, it also makes it clear, that the FCC does require each carrier to retain responsibility for its own network. We agree, nevertheless, that with the FCC that subloop element issues are bound to change as new issues and new technology arise. The primary decision to be made in this proceeding is whether or not to impose the use of the intermediary access terminal.

Upon consideration of the record regarding access, we find that access to subloop elements shall be provided via an access terminal, as suggested by BellSouth. The evidence in the record for this proceeding does not support allowing ALECs direct access to BellSouth's unbundled subloop elements. The evidence shows that little has changed since our in Docket No. 990149-TP, with the exception of the fact that the FCC has issued its UNE Remand Order. We are persuaded by witness Milner's numerous examples of problems with network security and reliability, although we note that his "real world" examples regarding problems associated with direct access only involve "unauthorized" direct access.

The evidence in the record for this proceeding indicates, however, that at this time, use of an access terminal reasonably balances the ALECs' need for access to subloop elements with BellSouth's need to protect network reliability. We believe, nevertheless, that it may be possible for the parties to arrive at an alternative method that does not require use of an intermediate terminal, but still addresses BellSouth's concerns, and we encourage the parties to explore such alternatives. We note that during the hearing, witness Milner that BellSouth would be amenable to an alternative, if the alternative proposed addresses:

> . . . both the reliability and security and the inventory issues that we've talked about, maintaining the computer databases properly. If all of those were addressed, then that would be fine. If we reached a mutually-agreeable solution, that's -- you know, that's what we're after, nothing more.

Because we believe that the parties may be able to arrive at alternative methods of addressing security and reliability concerns associated with access, we again encourage the parties to work together on this issue. Furthermore, we shall require that the parties submit, within 120 days of this Order, alternative proposals addressing the network security and inventory issues for accessing each subloop element that were raised by BellSouth. In the meantime, in an effort to further encourage the parties to work together towards a solution and because we believe that both the

ALECs and BellSouth are the cost-causers in this situation, we shall require the parties to evenly split the costs associated with provisioning access terminals. We note that if a negotiated solution is reached by the parties, it may be appropriate to revisit BellSouth's cost studies to eliminate the costs of the access terminal and other associated costs.

VII. RATES FOR SIGNALING NETWORKS AND CALL-RELATED DATABASES

We have been asked to determine which signaling networks and call-related databases should have rates set.

The FCC rules contained in 47 C.F.R. 51.509(e) describe the obligations that an ILEC has to provide access to signaling networks and call-related data bases on an unbundled basis. Three categories of databases are discussed: signaling networks, call-related databases, and service management systems. Signaling networks include signaling links and signaling transfer points. Signaling links transmit routing messages between switches, and between switches and call-related databases. Signaling System 7 (SS7) networks include signaling links that transmit signaling information in packets, from a local switch to a signaling transfer point (STP), which is a high capacity switch. An incumbent is required to provide access to signaling networks in the same manner as it obtains access itself.

The rule defines 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 a telecommunications service." 47 C.F.R. 51.509(e)(2). Such databases include Calling Name Database (CNAM), 911 Database, E911 Database, Line Information Database (LIDB), Toll Free Calling Database (800, 888, and other toll-free numbers), Advanced Intelligent Network (AIN) Databases, and downstream number portability databases by means of physical access at the signaling transfer point linked to the unbundled databases. CNAM databases are used to provide Caller ID and related telecommunications services, and the 911 and E911 databases are telecommunications services used to provide emergency assistance. AIN databases allow centralized control of call processing and network information processing, so that such functions do not have to be performed at each switch. Other databases provide information and instructions used in call processing.

Service management systems are computer databases that perform various data processing functions. 47 C.F.R. 51.509(e)(3). Operator services and directory assistance are also defined:

> Operator services are any automatic or live assistance to a consumer to arrange for billing or completion, or both, of a telephone call. Directory assistance is a service that allows subscribers to retrieve telephone numbers of other subscribers.

47 C.F.R. 51.509(f).

An ILEC is only required to provide unbundled access to operator service or directory assistance "where the incumbent LEC does not provide the requesting telecommunications carrier with customized routing. . . ." 47 C.F.R. 51.509(f).

The parties are in agreement that rates should be set for the following databases:

- CCS7 Signaling Transport
- 800 Access Ten Digit Screening
- Line Information Database Access (LIDB)
- BellSouth Calling Name Database Service (CNAM)
- BellSouth Access to E911 Service
- Local Number Portability (LNP) Query Service

Based on the foregoing, we find it appropriate to set UNE rates for the six databases set forth above.

BellSouth witness Varner notes that BellSouth does provide access to its signaling network in the same manner in which BellSouth obtains such access itself. Thus, it appears that the requirements of the FCC rules have been met in part.

However, there is contention over two remaining points. First, should BellSouth be required to cost out the directory assistance database? Second, should the Commission oversee BellSouth's implementation of its proposal to allow ALECs to interconnect their call-related databases with BellSouth's AIN switches via mediation points?

Additionally, AT&T/WorldCom witness King requests that rates be set for Daily Usage Information, such as Access Daily Usage File (ADUF), Optional Daily Usage File (ODUF), and Enhanced Optional Daily Usage File (EODUF). BellSouth has provided rates for these services in their filing. The FCCA ALECs did not mention Daily Usage Information services in their brief. Therefore, it appears that daily usage services do not need to be addressed further.

A. Advanced Intelligent Network

Z-Tel witness Ford asserts that the FPSC should "establish permanent rates associated with SS7 queries and responses, AIN service management system ("SMS") access, and AIN Toolkit services (including required access to central office switch triggers)." He notes that BellSouth has proposed rates for AIN SMS and AIN Toolkit services. However, he states that "BellSouth does not propose rates in conjunction with interfacing BellSouth switches with Z-Tel provided call-related databases or 'SCPs.'"

Witness Ford explains that

> In AIN architectures, the feature functionality software is split between the central office switch and adjunct call-related processors. The switch can stop or suspend call processing at predetermined points using a central office switch "trigger" and query a central processor (or database), know [sic] as a Service Control Point or

"SCP," for instructions on how to route, monitor, or terminate a call.

Witness Ford describes what Z-Tel is requesting as access to the third-party databases that BellSouth uses itself. He explains that these databases have customer information that would allow Z-Tel to provide "more tightly integrate [sic] advanced services; custom dialing, stutter dial tone . . . for voice mail and dynamic call routing. . . ." He asserts that his company needs to have direct access to the data so that it can update it and add features and functions more quickly, rather than having to go through the ILEC to have those services performed. However, witness Ford states he is not aware of any place in the country where access is provided in the manner Z-Tel is requesting.

BellSouth witness Caldwell argues that her company should not have to provide UNEs for direct interconnection of ALEC-provided AIN Service Control Points. Witness Caldwell contends that the FPSC "has already considered and rejected an ALEC's direct interconnection with BellSouth's SCP." Witness Caldwell discussed Docket No. 960833-TP in which AT&T requested access to BellSouth's AIN Service Control Points. AT&T's witness explained that the FCC determined that this type of access is technically feasible, but may present a need for mediation mechanisms to protect data in the AIN SCPs and protect against excessive traffic. Witness Caldwell describes mediation mechanisms as

> . . . computer programs which during call processing determine the effect of routing instructions or other information returned as a result of an SCP query and then cause appropriate activities to be taken. These devices evaluate the request to determine if it is potentially harmful to BellSouth's network.

Witness Caldwell insists that "Z-Tel must interconnect through BellSouth's STP Gateway, not directly to the end-office.")

However, in Docket No. 960833-TP, AT&T did not believe mediation was necessary because safeguards are already built into the SS7 network. The Commission found that BellSouth's request to use a mediation mechanism to provide AIN services to competitors was warranted. See Order No. PSC-96-1579-FOF-TP at p. 21.

Decision

Based on the foregoing, we find it appropriate to set UNE rates for the AIN database.

The crux of the dispute concerning AIN services is whether competitors should be allowed direct access to an SCP or whether BellSouth should be allowed to require access only through mediation mechanisms. No party offered any evidence beyond Order No. PSC-96-1579-FOF-TP as to why mediation mechanisms should or should not be used. Z-Tel explained what it would like to have and why it believes such access is important. However, it did not address mediation mechanisms in its testimony.

Witness Caldwell pointed out that the FCC considered this matter, but rejected a similar request. However, we note that what the FCC found was that there was not enough evidence in its record to allow it to make a determination on the matter. The FCC stated "Our refusal to grant [the] request in this proceeding does not affect the ability of any state commission to address this issue." (Order FCC 99-238, CC DN 96-98, ¶407)

Witness Caldwell correctly pointed out that this Commission did consider this point previously in Docket No. 960833-TP. No evidence was presented to persuade us that it is not appropriate to allow ILECs to use mediation mechanisms for access to AIN SCPs.

Notably, the FCCA ALECs did mention mediation mechanisms in their brief, stating "In light of BellSouth's proposal, in this case the [FPSC] should ensure that the elements and UNE prices necessary to implement an ALEC's ability to furnish a new call-related data base and avail itself of the AIN features through mediation devices are properly designed and fully in place." Thus, it appears that the FCCA ALECs are willing to accept access to AIN through mediation mechanisms. Therefore, based on all of the foregoing, access to AIN SCPS should be provided by BellSouth through mediation mechanisms.

B. Directory Assistance

AT&T/WorldCom witness King identifies the Directory Assistance Database (DA) in his testimony as a database for which UNE rates should be set, but he did not discuss it further.

BellSouth witness Caldwell testified that "[t]he FCC did not identify DA database as a call related database and it is not a database that is 'used in signaling networks for billing and collection or the transmission, routing or other provision of telecommunications service.'" She argues that the FCC exempted directory assistance from an incumbent's unbundling obligations if the incumbent provides customized routing.

BellSouth witness Varner proposes UNE rates for selective routing. He confirms that the selective routing meets the requirements of customized routing that may be offered in lieu of providing a UNE for directory assistance. He also states that, while BellSouth is not offering a UNE for DA, it does offer access to the normal DA operator services that it has always offered.

In its brief, the FCCA ALECs state that the Commission is considering whether BellSouth must offer access to Directory Assistance (DA) as an unbundled network element in Docket No. 000731-TP, AT&T's arbitration with BellSouth. The FCCA ALECs argue for the first time in their brief that "Inasmuch as the possibility exists that the Commission may determine in that case that BellSouth must provide DA as a UNE, it should direct BellSouth to study the cost of providing such access in this proceeding."

Regarding directory assistance service, we agree with BellSouth that, under FCC rules, a company is exempt from the provision of a UNE for access to the DA database if it provides customized routing service. As shown in the discussion, BellSouth is proposing a UNE for such a service. Therefore, the FCC requirement is met. The FCCA ALECs provided no record support for their request that this item be offered. The argument in their brief that the Commission should require such a UNE simply because it is an issue in an arbitration is not reasonable. Accordingly, we will not require BellSouth to offer a UNE for a DA database since it provides customized routing service.

Decision

The remaining signaling and call-related databases for which BellSouth is to provide UNEs are uncontroverted. Therefore, we find that UNE rates should be set for CCS7 signaling transport, 800 access, Line Information Database access, BellSouth Calling Name Database service, E911 service, Local Number Portability Query service, and Advanced Intelligent Network databases. Access to AIN SCPs should be offered through mediation mechanisms. BellSouth should not be required to offer a UNE for directory assistance since it provides customized routing service.

VIII. RECOVERY OF NON-RECURRING COSTS THROUGH RECURRING RATES

Non-recurring costs may be defined as "the efficient, one-time costs associated with establishing, disconnecting or rearranging unbundled network elements purchased from an ILEC at the request of a customer (e.g., ALEC)." FCC rules allow state commissions to require recovery of non-recurring costs over time:

> State commissions may, where reasonable, require incumbent LECs to recover nonrecurring costs through recurring charges over a reasonable period of time. Nonrecurring charges shall be allocated efficiently among requesting telecommunications carriers, and shall not permit an incumbent LEC to recover more than the total forward-looking economic cost of providing the applicable element.

47 C.F.R. 51.507(e).

Generally, the parties agree that non-recurring costs should be recovered through non-recurring rates. The issues that present themselves in this docket are whether costs are appropriately characterized as non-recurring costs, and how best to ensure reasonable recovery of such non-recurring costs. The ALECs raised an additional issue of whether non-recurring charges are so high as to be barriers to entry.

A. Efficient Allocation and Over-recovery of Costs

Sprint witness Sichter asserts that there are difficult policy and administrative issues that must be resolved if the Commission requires non-recurring costs to be recovered through recurring charges. He explains that the incumbent LEC will be financially exposed if a CLEC who purchases service discontinues its use before non-recurring costs are fully recovered. However, he also points out that an ILEC may over recover its non-recurring costs if such recovery continues beyond the point where the amount has been fully recovered.

AT&T/WorldCom witness King argues that a one-time activity that may benefit all future users of a particular telecommunications facility is typically characterized as a recurring cost. He notes the construction of a loop as an example, stating "[p]roper allocation of one-time costs is particularly important in a competitive environment where more than one local exchange carrier including the ILEC may use a particular facility at different points in that facility's lifetime." (TR 684) He explains that if the entire non-recurring cost of a facility that may serve multiple users over time is borne by the first carrier to use that facility, that first user will pay more than its fair share.

Witness King suggests that the criteria to be used to determine when one-time costs benefit multiple users would be: 1) the cost is associated with a one-time activity; 2) the cost is a direct result of a request by an ALEC; and 3) the work is of a nature that it would not need to be performed again.

BellSouth witness Caldwell states that BellSouth's cost study reflects the way in which costs are incurred. She explains that costs resulting from a one-time provisioning process are treated as non-recurring costs in the model. She argues that a decision to recover non-recurring costs through recurring rates is a pricing decision, not a part of the cost development process.

BellSouth witness Varner points out that "[n]on-recurring prices principally recover labor costs and direct expenses. These expenses are paid immediately by the ILEC." He notes that any cost recovery should match the ILEC's obligations in providing a service. He explains, for example, that BellSouth incurs a cost to process ALEC service orders, and asserts that these costs should be recovered. He also argues that the actual activities used to provide an element should be the basis for recovery. He contends that while a new technology could reduce costs, it should be used only to the extent BellSouth actually uses it.

Witness Varner argues that the length of time a service remains in use by an ALEC is an important factor to consider if non-recurring costs are to be recovered through recurring rates. He asserts that it "is important to ensure that the non-recurring costs can be recovered and will not be foregone if the service is removed or disconnected too soon." He concludes that the appropriate means to ensure proper recovery in this instance is to use a volume and term agreement or a termination liability.

We believe there are two aspects to the issue of cost allocation. The first is to identify which costs are non-recurring costs. The second is to provide for recovery of non-recurring costs in a fair manner for both ALECs and ILECs.

The FCC discussed the obligation of states to resolve these issues in paragraph 751 of its Local Competition Order, where it stated that

> . . . state commissions must ensure that nonrecurring charges imposed by incumbent LECs are equitably allocated among entrants where such charges are imposed on one entrant for the use of an asset and another entrant uses the asset after the first entrant abandons the asset.

From the examples and testimony provided by the witnesses and from the FCC's order, it is apparent that certain costs, such as investment in plant, may be a one-time cost that may benefit more than one user, as in the loop example. Other costs, such as labor and expense costs associated with service order processing, may benefit only the user that receives the service. These latter costs are clearly attributable to the user. A portion of investment may also be allocable to the user. Each issue in this recommendation that addresses costs, depreciation, and rate of return on investment is important to the determination that only the appropriate costs be included.

The parties' suggestion that the Commission apply criteria to ensure that a cost is truly one-time is a practicable approach. As discussed by witness King, those criteria may include the following questions:

- Is the cost associated with a one-time activity?
- Is it a direct result of a request by an ALEC? and
- Is the work of a nature that it would not need to be performed again?

Based on the testimony of witness Caldwell, it appears that BellSouth's model treats one-time provisioning processes as a non-recurring cost.

Once costs have been appropriately categorized as non-recurring, there still remains the pricing decision of whether such costs should be recovered through non-recurring charges or recurring rates. As noted by BellSouth witness Varner, an ILEC would seek assurance of recovery of its non-recurring costs if they are included in recurring rates; the witness suggests this would be accomplished via a volume and term agreement or, more commonly, a termination liability provision. In principle, we would infer that an ILEC on balance would be indifferent to how its non-recurring costs are recovered, as long as it is ensured recovery.

B. <u>Barriers to Entry</u>

The FCC's Local Competition Order at paragraph 749 allows states to:

> require an incumbent LEC to recover [one-time costs] as a recurring charge over a reasonable period of time in lieu of a nonrecurring charge. This arrangement would decrease the size of the entrant's initial capital outlay, thereby reducing financial barriers to entry. At the same time, any such reasonable arrangement would ensure that incumbent LECs are fully compensated for their nonrecurring costs.

Sprint witness James Sichter testifies that "[t]o the extent that high non-recurring charges are a significant barrier to competitive entry, it may be appropriate to require at least a portion of those non-recurring charges through recurring rates."

Witness King testifies that "[n]on-recurring cost activities are those that only benefit the ALEC requesting the elements such as the Ordering and Provisioning process." He states that nonrecurring costs must adhere to TELRIC principles.

Data ALEC witness Murray points out that nonrecurring charges are, in effect, entrance fees because a new entrant must pay these fees before it can obtain the necessary UNEs to offer a service. Thus, she argues that a significant amount of capital is expended before the ALEC receives any revenues from customers. Witness Murray suggests that the FPSC may partially mitigate this situation through recovery of some of the non-recurring costs through recurring charges.

Witness Murray warns that "nonrecurring charges must not exceed the level necessary to compensate the incumbent for the nonrecurring costs that the new entrant truly caused the incumbent to bear." She states that the FPSC must eliminate any non-recurring "costs that are not truly efficient forward-looking costs." She argues that ILECs have an incentive to exaggerate the level of non-recurring costs.

AT&T/WorldCom witness King argues that the Commission must ensure that new entrants are not forced to pay for costs that they do not cause. As an example, he identifies charges for soft dial tone, a service which he argues involves no manual provisioning. He asserts that the non-recurring installation charges proposed by the ILECs for this service reflect the cost of physical reconnection, while no physical disconnection may ever take place. He contends that such a charge is a barrier to competition.

Witness King asserts that non-recurring charges are often based upon activities that the ILEC has performed in the past. He explains that these kinds of activities may be based on the existing network architecture, rather than what would exist in a forward-looking environment. He notes that non-recurring charges "must be based on the activities the ILEC should incur if it was operating in a forward-looking least cost most efficient manner." He argues that "[i]f this principle is maintained most of the concerns about excessive nonrecurring charges that may create a barrier to entry go away and any competitive based need to recover TELRIC nonrecurring costs through recurring rates is eliminated."

Witness Murray asserts that many of the non-recurring rates proposed by BellSouth are so high as to pose a barrier to entry. Of particular concern to the Data ALECs are charges associated with Digital Subscriber Line (DSL) technology. She complains that BellSouth's loop conditioning charges are "sufficiently high to constitute substantial entry barriers." Additionally, she contends that some of the basic ordering and provisioning charges associated with DSL-capable loops are an entry barrier.

Witness Murray argues that "non-recurring charges inherently create barriers to entry because they are sunk costs. The higher the nonrecurring charge, the greater the barrier to entry." She defines a sunk cost as "a cost that, once incurred, a firm cannot recover if it ceases business." She contends that such costs are not associated with an asset that can be resold. Thus, an entrant incurs a risk that it will not be able to recover its costs through its sales revenues. For example, if the ALEC loses its customer for which the UNEs were providing service, the ALEC cannot recover the non-recurring charges it paid to the LEC. Witness Murray notes that, in the same situation, the ALEC is no longer required to pay recurring charges to the LEC; thus, the risk to the ALEC is reduced. She also compares sunk costs to the provision of service through an ALEC's own facilities. In the latter instance, when a customer no longer takes the service, the ALEC still has an asset that can be reused or sold.

Witness Murray agrees that an ALEC can ensure recovery of non-recurring charges by imposing a like fee on its own customers. However, she argues that "[t]here are no nonrecurring costs or nonrecurring charges when an existing customer of an incumbent local exchange carrier chooses to stay with that incumbent." Thus, imposition of non-recurring charges on ALEC customers will make it difficult to lure customers away from the incumbent. Witness Murray opines that ALECs must minimize up-front charges, and try to recover the non-recurring charges associated with UNEs through their recurring rates instead. However, she argues that since ALECs may have to offer lower prices than the incumbents in order to win customers, it may be difficult to recover UNE non-recurring charges through ALECs' recurring charges to their own customers.

BellSouth witness Varner disagrees. He argues that "Ms. Murray presumes that end users are not charged non-recurring charges for the retail services they purchase." He also contends that properly structured nonrecurring rates translate into lower recurring rates. He cautions that the inclusion of non-recurring costs in recurring rates could cause the recurring rates to be "inappropriately high." Instead of shifting non-recurring costs to recurring rates, witness Varner expresses willingness to negotiate optional payment plans for non-recurring charges with the ALECs.

Witness Varner continues that when an ALEC end user for which the ALEC is purchasing UNEs discontinues service there is no way for the ILEC to recover any non-recurring costs associated with that service. Thus, any costs that were not recovered through non-recurring charges or other means would simply remain unrecovered. Witness Varner asserts that witness Murray "wants ALEC's business risk transferred to BellSouth."

Witness Murray opines that "[i]f the incumbents are permitted to erect nonrecurring charges as a substantial barrier to entry, Florida consumers will be the ultimate losers." She claims that "[f]ewer firms will be able to enter the local exchange market, if any enter at all." She contends that, as a result, consumers will not receive the benefits that they should get from opening the market to competition. Witness Murray suggests that if the FPSC does approve high non-recurring charges for BellSouth, some portion of them should be recovered through recurring rates instead.

FCTA witness Barta states that "it is a common practice in the telecommunications industry to recover nonrecurring costs through recurring charges." He argues it may be more appropriate to recover some charges, such as construction charges to provide requested services to ALECs, in that manner as this would reduce the "immediate financial burden that would be imposed upon the requesting party." He suggests that such recovery might occur over the life of the asset or over the contractual period entered into by the incumbent and the CLEC. He was, however, unaware of any states that had adopted such an approach. He agrees that this position may shift the burden of recovery to the ILEC if the competitor discontinues service if there is no provision for the ILEC to receive early termination charges. He argues that a requesting party should provide full recovery for a facility only where that facility "will be solely used for the requesting party and the incumbent carrier would not be able to reuse those facilities in another capacity or for another party."

In addressing barriers to entry, it is important to distinguish between the FCC's discussion of barriers to entry, and the unreasonable barriers as discussed by the ALECs. The FCC's Local Competition Order appears to consider extremely high up-front costs to be a barrier that may be mitigated through payments over time. The ALECs go beyond that in their discussion. They argue that many of the non-recurring rates requested by BellSouth are not actually based on costs or on the activities that BellSouth must engage in to meet their requests for service.

The FCC's Local Competition Order also allows a state commission "to permit incumbent LECs to charge initial entrants a proportionate fraction of the costs incurred, based on a reasonable estimate of the total demand by entrants for the particular interconnection service or unbundled rate elements." Additionally, a state commission may require ILECs to recover nonrecurring costs through recurring charges over a reasonable period of time.

In addressing the matter of charges not based on true costs or activities, witness King stated that "[m]odeling costs that reflect the elimination of [inappropriate] proposals not only minimizes the initial barriers to entry, but also closely links cost recovery with the manner in which the costs are actually incurred." However, he asserts that if the Commission does determine that a non-recurring charge poses a barrier to entry, it may be dealt with in one of two ways: 1) through the use of a term payment or installment plan; or 2) by including the cost in recurring UNE charges. He did not suggest a payback period for an installment payment plan. He also was unable to identify specific non-recurring charges in this docket that were based upon costs incurred in the past.

We agree that we should ensure that costs to be recovered are truly forward-looking, efficient costs and should be assessed through examination of the model and its inputs. What comprises forward looking efficient costs is the subject of many of the issues in this docket.

Part of the preceding discussion implicitly centers on who should bear the risk that non-recurring costs will not be fully recovered by the LEC. When an ALEC pays the costs up front, then subsequently discontinues a service because a customer has been lost, the ALEC suffers financial loss. On the other hand, if the costs are not fully recovered by the LEC, it is the LEC who suffers financial harm. Upon consideration, we believe that the party who benefits from the service should bear the risk. Such risk is an inherent part of doing business. However, that risk should be limited to the amount of costs that truly benefit the party at risk. If a LEC would not have the cost but for an ALEC's request for service, it is the ALEC who should bear the risk. As with the rest of this issue, by limiting non-recurring costs to those that benefit only the requesting party, we conclude that the financial risk will be borne by the appropriate party.

Barriers to entry that arise, not from misallocation of costs, but from high costs actually associated with the ALEC's request for service, may be dealt with through payment plans or similar mechanisms as suggested by the FCC. However, no party recommended a specific time period over which payments should be made. Moreover, although ALEC witnesses asserted that certain proposed charges constitute a barrier to entry, no guidelines, criteria or explanations were provided as to *why* they were a barrier. Accordingly, whether the magnitude of a given non-recurring charge erects a barrier to entry presumably can only be determined on a case-by-case basis. The issue of the term over which payments for non-recurring charges should be made may be best left to negotiations between the parties, so that they may select a payment plan that best fits individual needs.

Decision

In accordance with FCC rules, we may set recurring rates that recover a portion of non-recurring costs through recurring charges. Where non-recurring costs are included in recurring rates, an ILEC should be indifferent where safeguards exist that ensure full cost recovery. Inclusion of non-recurring costs in recurring rates should be considered where the resulting level of nonrecurring charges would constitute a barrier to entry. However, the record in this proceeding does not contain criteria from which to determine when non-recurring rates in fact amount to a barrier to entry.

IX. ASSUMPTIONS AND INPUTS USED TO DEVELOP RECURRING COSTS

A. Network design (including customer location assumptions)

BellSouth witness Caldwell observes that five economic principles underlie either a Total Service Long Run Incremental Cost Study (TSLRIC) plus shared and common costs, or a Total Element Long Run Incremental Cost (TELRIC) study:

(1) Efficient network configuration - the cost should be based on the use of the most current

telecommunications technology presently available and the economically efficient configuration, given the existing wire center locations.

(2) Long run - the studies should consider a time frame long enough to reflect the variability of the cost components.

(3) Volume sensitive and volume insensitive costs are considered - these are the costs that will be avoided by discontinuing, or incurred by offering, an entire product or service, holding all other products or services offered by the firm constant. A corollary to this directive is the principle of cost causation, i.e., the costs included in the study are those that are caused because BellSouth offers an unbundled element or a combination of network elements.

(4) Forward-looking - both methodologies demand a forward-looking perspective. Thus, embedded costs are excluded from consideration.

(5) Shared and common costs - a reasonable allocation of shared and common costs are [sic] allowed.

Witness Caldwell testifies that BellSouth believes that these principles should be incorporated in any study to determine the cost of UNEs or UNE combinations. However, she acknowledges that how best to implement these principles is routinely in dispute. Most importantly, the witness asserts that the key issue reduces to, "What constitutes 'forward-looking'"? She opines that opposing parties often advocate that TELRIC cost studies should reflect network architectures, provisioning procedures, and expense reductions that do not currently exist and are not anticipated to be achievable in the near future. Instead, witness Caldwell contends that the proper standard is contained in ¶ 685 of the FCC's First Report and Order in CC Docket No. 96-98 (FCC 96-325), where it is stated that the "benchmark of forward-looking cost and existing network design most closely represents the incremental costs incumbents actually expect to incur in making network elements available to new entrants."

In summary BellSouth witness Caldwell states that the over-arching approach employed by BellSouth in this proceeding

> . . . reflects the costs that BellSouth expects to incur in providing unbundled network elements to competitors on a going-forward basis in the state of Florida. These costs are based on an efficient network, designed to incorporate currently available forward-looking technology, but recognize BellSouth's provisioning practices and network guidelines, as well. Additionally, shared and common costs were considered. . . .

Witness Caldwell notes that BellSouth's costing methodology for UNE combinations is the same as for discrete UNEs, but states that cost study inputs and modeling assumptions may differ between the two categories of UNEs. For example, she mentions that BellSouth assumed in its study for a loop/port UNE combination that integrated digital loop carrier (DLC) would be deployed. However, she testifies that integrated DLC is not assumed in BellSouth's UNE loop studies because ". . . integration is not an option since each element is unbundled and provided separately."

Several BellSouth witnesses sponsored cost models that were used to develop the recurring and nonrecurring costs of UNEs and UNE combinations. However, the emphasis in this portion of the Order issue will be on BellSouth's new loop model, the BSTLM. More detailed discussion of other models will occur in subsequent portions of the Order.

1. BSTLM

In this proceeding BellSouth has introduced a new model, the BellSouth Telecommunications Loop Model© (BSTLM), which is used to derive the costs for unbundled loop elements and service-specific loops. Although the BSTLM© is capable of developing costs for high capacity loops and local channels, BellSouth opted to use this model to yield the costs for loops only up to a DS1 transmission rate; the costs for DS3 and above loops were developed outside of the BSTLM© using spreadsheets.

In previous filings BellSouth's loop studies were based on a loop sample, whereby detailed characteristics of a sample of loops drawn from the company's service territory were determined and the forward-looking cost of this sample calculated. BellSouth witness Caldwell notes that there were certain limitations with this approach -- most importantly, that ". . . the original sample was statistically valid only for the services tested, i.e., only for single line residential and single line business loops and only on a statewide average basis. Any attempt to stratify the sample into geographic areas for geographic deaveraging could not be statistically supported." In addition, conducting loop sampling was extremely labor-intensive and time-consuming.

BellSouth witness Stegeman testifies that BellSouth realized that it would need to develop revised loop costs in time for the next round of proceedings where UNE loop rates would be established, and concluded that three options were available. First, studies using the prior sampling approach could be used; second, one of the cost proxy models that was then publicly available could be modified; or third, a new "best of breed" model could be developed. Witness Stegeman agrees with witness Caldwell that the sampling approach has too many limitations, and thus it was not pursued.

Regarding the second option, during 1998-1999 various cost proxy models were available, including the HAI, BCPM, and the HCPM. Each of these models had been developed primarily for estimating the cost of an efficient carrier providing universal service, not generally for estimating the cost of various UNEs. After evaluating each of these models, BellSouth concluded that to satisfy all of its requirements, the cost and time of modifying an existing model could exceed that of starting from scratch. Accordingly, witness Stegeman testifies that it was decided to develop a new model that incorporated the best features of the various universal service models and had the following characteristics:

- The results accurately reflect BellSouth's engineering practices;
- It incorporates all of BellSouth's geocoded customer and network data;
- It provides results for most required services and UNEs;
- It does not rely on sampling techniques;
- The results can support geographic de-averaging of costs;
- Would provide an easy-to-use interface.

BellSouth witness Stegeman states that there were several demanding design characteristics required of the new model:

- The model must improve upon the routing techniques used in the current models. Use road data to provide a more accurate portrayal of cable routing.
- All loop services and UNEs must be incorporated into the model. In so doing, the model must account for the specific engineering constraints of these services and the dispersion of these services.
- It must incorporate BellSouth's geocoded data, including:
    - All customer points
    - Wire center locations
    - Wire center boundaries
- It must correctly model the provisioning of Special Services. This would include 2-wire, 4-wire and, DS1 loops and subloops.

- The user must be able to control and evaluate all inputs.

- The model must be easy to run, have basic window features, built using common programming tools, open to review, and flexible to meet the demanding and diverse needs.

- The model must reflect the diversity of services and UNEs offered by BellSouth. It must not assume "a loop is a loop."

- It must incorporate BellSouth's engineering approaches.

- The model should perform most processing in the platform to avoid the "Data Black boxes" found in other models. This means that clustering should be a basic part of the model.

- It should use the best modeling approaches to all parts of the network.

- It should build the network to customers, rather than moving customers to the network that is built.

2. Overview of BSTLM©

The BSTLM consists of two primary modules: the GIS (Geographic Information System) Pre-processing module, and BSTLM's main module. The Pre-processing module is a data compilation step. According to the model documentation, as set forth in Hearing Exhibit 95,

> The module uses data obtained from multiple sources. In essence pre-processing prepares "raw" data for use by the main module and represents one of BSTLM's most significant

> data sources. Pre-processing develops the location data (customer location), road networks, wire center boundaries, network element locations, links the location data with attributes such as services records and delimits the data on a common basis -- wire center boundaries.

The record shows that the BSTLM main module is comprised of three processes. First, the GIS process clusters customers into serving areas, places specific network elements, and determines media routes. Second, the Network process consists of three sub-processes: Configuration, Investment and Summary. Third, the Reporting process allows a user to generate a large number of custom reports.

The record further shows that an important pre-processing step is the geocoding of customer-specific service addresses. Geocoding refers to a process whereby the spatial coordinates associated with an address are identified and thus can be located on a map. Since the customer addresses to be geocoded are taken from BellSouth's billing systems, each geocoded location is also associated with the actual services provided to that customer at that location.

3. Pre-processing

Geocoding starts with a customer address and the road segment that corresponds to the address. A particular road segment containing an address is part of a large group of road segments known as a road network. BellSouth used the road network for the entire state of Florida to geocode BellSouth's Florida customers. Not every address can be perfectly matched to a particular road segment, thus yielding an accurate geocode. However, varying degrees of accuracy are achievable with the geocoding software and data used by BellSouth. For use in the BSTLM, BellSouth chose to employ only addresses that had been successfully geocoded to the address level. Customer locations not geocoded to this high level of accuracy were instead surrogated. BellSouth witness Stegeman explains how the BSTLM surrogation is conducted:

> Customer locations are surrogated, that is placed along roadsides within Census Blocks containing a deficient number of households or firms. A deficiency in the number of households is determined by comparing the number of households reported by the Census to be within a Census Block, to the number of BellSouth customers successfully geocoded (as described above) to road segments within that Census Block. This same approach is used to identify business location deficiencies using PNR firm counts.

Witness Stegeman notes that unlike other cost proxy models, since the BSTLM surrogates actual BellSouth customers, ". . .the exact services associated with a customer are retained no matter where the location is surrogated." The witness testifies that an overall geocode success rate of 91% was achieved in BellSouth's Florida territory.

After preprocessing has been completed, the data required by the GIS processes of the BSTLM main module have been generated for each wire center in the state. This data includes:

- Road segments;
- Any additional minimal segments required to form a complete graph;
- The adjacency relationships of the intersections and segments;
- The customer service points locations, with their road and switch relationships; and
- The services delivered to these customer service points.

In addition, on a statewide basis, a table of wire centers and their switches are produced, as required by the GIS processes of the main application.

4. GIS Module

The GIS module models each wire center's network, including determining the network components needed to serve customers and constructing cable routes to connect these components to the switch. The GIS process groups service points into allocation areas (AAs) or Carrier Serving Areas (CSAs) and designs the distribution and feeder facilities. This process uses a Minimum Spanning Road Tree (MSRT) both to cluster service locations and to determine cable routing. "The MSRT is analogous to the classic Minimum Spanning Tree (MST) with the exception that points are connected using only road paths. Points are optimally connected to one another using the *overall shortest-length* set of road paths." [Emphasis in original]

According to BellSouth witness Stegeman, five steps occur in this module to model the network for a wire center. However, locations are first identified whose service requirements warrant placement of an on-site digital loop carrier (DLC), such as large office buildings or apartment buildings. These locations are excluded from the first four steps, which pertain to the placement of distribution or building terminals (DT/BTs) and the clustering of DT/BTs. These steps are:

1. DT/BT placement: Customer locations requiring a BT are identified and assigned a BT. All other customer locations are assigned to DTs using an algorithm that optimally places the DTs along roads. In the following steps, these DTs (and BTs) are the units for clustering. That is, when a DT is clustered, all of that DT's customers are implicitly clustered. . . .

2. Allocation Area (AA) Clustering - DT/BTs that are within a user-defined distance of the switch - typically 12,000 ft - are clustered into AAs. The

module measures the distance between entities of the network along roads. Therefore, the DT/BTs must be close enough to the switch, as measured along the roads, to fall into an AA. The module constructs the Minimum Spanning Road Tree (MSRT) for all candidate DT/BTs, then splits the tree into AAs. The MSRT is an optimized tree that connects the DT/BTs using paths that follow roads. The original MSRT is preserved and defines the distribution cable paths for the AAs. . . .

3. Carrier Serving Area (CSA) Clustering and Digital Loop Carrier (DLC) Placement: All remaining DT/BTs (i.e., those too remote to be clustered into AAs) are clustered into CSAs. The module constructs the MSRT for all of these DT/BTs, then splits this MSRT into CSAs. A DLC is optimally placed for each CSA at the location closest to the switch that minimizes customers requiring thicker gauge distribution cable. The distribution cable paths for each CSA are defined by the original MSRT.

4. Feeder Distribution Interface (FDI) Placement: The module places one or more FDIs along the cable paths of each AA and CSA. The service demand and cable configuration of the AA/CSA dictate the number of FDIs that must be placed. . . .

5. Feeder Routing: Feeder is routed to the AAs by building a constrained MSRT. The constraint requires that the feeder route to the AA must not produce customer loops longer than the design limit for copper. Next, the module constructs feeder routes to the DLCs in the CSAs. The wire center is divided into quadrants (N,S,E, and W) and a separate MSRT for the DLCs of each quadrant is built. This produces up to four distinct trunks of feeder cable emanating from the switch. . . .

Completing these five steps results in defining the engineering layout of the network. Next, the GIS process takes each network element's location (its longitude and latitude), looks up the terrain characteristics of each such location, and appends the terrain data to each network element's location.

Finally, line density is calculated and assigned to each network node.

> Density is calculated at the Distribution Area (DA) level. A convex hull is calculated for each DA. Density is defined as the number of working lines per square mile of the convex hull area. All network nodes within a DA (e.g. FDI, DT) are assigned the DA's line density. The density of a Carrier Serving Area (CSA) is the total line count for the CSA divided by the sum of the areas of the DAs within the CSA. The DLC-RT is assigned the CSA density. Finally, the density of a wire center is the total line count for the wire center divided by the sum of the areas of all of the DAs in the wire center.

The last step is to prepare output files that are used in the subsequent submodules of the model. First, customers are associated with either a DT, a BT, or an on-site DLC; this information is combined with each customer's associated services and saved as an output. Second, "[t]he network components are related to one another using a parent chain that defines the distribution and feeder cable routes. This association along with the DT/BTs of a CSA, the route-length to the DLC, as well as the route-length to the central office (CO) is saved as the second output of the module."

Once the GIS process is completed, the Configuration process refines the network created by the GIS process, by sizing the feeder and distribution cables by demand and placing required electronic equipment. This is accomplished by examining each network component by span and sizing it based on engineering algorithms and user inputs. Each record in each wire center network produced by the GIS process is examined and the following steps performed:

- Identify service points requiring extended range provisioning from a DLC. These customers are identified with an "X" after their service code.

- Determine the density zone and density group of each record. This is done as a look up from the GIS data to the user adjustable density table.

- Determine the direct and cumulative cable counts to all network components. Each network component (Network Interface Device, DT/BT, FDI, etc.) is sized using the pair and single channel (DS0) equivalents demanded upon that component. Network routes (copper and fiber sizing) are determined using the cumulative count of pair and DS0 equivalents.

- Determine the cable type on the route, fiber or copper.

- Determine the cable gauge based upon the longest loop in each distribution area and the value of the CSA24/26GaugeXover or AA24/26GaugeXover.

- Determine the plant mix. This determination is made based upon the user adjustable rules presented in the plant mix table and characteristics of each examined component.

- Determine the appropriate size for cable and network components. Types, as well as sizes, for DLC, FDI, DT/BT, and Network Interface Devices are also determined.

- Determine feeder rings, gather DLC-RT locations and place them on feeder rings.

The next stage, the Investment process, determines the material and other capital-related costs of the loop network constructed in the Configuration process. Using data on the size, type, length and other factors about network components, the investment logic looks up the associated user-provided unit material costs. For fiber and copper costs, the input is multiplied by the length of the medium, while for DTs and BTs the material cost is identified based on the required size.

In contrast, the cost determination for DLCs and SONET is more dynamic. Most cost proxy models contain DLC system costs for only a few standardized sizes, and allow for a single kind of per channel plug-in. The BSTLM, however, sizes DLC equipment at each site based upon the services that exist at that site, and provides for plug-in line cards specific to the services provisioned from a given DLC. The last step in the Investment process is the derivation of per unit costs, which is accomplished by dividing the total costs by working service counts.

In the Summary process, three actions are performed. First, the Configuration and Investment files are linked. Second, data is aggregated. The BSTLM retains the network configuration and investment, by segment, of each network component and customer when aggregating costs; however, the segment level data is not available for reporting. Third, the material investments specific to each service or UNE are determined at this stage.

Finally, the Reporting process consists of a report generator that allows a user flexibility through the use of a Reporting Service (Rservice) definition. An Rservice consists of a user-specified combination of network elements; for example, a user can create a unique Rservice that consists of just the network components between the customer premises and the cross box. The Reporting process also allows the user to specify types of loops to analyze, including by customer type, by distance from the switch or the DLC, or by particular type of local loop or local channel.

When BellSouth made its updated filing on August 16, 2000, several changes were made to the BSTLM to correct some errors that had been detected since the original filing, and to add some enhancements to the model. For example, a correction was made to the GIS Pre-processing to exclude certain kinds of roads that customers do not live next to and cable routing does not follow (e.g., highway access ramps). As another example, in the Investment stage corrections were made to the logic for calculating building cable; in the prior version of the model, when the value that sizes an on-site feeder distribution interface exceeded the largest size FDI, the model erroneously installed no FDIs. Various other corrections were made. According to BellSouth witness Stegeman, the enhancements to the model, several of which were suggested by AT&T, included such things as the addition of a feature to track user-initiated input changes, the ability to create new scenarios starting with an existing scenario, the ability to route drops either from lot corners or via rectilinear routing, and enhanced the Summary process which reduced memory requirements, and processing and reporting time.

According to BellSouth witness Caldwell, BellSouth produced three different scenarios using the BSTLM: BST2000, Combo, and Copper. The BST2000 scenario ". . . assumed that all switched services were converted to non-switched unbundled network elements." Unlike the BST2000 scenario, which assumed the deployment of universal digital loop carrier, the Combo scenario was used for loop/port combinations and assumes the use of integrated digital loop carrier. "The Copper scenario was used to develop costs for those loops served on copper only. In this run, the copper to fiber crossover point was changed from the standard 12 kilofeet (Kft.) to 1,000,000 feet. This extreme input ensures that all loops are served by copper."

5. AT&T/WorldCom Criticisms

AT&T and WorldCom sponsored the joint testimony of witnesses Donovan and Pitkin (hereafter, Donovan/Pitkin), whose testimony focused on the BSTLM. In their testimony, the witnesses discussed what they perceived as advantages and disadvantages of the BSTLM, and critiqued various inputs and techniques employed by BellSouth which they believe result in significant misstatements of cost.

Witnesses Donovan/Pitkin note that the BSTLM's primary advantage is that ". . .the model attempts to estimate the forward-looking costs of providing unbundled network elements using current technology." They also identify as a plus that the model has incorporated certain advanced modeling techniques used in other recent cost models. Further, they assert with qualified favor that ". . . the BSTLM relies upon extensive databases, such as road databases and actual BellSouth customer databases, that could result in more realistic estimations of the outside plant required to provide telecommunications services."

a. Slow Processing; Program Password Protected; Unable to Create Maps

However, the witnesses observe that the BSTLM takes a long time to run, and it contains extremely complex programming totaling some 30,000 lines of code. They assert that the version of the complete program provided to them by BellSouth was password protected and thus impeded their ability to fully evaluate all processes within the model. Witnesses Donovan/Pitkin also contend that BellSouth refused to provide them with certain information that they needed to perform analyses on the BSTLM that had been conducted by BellSouth. Specifically, BellSouth witness Stegeman's testimony, the witnesses state, contains certain maps that reflect the network architecture constructed by the BSTLM; they allege that BellSouth would not give them access to certain files generated by the model from which these maps were created. Their overall review of the BSTLM has been hampered by not having access to the underlying source code and the data used to produce network maps and, as a result, they asserted that they were unable to conduct sensitivity runs whereby the BSTLM's actual formula were modified, or to view the network constructed by the model. Witnesses Donovan/Pitkin acknowledge that, given enough time, they probably would have been able to overcome these limitations; however, since it takes 18 to 24 days to replicate BellSouth's filing, they chose to restrict their efforts.

Notwithstanding caveats related to certain portions of the BSTLM that they had not been able to review and audit, witnesses

Donovan/Pitkin concluded that the material quantities estimated by the BellSouth loop model are reasonable:

> Because the BSTLM is a bottoms-up model, it tries to estimate the equipment quantities necessary to construct the local telephone network based on a series of assumptions and inputs. The reliability of both the underlying assumptions and inputs directly affect the reliability of the BSTLM's outputs. In this proceeding, BellSouth has used its actual customer service addresses and the actual road network in BellSouth service territories as inputs to the model. With a few exceptions, we conclude that the underlying way in which the BSTLM constructs the local telephone network is reasonable. Therefore, the BSTLM itself can be used to construct a local telephone network.

Although they generally endorse the use of the BSTLM in this proceeding, the witnesses do dispute certain modeling techniques employed, inputs, and applications of the model.

b. Three Scenarios v. One Scenario

The AT&T/WorldCom witnesses contend that BellSouth improperly submitted three different BSTLM scenarios in this docket: the BST 2000 run, the Combo run, and the Copper Only run. Instead, they argue that the ". . . the BSTLM should construct a single network that estimates the forward-looking costs of providing the underlying services using existing technology. The only scenario that BellSouth filed that is consistent with these principles is the scenario called 'Combo.'" Although other parties also agree that a single network should be modeled, their testimony on this point was focused on xDSL capable loops and thus is addressed in Section V of this Order. As is discussed at length in Section V, witnesses for the Data CLECs also argue that a single network should be modeled.

Witnesses Donovan/Pitkin state that the BST 2000, which assumes the deployment of universal DLC, is inappropriate because it assumes that there will be an unnecessary conversion from digital to analog at the central office (CO). They contend that this conversion to analog at the CO is clearly not required when the BellSouth loop is terminated at the BellSouth switch, and neither is it required when a loop is purchased on a stand-alone basis. The witnesses assert that this extra digital to analog conversion is inefficient, and would hinder an ALEC's ability to compete with the ILEC on price or quality. They assert that Next Generation Digital Loop Carrier systems (NGDLC) can support multiple switches:

> This allows new entrants to use integrated loops with either BellSouth's local switch or their own switch, in either case without analog conversion. The number of switches that an IDLC can support with a GR-303 interface varies by vendor. For example, Litespan 2000 can support four and the NORTEL AccessNode supports five, and DISC*S supports three.

Witnesses Donovan/Pitkin conclude that the ". . . 'BST 2000' scenario is wasteful of equipment and technology because every single line is unnecessarily converted back to a copper pair circuit in the central office. Therefore, the 'Combo' scenario should be used instead of the 'BST2000' scenario."

Witnesses Donovan/Pitkin testify that the Copper Only scenario should be rejected for two reasons. First, assuming a network consisting of 100% copper loops is impractical ". . .because of engineering restrictions on the length of a copper loop to support full POTS functionality that includes voice and simple analog dial-up modem service." Second, BellSouth's own outside plant deployment guidelines specify the use of both fiber and copper facilities. The witnesses assert that BellSouth's Copper Only run serves only to inflate the average cost of a copper loop. Accordingly, the Combo run, which incorporates a single network design, should be used for all loops.

c. Outside Plant Loop Design Engineering

Witnesses Donovan/Pitkin also disagree with BellSouth's choice of inputs that determine outside plant loop design. They observe that there are five variables used to design carrier serving areas (CSAs) and allocation areas (Aas):

1. Soft copper limits
2. Hard copper limits
3. Line limits between the soft and hard limits
4. 24-to-26 gauge crossover lengths
5. Extended range line card limits

The witnesses testify that the appropriate choice of values to be used in the BSTLM for these variables should be that which yields the least-cost design. They state that in their opinion there are two options that could be used.

> The first option would require limiting the maximum copper loop length to 17,600 feet. In this scenario, the copper distribution plant would use 24-gauge copper cable for loop lengths over 13,000 feet and would never require extended range line cards. The 17,600 foot maximum length comports with Alcatel Litespan 2000 DLC practices.
>
> . . .
>
> The second option would require reducing the maximum copper loop length from 17,600 feet to 16,800 feet. In this scenario, the DLC equipment would use extended range line cards for loop lengths over 13,000 feet and would never require 24-gauge copper cable. Extended range line cards can be powered to overcome the thinner 26-gauge wire for long lengths normally requiring 24-gauge copper.

In implementing these two options, witnesses Donovan/Pitkin also adjusted the soft copper loop length to equal the hard copper length limit, and modified the number of lines between the soft loop length and the hard loop length so that it equals the maximum number of lines in an AA or CSA. The witnesses conducted sensitivity runs incorporating the assumptions in each of these two options; these runs indicated that Option 2 ". . .(using extended range line cards above 13,000 feet with a maximum loop length of 16,800 feet on 26-gauge copper cable, with no 24-gauge copper cable) is the most economical choice."

d. Allocation of Shared Investments

Witnesses Donovan/Pitkin note that the BSTLM assigns specific services to unique customer locations, and categorizes customers according to one of 44 types of services. For any given service, it may have service-specific investments (e.g., a particular type of line card), and also use shared investments (e.g., digital loop carrier common equipment, fiber feeder cable). In the BSTLM it is necessary to allocate shared investments to individual services; the model allocates investment in shared equipment based on DS0 equivalents. Thus, because of its greater bandwidth, a HDSL loop will be allocated more shared investment than a simple POTS loop. The witnesses assert that

> Such an allocation arbitrarily shifts investment away from the POTS loop to the higher-bandwidth services, making advanced services excessively expensive for a CLEC to purchase as a UNE. This approach is particularly arbitrary because the DS0 capacity of a service has little relevance to the costs of DLC shared equipment or fiber feeder associated with a particular service.

Witnesses Donovan/Pitkin acknowledge that any allocation of shared investments is inherently arbitrary. However, they argue that the allocation method used in the BSTLM has decided competitive impacts, but they see no particular advantage in the approach. Instead, the witnesses contend that a more reasonable approach would be to allocate shared investments based on the equivalent number of copper pairs required for a given service. They state, "Using that method, a two-pair copper loop, such as HDSL, would be allocated twice the shared investment of a single copper pair -- regardless of the services being carried over the copper pair. Another way to view this issue is that a 'loop is a loop.'"

Witnesses Donovan/Pitkin admit that their approach may understate DLC investments because the BSTLM uses DS0 equivalents both to allocate shared investments and to size DLC equipment. Using per copper pair equivalents instead of DS0 equivalents likely results in undersizing the DLC optical equipment. They note that they were unable to modify the BSTLM algorithms to overcome this problem, and instead made their recommended adjustment by altering the user-adjustable inputs.

e. Cable Routing Within a CSA

The AT&T/WorldCom witnesses also assert that the BSTLM may not employ the most efficient network routing within a carrier serving area and thus may overstate investment. Witnesses Donovan/Pitkin describe the problem they perceive:

> The BSTLM methodology originates the minimum spanning road tree "MSRT" from the "root node," which is the road intersection closest to the central office. The MSRT then branches out in multiple directions to create the MSRT for the wire center. . . .
>
> However, the BSTLM fails to deploy this same methodology when branching out from DLC locations. Instead, it relies on the same MSRT used in developing the feeder network. In other words, the BSTLM does not reconstruct the MSRT based on DLC locations and may therefore artificially restrict the number of customers that can be served by a single DLC. This may occur because the MSRT will not split

> a route the same way that the MSRT will split at the central office.

According to witnesses Donovan/Pitkin, by not allowing the MSRT to split after a DLC to allow for more direct routing, loop lengths may be increased. There are two consequences due to this routing. First, some customers served by a DLC may trigger the installation of more expensive 24-gauge cable or the use of extended range line cards. Second, it is conceivable that the BSTLM approach may construct too many DLC sites, by not including the maximum number of customers that could be served by a given DLC, due to less direct routing. However, the witnesses state they were unable to correct this problem because they did not have access to the BSTLM source code.

f. Drop Routing

The BSTLM's drop calculations assume rectilinear routing from a drop terminal to a customer's network interface device (NID). According to witnesses Donovan/Pitkin, however:

> . . . drop terminals typically run from the corner of the lot to the NID located on the customer's house. By assuming the drop terminal will extend to the center of the front of the lot and then run perpendicular to the front of the customer's house, the BSTLM consistently overstates this distance.

The witnesses assert that the BSTLM should be modified to allow for drop routing from the corner of a lot.

2. BellSouth Rebuttal

a. Three Scenarios v. One Scenario

In her rebuttal testimony, BellSouth witness Caldwell responded to the claim by AT&T/WorldCom witnesses Donovan/Pitkin that only a single BSTLM scenario, the Combos run, is needed. She testifies that the BST2000 scenario is used to develop costs for all of the non-copper only, non-UNE combinations UNEs, and that this scenario ". . . reflects the fact that all UNE loops (other than those combined with a port in the Combo scenario) served via a fiber feeder based digital loop carrier ("DLC") system must operate on a non-integrated basis since these unbundled loops are not terminated directly into the BellSouth switch."

Witness Caldwell states that the Copper Only run is necessary in order to derive costs for non-loaded copper facilities. In the BST2000 and Combo scenarios, she states that the maximum copper loop length is limited to approximately 12 Kft. Since ALECs desire to obtain access to copper loops of unlimited length, it was necessary to modify a BSTLM design parameter to allow for loops provisioned 100% on copper feeder and distribution cable.

Finally, witness Caldwell contends that the Combo scenario is used only for 2-wire analog voice grade and 2-wire ISDN loops used in conjunction with a port. These loop/port combinations can be provisioned via integrated DLC and the Combo run reflects this fact.

The witness argues that a single scenario would lead to under-recovery for BellSouth because not all uses of a loop are reflected in a single scenario. She describes why multiple scenarios are needed to reflect the costs of multiple uses of UNE loops.

> For example, assume a customer is located 15,000 feet from the central office. If the Combo scenario was used exclusively, this customer would never be considered for an unbundled copper loop since in the Combo run all loops over 12,000 feet are served via DLC or fiber. Also, if this loop was used to provide a stand-alone loop that connects to an ALEC switch, the cost is understated. Before a voice grade circuit can go to an ALEC switch, this loop must be removed from the DLC digital DS1, converted to voice grade, and terminated on the main distribution frame

> ("MDF"). The costs for this conversion and the MDF termination are not included in the Combo run. Multiple scenarios are the only way to ensure that all costs of the various UNEs are identified.

Witness Caldwell also provides two reasons why copper only loops should not be derived from the Combo run. First, this scenario assumes fiber-fed DLC systems that are integrated into the CO switch. This is an inappropriate assumption for a copper-only loop because they do not terminate in BellSouth's switches. Second, the Combo scenario restricts the maximum copper loop length to about 12,000 feet. Using the average cost of copper-only loops less than or equal to 12,000 as the basis for a price for loops of all lengths would be unreasonable.

In his rebuttal testimony filed on August 21, 2000, BellSouth witness Milner counters witnesses Donovan/Pitkin's assertion that the single network architecture using integrated DLC (IDLC) reflected in the Combo scenario should be accepted. Witness Milner asserts that it is not technically feasible for BellSouth to provide a stand-alone unbundled loop using IDLC at less than a DS1 level; thus, it is necessary to model universal digital loop carrier (UDLC) to determine the cost of a single unbundled DS0 loop.

Witness Milner testifies that having a GR-303 compliant IDLC system would allow BellSouth to provide IDLC functionality, but still at the DS1 level. He explains:

> The ALEC could choose to acquire a single unbundled loop from a given IDLC remote terminal and that single unbundled loop would require BellSouth to establish an entire DS-1 for transport. Thus, when we are talking about a single unbundled loop at the DS-0 level, Mr. Pitkin's and Mr. Donovan's solution to use GR-303 compliant IDLC is no solution at all. . . . As Mr. Pitkin and Mr. Donovan acknowledge, existing GR-303 compliant ILDC

> systems can only be integrated with a very limited number of different switches. Since these IDLC systems must be used in conjunction with BellSouth's systems, only one or two ALECs could even stand to benefit from the arrangement they propose.

b. Outside Plant Loop Design Engineering

In her rebuttal testimony, BellSouth witness Caldwell noted that there were two flaws in AT&T/WorldCom witnesses Donovan/Pitkin's cost minimization proposal. First, this proposal is not consistent with BellSouth's engineering principles. Second, in BellSouth's original cost filing, used by witnesses Donovan/Pitkin to arrive at their proposal, BellSouth had erroneously set the price of extended range line cards equal to those of standard line cards; this error was corrected in BellSouth's revised August 16, 2000 filing. Because of BellSouth's error, witnesses Donovan/Pitkin's analysis is invalid.

c. Allocation of Shared Investments

BellSouth witness Caldwell disagrees with AT&T/WorldCom witnesses Donovan/Pitkin's position that shared investments should be allocated based on pair equivalents rather than DS0 equivalents. She contends that an allocation based on DS0 equivalents is a reasonable methodology and she notes that in many instances, ". . .the equipment is actually sized based on DS0 equivalents." The witness also notes that the BSTLM uses DS0 equivalents both to size equipment and to allocate shared costs. Since witnesses Donovan/Pitkin's proposed adjustments undersize certain equipment components, witness Caldwell believes this alone is adequate grounds for rejecting such a proposal. Moreover, she also states that allocating DLC common costs and fiber costs on DS0 equivalents is commonplace.

BellSouth witness Stegeman also testifies in his rebuttal testimony that he believes that "The DS0 approach to apportioning the Fiber and portions of the DLC is reasonable and no more "arbitrary" than the use of Service counts or copper pair counts." He observes that the AT&T/WorldCom witnesses appear to agree that DS0 capacity is a valid basis to size DLC systems, which seems to imply that there is a causal nexus between DS0s and required DLC equipment. As such, the witness concludes "Such cost causality indicates merit to apportioning costs by DS0s."

Witness Stegeman considers witnesses Donovan/Pitkin's alternative approach unacceptable, especially since it underbuilds the network. To estimate the magnitude of the underbuilding, the witness conducted two runs of the BST2000 scenario: one using the August 16, 2000 version of BSTLM; one using witnesses Donovan/Pitkin's proposed DS0 equivalent surrogates from their Exhibit JCD/BFP 10 (EXH 125). Witness Stegeman states that a comparison of the two model runs shows the Donovan/Pitkin approach underbuilds the network by 3%. He also notes less than 1% of the services about which the AT&T/WorldCom witnesses had concerns are provisioned out of fiber-fed DLC systems. He concludes that a 3% underbuilding is not warranted for 1% of the services that use such DLC systems.

d. Slow Processing; Program Password Protected; Unable to Create Maps

In his rebuttal testimony BellSouth witness Stegeman states that BellSouth has addressed concerns raised by AT&T/WorldCom witnesses Donovan/Pitkin concerning certain cumbersome aspects of the BSTLM. He notes that the latest version of the model has decreased the processing time while enhancing the granularity and accuracy of reported information. The witness identifies five improvements in this area: (1) the summary process has been modified so that the state of Florida can be processed in one run; (2) processing time has been reduced where a Florida run can be done in less than 24 hours; (3) generating reports from BSTLM now takes a fraction of the time compared to the prior version; (4) the process wizard now allows the user to set up all processing, report specification and CostCalculator files in one step; (5) programming changes were made to minimize likelihood of a system crash noted on some machines.

Witness Stegeman testified that BellSouth has provided to AT&T/WorldCom the MapInfo tables that were used to generate the charts contained in his direct testimony. He asserts that these files will enable witnesses Donovan/Pitkin to replicate his maps, and also view the results of BSTLM for the entire wire center. The witness also notes that BSTLM has a "Tree" viewing function, which allows a user to graphically depict the modeled network.

e. Drop Routing

BellSouth witness Stegeman states that

> In the new version of BSTLM, the user is now able to select the method used to route the drop. By selecting the appropriate value for the input, the drop is either run rectilinearly or at an angle from the corner of the lot. BellSouth chose to use the angled drop approach in the August 16th, 2000 filing.

The witness asserts that the change in drop costs is less than the 21.7% computed by AT&T/WorldCom witnesses Donovan/Pitkin. He observes that the Donovan/Pitkin analysis is based on a distribution terminal being placed at the corner of a lot. Witness Stegeman contends that "In this situation, the angled drop change compared to the rectilinear distance will result in the highest percentage change compared to any other DTBT placements that may actually occur in the model." Since not all DTBT placements are at lot corners, the impact is less than estimated by the AT&T/WorldCom witnesses.

f. Cable Routing Within a CSA

In his rebuttal testimony BellSouth witness Stegeman responds to the claims of AT&T/WorldCom witnesses Donovan/Pitkin that the BSTLM may overstate the required amount of network facilities, due to what they characterize as circuitous routing. Witness Stegeman states that he believes that this impression may have resulted from unclear model documentation. He testifies that the model documentation has been rewritten and he now believes it will resolve witnesses Donovan/Pitkin's concerns. He concludes that ". . ., the BSTLM's route distance is the minimum realistic route distance needed to connect the distribution terminals within a CSA."

3. AT&T/WorldCom Supplemental Rebuttal Testimony

In their supplemental rebuttal testimony, witnesses Donovan/Pitkin testify that at a meeting with BellSouth representatives on July 7, 2000, witness Pitkin raised five cost-related issues involving the BSTLM: (1) drop lengths; (2) MSRT routing from the DLC; (3) land and building factors; (4) DLC and SONET vendor mix; and (5) allocation of shared facilities. The AT&T/WorldCom witnesses assert that BellSouth's revised cost studies only attempted to implement one of these five items, and ". . .we do not believe that change was implemented correctly." To the contrary, witnesses Donovan/Pitkin allege that

> The vast majority of BellSouth's revisions are a blatant attempt to slip in last-minute modifications in this proceeding. In fact, the majority of BellSouth's substantive revisions are *not* modifications to the model at all -- they are modifications to *inputs* used by the model. AT&T and WorldCom would have objected to this late submission much earlier had we not been mislead by BellSouth's claims that the new cost studies were prompted by our July 7, 2000 meeting.

According to witnesses Donovan/Pitkin, the one change to the BSTLM implemented by BellSouth, drop routing, was done incorrectly. While the BellSouth revision provides for drops to be routed from the corner of a lot, not all drops are routed in this manner. In contrast, the AT&T/WorldCom witnesses contend that "[T]he BSTLM should always assume the drop is placed at the corner of a customer's lot."

With regard to the AT&T/WorldCom witnesses' concern that the BSTLM's routing from the DLC may not be optimal, witnesses Donovan/Pitkin note they are not satisfied with BellSouth witness Stegeman's claim that revised model documentation has cleared up this issue. They claim that since the BSTLM relies on the switch node as the source node to construct a CSA, ". . .the customers that are served by a given DLC do not follow the true MSRT path back to the DLC but follow a proxy MSRT path back to the switch." However, witnesses Donovan/Pitkin state that no party nor the commission is able to adjust the BSTLM to resolve this problem. Accordingly, they recommend that the BSTLM results ". . .are likely too high and therefore should be considered the maximum costs of constructing the network and are not truly the least-cost solution."

Witnesses Donovan/Pitkin state that BellSouth ignored their proposal to allocate the cost of shared facilities on a per pair equivalents, rather than on a per DS0 basis. They testify that

> . . . BellSouth asserts that a bias is created by potentially underbuilding the network but has no problem advocating a methodology that introduces a bias that raises the cost of advanced service UNEs and impedes competition for these advanced service offerings to the consumers of Florida. This Commission must simply determine which approach is more acceptable. In either case, the bias inherent in BellSouth's methodology and our proposed correction primarily impact the advanced services UNEs. Simply put, under either scenario, the model will produce the correct investment associated with basic service. Therefore, this Commission's decision impacts the prices for more advanced services and the level of competition to provide those services in Florida.

The witnesses also assert that BellSouth witness Stegeman's position is inconsistent with that taken in a Georgia universal service proceeding, where he advocated use of special access pair equivalents, rather than DS0 equivalents.

Decision

Fundamentally, this issue pertains to the appropriate network design that should be modeled for outside plant, and how best to account for customer locations when modeling such outside plant. As noted earlier, the parties are in general agreement that BellSouth's new loop model, the BSTLM, has the capability to generate realistic estimates of the amount of outside plant required to provision services. However, there is disagreement on a few modeling issues, and on certain of the inputs that are used within the model. The modeling issues are dealt with here, while questions as to the appropriate inputs are addressed in subsequent sections of this Order.

PROCESSING; PASSWORD PROTECTED; MAPS

There appear to be three issues raised by AT&T/WorldCom witnesses Donovan/Pitkin, which they imply impeded in varying degrees their ability to thoroughly review and analyze the BSTLM. First, they note that initially it took three to four days to run the model for each of BellSouth's filed runs. In response, BellSouth witness Stegeman stated that revisions and enhancements continued to be made to the BSTLM, one of which allows for a Florida scenario to be run in under 24 hours. While we acknowledge that early on the model's processing time was somewhat of an obstacle, especially if alternative sensitivity analyses were to be run, the record shows that significant improvement has been made in this area. The BSTLM is a very large, complex cost proxy model; although it may be somewhat cumbersome to operate, this is not surprising but we doubt it was thus designed to impede review.

Second, the AT&T/WorldCom witnesses complain that they were not given the source code to the BSTLM; rather, they were provided with a password protected .pdf version of the model. They subsequently admit that given sufficient time their review efforts would not have been impeded. We note that the sensitivity runs witnesses Donovan/Pitkin wished to conduct were not merely alternative runs substituting different input values; rather, they apparently wanted to be able to alter the BSTLM's algorithms. While we believe that BellSouth was obligated to provide parties with the ability to review and critique the model, we do not believe it was required to provide the actual source code.

Third, witnesses Donovan/Pitkin state that they were not given certain .idb files which contain information from which maps of the network modeled by the BSTLM could be created. However, BellSouth witness Stegeman testifies that BellSouth subsequently provided the necessary MapInfo data he used to create his maps to the AT&T/WorldCom witnesses.

Upon consideration of the evidence, we find that BellSouth's actions here did not impede AT&T/WorldCom's ability to review and critique the BSTLM.

THREE SCENARIOS V. ONE SCENARIO

In its cost study filing BellSouth submitted three distinct BSTLM scenarios: Copper Only, used to derive the costs of copper-based xDSL-capable loops; Combos, used to determine the costs of 2-wire analog VG UNE loops and 2-wire ISDN UNE loops provisioned with a port; and BST2000, used to arrive at costs for all other loop types (other than those above DS1). In contrast, all other parties appear to agree that a single scenario, the Combos scenario, should be used for all loop types. In principle, it appears to us that a single unified network design is most appropriate. However, we believe this goal is not attainable based on this record.

The only fundamental difference between the Copper Only run and the other scenarios is that the fiber/copper breakpoint was set at 1,000,000 feet, in order for the model always to deploy copper feeder and distribution cable. However, apparently the only reason BellSouth chose to do this is to model its proposed Unbundled Copper Loop - Long (UCL-Long) -- which is of unlimited length. We would note that all of the other copper-only loops are restricted to specific lengths; e.g., BellSouth's ADSL-capable loop is restricted to a maximum of 18 Kft.. As such, it appears that all xDSL-cable loops could have been derived from, e.g., the BST2000 run set at varying fiber/copper breakpoints. As discussed at length in Section V of this Order, we believe this is a reasonable procedure since BellSouth's primary purpose was to arrive at the costs of copper-only loops of specific lengths. We would observe, however, that BellSouth witness Caldwell testifies that the average length of the 2-wire UCL-Long modeled by the BSTLM is almost 43,000 feet; it appears doubtful that an ALEC who desired a clean copper loop that was, e.g., 19 or 20 Kft. would ever order BellSouth's offering.

We agree with BellSouth that the record does not support that stand-alone DS0 level UNE loops can be handed off to an ALEC where integrated digital loop carrier (IDLC) is deployed. We note that BellSouth witness Milner testifies that it is not technically feasible to provide a stand-alone unbundled loop at less than a DS1 level; he states that even where the ILDC is GR-303 compliant, though it appears that a DS0 could be delivered, it would require an entire DS1 facility for transport. Accordingly, at this time we find that the record supports that the BST2000 is an appropriate basis for determining the costs of stand-alone UNE loop offerings, while the Combos run is appropriate only for certain integrated loop/port combinations.

Although we thus conclude that BellSouth's use of three distinct scenarios is reasonable for the purposes of this proceeding, we would note that the FCC's Rule 51.307(c) provides that:

> An incumbent LEC shall provide a requesting telecommunications carrier access to an unbundled network element, along with all of the unbundled network element's features, functions, and capabilities, in a manner that allows the requesting telecommunications carrier to provide any telecommunications service that can be offered by means of that network element.

To the extent that it is technically feasible to do so, we believe that this rule would require BellSouth to offer a hybrid fiber/copper xDSL loop. In accordance with our decision in Section V of this Order, BellSouth should prepare and submit such a study for the Commission's review.

OUTSIDE PLANT LOOP DESIGN ENGINEERING

AT&T/WorldCom witnesses Donovan/Pitkin's basic point appears to be that the basis for choosing between a maximum allowable copper loop length, and when to deploy a heavier gauge cable versus use extended range line cards is cost minimization; that is, the appropriate mix of inputs for these variables is that which yields the least-cost design. In response BellSouth witness Caldwell notes that this proposal, which would always restrict copper loop lengths to 16.8 Kft. on 26-gauge copper with extended range line cards above 13 Kft., was inconsistent with BellSouth's engineering guidelines. She also noted that the AT&T/WorldCom witnesses' cost minimization analysis was flawed due to a BellSouth error in its original cost filing. We note this topic is not raised in witnesses Donovan/Pitkin's supplemental rebuttal testimony.

We agree that cost minimization is a desirable goal; however, absent any other basis, we believe it is more appropriate for purposes of determining BellSouth's UNE loop costs that they reflect BellSouth's current and prospective engineering principles and deployment practices. Accordingly, we find that BellSouth's modeling approach is reasonable

ALLOCATION OF SHARED INVESTMENTS

The witnesses for BellSouth and AT&T/WorldCom both agree that how the BSTLM should allocate such shared investments as fiber cable and DLC common equipment is inherently arbitrary. Notwithstanding this observation, witnesses Donovan/Pitkin argue that due to competitive concerns, shared investments should be allocated based on per pair equivalents, rather than DS0 equivalents. In contrast, BellSouth witness Stegeman observes that the BSTLM currently also sizes DLC equipment based on DS0 equivalents, with which technique the AT&T/WorldCom witnesses appear to agree is reasonable; the BellSouth witness thus infers there is a causal connection between DS0s and the level of required DLC equipment. Moreover, during redirect examination, witness Stegeman testifies that there is also an indirect link between DS0s and fiber cable:

> And as the model runs, it installs fibers from the 12s up to the 200s. So, there must be something behind that different -- differentiation in the number of strands installed. And what really drives that is the electronics on the end.
>
> So, to have a consistent approach to the cost and to be most realistic, what we looked at is the electronics on the end, which are the DLC systems. The DLC systems are driven by DS0s. And the sizing of those DLC systems are driven by DS0s.
>
> And as you increase the number of DLC systems in your network, you increase the number of rings, which leads to an increase in the number of fibers. So, in effect, the DS0s that you have sitting out there do have an impact on the fibers that are placed.

Of the two factors, competitive impact or causal linkage, we believe that where possible, cost causal connections should get the nod when designing cost models. Thus, based on the evidence, we find that the BSTLM method of allocating shared investments based on DS0 equivalents is reasonable.

CABLE ROUTING WITHIN A CSA

AT&T/WorldCom witnesses Donovan/Pitkin contend that the BSTLM's method of routing cable within a carrier serving area (CSA) may not reflect the most efficient, direct routing. BellSouth witness Stegeman replies that this impression is due to the BSTLM's original documentation being unclear in describing the cable routing techniques incorporated in the model, but that the documentation has been revised and should eliminate any such concerns.

In their supplemental rebuttal testimony witnesses Donovan/Pitkin retort they are still not satisfied that there is not a problem as to cable routing. However, they concede that presently no party is able to resolve this problem and it should just be acknowledged that the BSTLM's estimated costs are on the high end.

We too are unclear as to the nature of the alleged problem, and whether and how it should be remedied. Absent any proposal to remedy the alleged deficiency, we will accept the BSTLM's routing technique.

DROP ROUTING

AT&T/WorldCom witnesses Donovan/Pitkin recommended that the BSTLM be modified to allow for drop routing from the corner of a lot. BellSouth witness Stegeman testified that the model had been revised as requested, and in fact the August 16, 2000 filings submitted by BellSouth used the angled drop approach. Witness Stegeman noted that the amount of decrease in drop costs is not as great as asserted by the AT&T/WorldCom witnesses because the BSTLM does not place all distribution terminals at the corner of a lot. Witnesses Donovan/Pitkin assert that BellSouth incorrectly modified the BSTLM, because they believe that it should be assumed that drops are always placed at the lot corner.

Other than the claim by the AT&T/WorldCom witnesses, there is no evidence to determine why a distribution terminal must be placed in the corner of a lot. Witnesses Donovan/Pitkin testify that BellSouth's implementation of angled drop routing results in a reduction of 15% in the average drop length. Absent any clear understanding of why a distribution terminal should be in a lot corner, we find that BellSouth's approach, which employs angled routing but implicitly assumes that some terminals are not in lot corners, is reasonable.

B. Depreciation

Depreciation is one of the inputs in BellSouth's cost model, specifically the BellSouth Cost Calculator (BSCC). While there is disagreement between the parties regarding specific lives to use in this proceeding, they all appear to agree that it is appropriate to use projection lives since, by definition, these lives represent newly placed plant and therefore comport with the FCC's requirement of using forward-looking costs. According to BellSouth witness Cunningham, BellSouth's proposed lives are those resulting from its 2000 BellSouth Florida Depreciation Study. With the exception of the fiber cable and building accounts, AT&T/WorldCom witness Majores testified that the lives proposed by the FCCA ALECs and FCTA, based on their final positions, are those the Commission approved in Order No. PSC-98-0604-FOF-TP (1998 Arbitration Order), issued April 29, 1998, in Docket Nos. 960757-TP, 960833-TP, and 960846-TP, an interconnection and resale arbitration between AT&T and BellSouth. The record shows there is no disagreement in the salvage values BellSouth has recommended. A comparison of the lives and salvage values proposed by the parties as appropriate for use in UNE calculations in this proceeding are shown on tables included in below in subsection 1 of our decision on this issue.

BellSouth's witness Cunningham testified that the 2000 BellSouth Florida Depreciation Study provides explanations of methodology, data, and analysis that support BellSouth's recommendations. As further support for the reasonableness of the recommended lives and salvage values, witness Cunningham asserts that these values are consistent with the depreciation lives and salvage values BellSouth uses for intrastate reporting purposes and for external reporting purposes. Lastly, BellSouth claims that its recommended lives are comparable to the lives last prescribed by the FCC for AT&T in 1994 as well as other competitors.

AT&T/WorldCom's witness Majoros asserts that the FCC's rules require that only forward-looking costs be used to set interconnection rates and that forward-looking costs use economic depreciation rates. Witness Majoros notes that his recommendations are generally consistent with the lives set forth in the FCC's 1995 prescription of BellSouth's depreciation rates and his recommendation in Docket No. 980696-TP, Determination of the Cost of Basic Local Telecommunications Service (Universal Service Order). Additionally, witness Majoros proffers that the Commission already identified lives appropriate for BellSouth UNE calculations in the 1998 Arbitration Order and there is no need to revise those, with the exception of the fiber cable accounts and buildings. Further, based on his review of recent trends in the depreciation reserve and retirement patterns of the technologically impacted accounts, witness Majoros concludes that his recommendations represent forward-looking costs.

To the contrary, BellSouth asserts that the lives prescribed by the FCC for interstate depreciation purposes in Florida are inappropriate for use in UNE cost studies. Witness Cunningham notes that the last FCC depreciation represcription for BellSouth was in 1995 and alleges that the lives, particularly for the technology-sensitive accounts, are much too long. Witness Cunningham argues that the FCC lives are based on the old regulatory paradigm in which plant lives were artificially lengthened beyond their true economic lives so that the investment in that plant would be recovered in smaller year-to-year increments over longer periods of time. The assumption under this paradigm was always that BellSouth was entitled to and would recover all of its investments. Witness Cunningham agrees that today's competitive environment is not likely to allow BellSouth to recover investment based on lives that are inappropriately long.

In contrast, AT&T/WorldCom's witness Majoros points out that the FCC began to put less emphasis on historic data in estimating depreciation lives and more emphasis on company plans, technological developments, and other future-oriented analyses in 1980. Additionally, he explains the FCC reaffirmed its forward-looking position in establishing ranges of projection lives to simplify the depreciation prescription process. The ranges were based on a review of recent retirement patterns, company planning, and the current technological developments and trends.

BellSouth's witness Cunningham argues that the lives adopted by the Commission in the 1998 Arbitration Order are inappropriate for use in the instant proceeding. He notes that Commission adopted FCC-prescribed lives for the five major technology-sensitive accounts (Digital Switching, Digital Circuit, Aerial Metallic Cable, Underground Metallic Cable, and Buried Metallic Cable). However, he states that the lives adopted in the Commission's Universal Service Order were shorter for the Digital Switching and Digital Circuit accounts than those adopted in the 1998 Arbitration Order. Witness Cunningham concludes that relying on a two year old decision is not appropriate due to the dynamic process of establishing economic lives. He also states that, notwithstanding the above, BellSouth acknowledges that its proposal is inconsistent with the findings of this Commission as entered in the 1998 Arbitration Order.

Reserve Trends

Regarding trends in the reserve, AT&T/WorldCom's witness Majoros points to the fact that BellSouth's reserve level has grown from 18.7% in 1980 to 50.7% in 1998, while the 1998 retirement rate averaged only 3.1%. Witness Majoros and FCTA's witness Barta explain that an increasing reserve is generally a sign that depreciation rates anticipate increasing retirement levels and the expected life of the plant is decreasing. Without indications of a decreasing life, witness Majoros asserts that an increasing reserve might be a sign that depreciation rates are too high.

Substitution Model

Witness Cunningham acknowledges that the Commission has expressed concern in the past about use of the substitution model in determining the economic lives of metallic cable. He asserts that the substitution analysis technique used by BellSouth, and recognized in technical depreciation literature, has been proven effective in projecting the adoption of new technologies and the obsolescence of old technologies. He proffers that the substitution analysis is a more appropriate method than relying solely on historical life analysis for the technology-sensitive accounts since the substitution analysis recognizes technological obsolescence as the major cause of displacements.

In support of using the substitution analysis, witness Cunningham asserts that the substitution of metallic cable by fiber in the interoffice (IOF) portion of the network is a well-established process and illustrates the usefulness and accuracy of substitution analysis for determining economic lives. Forecasts made in the late 1980s regarding the penetration of fiber in the IOF have proven to be very close to the actual penetration that has occurred. For this reason, BellSouth has used the same method for determining lives for the feeder and distribution portions of the network according to witness Cunningham. He notes that although the rate of fiber penetration has not been as rapid as in the IOF due to lower traffic concentrations, the pattern of substitution has been similar and has proven to be useful in estimating economic lives.

Witness Cunningham states that BellSouth uses the substitution analysis to make the case that FCC-prescribed lives for technology sensitive accounts are too long. AT&T/WorldCom's witness Majoros does not believe lives resulting from the substitution analysis are necessarily accurate. As he explained, underlying the substitution theory is the assumption that BellSouth will replace its narrowband telecommunications networks with broadband integrated networks capable of providing both telecommunications services and video services, bringing broadband to the home, and displacing copper plant. The total element long range incremental cost (TELRIC) standard, however, requires a determination of the stand-alone cost of UNEs in an efficient telecommunications network. Witness Majoros states that the plant lives appropriate for such a calculation should not be based on the assumption that efficient telecommunications facilities will be prematurely retired to provide broadband services.

BellSouth responds to witness Majoros's claims by stating that the addition of fiber in the network does not make it a broadband network, but fiber allows service providers to transport high traffic volumes, which may include higher bandwidth services. The replacement of today's network will occur due to normal mortality and technological obsolescence, that is, when the current technology is not the most efficient means of providing voice and data services, according to witness Cunningham.

Witness Majoros also asserts that the output of the substitution analysis is only as accurate as the inputs selected. He argues that substitution analysis is irrelevant unless it is known that a new technology will replace, not supplement, an older technology. He states that even when a substitution has started, it does not necessarily follow that the substitution will finish according to pattern. Even if a full substitution is likely, the formula requires the user to predict both the rate of substitution and the point at which the replacement technology will reach 50%.

AT&T/WorldCom's witness Majoros opines that the substitution model BellSouth uses requires user inputs, one of which is the date which the new technology will represent 50% of the universe. This is, in essence, a requirement to input the average remaining life of the existing, embedded investment. Consequently, the output is essentially defined by the analyst using the model. The output being an estimate of the average remaining life of existing equipment. He therefore concludes that the basis for the model inputs appear to be largely judgmental.

1. Lives of Other Competitors

Finally, BellSouth asserts that any concerns about the lives proposed by BellSouth should be readily allayed by the fact that they are comparable to the lives currently used by BellSouth's competitors for depreciation purposes. BellSouth notes in its brief that its recommended 10-year life for digital switching is the same or higher than the life ALLTEL, AT&T, Covad, FDN, WorldCom, Intermedia, Rhythms, or Time Warner is using for their switches. BellSouth asserts that it is the only party offering an analysis of plant lives through its depreciation study and the results of that analysis are consistent with the judgement of competitors. However, BellSouth concedes that the cost for its technology-sensitive categories of equipment charged year-by-year through depreciation would be equal to or less using WorldCom's lives than using BellSouth's lives.

Witness Majoros proffers that BellSouth's comparison to the lives prescribed by the FCC for AT&T in 1994 does not provide an appropriate benchmark. He asserts that the plant lives of IXCs are simply inappropriate for use in calculating UNE costs. He explains that the expected life of plant is largely dependent on specific use and the use of plant by a local exchange company to provide local exchange and exchange access service like BellSouth is much different that the use of plant by IXCs for interexchange service.

> IXCs are much less capital intensive than LECs, and thus are able to economically replace their plant much faster than LECs when the occasion demands. To service all homes and businesses in the nation, an IXC needs only about 150 switches and 100,000 sheath kilometers of cable. To gain the same ubiquity for local exchange service, the LECs require over 23,000 switches and 6,000,000 sheath kilometers of cable. No matter how motivated the LECs may be, the sheer magnitude and complexity of the replacement effort ensures that replacement is a long, drawn-out process.

To this BellSouth responds by stating that much of the plant and equipment used to provide local and other telecommunications services by both AT&T and WorldCom is identical to the plant and equipment used by BellSouth, or at least uses the same technology. Customer traffic carried by the networks of AT&T and WorldCom is also carried by the networks of Local Exchange Carriers including BellSouth. According to witness Cunningham, the economic value of assets owned by BellSouth, AT&T, WorldCom, or any other ALEC is driven down similarly by technological obsolescence, increased competition, customer demand for new services and declining equipment prices. He asserts that because BellSouth's switches are more feature-rich due to the many services that are needed by end-user customers, upgrades to both the software and hardware are more frequent than for AT&T and WorldCom.

FCTA's witness Barta asserts that depreciation inputs should be based on least cost plant forward-looking technology that is available today and proven to be reliable. While witness Barta agrees that considering the lives of other competitors may be useful to the Commission in determining appropriate lives for BellSouth in this proceeding, he states it is important to understand the underlying assumptions of those lives including whether technological obsolescence, wear and tear, or tax considerations is the basis for those lives.

By using shorter lives for UNEs, witness Majoros argues that BellSouth would recover capital investment costs sooner than would be justified by the associated remaining revenue producing lives. This accelerated recovery would provide BellSouth the discriminatory advantage of early capital recovery at the expense of the ALECs, and would raise the ALECs' costs unjustly according to witness Majoros.

2. Depreciation Rates for Financial Reporting versus UNE Prices

As additional support for BellSouth's proposed lives, witness Cunningham notes that the lives are consistent with those BellSouth uses to determine the depreciation rates currently being booked in Florida for intrastate and for external reporting purposes. AT&T/WorldCom argues that lives used for financial accounting are governed by Generally Accepted Accounting Principles (GAAP) and the conservatism principle would hold, for example, when alternative expense amounts are acceptable, the alternative having the least favorable effect on net income should be used. While conservatism is effective in protecting the interest of investors, AT&T/WorldCom's witness Majoros asserts it may not always serve the interest of the ratepayers. He points out that General Telephone Company of Florida argued this point to the FCC in 1993.

The purpose of this docket is not to direct BellSouth to use specific depreciation rates for pricing its retail business, but to establish the appropriate cost methodologies to be incorporated in the cost calculator for UNEs specific to Florida. This involves determining the reasonableness of the assumptions regarding depreciation expenses to be included in the cost study used for setting UNE rates. Additionally, we agree with AT&T/WorldCom's witness that where Florida-specific information is available, it should be used. The data shown on the tables in this subsection are based, to the extent there is available information in the record, on Florida-specific data and planning. The most argument addresses the technology-sensitive driven accounts (digital switching and circuit, metallic and fiber cables).

We agree with AT&T/WorldCom's witness Majoros that the FCC is fully aware of the increasingly competitive telecommunications marketplace, as evidenced by the FCC's First Report and Order in the interconnection docket (CC Docket 96-98) dated August 1996 and the 1998 Biennial Regulatory Review-Review of Depreciation Requirements for Incumbent Local Exchange Carriers (CC Docket 98-137) dated December 30, 1999. Further, the FCC's prescribed projection lives and retirement patterns reflect shorter lives and higher retirements than indicated by historical statistics. We believe it is therefore reasonable to assume that the FCC life and salvage ranges include consideration of the increasingly competitive market. This is not to say, however, that we necessarily agree that this is the only information upon which to base a decision in this proceeding, but simply a source of information to consider with all other information provided in the record.

3. Lives

The record shows that the projection life is a forecast projection of the future of the property. Historical indications may be useful in estimating a projection life. Trends in life or retirement can sometimes be expected to continue. Technical and economic obsolescence are ongoing and a historical life analysis will reflect these factors to the extent that they were present in the past. It also shows that sole reliance on historical indications as a projection of the past is only valid to the extent the future is expected to mirror the past.

As discussed previously, the FCCA ALECs and Time Warner recommend projection lives the Commission adopted in the 1998 Arbitration Order, with the exception of the fiber cable accounts and buildings. A comparison of these lives with those proposed by BellSouth indicate the controversy lies with the technology-sensitive accounts (digital switching, circuit, and metallic and fiber cables). There are very minor differences between the positions of the parties for the remaining accounts.

The 1998 Arbitration Order adopted projection lives and net salvage values based on the record evidence in that docket. In the same fashion, we believe that projection lives adopted in this instant proceeding should be based on the record evidence presented by the parties. We agree with BellSouth that a two year old decision should not be taken on its face without considering any changes in conditions that might warrant changes. Consideration of BellSouth's data submitted in its 2000 Florida Depreciation Study, reserve trends, the FCC ranges, as well as depreciation lives used by other telecommunications competitors are all factors that should be considered in determining appropriate lives.

With the exception of the technology-sensitive accounts, differences between the parties exist in eight accounts. Two of these accounts relate to station equipment which is not germane to the setting of UNE prices. For this reason, we do not believe it is necessary to address these accounts. For the remaining six accounts, the FCCA ALECs and Time Warner propose slightly lower lives than those BellSouth has proposed. After a review of BellSouth's study, we believe BellSouth's proposed lives are reasonable and find it appropriate to approve the proposed lives for the purpose of setting UNE prices.

4. Technology-Sensitive Accounts

The record shows that the technology-sensitive accounts (digital switching, circuit, metallic and fiber cables) represent more than 70% of BellSouth's investment and are the most controversial. BellSouth's recommended projection lives are the result of using the technology substitution model, the purpose of which is to determine how fast a new technology is displacing an older technology. The substitution model is shown to forecast the rate at which fiber technology is substituting for copper technology plus the historical probability of the two technologies combined together. A basic assumption of the model is that Fiber-In-The-Loop (FITL) will bring broadband services to the home, displacing copper plant according to witness Majoros.

Regarding the substitution model, we agree with AT&T/WorldCom witness Majoros that an inherent flaw with the model is that it assumes the new technology will completely replace, not supplement, the old technology. For example, the Asynchronous Transfer Mode (ATM) switches will be deployed as a supplemental technology to digital switches, not as a replacement according to witness Majoros.

The evidence shows that there are two major measurement inputs in the substitution analysis: the time in which new technology would equal 50% of the combined universe of old and new technology, and the rate at which the substitution actually occurs. Witness Cunningham explains that BellSouth uses a regression analysis to develop these inputs based on historical and planning data. The record shows that substitution analysis as used by BellSouth does not depict retirements. For the feeder cables, BellSouth used actual data for 1991-1994 and planning data for 1995-1999 in its substitution analysis. For distribution cables, historical data was used for 1997-2000, four points, with planning points 2001-2005.

At his deposition, witness Cunningham discussed a comparison of BellSouth's interoffice, feeder, and distribution copper cable remaining life development presented in its 1995, 1998, and 2000 depreciation studies. These life developments were the results of using the substitution analyses and clearly indicate the change that can take place over time. For example, the forecasted survival rate for 2000 for copper feeder cable is indicated as 63.45% in the 2000 Depreciation study compared to 70.06% in the 1998 study and 0% in the 1995 study. A similar situation exists for feeder and distribution copper cable. In fact, the indicated phase-out date for copper cable in the distribution portion of the network is 2020 in the 2000 Depreciation Study compared to an indicated phase-out date of 2016 in the 1998 and the 1995 studies. Upon consideration, we believe that BellSouth's forecast of the displacement of copper facilities has proven to be overly optimistic in the past and a slower displacement pattern has actually occurred. The record shows that BellSouth was unable to provide a quantification of resulting changes in the projection lives between the 1995 and 1998 studies.

The annual rate of displacement is the percent of units served by the old technology that would be displaced by the new technology during a given year. During witness Cunningham's deposition, a publication by Mr. James R. Bright regarding the accuracy of predictions resulting from the substitution model was discussed. Mr. Bright opines that the accuracy of predictions based on the first 5 to 10 percent of displacement data may be very poor while forecasts based on 20% to 25% displacement data seem to be quite accurate. Mr. Bright also stated in the article that units of measurement must be carefully chosen to avoid distortion.

While BellSouth does not use the rate of displacement as a variable in its substitution analyses, it did provide displacement data as part of our staff's discovery. BellSouth began placing fiber in the feeder portion of its network during 1982, but has data only beginning with 1990. The annual rate of displacement of copper feeder has ranged from 2.77% in 1991 to 4.25% in 1998 with 2000 at 1.91%. Witness Cunningham stated that the fiber penetration in Florida for the distribution portion of the network as of year end 1999 was approximately 2%. We believe the low displacement rates for interoffice and feeder cables, coupled with such a low penetration level of fiber in the distribution portion of the network, makes the results of BellSouth's substitution analyses questionable, at best.

Further, AT&T/WorldCom's witness Majoros provides compelling evidence that illustrates that BellSouth's retirement forecasts, as a result of the substitution model, have tended to be much more aggressive than actual results. He provides a comparison of BellSouth's forecasted metallic cable retirements for the 1992-1999 period to actual retirements booked for the same period. The results indicate that BellSouth's forecast overestimated retirements by about 500% or $1.4 billion.

BellSouth claims that the retirement data used by witness Majoros represents displaced units scaled to imply retirement dollars, not actual retirement dollars. The dollar value of expected retirements was simply provided by BellSouth due to an FCC depreciation study requirement according to witness Cunningham. Comparing displaced units scaled to dollars with actual booked retirements, he argues, is inappropriate. Displacements may or may not correlate with the physical retirement of the copper facilities. However, witness Cunningham agreed, that the documents witness Majoros used in developing his exhibit stated "retirements."

We believe the above serves to illustrate that BellSouth's retirement forecasts have tended to be much more aggressive than actual results. In the studies BellSouth has presented in this proceeding, its proposed lives are the result of a forecast of how fast fiber technology will displace copper facilities. If history serves as a guide, it would seem that BellSouth's forecasts for this displacement would be overstated from what will actually take place.

A review of the data submitted by BellSouth in its depreciation study indicates that its retirements of copper plant have not been much different for the 1996-1999 period than they were for the 1976-1979 period before the advent of fiber technology. If one were to rely totally on history, it would then follow that the life expectancy for copper cable today should be no different than it was in the 1976-1979 period. However, BellSouth's lives are much shorter than in the 1976-1979 period to recognize that fiber technology or even wireless technology will impact the life of copper facilities. The point of contention is how much impact there will be

Retirement Rates

Metallic Cables	1976-1979	1996-1999
Aerial	2.1%	0.8%
Buried	1.8%	0.6%
Underground	0.8%	0.3%

Source: Hearing Exhibit 52)

Regarding company planning for installing fiber in the distribution portion of the network, the record shows that BellSouth is beginning the deployment in all new residential developments and in total rehabilitation projects.

5. Lives of Other Competitors

Regarding the lives of other competitors, we are persuaded by FCTA's witness Barta that while it may be useful in comparing BellSouth's depreciation lives with competitors' lives, it is important to understand the underlying assumptions and the basis for those lives, including whether technological obsolescence, wear and tear, or tax considerations are the driving forces for those lives. We believe that without a complete understanding of how competitors determine their life projections, as well as an understanding of each company's equipment and how that equipment is used, an apples-to-apples comparison cannot be made. Indeed, as noted by AT&T, its lives represent remaining lives not projection lives. There is no record evidence regarding the basis for the competitors' lives that BellSouth asserts the Commission should consider as a benchmark for its lives. For this reason, we believe that using these lives as a benchmark is dangerous and incorrect.

We agree with BellSouth that the discovery responses indicate that its proposed lives for the technology-sensitive accounts are in the range of those reported by ALLTEL, WorldCom, AT&T, Covad, Rhythms, Florida Digital Networks, Time Warner, and Intermedia. WorldCom and AT&T filed their depreciation lives under confidential cover. Time Warner states that it does not operate any switches in Florida; Rhythms states that it does not own any switches or cable in Florida; and, Covad and Rhythms both state that their circuit equipment relates to multiplexers used to provide Digital Subscriber Line services. Further, BellSouth opines that the lives of WorldCom should be questioned because they are longer for some plant equipment than what other companies are using. We believe that this serves as another indication that an apples-to-apples comparison between BellSouth's proposed lives and those of other competitors cannot be made in this proceeding due to the lack of record evidence regarding an understanding of the basis of those lives.

<u>Decision</u>

Upon consideration of the foregoing, we find it appropriate to use the life projections of AT&T and WorldCom for each of the copper cable accounts. There is sufficient evidence to question the reasonableness of BellSouth's proposed lives. For the fiber cable accounts, we find it appropriate to use BellSouth's proposed lives from its 2000 Florida Depreciation Study. We agree with BellSouth that with a new technology such as fiber cable, enhancements and refinements are still taking place due to such things as manufacturing defects and fiber clouding. While there is reason to believe that future generations of fiber cable will experience a life similar to copper cable, we believe the earlier generations of this technology cannot be expected to experience that type of life characteristic.

For digital switching and digital circuit, we find a 13-year life for digital switching, an 8-year life for circuit DDS, and a 9-year life for digital circuit equipment to be appropriate. The life for digital switching recognizes increased interim retirements and a shorter overall life span as evidenced by BellSouth's submitted information. The life for digital circuit recognizes a shorter life for optical equipment as asynchronous equipment is phased out and replaced with Synchronous Optical Network (SONET) equipment. While other digital circuit equipment can be expected to continue providing viable functions in a SONET environment, slower growth can be expected. Additionally, we find a 6.8-year life for analog circuit equipment to be appropriate.

1. Salvage Values

There is no disagreement between the parties regarding the appropriate salvage values to use in determining UNE prices. Our staff's review of these values results in a similar finding and we find it appropriate to adopt BellSouth's proposed salvage values. The approved lives and salvage values for use in UNE calculations in this proceeding are shown on the tables set forth below and by reference are incorporated herein.

Comparison of Lives

Account	**BellSouth**	**FCCA ALECs & Time Warner**	**Commission Approved**
	(Yrs.)	(Yrs.)	(Yrs.)
Motor Vehicles	8	7.5	8
Special Purpose Vehicles	7	7	7
Garage Work Equipment	12	12	12

Account	**BellSouth**	**FCCA ALECs & Time Warner**	**Commission Approved**
Other Work Equipment	15	15	15
Buildings	45	45	45
Furniture	15	11	15
Office Support Equipment	11.5	10.5	11.5
Office Communication Equipment	7	7	7
Computers	4.5	4.4	4.5
Digital ESS	10	16	13
Operator Systems	10	10	10
Radio	9	7	9
Circuit DDS	8	6	8
Circuit Digital	9	10.5	9
Circuit Analog	7.5	6.8	7.5
Station Apparatus	6	8	NA
LPBX	6	5	NA
Other Terminal Equipment	6	6	NA
Poles	36	35	36
Aerial Cable Metallic	15	18	18
Aerial Cable Fiber	20	25	20
Underground Cable Metallic	14	23	23
Underground Cable Fiber	20	25	20
Buried Cable Metallic	15	18	18
Buried Cable Fiber	20	25	20
Submarine Cable Metallic	15	18	18
Submarine Cable Fiber	20	20	20
Intrabldg. Cable Copper & Fiber	20	20	20
Conduit	55	55	55

Comparison of Salvage Values

Account	BellSouth	FCCA ALECs & Time Warner	Commission Approved
	(%)	(%)	(%)
Motor Vehicles	16	16	16
Special Purpose Vehicles	0	0	0
Garage Work Equipment	0	0	0
Other Work Equipment	0	0	0
Buildings	0	0	0
Furniture	10	10	10
Office Support Equipment	5	5	5
Office Communication Equipment	10	10	10
Computers	2	2	2
Digital ESS	0	0	0
Operator Systems	0	0	0
Radio	(5)	(5)	(5)
Circuit DDS	2	2	2
Circuit Digital	0	0	0
Circuit Analog	0	0	0
Station Apparatus	0	0	NA
LPBX	5	5	NA
Other Terminal Equipment	5	5	NA
Poles	(55)	(55)	(55)
Aerial Cable Metallic	(14)	(14)	(14)
Aerial Cable Fiber	(14)	(14)	(14)
Underground Cable Metallic	(8)	(8)	(8)
Underground Cable Fiber	(8)	(8)	(8)
Buried Cable Metallic	(7)	(7)	(7)
Buried Cable Fiber	(7)	(7)	(7)
Submarine Cable Metallic	(5)	(5)	(5)
Submarine Cable Fiber	(5)	(5)	(5)
Intrabldg. Cable Copper & Fiber	(10)	(10)	(10)
Conduit	(10)	(10)	(10)

C. Cost of Capital

The cost model for determining UNE prices requires a forward-looking cost of capital as an input. BST used 11.25% as its forward looking cost of capital, the current interstate cost of capital authorized by the FCC. In implementing the 11.25% cost of capital, BellSouth used a capital structure of 60% common equity and 40% debt, a debt cost rate of 7.0%, and a cost of equity of 14.08%.

Two witnesses offer substantial testimony regarding the forward looking cost of capital. BellSouth witness Billingsley testifies that the 11.25% cost of capital is reasonable and conservative given his estimate that BellSouth's actual cost of capital ranges from 14.61% to 14.91%. This range is based on a market value capital structure consisting of 9.83% debt and 90.17% equity, a cost of equity that ranges from 15.35% to 15.68%, and a debt cost rate of 7.8%. In his rebuttal testimony, witness Billingsley updates his cost of capital to a range from 14.66% to 15.34%, based on a market value capital structure of 11.16% debt and 88.84% equity, a cost of equity that ranges from 15.50% to 16.26%, and a debt cost rate of 8.00%.

AT&T witness Hirshleifer testifies that the appropriate cost of capital for BellSouth is 8.54%. This is based on a capital structure consisting of 35.5% debt and 64.5% equity, a cost of equity of 9.30%, and a debt cost rate of 7.16%. FCTA witness Barta offers brief comments on the cost of capital but does not present models or recommend a specific rate. He testifies that the forward looking cost of capital for BellSouth likely will fall below the FCC's benchmark 11.25% cost of capital.

1. Cost of Equity

BellSouth witness Billingsley employs a discounted cash flow (DCF) model, a capital asset pricing model (CAPM), and a risk premium analysis. He applies his DCF and CAPM models to a group of publicly traded firms that he believes are comparable in risk to BellSouth.

The DCF and CAPM models require stock market data, such as dividends, stock prices, and beta. Witness Billingsley states that

BellSouth is not a publicly traded firm but is a subsidiary of BellSouth Corporation. He develops and uses a group of comparable companies to determine the cost of equity for BellSouth.

To determine his comparable group of companies, witness Billingsley screens firms included in the COMPUSTAT data source and that have Institutional Brokerage Estimate System (IBES) and Zacks earnings growth forecasts from at least 2 analysts. He uses 5 risk measures. Three of these measures are financial risk measures: equity ratio, cash flow interest coverage ratio, and the firm's bond rating. The two remaining measures are business risk measures: operating cash flow to total assets and variability of cash flows. Using these screening criteria, he selects the 20 firms that are closest to BellSouth. He views these 20 firms as alternative investments to BellSouth and as having overall risk similar to BellSouth.

The DCF model is an approach where the price of the stock equals the present value of future cash flows, with the discount rate being the cost of equity. For his DCF model, witness Billingsley uses a constant growth quarterly compounding DCF model and incorporates flotation costs of 5%. The model is constant growth in that the growth rate for each firm in his comparable group is a specific rate assumed to remain constant into the future. It is a quarterly model because it allows for quarterly compounding since each firm in his comparable group pays dividends each quarter. Witness Billingsley uses a quarterly model because he believes an annual DCF model requires one to assume that companies pay dividends once each year. He believes this assumption creates a downward bias. Flotation costs are the costs a firm incurs when it issues common stock. Witness Billingsley cites various journal articles to support his 5% allowance.

For his DCF model, witness Billingsley uses growth rates from IBES and Zacks. He states that these research services and their estimated growth rates are widely used within the investment profession. The results of his DCF model is a 15.35% cost of equity estimate using Zacks and a 15.37% estimate using IBES.

The CAPM model is based on modern portfolio theory and is essentially an equation that expresses a risk and return relationship. Risk is assumed to be either systematic or unsystematic, with unsystematic risk being the kind that can be diversified away. The variables in the equation include a risk-free rate, a systematic risk measure known as beta, and the expected equity return on a broad market index. Witness Billingsley applies the CAPM model to the same group of comparable companies used in his DCF analysis.

For the risk-free rate, witness Billingsley uses 6.65%, which is the implied yield on 30-year Treasury bond futures as of February 2000. He believes that using expectational inputs are necessary for the CAPM and he notes that the implied yield from Treasury futures are expectational. The beta of 0.73 represents an average of the betas for his comparable group as calculated by BARRA, a financial data firm that provides beta estimates.

To determine the expected equity return on a broad market index, witness Billingsley employs a DCF model with the firms from the S & P 500 index and earnings growth rates from IBES and Zacks. He estimates an expected return on the S & P 500 to be 19.02% using IBES and 18.85% using Zacks as of February 2000. Inserting these values into the CAPM model along with the risk-free rate and the average beta yields a cost of equity estimate of 15.68% using IBES and 15.56% using Zacks.

Witness Billingsley states that he used a third model, a market risk premium approach, to confirm the reasonableness of his DCF and CAPM results. He calculates the expected return on the S & P 500 for each month from October 1987 to February 2000 using a DCF approach. From this return he subtracts the concurrent Aaa-rated public utility bond yield and averages the differences. The resulting risk premium is 7.34%. He adds the average yield on Aaa-rated public utility bonds from December 1999 to February 2000, 7.84%, to this amount. The result is an expected return on the S & P 500 of 15.18%. Witness Billingsley believes the risk premium exhibits instability over time based on his review of studies of the historical behavior of the equity risk premium. Based on one of these studies, he applies a correction factor for the instability that reduces his risk premium result to 15.05%.

From the results of his models, BellSouth witness Billingsley concludes that the cost of equity for BellSouth is in the range of 15.35% to 15.68%. He updates his models through May 2000, with the result that his estimated cost of equity for BellSouth is in a range of 15.50% to 16.26%.

AT&T witness Hirshleifer uses a DCF model and a CAPM model to estimate the cost of equity for BellSouth. His DCF model is a three-stage model. The first stage uses earnings growth rates based on analysts' forecast for 5 years, the second stage has the growth rate declining to the growth rate for the U.S. economy to year 20, and the third stage has a growth rate equal to the economy's growth rate. He uses IBES for his first stage growth rates and average growth rates from Wharton Econometric Forecasting Associates (WEFA) and Ibbotson Associates for the second and third stages. Witness Hirshleifer believes forecasted growth rates are not constant and, therefore, believes his three-stage DCF model is appropriate.

Witness Hirshleifer applies his DCF model to an index of seven telephone holding companies listed in Standard & Poor's (S & P) Industry Survey. He eliminates smaller companies and those that do not receive a majority of their revenue from traditional telephone and network operations. He also applies his DCF model to BellSouth Corporation only, with a result of 7.86%. Using a weighted average method for BellSouth and the companies in his index excluding BellSouth, witness Hirshleifer estimates the cost of equity for BellSouth to be 8.62% with the DCF model.

For his CAPM model, witness Hirshleifer uses a beta of 0.66 and market risk premiums of 7.5% over one-month Treasury bills and 5.5% over 20-year Treasury bonds. The risk-free rate is 4.90% for one-month Treasury bills and 6.47% for 20-year Treasury bonds. The results are 9.85% using one-month Treasury bills and 10.10% using 20-year Treasury bonds. He averages these results for a 9.98% CAPM estimate of BellSouth's cost of equity. Witness Hirshleifer averages his DCF and CAPM results to obtain his cost of equity estimate of 9.30% for BellSouth.

Witness Hirshleifer states that high growth rates of 25% or more are not sustainable. Therefore, the constant growth model should not be used. Witness Hirshleifer provides support that a firm growing at 12% annually in an economy that is growing at a 6% rate will eventually become larger than the economy. Witness Billingsley disagrees with witness Hirshleifer regarding growth rates for the DCF model. He notes that some companies have had high historical growth rates in earnings, such as 30% over a 10 year period.

BellSouth witness Billingsley questions AT&T witness Hirshleifer's time periods for his three-stage DCF model. The second stage in Hirshleifer's model is 15 years, which witness Billingsley suggests is a subjective determination. He suggests that multi-stage DCF models work best for high growth companies. Witness Billingsley also disagrees with witness Hirshleifer's use of telephone holding companies as a comparable group. He suggests that witness Hirshleifer assumed that the telephone holding companies are a comparable group. Witness Billingsley states he chose his comparable group using objective criteria.

Witness Hirshleifer uses an annual DCF model. He states that telephone operating companies receive monthly payments for the use of their network elements, which is more frequent than the receipt of dividends by investors. He also does not allow for flotation costs because he believes the price of a company's stock has accounted for flotation costs already. Witness Billingsley disagrees with these positions. He believes quarterly compounding is essential for a DCF model since investors receive their dividends quarterly and can reinvest them. Witness Billingsley states that witness Hirshleifer provides no evidence that the market has adjusted for flotation costs.

Regarding witness Hirshleifer's CAPM model, witness Billingsley believes the three-stage DCF model is inappropriate for determining the market risk premium for the CAPM. In determining the market risk premium, witness Hirshleifer excluded stocks that pay less than a 1.5% dividend yield. Witness Billingsley believes this creates a downward bias.

Both witnesses discuss business risk, also known as operating risk. This is risk to a business that arises from the actual operation of the business. It is separate from financial risk, which depends on how much debt a firm carries. We believe that consideration of business risk is essential in the determination of BellSouth's cost of capital. We note that allowing basis points of cost of capital to compensate for business risk is an inherently subjective process.

Witness Billingsley analyzed competition in the telecommunications industry. He found that CLECs are increasing their market share and compete for customers with incumbent local exchange companies (ILECs). He also notes that the ILECs' networks can be bypassed by large businesses with their own fiber optic networks, by wireless services, and by cable television (CATV). Witness Billingsley suggests that mergers and acquisitions within the telecommunications industry have eroded the competitive position of the ILECs. The passage of the Telecommunications Act of 1996 allows entrants into previously monopoly areas and has increased risk for the ILECs, according to witness Billingsley.

Witness Billingsley notes that, in Florida, 40 wireline facilities-based ALECs, i.e., CLECs, are competing with BellSouth. He notes that the number of certificated CLECs has increased in Florida and that a number of CLECs have announced intentions to construct and provide facilities-based local exchange service in Florida.

The record shows that if the financial markets tighten, the ILECs' competitors might struggle to find financing. Additionally, witness Billingsley mentions Intermedia Communications and NextLink Communications as firms currently competing with BellSouth in providing local exchange service in Florida. He acknowledges that these companies have single B bond ratings by Standard and Poor's, which is a junk bond or high yield rating. BellSouth has a AAA bond rating by Standard and Poor's and AAA rated bonds require lower yields than B rated bonds. We note that it appears to us that BellSouth's stable access to low-cost capital greatly strengthens its position in the market, as compared to competitors with lower bond ratings.

Witness Hirshleifer states that risks that are unique to a company, i.e., non-systematic risk, can be diversified away. Therefore, the risk that a company will lose customers to competition, like a network leasing company losing business to competing facilities providers, is a diversifiable risk that does not increase the risk premium. Witness Billingsley rebuts this position by noting that the provision of UNEs is not a diversified business and, therefore, could be construed as riskier than a diversified telephone holding company.

Witness Hirshleifer views the provision of UNEs as a monopoly business within a telephone holding company. Other units of the telephone holding company provide local service and may face competition from CLECs but both CLEC and ILEC will lease the same network elements. We believe this is an important point in understanding how business risk affects the cost of capital in this proceeding. However, witness Billingsley points out that a given technology used in network facilities becomes obsolete quickly. BellSouth must continue to invest to keep its network elements up to date. The risk of technological obsolescence makes the provision of UNEs risky. We believe this is an important risk and adds to the risk of bypass.

For his DCF models, BellSouth witness Billingsley uses growth rates for his comparable group of companies that range from a 5.9% low to a 18.71% high. Many of the growth rates are above 15%. Though growth rates, both historical and prospective, can be high for extended periods, we find some merit in AT&T witness Hirshleifer's suggestion that companies cannot sustain high growth rates indefinitely. According to an article provided by witness Hirshleifer, a firm growing at 12% in an economy growing at 6% will eventually become larger than the economy. We believe this example has some application in this instance and that witness Billingsley's growth rates are unsustainable. The record also shows that ValueLine growth rates for witness Billingsley's comparable companies are significantly above the growth rates for the Regional Bell Holding Companies (RBHCs) and Verizon.

We question whether witness Billingsley's comparable group of companies is an appropriate proxy for determining the cost of capital for UNEs. None of his comparable group of companies receives revenue for the provision of unbundled network elements. While revenue from the provision of local exchange service is significant to the RBHCs and GTE, only one of the 20 firms in his comparable group receives revenue from the provision of local exchange service. Witness Billingsley does not consider this a requirement for his comparable group. The BellSouth witness uses firms in his comparable group that are from a cross-section of industries, such as beverages, airlines, and pharmaceuticals. Also, we note that the average BARRA beta for his comparable group is .73, whereas the beta for BellSouth Corporation is .65. Beta is a risk measure, with higher betas indicating more systematic risk.

We agree with witness Hirshleifer's conclusion that the RBHCs and GTE are an appropriate group to consider when deciding the cost of capital for UNEs. Witness Billingsley finds the RBHCs and GTE to be a small sample size.

The same problems indicated for his DCF analysis arise in witness Billingsley's CAPM and risk premium analyses. He uses his comparable group for determining the beta in his CAPM model. The DCF analysis using the firms in the S & P 500 have high growth rates, as high as 17.92%. Based on his comparable group, witness Billingsley uses .73 (0.78 updated) as a reasonable beta for BellSouth. He acknowledges that the beta for the overall market is 1.0 and that BellSouth's cost of equity is higher than that of the overall market. We believe that BellSouth's cost of equity would have to be lower than that of the overall market if a beta of .73 is reasonable.

We believe witness Hirshleifer's DCF model is flawed. Specifically, he estimates 7.86% as the cost of equity for BellSouth Corporation as of September 1999. He agrees that the yield on one of BellSouth's debentures for the same period is 7.97%. Though he agrees that investors require a higher return for equity than for debt, he refuses to eliminate the 7.86% as an illogical result. This casts doubt on Hirshleifer's DCF results.

We agree with witness Hirshleifer that the annual DCF model is the appropriate one because the payments received by telephone companies typically are received monthly, which allows more compounding than the quarterly receipt of dividends by investors. However, witness Hirshleifer's DCF model excludes flotation costs. He offers no evidence that the market does not require an allowance for flotation costs. We believe flotation costs are appropriate because the evidence shows that these costs are incurred by firms that raise capital and represent a reduction to the proceeds from the issuance of stock. Witness Billingsley's 5% flotation allowance may be somewhat high, but the record lacks evidence supporting another level of flotation costs.

We agree in part with witness Billingsley that witness Hirshleifer's CAPM model is flawed in that the market risk premium has a built-in downward bias. Specifically, the market risk premium is based on a DCF analysis of the S & P 500 excluding stocks that pay less than 1.5% in dividend yield. This screening causes downward bias in the market premium result and, in turn, the CAPM result according to witness Billingsley.

There is a wide disparity between the witnesses' results in this case. As noted, we find particular problems with the witnesses' cost of equity models. We believe the DCF models presented by both witnesses have problems such that the results of these models are unreliable. In addition, we find problems with witness Billingsley's comparable group of companies as a proxy for BellSouth's UNE business. Also, since witness Hirshleifer's information was for September 1999, we believe the information is dated.

We believe an appropriate method for gaining insight about a reasonable cost of equity is to combine variables from the witnesses' models. Attempting to justify an appropriate cost of equity by combining models and methods can be difficult. Still, based on the record, we believe one clear route is to use the CAPM model.

Witness Billingsley's updated return on the S & P 500 is 15.02% as of May 2000 with the adjustment for instability in the risk premium. The updated risk-free rate is 6.67% for May 2000. Using these inputs in a CAPM model with AT&T witness Hirshleifer's beta of .66 for the telephone holding companies produces a cost of equity of approximately 12.2%. We do not endorse Hirshleifer's leveraging of betas but the .66 beta is close to the .65 BARRA beta for BellSouth Corporation.

<u>Decision</u>

Upon consideration, we find that 12.2% is the appropriate cost of equity for BellSouth in this proceeding. We believe this rate adequately compensates BellSouth for the business risk specific to the provision of UNEs and represents the most current information available in the record.

2. Cost of Debt

To determine the cost of debt, BellSouth witness Billingsley added the recent average yield to maturity on 30-year Treasury bonds to the recent average spread between the yields on such bonds and Aaa-rated public utility bonds. He calculated a spread of 1.43% from December 1999 to February 2000. He added the spread to the average yield of 6.40% for the same period to get an estimate of 7.83%. Witness Billingsley uses 7.80% as his estimate of BellSouth's forward looking cost of debt. He notes that this cost rate does not reflect flotation costs. His updated estimate of BellSouth's forward looking cost of debt is 8.00%.

AT&T witness Hirshleifer estimates BellSouth's forward looking cost of debt by calculating the weighted average of the yields to maturity of BellSouth Corporation's outstanding issues. He calculates a cost of debt of 7.16% as of September 1999.

In rebuttal, witness Billingsley objects to witness Hirshleifer's methodology because witness Hirshleifer includes the debt of BellSouth Capital Funding, an affiliate of BellSouth. Witness Billingsley also states that witness Hirshleifer relies on dated debt market information from October 1999.

Neither of the witnesses considers short-term debt in their analysis of the appropriate cost of debt. Witness Hirshleifer agrees that short-term debt should be considered in determining the forward-looking cost of capital. BellSouth uses short-term debt and the appropriate forward-looking weight in the debt structure is 17%; the appropriate cost rate for short-term is 6.22% as of May 2000.

Witness Billingsley's updated cost of long-term debt is 8.00%. This is based on a 1.97% average spread between Aaa-rated bonds and 30-year Treasury bonds from March to May 2000. This average spread is added to the May 2000 Treasury bond yield of 6.02%, with the result being 8.00%.

We believe a longer period for measuring the spread is appropriate, based on our analysis of the record. We note that witness Billingsley used 13 years of monthly data in developing his market risk premium approach, which he used to confirm the reasonableness of his DCF and CAPM estimates of the cost of equity. Witness Billingsley acknowledges that the credit spread can fluctuate with economic conditions and government financing issues. The spread from March 1995 to February 2000 was 1.01%. When this spread is added to the 6.02% Treasury bond yield, the resulting long-term debt cost rate is 7.03%. However, we note that the spread has increased from 1.43% to 1.97% according to witness Billingsley's short-term view.

Decision

Upon consideration, we believe the following calculation is appropriate. We averaged the long-term spread of 1.01% and the short-term spread of 1.97% to obtain a spread of 1.49%. When added to the Treasury bond yield of 6.02%, the resulting cost rate for long-term debt is 7.51%. We believe this is an appropriate resolution because it allows some weight to the longer term development of the spread and allows for the recent increases in the spread. Using the long-term debt cost rate of 7.51%, the short-term rate of 6.22%, and debt weights of 83% long-term and 17% short-term, we find the resulting weighted average cost of debt of 7.30% to be appropriate.

3. Capital Structure

In determining the forward looking cost of capital, BellSouth witness Billingsley uses a market value capital structure. For each of the 20 companies in his comparable group, he develops the market value for common equity and preferred stock by multiplying the share price as of December 31, 1998 times the number of shares outstanding. Using these amounts with the book value for debt, he calculates an average market value capital structure for his comparable group of 90.17% equity and 9.83% debt.

Witness Billingsley argues that market value capital structures are dynamic and determined by the marketplace whereas book value capital structures are based on historical accounting practices and influenced by one-time accounting events. He testifies that a market value capital structure reflects investor expectations and is consistent with financial theory and the FCC's standards for a forward looking cost of capital.

In developing his recommended capital structure, AT&T witness Hirshleifer states that the goal in determining a firm's capital structure is to estimate long-run financing weights that a rational informed management team would employ. Witness Hirshleifer uses telecommunications firms as his comparable group and notes that the risk of such firms is greater than the risk of providing unbundled network elements. He notes that there is a debate among academics, practitioners, and forensic experts regarding the choice between book and market weights. He uses an average of market and book value capital structures for telephone holding companies based on closing stock prices on September 30, 1999 and SEC Form 10-Q for the third quarter of 1999. The result of this exercise is an implied capital structure for BellSouth that is 35.5% debt and 64.5% equity.

Witness Billingsley criticizes witness Hirshleifer's recommended capital structure. He believes market values are determined in the marketplace and should not be averaged with book values.

The Telecommunications Act of 1996, while requiring forward looking costs, does not require the use of a market value capital structure. Also, the record reflects that no state commission has adopted a market value capital structure for any BellSouth affiliated company.

Although witness Billingsley believes market values are superior to accounting values, he uses accounting values in selecting his comparable group. Also, a market value capital structure with a 90% equity ratio would result in a high pre-tax interest coverage ratio. BellSouth currently targets a pre-tax interest coverage ratio of at least 6. A 90% equity ratio would imply a much higher pre-tax coverage ratio.

BellSouth uses a capital structure of 60% equity and 40% debt in its cost model. For telecommunications firms with a AA bond rating, the record shows that S & P financial medians specify a debt ratio of 42% or less. For planning purposes, BellSouth targets a total debt ratio of between 42% and 47%.

Decision

Based on the foregoing, we find that the capital structure of 60% equity and 40% debt is appropriate. These ratios are close to the standards set by bond rating agencies and to the company's target ratios. We are persuaded that market value capital structures have not been widely accepted and produce aberrant coverage ratios.

Given a capital structure of 60% equity and 40% debt, a cost of equity of 12.2%, and a debt cost rate of 7.30%, we find that the appropriate forward looking cost of capital input is 10.24%.

D. Tax Rates

The record shows that BellSouth's combined state and federal income tax rate is 38.57%, based on a 35% federal tax rate and a 5.5% state tax rate. As set forth in BellSouth's witness Caldwell's May 1, 2000 Direct Testimony, the ad valorem and other tax factor is .9515% and is an effective tax factor furnished by the BellSouth Tax Department, calculated by dividing property-related tax expenses by telephone plant-in-service.

In analyzing the August 16, 2000, BellSouth cost model, BellSouth's response to our staff's discovery questions, and BellSouth witness Caldwell's testimony, we discovered differences between the Commission's terminology and the BellSouth terminology for several taxes used as inputs in the BellSouth model. The BellSouth "gross receipts tax" is the total of three or more taxes and fees: the 2.5% gross receipts tax, the .15% regulatory assessment fee, and the franchise and license fees. We believe that the revenue-related taxes, referred to by BellSouth as "gross receipts tax" are more appropriately characterized as, "Revenue-Based Taxes" and should be labeled as such. BellSouth's "gross receipts tax" does not meet the statutory definition of gross receipts tax.

Supplementing BellSouth's definition of gross receipts tax, the Unbundled Network Element Gross Receipts Tax Calculations worksheet for the August 16, 2000 cost model provides a breakdown of the calculation of the BellSouth-labeled gross receipts factor. It is evident from the definitions and the calculations that the 2.5% tax referred to as the "State Utility Tax" is the 2.5% Gross Receipts Tax and the tax referred to as PSC fees is the .15% Regulatory Assessment Fee.

However, as shown below, the worksheet for the Separations Study for the Year Ended 12/31/98 submitted by BellSouth includes three taxes/fees, but the only tax that has been applied to UNE revenue in the cost model is the .15% regulatory assessment fee (RAF), referred to as PSC Fee.

TAX	RATE	INCLUDED IN CALCULATION OF UNE REVENUES
State Utility Tax/Gross Receipts Tax	0.0250	No
PSC Fee/Regulatory Assessment Fees	0.0015	Yes
Local Franchise & License Tax	varies	No

Further, as reflected in the BellSouth cost model, the grossed-up RAF rate is .17%. This .17% has been developed by applying an additional 1.1400100668909 factor to the .0015 RAF, thus inflating the fee before the markup (or gross-up) factor is applied. As shown in the table below, without the additional factor, the RAF is calculated as $24,249.33 as opposed to the $27,644.48 calculated by the model, a difference of $3,395.15. The $27,644 divided by the $16,166,222 UNE revenues results in the UNE tax rate of 17.10%. This 1.1400100668909 factor applied to the .0015 RAF factor, then marked up, results in a total RAF amount of $27,691.83 as opposed to our calculation of marked-up RAF of $24,285.76, a difference of $3,406.07. No explanation is provided in the record to support this 1.1400100668909 factor. Therefore, we find it appropriate to limit the RAF rate to .15%, the rounded grossed-up .150225338 shown below.

	Commission	BellSouth
Revenues	$16,166,222.00	$16,166,222.00
PSC/Regulatory Assessment Fee Rate	X .0015	X(.0015)1.14001006689909
PSC/RAF Fee	$24,249.33	$27,644.48

	Commission	BellSouth
Markup Factor	=1/(1-rate)-1 =1/(1-.0015)-1 =0.00150225338007015	=1/(1-rate)-1 =1/(1-.001700151)-1 = .001712944261
Total Collected for PSC Fee: PSC/RAF Fee Markup Factor Total	 $24,249.33 X 1.00150225338 $24,285.76	 $27,644.48 X 1.001712944261 $27,691.83

Decision

The rates established in these proceedings will be for UNEs offered in Florida; therefore, we find it appropriate that Florida-specific tax rates be applied. Accordingly, we approve a combined state and federal income tax rate of 38.57%, an ad valorem and other tax rate of .9515%, and a RAF rate of .15%. Further, we find that the BellSouth "Gross Receipts Tax" be labeled, "Revenue-Based Taxes," the BellSouth "State Utility Tax" be labeled, "Gross Receipts Tax" and set at 2.5% of revenues to which it applies, if any, and the BellSouth "State Utility Tax" be labeled, "Regulatory Assessment Fee."

E. Structure Sharing, Structure Costs, and Manholes

Next we must determine the appropriate assumptions and inputs for structure sharing, structure costs, and manholes to be used in the forward-looking recurring UNE cost studies.

BellSouth witness Caldwell described BellSouth's approach to structure cost, structure sharing, and manholes. She testified:

> The amount of structure sharing is also a major cost driver. The structure sharing percentages should be BellSouth-specific and representative of BellSouth's achievable sharing arrangements in Florida. Structure

> sharing is reflected in the loading factors for poles and conduit and in the in-plant factor associated with buried cable.
>
> . . . BellSouth utilizes loading factors to identify the amount of pole and conduit investment required to support the associated aerial and underground cable. During the development of these factors, anticipated net rents (expenses paid to other parties for attaching to their structures less revenues received from others for attaching to BellSouth's structures) from sharing arrangements are considered. Thus implicitly structure sharing is reflected in the calculation. Past information supports the fact that sharing of poles is a relatively common occurrence. In fact, in Florida BellSouth only owns approximately 40% of the poles to which it attaches cable. However, the sharing of conduit space is not as extensive, as reflected in the relatively low amount of rent BellSouth receives from these structures. Sharing of trenching is reflected in the in-plant factor associated with buried cable. Since this factor is developed by analyzing the relationship between total installed investments and material prices, any savings gleaned from sharing of placement costs has been considered. As with the sharing of conduit, joint trenching occurs on a very limited basis.

When asked how much sharing BellSouth experiences in conduit and trenching, BellSouth responded that it "does not have a report that provides such information." However, BellSouth did provide year-end 1996 information that it provided to the FCC, which stated that 0.0684 percent of Florida duct feet of conduit was shared and 3.0 percent of Florida buried cable trench was shared.

In an interrogatory response, BellSouth explained in more detail how structure sharing is reflected in the calculation for the pole and conduit loading factors:

> The degree to which structure sharing exists is reflected in the numerator of each loading factor and in the plant specific expense factor applied to pole and conduit investment (i.e., the fact that BellSouth often attaches to power company poles is reflected in a diminished pole investment and likewise, the pole maintenance expense factor that is applied to the pole investment reflects the sharing efficiencies of pole rent revenue received by BellSouth from parties that attach to BellSouth poles.) The sharing of the buried cable support structure (trenching costs) would also be implicitly reflected in the numerator of the buried cable in-plant factor in that plant or vendor labor costs required to dig the trenches would be diminished due to the sharing of trenching costs.

According to BellSouth witness Caldwell:

> BellSouth does not anticipate any major changes to the amount of structure sharing in the future. Arguments have been made in past proceedings alleging dramatic increases in the percent of structure sharing due to competition. BellSouth's experience suggests otherwise. Structure sharing is dependent on timing, location of facilities, and technical considerations. It is difficult for all the factors to coincide. In fact, this Commission agreed with this declaration in its Order No. PSC-96-1579-FOF-TP stating: 'We are not persuaded by AT&T/[WorldCom's] argument that a competitive environment will encourage more structure sharing.'

Order No. PSC-96-1579-FOF-TP at Page 78.

In its utilization of loading factors to determine the cost of poles and conduit, BellSouth asserted that, "even though the BSTLM [BellSouth Telecommunications Loop Model] has the flexibility to 'place' structures, BellSouth felt the use of loading factors more accurately portrays the costs BellSouth is expected to incur in provisioning loops on a going-forward basis."

FCTA witness Barta pointed out that "it is difficult to separately identify the extent of structure sharing assumed in the BellSouth cost proxy model." According to Witness Barta:

> [T]he structure sharing values for BellSouth [should] . . . be modified to include at least two additional parties sharing pole facilities. The percentage of structure sharing among utilities and other users should increase in the future as more parties require space on a limited number of facilities and right-of-ways [sic]. [This] recommended structure sharing level recognizes that although there will be more carriers seeking the economic benefits of structure sharing, the opportunities for such sharing may be constrained for a number of reasons, including engineering limitations.

When asked to explain "how a structure sharing model could be modified to include at least two additional parties sharing pole facilities, e.g., if BellSouth assumes its portion of a pole is 50 percent, and two additional parties were to be added, what would BellSouth's new portion of that pole be?," the FCTA witness responded:

> Based upon the testimony of the BellSouth witness, it would seem that a user may be able to adjust the schedule of pole rental receipts and payments in order to reflect revisions in the structure sharing arrangements between the Company and third parties. The cost proxy model sponsor, BellSouth, would be in a much

> better position to explain how such a revision could be made.
>
> The response to the hypothetical posed in the interrogatory would depend upon knowledge of certain agreements between BellSouth and the third-party pole attacher such as the amount of pole space allocated to each additional party and the rate charged for each pole attachment or foot of pole space.

According to BellSouth witness Caldwell, BellSouth developed its manhole costs using the conduit loading factor:

> Manhole costs are not developed individually, i.e., BellSouth does not develop the cost of a 4x6x7 manhole or a 12x6x7 manhole and enter those values into the BSTLM. Instead, manhole costs are incorporated into the study through the conduit loading factor. The manhole placement costs are considered in the in-plant factors associated with underground cable.

The FCCA ALECs proposed that we adopt in this proceeding their material inputs from our Universal Service proceeding, Docket No. 980696-TP. We disagree, however that the inputs from the Universal Service docket are appropriate here. The purpose of this docket is to determine generic prices for UNEs; whereas, the Universal Service docket was opened in response to a legislative mandate. As we said in our order in the Universal Service docket, "we note that this proceeding is not to determine the actual cost faced by any of these LECs, but is rather to estimate the forward-looking cost of an efficient provider building a scorched node network all at once, all at the same time." (Order No. PSC-99-0068-FOF-TP, page 129)

AT&T/WorldCom witnesses Donovan and Pitkin were not able to use material or labor costs in the BSTLM to calculate structure costs. They testified that:

> BellSouth employs factors to calculate structure costs instead of relying on material and labor inputs. While we understand that

> the BSTLM has the capability to use these more disaggregrate [sic] structure inputs, BellSouth has effectively prevented the user from employing these options by locking this portion of the model. In addition, BellSouth has not provided the parties any information or guidance on how to enable this functionality or how the inputs are employed in the model's algorithms. Therefore, we have not been able to utilize this more appropriate methodology and have had to rely on BellSouth's factor approach to estimating structure investment.

Decision

Thus, AT&T/WorldCom was unable to use the BSTLM to develop structure costs using material prices and other disaggregated information, which is the ALECs' preferred method for determining structure costs. In principle, we would expect "bottoms up" modeling for structure costs to be preferable since this approach would tend to be more accurate; however, that was not possible in this proceeding. We disagree with the FCCA ALECs that inputs from the Universal Service docket are necessarily appropriate in this proceeding. Therefore, we find that the appropriate assumptions and inputs for structure sharing, structure costs, and manholes are those embedded in the loading factors identified by BellSouth, as modified by our decision concerning loading factors, as set forth in Sub-section O of this Order.

F. Fill Factors

Next we turn to the appropriate assumptions and inputs for fill factors in the forward-looking recurring UNE cost studies. A fill factor describes the percentage of plant that is in use. BellSouth witness Caldwell described how BellSouth determined its fill factors for the cost study. She testified:

> BellSouth's fill factors were based upon the FCC's directive that "[p]er unit costs shall be derived from total costs using reasonably accurate 'fill factors.'" In many cases,

> BellSouth Network provided the anticipated utilization of the equipment based on projected demand and quality of service considerations.
>
> Similar to other models, such as, the HAI model, the FCC Synthesis Model, and the Benchmark Cost Proxy Model ("BCPM"), utilization is not entered as a percentage in the BSTLM. Rather, the distribution cables are sized based on the appropriate standard size cable and the number of pairs provisioned to each living unit. Still the effective distribution utilization can be calculated from the BSTLM. The average distribution cable effective fill in BellSouth's study for Florida is 47%. For feeder cable, the model uses the cable sizing factor and standard size cables to determine the required cables to be placed. The average effective fill of the copper feeder cables in this filing is 74%. These results are reflective of BellSouth's anticipated future fill in the distribution and feeder routes.
>
> Even though the model allows for growth to be considered in the sizing of cables, BellSouth set the growth component to zero. Thus, spare capacity for growth was not reserved.

In discovery responses, BellSouth provided a more detailed explanation of how distribution fill factor inputs are determined. BellSouth responded:

> BellSouth used a design parameter of 2 distribution pairs per household in the BSTLM for use in sizing the amount of distribution cable to be placed on each route. The model will count the number of households that have working lines on a route and multiply that number by 2 pairs. The model then adds in the number of business pairs in service on the

> route to arrive at the required number of pairs for the route. The BSTLM then selects the next larger cable size (e.g., 65 households with service X 2 pairs = 130 + 10 working business lines for a total of 140 required pairs results in a 200 pair cable being placed).
>
> The effective fill is determined by dividing the number of working distribution pairs by the number of available pairs placed. Overall, the BSTLM produces an effective distribution fill of 47%, which is very close to the fill BellSouth has experienced in the past and expects to experience in its copper distribution plant in the future.
>
> The BSTLM uses the actual number of business lines in service on a route, coupled with the 2 pairs per household with working lines, to determine pairs required for the route. The Minimum Pairs Per Business was carried over from the proxy models. However, it was determined that the value was not needed since the data provided into the model was actual business line count not business counts.

BellSouth's methodology for feeder cable is somewhat different in its use of cable sizing factors. As described by BellSouth in discovery responses:

> The Copper Sizing Table Engineering Rules were constructed using the same approach as the FCC's HCPM copper sizing table. In fact, the feeder values used in the table were obtained from the FCC's HCPM. In effect, copper cable sizing factors are provided by density zones (lines per square mile) to allow the user to vary cable sizing calculations by density. This reflects the fact that cable fills are typically greater in dense areas than in more rural areas.

> Based upon the density zone the route falls within, a table lookup is made to obtain the sizing factor. The working pairs on a route are then divided by the factor to arrive at the pair requirements. The model then picks the next largest cable of sufficient size to serve that route.
>
> Similar to distribution, the model divides the working pairs by the available pairs to determine the effective fill. Overall, the BSTLM produces an effective feeder fill of 74% which is very close to the fill BellSouth has experienced in the past and expects to experience in its copper feeder plant in the future.

When asked for actual distribution and feeder fills, BellSouth responded, "[N]o record is kept for "distribution" cables . . . ." However, according to information available in the Universal Service proceeding, Docket No. 980696-TP, "BellSouth's actual distribution fill as of December, 1997, is 41.3 percent." (Order No. PSC-99-0068-FOF-TP, page 127) BellSouth did provide its copper feeder utilization in Florida: 65.03 percent at year end 1999, with 64.63 percent in 1998, 65.97 percent in 1997, and 65.96 percent in 1996.

Several ALEC witnesses discussed fill factors. In his testimony, Sprint witness Cox quoted the FCC:

> FCC 96-325, First Report and Order, Paragraph 682 states, 'Per-unit costs shall be derived from total costs using reasonably accurate "fill factors" (estimates of the proportion of a facility that will be 'filled' with network usage); that is, the per-unit costs associated with the element must be derived by dividing the total cost associated with the element by a reasonable projection of the actual total usage of the element.'

In addition, witness Cox described "fill or utilization factors" as "the percentage of available network capacity actually used. Utilization is due to three factors." He testified that the three factors were:

> 1. When engineering and building telecommunications facilities, LECs attempt to anticipate future needs. For example, it is more cost-effective to dig a trench once and install additional facilities, than to dig up the trench and install new facilities every time a new loop is required.
>
> 2. It is the nature of the telecommunications industry that capacity is acquired in large blocks. Additional capacity will exist while demand grows into the available capacity.
>
> 3. An engineering interval, a period of time necessary to plan and construct facilities, is required when replacing or expanding capacity.

Witness Cox also testified that:

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

Witness Cox then asserted that a "theoretically high, optimal utilization factor" is inappropriate for telephone companies. According to him:

> This is in large part due to the nature of transmission capacity. For example, an OC-3 system has the capacity of 3 DS3s. An OC-12 system has the capacity of 12 DS3s. When an OC-3 system is exhausted and replaced with the larger OC-12 system, its maximum utilization

> at the time of cutover is only 25% (3 DS3s / 12 DS3s). In reality, the cutover takes place prior to absolute exhaustion, so the actual utilization at cutover must be less than 25%.

FCTA witness Barta also discussed fill factors. He testified:

> The fill factors used in the ILECs' cost proxy models affect the level of investment required to provide services to customers. Lower than necessary utilization rates increase total loop investment because the increase in required capacity associated with lower fill factors increases the amount of loop plant used to deliver telecommunications services. Optimistically robust fill factors may jeopardize the quality of service.
>
> The appropriate fill factor used in the cost proxy models should balance current and expected demand levels as well as accommodate the requirements for administrative and modular related spare capacity over the economic life of the feeder and distribution facilities. Deploying facilities to satisfy demand that is not expected to materialize until after the facilities have been retired represents poor management judgment. A competitive firm would not be able to overcome such errors of judgment by passing on the high costs to its customers.
>
> The economic lives that the incumbent carriers have assigned to distribution and feeder facilities for capital recovery purposes should be consistent with the fill factors developed as part of the efficient network configured by the cost proxy models. For instance, if the incumbent carriers assign an economic life of 14 years for metallic distribution facilities, then it is not reasonable to size these facilities to satisfy

> demand levels that may not emerge for 25 to 30 years in the future, long after the facilities are projected to be retired.

Data ALECs witness Riolo discussed fill factors. He testified:

> Feeder plant from the central office to the feeder distribution interface is designed on the basis of economics for an economic period of time. You size the cable for the requirements as of the date it finishes its installation, plus some three to five years worth of growth. That generally is the guideline that is in the industry.
>
> In the distribution side of the cable, the distribution cable is designed for the ultimate. A determination is made as to how many pairs per dwelling unit, typically it is two pairs per dwelling unit for each dwelling unit to be served, and the cable is sized accordingly.
>
> Now, obviously cables don't come in every particular pair size, but rather in discreet or I what call chunkiness. So that if you needed 175 pairs for some reason because that is how many two pairs per household it came out, the next size cable would be a 200 pair cable.
>
> So by and large the distribution plant not only has the number of pairs per dwelling unit for the ultimate service you perceive to be in that location, but it also has some modicum of spare pairs even over and above that due to the chunkiness of cable. Thus, I submit to you that the fill, that is the working service in the distribution, generally is low, particularly as compared to the feeder plant.

When asked whether "industry guidelines are modifying their recommendations . . . for the two pair per dwelling unit," witness Riolo responded:

> The two pair per dwelling unit is somewhat of a minimal guideline. The actual design criteria is really left to the engineer, who should be more familiar with the geography to be served. For example, in some very affluent areas where the perception might be, and very well so, that five and six pair would be the proper number per household, it certainly does not preclude the engineer from doing that. There has to be some sufficient material that would indicate things of that nature. But I know of locations that were designed on certainly more than two pairs per dwelling unit.

Thus, neither Sprint, FCTA, or the Data ALECs disagree with BellSouth regarding fill factors. Because BellSouth did not explicitly include growth, FCTA witness Barta's concerns about consistency with capital recovery should be eased. We agree with BellSouth that growth should not be included, especially since growth and administrative spare is implicitly assumed with BellSouth's use of the next larger cable size.

The FCCA ALECs, Data ALECs and Time Warner argued in their posthearing brief that the fill factor inputs should be 1.5 pairs per residential household, based on Order No. PSC-99-0068-FOF-TP in the Universal Service docket; whereas, BellSouth argued the input should be 2 pairs per household. The FCCA ALECs, Data ALECs and Time Warner also argued that the input should be 3 pairs per business based on the Universal Service docket. On the other hand, BellSouth supported using the actual number of pairs per business.

<u>Decision</u>

We disagree with the FCCA ALECs that the inputs from the Universal Service docket are appropriate here, as discussed above in subsection E.

In summary, BellSouth's proposal is 2 pairs per household, with which Data ALECs' witness Riolo also appears to agree. We are persuaded by witness Riolo's discussion on the appropriateness of 2 pairs per household. We believe that 2 pairs per household is reasonable, and in some instances may be conservative. Therefore, we find that the appropriate input per household is 2 pairs. For business lines, the FCCA ALECs proposed 3 pairs per business, while BellSouth's model used the actual number of business lines. We find that use of the actual number of business lines is more accurate, and thus more reasonable than an assumed average number of lines. Therefore, we find that the appropriate input for business is the actual number of lines.

The ALECs did not dispute BellSouth's effective feeder fill of approximately 74 percent, which represents a 9 percentage point increase over BellSouth's actual 1999 feeder fill factor of 65 percent. We find that BellSouth's feeder cable inputs resulting in an effective fill of approximately 74 percent are reasonable. We also find that BellSouth's distribution fill factors that result in utilizations of 47 percent are reasonable.

G. <u>Material and Placement Costs for Fiber and Copper Cable</u>

We now must decide the appropriate assumptions and inputs for the material and placement costs for both fiber and copper cable to be used in the forward-looking recurring UNE cost studies. Fiber and copper cable are used three different ways -- underground, buried, and aerial. The BellSouth Telecommunications, Inc. Loop Model (BSTLM) input sheets include costs for material, as well as factors depicting other components necessary to provide for the costs for engineered, furnished, and installed cable.

BellSouth's witness Caldwell described BellSouth's development of its cable cost inputs. She testified:

> BellSouth used BellSouth-specific costs for both copper and fiber cable. Material prices for copper and fiber cable were obtained from procurement records that reflect actual BellSouth purchase prices and contractual agreements. . . . [F]uture inflation trends (TPIs) were also taken into consideration in

> order to reflect forward-looking costs. Telephone company engineering and labor costs were derived from BellSouth's Florida in-plant loading factors. In-plant factors convert material prices to a Florida-specific installed investment. BellSouth-specific cable costs reflect economies of scale and vendor prices that an efficient provider would be able to expect to achieve on a going forward basis.

BellSouth's material costs represent the average material price for a given size and type of cable. The costs are based on BellSouth material price lists, which reflect the purchasing efficiencies of aggregating all cable purchases to include the needs of all nine BellSouth states. In addition to applying inflation, BellSouth applies material loading factors to translate the material costs to Florida-specific in-plant total installed costs.

BellSouth's placement costs for each size of cable, while implicitly included in the composite category costs, are not explicitly identifiable. BellSouth explained:

> A fundamental assumption implicit in BellSouth's use of an in-plant loading approach is that for each cable type, the current relationship of total in-plant costs to material cable costs provides a reasonable approximation of such relationships for the future forward-looking period. Furthermore, the in-plant relationships developed for a specific cable type . . . will also produce representative cost results across the spectrum of cable sizes when viewed on a total cable placement basis.

According to BellSouth's witness Caldwell, the concept of an in-plant placement loading factor is to capture the costs necessary to engineer, install, and get the cable ready for service. The factor is essentially a multiplier to the material investment and is theoretically based on the composite total installed and material costs for the universe of cables BellSouth placed in 1998 in Florida. This captures the actual 1998 placement costs by category type (i.e., telco plant labor, telco engineering, vendor engineering, vendor installation, exempt material, and non-exempt material) for a given type of cable (fiber or copper, aerial, underground, or buried). Drop terminals for line sizes below 100 pairs are included as exempt material. For these reasons, BellSouth contended that the use of loading factors is representative of the broad range of activities and costs required to install cable in a variety of locales and under a variety of conditions.

The primary criticism of the Data ALECs, FCCA ALECs, Sprint, and Time Warner regarding BellSouth's copper and fiber cable costs centered around BellSouth's use of generic linear loading factors to account for engineering and placement costs when BellSouth has access to actual costs. The ALECs asserted that such an approach distorts cost relationships between rural and urban areas and are not appropriate in a proceeding where rates are being deaveraged.

Sprint's witness Dickerson argued:

> The BSTLM has the ability to apply the actual engineering placement, and structure, related investments to the network built in BSTLM, but BellSouth has chosen not to use its model's full capability. As a result, the costs are inaccurate. BellSouth should, therefore, be required to modify its costing methods to more accurately reflect its actual experience.

Similarly, AT&T and WorldCom's witnesses Donovan and Pitkin testified:

> While the BSTLM is designed to calculate the total loop investment required to provide the various loop elements, BellSouth disabled many of these features and instead used the BSTLM to calculate only the <u>material</u> investment associated with the loop elements. BellSouth's filing then applies a series of factors to these material investments, for

> engineering and installation costs, in order to derive total installed investment.
>
> BellSouth's factor approach to calculating installed investment distorts the actual investment required by assuming that engineering and installation costs are directly proportional to the material costs.

AT&T and WorldCom's witness Pitkin and Sprint's witness Dickerson argued that engineering and placement costs do not vary with the number of cable pairs being placed, as BellSouth's factor approach implies, but rather with the number and types of cable sheaths that are determined necessary. The witnesses asserted that it does not cost four times as much to engineer a 400-pair cable as it does a 100-pair cable or sixteen times as much to place a 400-pair cable as it does a 25-pair cable. Yet, that is the result of BellSouth's linear loading factors. Additionally, witness Dickerson argued:

> In the case of a fiber feeder cable serving numerous digital loop carrier sites, a small fiber sheath such as a 24 fiber cable may carry thousands of digital loop carrier derived loops. Engineering that cable is not hundreds or thousands of times the engineering cost of a 50 pair copper cable. The engineer does relatively the same work to engineer either the 50 pair cable or the 24 fiber cable. Loading engineering costs equally on a per pair basis (or on a per pair equivalent as in the case of fiber) is incorrect.

Further, Sprint's witness Dickerson asserted that, in reality, placement costs for buried and underground cables vary little among cable sizes, while the placement costs of aerial cable vary from small to large cables due to the difference in weight and diameter of the larger cables. He explained:

> Buried cable construction techniques, such as trenching, back hoe trenching, cut and restore concrete, cut and restore sod, laying the

> cable in the trench, and filling the trench vary little if at all with the size of the cable placed in the trench. Digging a trench for an 800 pair cable does not require 32 times the effort to dig a trench for a 25 pair cable.

In response to AT&T and WorldCom's allegations that BellSouth's in-plant factors overstate the costs of larger sized cables, BellSouth's witness Caldwell asserted:

> While the relationship of the combined costs of installation labor, exempt material, sales tax and engineering to total material costs may not be perfectly linear, the use of in-plant factors produces representative cost results when viewed on a total cable placement basis. While the use of in-plant factors may potentially overstate, to some degree, the costs for large size cables, Mr. Donovan and Mr. Pitkin conveniently disregard the fact that if one believes that in-plants overstate the cost of large sized cables, then the corollary is also true; i.e., that in-plants potentially understate, to some degree, the costs for small size cables.

Additionally, witness Caldwell noted that only 20% of BellSouth's actual 1998 cable placements related to cable sizes of 400-pair and larger. Further, the network placed by the BSTLM assumes a greater incidence of smaller cable placements, with about 18% of the placements related to cable sizes of 400-pair and larger. However, AT&T, WorldCom, and Sprint argued that even if BellSouth's embedded plant has 12% 25-pair cables and 20% over 400-pair cables, the network that the model constructs will probably place the 20% larger cables in a Miami-type area that has sufficient density to justify those cables and 25% will be in the more rural areas. AT&T and WorldCom's witness Donovan asserted:

> If we were talking about developing statewide average rates, it could be appropriate. But because we are deaveraging, it is wrong to

> assume you're going to have the same mix of 25-pair cables and 4,200-pair cables throughout every wire center and every density zone. You are overstating the costs in higher-density zones and understating the costs in lower-density zones so this is not a balancing-out exercise.

Sprint's witness Dickerson testified that using the exact uniform pair investment across all wire centers completely distorts cost relationships between rural and urban areas.

AT&T, WorldCom, and Sprint's witnesses suggested that an alternative approach to BellSouth's use of in-plant factors is using Standard Time Increment (STI) values to provide more appropriate estimates of installation costs. However, BellSouth's witness Caldwell advocated that an STI solution is no solution. She asserted that the necessary engineering criteria needed for such an approach are not readily available and the assumptions that would be needed would be subject to some of the same frailties for which BellSouth is being criticized in the use of its in-plant factors in this proceeding. Witness Caldwell reiterated that, when viewed from a total cable placement view, whatever distortions may be present from a "size of cable placed" perspective are minimal.

Both witnesses Pitkin and Dickerson concluded that BellSouth's application of an installation loading to a unit cost, that is a linear cost per pair relationship, is flawed and should be rejected. While Sprint made no specific recommended adjustments to BellSouth's fiber and metallic cable costs to account for the linear loading problem, Sprint witness Dickerson did recommend that BellSouth be required to develop its structure cost inputs utilizing the capability of the BSTLM on a cable sheath basis, not on a per pair basis. While witness Dickerson recognized that we are not in an optimal position, he stated:

> It's unfortunate that BellSouth chose to develop their costs in an erroneous manner, but I don't think we can overlook it or back away from it because of the work that would lie ahead to correct the problem, unfortunately.

In the meantime, witness Dickerson suggested that interim rates be established, subject to true-up, until a new cost study is filed, reviewed, and analyzed. He suggested that there may be some logic to use the inputs adopted in the universal service proceeding as a basis for determining interim rates.

The FCCA ALECs recommended that we rely on the material and unit prices adopted by us in the Universal Services Docket by Order No. PSC-99-0068-FOF-TP. AT&T and WorldCom's witness Pitkin asserted that there are three primary reasons why the unit-cost inputs adopted in the Universal Service Order are appropriate to employ:

> Both the BCPM and the BSTLM purport to estimate forward-looking costs using current technologies, so the theoretical frameworks for the two cost proxy models should be similar;
>
> Many of the inputs in the BSTLM are similar or directly equivalent (except for DLC equipment which we describe below) to the inputs used in the BCPM, so the inputs are easily transferable; and
>
> BellSouth sponsored the BCPM in the Universal Service docket and the Commission's decisions considered BellSouth's evidence on inputs in that docket.

In response, BellSouth's witness Caldwell asserted that Universal Service funding is designed to set a subsidy level for all providers, while the UNE proceeding is designed to set permanent rates for BellSouth. In her discussion of the use of forward-looking economic costs with respect to Universal Service, witness Caldwell quoted the FCC's statement that "long run, forward-looking economic cost best approximates the costs that would be incurred by an efficient carrier in the market." (FCC Report and Order in Docket No. 96-45) She further testified that with that objective in mind, this Commission issued its Universal Service Order relying heavily on inputs from Sprint, considered by us to be representative of an "efficient provider." On the other hand, Ms. Caldwell argued that the rates set for UNEs should be set at a level that compensates BellSouth for the use of its network, not Sprint's. She testified that the FCC's Third Report and Order alluded to this difference: the "benchmark of forward-looking cost and existing network design most closely represents the incremental costs incumbents actually expect to incur in making network elements available to new entrants."

Only AT&T and WorldCom voiced any concern over BellSouth's fiber and copper material cost inputs. AT&T and WorldCom's witnesses Donovan and Pitkin admitted they did not undertake a detailed review of BellSouth's material costs. However, they did suggest comparing the current inputs with the material cost inputs in the Universal Service Final Order, Order No. PSC-99-0068-FOF-TP, as a test for reasonableness.

As we have previously discussed, we disagree that the inputs adopted by us in the Universal Service proceeding should be used for establishing UNE prices, since that proceeding related to a legislative mandate, the adopted inputs are not specific to BellSouth, and the inputs are two years old. Nevertheless, a comparison of the non-loaded material costs between the two cases does not indicate drastic differences. In general, BellSouth's non-loaded fiber cable material costs submitted in this proceeding are lower than those BellSouth submitted or the Commission adopted in the Universal Service proceeding; copper cable costs have increased somewhat from what BellSouth submitted in the universal service proceeding but are still lower than the material costs the Commission adopted in that proceeding. Also, we note that we found in the Universal Service proceeding that the "actual material prices . . ., in general, do not vary very much among the LECs . . ." <u>See</u> Order No. PSC-99-0068-FOF-TP at 155-156.

Accordingly, because BellSouth's non-loaded material prices approximate those levels we found reasonable in the Universal Service proceeding, and in the absence of evidence to the contrary, we adopt BellSouth's non-loaded material cost inputs to determine UNE prices at this time.

The table below entitled BellSouth's Material and Telco Cable Loading Factors shows BellSouth's material and telco placement factors for copper and fiber cables. Also shown is the percent of labor, engineering, exempt, and non-exempt costs that makeup BellSouth's total placements for each cable type. For a discussion of the derivation of the material and telco loadings, see our discussion below concerning loadings.

BellSouth's Material and Telco Cable Loading Factors

Cable Type	Telco Labor	Telco Eng.	Vendor Eng.	Vendor Labor	Exempt Material	Non-Exempt Material	Tax	Material Factor	Telco Factor
	(%)	(%)	(%)	(%)	(%)	(%)	(%)		
Metallic									
Aerial	35.52	13.45	14.72	1.09	18.51	16.71	6.0	6.344596	3.167634
Buried	15.15	7.51	16.58	37.59	7.69	15.48	6.0	6.848910	1.454111
Undgd.	43.03	.01	7.24	3.58	22.27	23.87	6.0	4.440378	2.999592
Fiber									
Aerial	39.89	8.88	10.62	3.27	21.52	15.82	6.0	6.700563	3.470936
Buried	11.03	2.78	18.24	34.25	4.96	28.74	6.0	3.688092	1.256264
Undgd.	21.58	3.33	5.87	1.30	9.85	58.07	6.0	1.825332	1.614122

As discussed previously, BellSouth's placement loading factors are developed as factors, and then applied to the material costs adjusted for inflation. As can be seen above, the loading factors are linear -- that is, no adjustment is made for size. For underground fiber cable, BellSouth's material loading factor is 1.8253. This factor is the same whether it is applied to the smallest increment or to the largest size of underground fiber cable.

BellSouth applies an inflation factor to its fiber and copper cable material unit costs, the reasonableness of which is discussed in sub-section O of this Order. The next 11 tables below provide a side-by-side comparison of total material and placement costs underlying the parties' positions, as well as BellSouth's implied material as a percent of total cost. The columns shown for the FCCA ALECs, the Data ALECs, and Time Warner are the Commission adopted fiber and copper cable inputs from our final order in the Universal Service docket, Order No. PSC-99-0068-FOF-TP. For the cable sizes not addressed in the Universal Service cost model, which was the Benchmark Cost Proxy Model (BCPM), the AT&T and

WorldCom witnesses testified that their recommended values represent an averaging of the smaller and larger cable sizes. While Sprint argued that BellSouth's placement costs are not realistic, forward-looking, or geographic-specific, it provided no specific recommended adjustments to BellSouth's material cost inputs.

Underground Fiber Cable

	DATA ALECs/FCCA ALECs/Time Warner*	BellSouth			
Size	Total Cost	Material Cost	Placement Loading	Total Cost	Material as % of Total
216	$12.69	$3.97	1.8253	$7.25	54.79%
168	9.87	3.16	1.8253	5.77	54.79%
156	9.16	2.96	1.8253	5.40	54.79%
144	9.41	2.77	1.8253	5.06	54.79%
132	9.48	2.56	1.8253	4.67	54.79%
120	8.61	2.36	1.8253	4.31	54.79%
108	7.75	2.15	1.8253	3.92	54.79%
96	7.51	1.93	1.8253	3.52	54.79%
84	7.11	1.75	1.8253	3.19	54.79%
72	6.55	1.58	1.8253	2.88	54.79%
60	6.07	1.35	1.8253	2.46	54.79%
48	5.51	1.22	1.8253	2.23	54.79%
44	5.53	1.08	1.8253	1.97	54.79%
36	4.91	0.91	1.8253	1.66	54.79%
32	5.24	0.88	1.8253	1.61	54.79%
30	4.91	0.84	1.8253	1.53	54.79%
24	4.58	0.72	1.8253	1.31	54.79%
18	4.43	0.64	1.8253	1.17	54.79%

	DATA ALECs/FCCA ALECs/Time Warner*	BellSouth			
Size	Total Cost	Material Cost	Placement Loading	Total Cost	Material as % of Total
12	4.23	0.53	1.8253	0.97	54.79%
6	3.51	0.44	1.8253	0.80	54.79%

* Total costs (material plus installation) represent values adopted in Universal Service final order, Order No. PSC-99-0068-FOF-TP. For the cable sizes not addressed in that order, values were developed based on an averaging of the smaller and larger cable sizes.

Aerial Fiber

	DATA ALECs/FCCA ALECs/ Time Warner*	BellSouth			
Size	Total Cost	Total Cost	Placement Loading	Total Cost	Material as % of total
216	$11.08	$3.97	6.700563	$26.60	14.92%
168	8.62	3.16	6.700563	21.17	14.93%
156	8.00	2.96	6.700563	19.83	14.93%
144	7.82	2.77	6.700563	18.56	14.92%
132	7.69	2.56	6.700563	17.15	14.93%
120	6.98	2.36	6.700563	15.81	14.93%
108	6.29	2.15	6.700563	14.41	14.92%
96	5.96	1.93	6.700563	12.93	14.93%
84	5.72	1.75	6.700563	11.73	14.92%
72	5.33	1.58	6.700563	10.59	14.92%
60	4.68	1.35	6.700563	9.05	14.92%
48	4.15	1.22	6.700563	8.17	14.92%

	DATA ALECs/FCCA ALECs/ Time Warner*	BellSouth			
44	4.16	1.08	6.700563	7.24	14.92%
36	3.70	0.91	6.700563	6.10	14.92%
32	3.79	0.88	6.700563	5.90	14.92%
30	3.55	0.84	6.700563	5.63	14.92%
24	3.22	0.72	6.700563	4.82	14.92%
18	3.03	0.64	6.700563	4.29	14.92%
12	2.83	0.53	6.700563	3.55	14.92%
6	2.35	0.44	6.700563	2.95	14.92%

* Total costs (material plus installation) represent values adopted in Universal Service final order, Order No. PSC-99-0068-FOF-TP. For the cable sizes not addressed in that order, values were developed based on an averaging of the smaller and larger cable sizes.

Buried Fiber

	DATA ALECs/ FCCA ALECs/Time Warner*	BellSouth			
Size	Total Cost	Material Cost	Placement Loading	Total Cost	Material as % of Total
216	$11.56	$3.97	1.256264	$4.99	79.56%
168	8.99	3.16	1.256264	3.97	79.60%
156	8.35	2.96	1.256264	3.72	79.60%
144	8.28	2.77	1.256264	3.48	79.60%
132	8.08	2.56	1.256264	3.22	79.60%
120	7.34	2.36	1.256264	2.96	79.60%
108	6.61	2.15	1.256264	2.70	79.60%
96	6.23	1.93	1.256264	2.42	79.60%
84	5.74	1.75	1.256264	2.20	79.60%
72	5.16	1.58	1.256264	1.98	79.60%

60	4.64	1.35	1.256264	1.70	79.60%
48	4.07	1.22	1.256264	1.53	79.60%
44	3.96	1.08	1.256264	1.36	79.60%
36	3.42	0.91	1.256264	1.14	79.60%
32	3.56	0.88	1.256264	1.11	79.60%
30	3.34	0.84	1.256264	1.06	79.60%
24	3.06	0.72	1.256264	0.90	79.60%
18	2.90	0.64	1.256264	0.80	79.60%
12	2.68	0.53	1.256264	0.67	79.60%
6	2.22	0.44	1.256264	0.55	79.60%

* Total costs (material plus installation) represent values adopted in Universal Service final order, Order No. PSC-99-0068-FOF-TP. For the cable sizes not addressed in that order, values were developed based on an averaging of the smaller and larger cable sizes.

Copper Cable 26 Gauge Underground

	DATA ALECs/ FCCA ALECs/Time Warner*	BellSouth			
Size	Total Cost	Material Cost	Placement Loading	Total Cost	Material as % of Total
4200	$61.69	$18.74	4.440378	83.21	22.52%
3600	50.61	13.49	4.440378	59.90	22.52%
3000	43.65	11.34	4.440378	50.35	22.52%
2700	34.57	10.06	4.440378	44.67	22.52%
2400	26.53	8.97	4.440378	39.83	22.52%
2100	23.32	8.49	4.440378	37.70	22.52%
1800	20.05	7.09	4.440378	31.48	22.52%
1500	15.67	6.00	4.440378	26.64	22.52%
1200	11.71	4.54	4.440378	20.16	22.52%
900	10.51	3.90	4.440378	17.32	22.52%

	DATA ALECs/ FCCA ALECs/Time Warner*	BellSouth			
600	7.70	2.59	4.440378	11.50	22.52%
400	7.69	1.60	4.440378	7.10	22.52%
300	6.48	1.20	4.440378	5.33	22.52%
200	5.06	0.80	4.440378	3.55	22.52%
100	3.82	0.40	4.440378	1.78	22.52%
50	3.40	0.20	4.440378	0.89	22.52%
25	3.18	0.10	4.440378	0.44	22.52%

* Total costs (material plus installation) represent values adopted in Universal Service final order, Order No. PSC-99-0068-FOF-TP. For the cable sizes not addressed in that order, values were developed based on an averaging of the smaller and larger cable sizes.

Copper Cable 26 gauge - Aerial

	DATA ALECs/ FCCA ALECs/Time Warner*	BellSouth			
Size	Total Cost	Material Cost	Placement Loading	Total Cost	Materia l as % of Total
4200	$45.14	$18.90	6.344596	$119.91	15.76%
3600	36.81	16.20	6.344596	102.78	15.76%
3000	32.03	13.50	6.344596	85.65	15.76%
2700	24.84	12.42	6.344596	78.80	15.76%
2400	18.54	10.80	6.344596	68.52	15.76%
2100	16.72	9.59	6.344596	60.84	15.76%
1800	14.47	7.83	6.344596	49.68	15.76%
1500	11.50	6.41	6.344596	40.67	15.76%
1200	8.75	4.99	6.344596	31.66	15.76%
900	8.18	3.81	6.344596	24.17	15.76%

600	6.55	2.53	6.344596	16.05	15.76%
400	5.07	1.72	6.344596	10.91	15.76%
300	4.27	1.38	6.344596	8.76	15.76%
200	3.87	0.98	6.344596	6.22	15.76%
100	2.79	0.61	6.344596	3.87	15.76%
50	2.42	0.39	6.344596	2.47	15.76%
25	2.23	0.31	6.344596	1.97	15.74%

* Total costs (material plus installation) represent values adopted in Universal Service final order, Order No. PSC-99-0068-FOF-TP. For the cable sizes not addressed in that order, values were developed based on an averaging of the smaller and larger cable sizes.

Copper Cable 26 Gauge Buried

	DATA ALECs/ FCCA ALECs/Time Warner*	BellSouth			
Size	Total Cost	Material Cost	Placement Loading	Total Cost	Material as % of Total
4200	$53.39	$17.64	6.848910	$120.81	14.60%
3600	43.21	15.12	6.848910	103.56	14.60%
3000	37.45	12.69	6.848910	86.91	14.60%
2700	28.59	11.42	6.848910	78.21	14.60%
2400	20.86	10.21	6.848910	69.93	14.60%
2100	18.53	8.94	6.848910	61.23	14.60%
1800	15.83	7.28	6.848910	49.86	14.60%
1500	12.10	6.12	6.848910	41.92	14.60%
1200	8.80	4.77	6.848910	32.67	14.60%
900	8.24	3.68	6.848910	25.20	14.60%
600	6.21	2.54	6.848910	17.40	14.60%
400	5.42	1.74	6.848910	11.92	14.60%

	DATA ALECs/ FCCA ALECs/Time Warner*	BellSouth			
300	4.61	1.28	6.848910	8.77	14.60%
200	4.07	0.87	6.848910	5.96	14.60%
100	2.85	0.51	6.848910	3.49	14.60%
50	2.44	0.31	6.848910	2.12	14.60%
25	2.22	0.18	6.848910	1.23	14.60%

* Total costs (material plus installation) represent values adopted in Universal Service final order, Order No. PSC-99-0068-FOF-TP. For the cable sizes not addressed in that order, values were developed based on an averaging of the smaller and larger cable sizes.

Copper Cable 26 Gauge Riser/Intrabuilding

	DATA ALECs/ FCCA ALECs/Time Warner*	BellSouth			
Size	Total Cost	Material Cost	Placement Loading	Total Cost	Material as % of Total
4200	$45.14	$23.10	7.5110	$173.50	13.31%
3600	36.81	20.38	7.5110	153.07	13.31%
3000	32.03	16.98	7.5110	127.54	13.31%
2700	24.84	15.94	7.5110	119.73	13.31%
2400	18.54	13.78	7.5110	103.50	13.31%
2100	16.72	9.59	7.5110	72.03	13.31%
1800	14.47	10.19	7.5110	76.54	13.31%
1500	11.50	6.41	7.5110	48.15	13.31%
1200	8.75	4.99	7.5110	37.48	13.31%
900	8.18	3.81	7.5110	28.62	13.31%
600	6.55	3.54	7.5110	26.59	13.31%
400	5.07	1.72	7.5110	12.92	13.31%

300	4.27	1.38	7.5110	10.37	13.31%
200	3.87	0.98	7.5110	7.36	13.32%
100	2.79	0.61	7.5110	4.58	13.32%
50	2.42	0.39	7.5110	2.93	13.31%
25	2.23	0.31	7.5110	2.33	13.30%

* Total costs (material plus installation) represent values adopted in the Universal Service final order, Order No. PSC-99-0068-FOF-TP. For the cable sizes not addressed in that order, values were developed based on an averaging of the smaller and larger cable sizes.

Copper Cable 24 Gauge Underground

	DATA ALECs/FCCA ALECs/ Time Warner*	BellSouth			
Size	Total Cost	Material Cost	Placement Loading	Total Cost	Material as % of Total
4200	$61.69	$22.26	4.440378	$98.84	22.52%
3600	50.61	19.08	4.440378	84.72	22.52%
3000	43.65	15.90	4.440378	70.60	22.52%
2700	37.37	14.31	4.440378	63.54	22.52%
2400	31.51	12.75	4.440378	56.61	22.52%
2100	27.68	11.16	4.440378	49.55	22.52%
1800	23.80	9.79	4.440378	43.47	22.52%
1500	18.80	8.00	4.440378	35.52	22.52%
1200	14.21	6.45	4.440378	28.64	22.52%
900	12.39	4.82	4.440378	21.40	22.52%
600	8.95	3.33	4.440378	14.79	22.52%
400	8.51	2.12	4.440378	9.41	22.52%
300	7.10	1.59	4.440378	7.06	22.52%
200	5.47	1.06	4.440378	4.71	22.52%
100	4.03	0.53	4.440378	2.35	22.52%
50	3.51	0.27	4.440378	1.20	22.52%

	DATA ALECs/FCCA ALECs/ Time Warner*	BellSouth			
25	3.23	0.13	4.440378	0.58	22.52%

* Total costs (material plus installation) represent values adopted in the Universal Service final order, Order No. PSC-99-0068-FOF-TP. For the cable sizes not addressed in that order, values were developed based on an averaging of the smaller and larger cable sizes.

Copper Cable 24 Gauge Aerial

	DATA ALECs/FCCA ALECs/ Time Warner*	BellSouth			
Size	Total Cost	Material Cost	Placement Loading	Total Cost	Material as % of Total
4200	$45.14	$23.94	6.700563	$160.41	14.92%
3600	36.81	20.52	6.700563	137.50	14.92%
3000	32.03	17.10	6.700563	114.58	14.92%
2700	27.25	15.39	6.700563	103.12	14.92%
2400	22.82	13.68	6.700563	91.66	14.92%
2100	20.47	11.97	6.700563	80.21	14.92%
1800	17.68	10.66	6.700563	71.43	14.92%
1500	14.17	8.60	6.700563	57.62	14.92%
1200	10.89	6.58	6.700563	44.09	14.92%
900	9.79	4.84	6.700563	32.43	14.92%
600	7.63	3.38	6.700563	22.65	14.92%
400	5.78	2.26	6.700563	15.14	14.92%
300	4.80	1.68	6.700563	11.26	14.92%
200	4.23	1.25	6.700563	8.38	14.92%
100	2.97	0.74	6.700563	4.96	14.92%
50	2.51	0.57	6.700563	3.82	14.92%
25	2.28	0.32	6.700563	2.14	14.92%

* Total costs (material plus installation) represent values adopted in the Universal Service final order, Order No. PSC-99-0068-FOF-TP. For the cable sizes not addressed in that order, values were developed based on an averaging of the smaller and larger cable sizes.

Copper Cable 24 Gauge Buried

	DATA ALECs/FCCA ALECs/ Time Warner*	BellSouth			
Size	Total Cost	Material Cost	Placement Loading	Total Cost	Material as % of Total
4200	$53.39	$23.52	6.848910	$161.09	14.60%
3600	43.21	20.16	6.848910	138.07	14.60%
3000	37.45	16.80	6.848910	115.06	14.60%
2700	31.58	15.12	6.848910	103.56	14.60%
2400	26.18	13.44	6.848910	92.05	14.60%
2100	23.18	11.75	6.848910	80.47	14.60%
1800	19.83	10.04	6.848910	68.76	14.60%
1500	15.43	8.44	6.848910	57.80	14.60%
1200	11.46	6.74	6.848910	46.16	14.60%
900	10.24	5.04	6.848910	34.52	14.60%
600	7.55	3.42	6.848910	23.42	14.60%
400	6.30	2.37	6.848910	16.23	14.60%
300	5.27	1.91	6.848910	13.08	14.60%
200	4.51	1.24	6.848910	8.49	14.60%
100	3.07	0.67	6.848910	4.59	14.60%
50	2.55	0.38	6.848910	2.60	14.60%
25	2.27	0.23	6.848910	1.58	14.60%

* Total costs (material plus installation) represent values adopted in the Universal Service final order, Order No. PSC-99-0068-FOF-TP. For the cable sizes not addressed in that order, values were developed based on an averaging of the smaller and larger cable sizes.

Copper Cable 24 Gauge Riser/Intrabuilding

	DATA ALECs/FCCA ALECs/ Time Warner*	BellSouth			
Size	Total Cost	Material Cost	Placement Loading	Total Cost	Material as % of Total
4200	$45.14	$23.10	7.5110	$173.50	13.31%
3600	36.81	20.38	7.5110	153.07	13.31%
3000	32.03	16.98	7.5110	127.54	13.31%
2700	27.25	15.94	7.5110	119.73	13.31%
2400	22.82	13.78	7.5110	103.50	13.31%
2100	20.47	9.59	7.5110	72.03	13.31%
1800	17.68	10.19	7.5110	76.54	13.31%
1500	14.17	6.41	7.5110	48.15	13.31%
1200	10.89	4.99	7.5110	37.48	13.31%
900	9.79	3.81	7.5110	28.62	13.31%
600	7.63	3.64	7.5110	27.34	13.31%
400	5.78	1.72	7.5110	12.92	13.31%
300	4.80	1.38	7.5110	10.37	13.31%
200	4.23	0.98	7.5110	7.36	13.31%
100	2.97	0.61	7.5110	4.58	13.31%
50	2.51	0.39	7.5110	2.93	13.31%
25	2.28	0.31	7.5110	2.33	13.31%

* Total costs (material plus installation) represent values adopted in the Universal Service final order, Order No. PSC-99-0068-FOF-TP. For the cable sizes not addressed in that order, values were developed based on an averaging of the smaller and larger cable sizes.

We find that BellSouth's use of linear loading factors, while easy for BellSouth to apply, can generate questionable results, especially in light of deaveraged rates. For example, as shown in the "Copper Cable 26 Gauge Buried" Table above, for 26 gauge buried copper cable, actual material cost as a percentage of total cost stays constant at about 14.6 percent no matter whether the cable is 12 pair or 4200 pair. Thus, the total cost of this cable is always about seven times the actual material cost. No economies of scale for exempt material, engineering, or labor, occur. However, it is very unlikely that there are no economies generated as cable sizes grow larger.

BellSouth claimed that whatever distortions may be present from a "size of cable placed" are minimal in the BSTLM since it places very few large size cables. However, we agree with AT&T, WorldCom, and Sprint's witnesses that when deaveraging rates, inputs should be geographic-specific to avoid distortions in the costs of high density and low density areas. Unfortunately, there is no evidence here of geographic-specific engineering and placement information that would allow us to populate the BSTLM. Sprint did testify that it gathered this type of information to develop inputs on a per sheath basis. Yet, BellSouth simply chose not to use the BSTLM capability to explicitly model placement costs because it believed the in-plant loading factor gives a representative cost based on the size of the cables being placed.

The FCCA ALECs argued that we should reject BellSouth's proposed material and placement input values, and adopt the input values from our Universal Services proceeding, Docket No. 980696-TP, Order No. PSC-99-0068-FOF-TP for use in the BellSouth cost model. Regarding the inputs ordered in Docket No. 980696-TP BellSouth stated:

> BellSouth did not use or modify for use any of the inputs ordered in Order No. PSC-99-0068-FOF-TP in this filing. Those inputs were ordered in the context of establishing a permanent universal service support mechanism and were specifically ordered to be used in the Benchmark Cost Proxy Model 3.1 (BCPM 3.1). Docket No. 990649-TP is not addressing universal service, but rather deals with

establishing unbundled network element (UNE) costs. BellSouth developed inputs and models expressly for that purpose.

Decision

As discussed above, we agree with BellSouth that the inputs ordered in our Universal Service proceeding were for a different purpose and are not appropriate here. We find that AT&T and WorldCom's recommended material inputs from the universal service proceeding in Docket 980696-TP shall not be used in this docket; instead, inputs adopted for use in determining UNE prices shall be BellSouth specific. Because no other party provided testimony specific to the material prices for copper and fiber cables, we find that the appropriate assumptions and inputs for the material prices for copper and fiber cables are those identified by BellSouth. Additionally, we find that the appropriate assumptions and inputs for the associated cable placement costs are those identified by BellSouth, as modified by our decision regarding loadings in sub-section O of this Order.

H. Drops and Network Interface Devices (NIDs)

We next turn to a determination of the appropriate assumptions and inputs for drops and network interface devices (NIDs) to be used in the forward-looking recurring UNE cost studies. A drop is the cable that extends from the customer's premises to the terminal. A terminal is where the drop wires are connected to the distribution cable. A NID is the device at a residential or business customer's premises, within which the drop wire terminates.

According to BellSouth witness Caldwell, BellSouth used BellSouth-specific costs for the material, travel, and installation labor associated with the NID and the drop in the BSTLM. She noted that these costs are based on material prices for equipment and material as well as BellSouth's expertise and experience in placing the equipment and material. BellSouth applied loading factors as multipliers on per unit material investments to arrive at a total installed ready-for-service cost. In-plant loadings are account-specific factors that add engineering and installation labor and miscellaneous equipment to the inflation-adjusted material price or vendor installed price (EF&I). In other words, in the BSCC, in-plant factors convert a material price to an installed investment.

The NID components consist of a 2-pair NID housing, a 6-pair NID housing, and per-pair NID interface and protector. The cost for each component is shown in the table below entitled "BellSouth's Material Prices for NID Components."

BELLSOUTH'S MATERIAL PRICES FOR NID COMPONENTS*	
ITEM	**BellSouth's Cost**
NID-2 pair housing	$14.52
NID-6 pair housing	$18.06
NID-Interface & Protector	$7.83

*The material prices for the NID-Cross Connect cannot be listed here because they are proprietary.

BellSouth's drop material prices are shown in the table below entitled "BellSouth's Material Prices for Drops." The material prices reflect 11/99 average catalog prices for the drop wire material used during a 12-month period (1/99 to 12/99) as reported by Supply Chain Management.

BELLSOUTH'S MATERIAL PRICES FOR DROPS	
Drop Type	**Price (per foot)**
2-pair aerial	$0.0679
6-pair aerial	$0.1111
2-pair buried	$0.0691
5-pair buried	$0.1511

In its list of cost study revisions, BellSouth indicated that the material costs for both the 2-wire and 6-wire NIDs had increased. The material cost for the 2-wire NID housing increased from $4.84 to $14.52. The material cost for the 6-wire NID housing increased from $8.38 to $18.06. According to BellSouth the additional $9.68 added to both the 2-pair and 6-pair NID housing cost represents exempt material for both the NID and drop not previously included in the BSTLM. The $9.68 includes $2.99 of exempt material for a NID such as screws, ground wire, connector, clamp cable, and tag wire, plus $6.69 of weighted aerial/buried drop wire exempt material such as clamps, hooks, screws, clips, and connector.

BellSouth was asked how the use of BellSouth-specific costs for NIDs and drops complies with the least cost, forward looking, most efficient technology requirements of TELRIC, versus "embedded" costs. BellSouth responded that the BellSouth-specific costs for drops and NIDs are developed based on several least cost, forward-looking factors. Specifically, the company noted that the drop/NID material was based on 1999 contract prices inflated to a 2000 to 2002 time period. The projected work times for buried work forces was based on target level; whereas, the projected work times for aerial work forces was based on actual data. Drop lengths were based on BSTLM calculations for each customer, and drop/NID placements were based on specific customer locations and characteristics. Finally, the mix of aerial/buried plant was based on actual wire center data.

The FCCA ALECs argued that we should reject the material inflation factor proposed by BellSouth, and instead use the material inputs we adopted in our final order in the Universal Service proceeding. BellSouth argued against using the Universal Service inputs because they were not developed for UNE costs.

Decision

As we have previously stated, we agree with BellSouth that the inputs ordered by us in the Universal Service proceeding were for a specific purpose and are inappropriate here. Furthermore, the data provided in the Universal Service docket is more than 2 years old and in many cases the results were not company-specific. Finally, we note that the recommended inputs for NIDs and drops in the US proceeding were for the total cost of the item, not just the material costs.

We find there are inconsistencies in BellSouth's material costs for the 2-line and 6-line NID housing. As we discuss in sub-section O of this Order with regard to loadings, it is our understanding that a component of the in-plant factors applied to investments is designed to recover the cost of exempt materials. However, in the BSTLM the revised inputs for both 2-line and 6-line

NID housing include a $9.68 adjustment for exempt materials. We find that because these inputs presumably would also be multiplied by the in-plant loadings which are meant to recover the costs of exempt material, BellSouth may be double counting exempt materials added to the NID investment, which is included in the various loop rates. Our review of BellSouth's work papers for the standalone NIDs (Elements A.2.44 and A.2.45) shows that the input values used for the NID housing (2-line and 6-line) do not include any costs for exempt materials. These work papers do not reflect the application of the in-plant factors which were designed to capture exempt materials; therefore, it does not appear that BellSouth has captured any exempt material costs in its standalone NID rate.

Given these inconsistencies, we find that an adjustment must be made; however, it is not clear from this record what the correction should be. Therefore, we find that the appropriate assumptions and inputs for drops and NIDs are the material prices identified by BellSouth at this time. However, we order BellSouth to identify and explain all necessary revisions that should be made to NIDs (both in the BSTLM and in its standalone NID study) when BellSouth refiles the BSTLM and the BSCC within 120 days of the date of the order, as addressed in sub-section O. If BellSouth believes revisions are necessary, BellSouth should, as appropriate, submit modified versions of the BSTLM and the BSCC. If BellSouth believes that no corrections are warranted, BellSouth shall provide a detailed explanation reconciling the apparent inconsistencies discussed above.

I. <u>Digital Loop Carrier Costs</u>

Next we must determine the appropriate assumptions and inputs for digital loop carrier (DLC) costs to be used in the forward-looking recurring UNE cost studies. Digital loop carriers are used in network infrastructure where loops exceed a certain distance. For purposes of its cost study, BellSouth used a distance of 12,000 feet from the central office as the breakpoint for provisioning of fiber.

Two points are at issue here. First, the Data ALECs argued that DLC costs assigned to digital/ISDN loops should not be disproportionate as compared to the amount of DLC assigned to voice grade loops. They asserted that forward-looking DLC systems and associated electronics are designed so that any reasonable increment of ISDN/IDSL services will not cause any incremental cost. Second, the FCCA ALECs argued that BellSouth's "melded cost" DLC placement approach should be rejected. Instead, they contended that equipment placements in the model should always be from a single, least cost, most efficient DLC vendor at each DLC site.

Before addressing both of these points, a description of BellSouth's costing methodology is warranted. BellSouth witness Varner explained that the Digital Loop Carrier calculator is incorporated into BellSouth's new loop model. He noted that it was a separate calculator in the past. He asserted that investment (material plus engineering and installation) for feeder, distribution, and digital loop carrier significantly impact the loop cost results produced by the BSTLM:

> The loop model design determines the amount of each facility required, i.e., the BSTLM determines the length of the loops based on customer location and network design. Obviously, loop length is a major cost driver.

BellSouth witness Milner added that

> [t]he network infrastructure design in the loop cost methodology starts with two basic assumptions. First, loops up to 12,000 feet from the central office are designed using copper. Second, loops longer than 12,000 feet are provided service using fiber feeder facilities and Next Generation Digital Loop Carrier (NGDLC). . . . [TELRIC] cost study methodology requires the use of the most economic architecture for the service for which costs are being developed.

Witness Milner continued that BellSouth's primary consideration in modeling loop costs was for voice grade or narrowband services. He noted, however, that in actual network design, voice grade services and higher bandwidth services such as DS-1 are mixed. Mr. Milner stated that to meet the demand for all services being provided, fiber cable with fiber optic multiplexers and NGDLC are used to meet the combined demand. He further stated that copper is not deployed for feeder in the actual network.

In explaining the different types of digital loop carrier equipment, witness Milner stated that NGDLC provides "enhanced services and cost-reducing features that are not available on the older DLC systems." He noted that NGDLC also supports a larger capacity of lines. Because of the technical advantages of NGDLC, he asserted that this technology is assumed in the loop cost methodology. Mr. Milner argued that these advantages result in a lower loop feeder capacity requirement which translates into lower costs.

Data ALEC witness Murray argued that ALECs who purchase an unbundled loop are merely buying facilities; it is up to them what they place on it. She contended that "[r]egardless of what service the competitor places on the loop, the loop facility is the same." She asserted that the distinctions made by BellSouth among loop types are irrelevant, because competitors will choose what services to provide over a loop. She noted that ISDN and IDSL service can be provided over the same loops. For purposes of discussion, she referred to loops as ISDN-capable, although DSL may be provided over such a loop as well. Thus, both terms may be used interchangeably.

Witness Murray contended that BellSouth has "incorrectly assumed that ISDN-capable loops are responsible for a disproportionate amount of DLC investment." She explained that BellSouth's cost study calculates DLC common equipment investment for a given service based on DS0 equivalents, and has assumed that one ISDN-capable loop is equivalent to 3 DS0s. She further noted that BellSouth's ISDN costs reflect current retail customers and locations, such that costs are widely skewed.

Witness Murray stated that she has been unable to determine the percentage of fiber loops assumed in BellSouth's cost study. While the numbers used are confidential, witness Murray indicated that a ludicrous amount of additional circuit investment is assumed by BellSouth for ISDN-capable loops.

Witness Murray argued that carriers are not functionally precluded from deploying DSL over loops served by DLC systems. She submitted an article describing Southwestern Bell Telephone Company's (SBC's) broadband initiative which she stated shows that a number of carriers have begun to test and deploy DLC systems that can be used to carry xDSL services. She admitted that there are certain legacy DLC systems that are not compatible with some forms of DSL services. However, as noted above, BellSouth's witness Milner stated that Next Generation DLC is assumed in the model.

Data ALECs' Witness Riolo explained that loop plant is designed so that the maximum cooper loop facility would be 18,000 feet, although in practice the "economic crossover point between the use of copper feeder versus fiber feeder and [DLC] systems is generally a loop length substantially below 18,000 feet." Indeed, as discussed by BellSouth witness Milner, BellSouth assumed a crossover point of 12,000 feet for purposes of its study. That is, loops up to 12,000 feet from the central office are assumed to be all copper, and those over 12,000 feet include DLC.

Witness Riolo argued that the same systems are used, whether a carrier is providing voice or ISDN/IDSL service. He asserted that the only difference in a fiber-fed arrangement for a longer loop is that "xDSL capability requires a current technology/upgraded DLC remote terminal and requires the use of a different 'channel unit' or plug-in card from the voice-only channel units assumed in the incumbents' recurring cost studies for unbundled analog loops." He explained that DSL services may be deployed on loops that are copper from the "customer's premises to a mid-point equipment location, known as a remote terminal ("RT"), where signals are combined and transmitted over fiber optics from the RT to the central office." Witness Riolo further explained that "ISDN does not use a fatter light pulse than POTS service, and therefore, does not require bigger (or more) fiber cable, take up more conduit space, etc."

Witness Riolo agreed with Data ALEC witness Murray that "recurring charges for ISDN/ISDL loops should be set at the recurring charge for basic loops, plus an increment to account for the higher cost of an ISDN card at the RT as compared to a POTS card, weighted by the percentage of fiber feeder in the forward-looking network."

BellSouth witness Stegeman argued that "[t]he DS0 approach to apportioning Fiber and portions of the DLC is reasonable and no more 'arbitrary' than the use of service counts or copper pair counts." He explained that, in developing its model, what BellSouth considered was:

> . . . the electronics on the end, which are the DLC systems. The DLC systems are driven by DS0s. And the sizing of the DLC systems are driven by DS0s. And as you increase the number of DLC systems in your network, you increase the number of rings, which leads to an increase in the number of fibers. So, in effect, the DS0s that you have sitting out there do have an impact on the fibers that are placed.

BellSouth witness Latham argued that "electronic equipment such as a DLC used to provide SL1 and SL2 service will not pass the higher frequency xDSL signals." He contended that witness Murray ignores the differences between SL1/SL2 loops and DSL-capable loops.

At the heart of this issue is whether there is a difference in cost for loop facilities used to provide voice and loop facilities used to provide DSL services as a result of the presence of DLC in those loop facilities.

The manner in which BellSouth models costs associated with DLC have an impact on providers of DSL services. While to some extent, our discussion may overlap the discussions in related sections of this Order, we will discuss here only the amount of DLC costs that should be allocated to DSL-capable loops.

BellSouth argued in its brief that, "[w]hile the Data LECs may be reluctant to admit it, there are very real differences between an SL-1 loop and an xDSL loop." In fact, witness Murray made a very clear distinction that she was not talking about provisioning of the services, but that she was talking about pricing. She stated that "pricing does not equal provisioning."

The ALECs argued that BellSouth has assumed a greater amount of DLC fiber is needed to carry DSL services than to carry voice. Witness Riolo contended that the only incremental cost associated with DLC for DSL would be the cost of a different line card, which might be more expensive than that used for voice. Otherwise, the costs associated with the DLC facilities should be the same for a certain length of loop, whether it is used for voice or DSL. This assumes that the remote terminal is a modern one that is capable of accepting such a line card; otherwise, DSL service could not be provided.

BellSouth witness Stegeman described the use of DS0 equivalents. We find that it is the electronics that drive the number of DSOs as stated by BellSouth, not the pulse of light over the fiber, as witness Riolo argued. In any system, the limiting factor will be the least capacity item. In this case, for example, the capacity of the RT to hold the cards or electronics will limit what can flow over the fiber. The DS0 approach used by BellSouth reflects this limitation. Accordingly, we find BellSouth's approach to be a reasonable methodology for allocating DLC.

It appears that other carriers are upgrading their networks to fiber to obtain efficiencies, not only in the transmission of voice services, but also to provision broadband services. The exhibit provided by witness Murray, which described Southwestern Bell Telephone Company's (SBC's) efforts in this regard, stated that "[t]he deployment of fiber and next-generation remote terminals will enable SBC to overcome loop-length and line condition limitations in its network." According to the article, one immediate advantage is the broader availability of ADSL.

While the article does not describe BellSouth's network, it does indicate that DSL can be provided over DLC with the use of a next generation remote terminal. The testimony of both witnesses Riolo and Milner Milner support this conclusion as well.

BellSouth witness Caldwell stated that each DLC site in the model has costs that are a blend of two different vendor prices. She explained that a weighting of 60/40 is used, such that, at a given site, 60 percent of the cost is associated with Vendor A, while 40 percent of the cost is associated with Vendor B.

Witness Caldwell asserted that the melded-cost methodology is a modeling convention that takes into account that more than one vendor is used to provide DLC equipment. She contended that this methodology does not mix vendors at a given site. However, she argued that the methodology used by AT&T witnesses Pitkin and Donovan does mix vendors on a DLC ring. In contrast, BellSouth witness Stegeman stated that the melded approach "does not reflect the reality that a single vendor is typically used at each location."

AT&T witnesses Donovan and Pitkin noted that Vendor A equipment is more expensive than Vendor B equipment, based on their calculation of the total investment required for different size facilities. They surmised that "BellSouth most likely uses Vendor 'A' for smaller DLC equipment and Vendor 'B' for larger DLC equipment." They argued that the assumed mix of vendors used by BellSouth "always overstates the required DLC investment." They also agreed that, because each vendor's equipment is proprietary, a single DLC system cannot use equipment from different vendors.

Witnesses Donovan and Pitkin testified that they used an assumption of 100% Vendor B equipment in their running of the model, because it was the only option available to them. They argued that it produces a lower DLC investment than Vendor A equipment. However, they contended that we should require BellSouth to change its model so that the more efficient, i.e., lower cost, DLC equipment is modeled at each site.

Witness Caldwell agreed that, at any given site, the cost of some sites will be higher and the cost of some sites would be lower as compared to the costs produced by BellSouth's model. However, she argued that what must be considered is the DLC ring as a whole. She explained:

> . . . you have the CO [central office], and then you have at a minimum three nodes on that CO. So you want to look at the cost of the entire ring with all the sites, not each individual site.

Nevertheless, witness Caldwell did agree that below a certain breakpoint, it would always be cheaper to use costs associated with

Vendor A, while above that breakpoint it would always be cheaper to use costs associated with Vendor B.

Witness Caldwell contended that the vendor meld used by BellSouth reflects what BellSouth will deploy in the future, not what is in use today. She admitted that the assumptions "are extremely forward looking as to the cutover for DLC and how much DLC [BellSouth will] place," but she argued that it is something that is achievable.

In explaining what constitutes a fiber ring, witness Caldwell explained that "[e]ach set of electronics put together constitute a ring." She argued that if Vendor A electronics are on a set of fiber, and Vendor B electronics are on a different set of fiber, that constitutes two separate rings.

BellSouth witness Stegeman argued that the approach used by AT&T "may be too simplistic and does not reflect the real proportion of vendor equipment installed in Florida by BellSouth, nor the engineering rationale beyond cost." He asserted that other criteria must be considered in placement of DLC, such as installation costs, maintenance costs, and efficient deployment criteria.

Decision

As the testimony reflects, BellSouth's witnesses do not seem to be in complete agreement with each other as to whether BellSouth's methodology represents mixing vendors at the same location. We find that BellSouth is using an average cost per location, based on the weighting of vendors that are used to provide DLC equipment.

AT&T's contention is that a least cost approach should always be used, so that the cost of the cheapest vendor's equipment is used for that location. While not mixing vendors at a single location, it appears that this approach mixes vendors on a given DLC ring, as discussed by witness Caldwell.

The use of Vendor B costs for all DLC equipment, as suggested by AT&T, is certain to produce a lower cost, because it is lower cost equipment than Vendor A equipment. Additionally, AT&T

suggested that it is appropriate to apply the lowest cost possible at a given site on a DLC ring, even though in reality equipment cannot be mixed on a ring, due to its proprietary nature. We find that the modeling of costs should not be based solely upon what is cheapest, but should reflect a realistic mix of different vendors and equipment.

The costs used by BellSouth in its model do not reflect what is actually in use. BellSouth stated that its model uses a very forward-looking mix of equipment, but it is not clear from the record whether that mix is more costly or less costly than what is in actual use.

On the other hand, the use of the lowest cost DLC equipment per site, even if it means actually mixing vendors on a ring, is not realistic. Further, AT&T's suggestion that the use of all Vendor B costs, the lowest-cost vendor, is not realistic, either. AT&T's own testimony and exhibits show that, for a given site, the use of one vendor's equipment is more cost effective than use of the other vendor's equipment.

Although neither methodology reflects the real world, we find that BellSouth's use of average costs is more realistic for purposes of the model than AT&T's approach. Nevertheless, it is unknown at this time whether the costs themselves that are used by BellSouth are higher than those in actual use, and whether higher costs would be warranted in a forward-looking network.

Because the DSO approach used by BellSouth for allocation of DLC common equipment reflects the limitations of the system imposed by the electronics attached to the fiber, we find that this approach appears to be reasonable. Further, although the assumption of a mix of vendors in a DLC system does not reflect real-world conditions, we find that it is a reasonable approach to develop a weighted average price. We make no finding on the actual numbers used.

Therefore, we approve BellSouth's use of DS0s for allocation of DLC. We also approve the methodology used to develop an average vendor cost per DLC site. We make no decision, however, regarding whether the vendor prices themselves are reasonable.

J. Terminal Costs

Next we must determine the appropriate assumptions and inputs for terminal costs to be used in the forward-looking recurring UNE cost studies. BellSouth witness Caldwell described BellSouth's approach to terminals:

> Drop terminal costs for line sizes below 100 pairs are included as exempt material in the in-plant factors used to develop the installed investments of cable. Therefore, terminal costs for these sizes are not included. The material prices for larger sized terminals were obtained from procurement records and were adjusted for inflation. The engineering and labor costs were developed from Florida-specific in-plant factors. As previously explained, the in-plant factor converts material prices to installed investments.

BellSouth interpreted "terminals" to refer to drop terminals. Sprint apparently assumed a different definition of terminals, as is evident in Sprint witness Cox's testimony. He testified:

> The terminal cost inputs should recognize the following key assumption items:
>
> - Terminal Cost Based on ILEC Specific Data
> - Utilize Forward Looking Technology
> - Optical Based Transmission Equipment Costs Only
> - Capable of Costing OC3, OC12, and OC48 Transport Rings Individually
> - Reflect the Use of LEC's Existing Wire Centers
> - Include the Cost Associated with Survivability
>
> More specific [sic] the terminal cost should be developed by terminal bandwidth (OC3, OC12,

> OC48) and should include all of the common components required to make it operational. This would include the following components; relay racks, shelves, line interface, common shelf processor, trib shelf processor, receive/transmit access module, tributary transceiver, line shelf power supply, common shelf power supply, ring controller, synchronizer card, USI-LAN interface, software, cables, cover, DS3 switch, transmitters, craft interface equipment and software, and common complement of spare equipment. In addition to the above common equipment, additional line or drop interface equipment will be required for the hand off of DS1's, DS3's, OC3's and OC12's.

Witness Caldwell's rebuttal testimony did not address witness Cox's assumptions about what the cost input "terminal" includes. Even though Sprint witness Cox intended for the above testimony to address terminal costs, we believe it is also appropriate to consider this testimony when we make our decision concerning transport systems.

Decision

Because the issue of loadings and an inflation factor is dealt with in sub-section O of this Order, we find that the appropriate assumptions and inputs for terminal costs are BellSouth's material prices and the in-plant factor as modified by our decision set forth below regarding loadings.

K. Switching Costs and Associated Variables

Next, we must determine the appropriate assumptions and inputs for switching costs and associated variables to be used in the forward-looking recurring UNE cost studies. BellSouth used the Simplified Switching Tool® (SST) and the Switching Cost Information System/Model Office (SCIS/MO) for the development of switching costs discussed here. At issue were a number of the inputs used in the models.

1. Switching material prices

BellSouth Witness Page explained that SCIS/MO is used to compute fundamental switching material prices. However, he continued that the SST is used to develop material prices for individual exchange port, feature, and local usage UNEs. He noted that, in the current study, the SST replaces the Telcordia Switching Cost Information System/Intelligent Network (SCIS/IN) and Network Cost Analysis Tool (NCAT) models, which are two proprietary models that were used in previous studies.

Witness Page testified that the SST is comprised of two parts, called workbooks: the SST-Usage (SST-U) and the SST-Ports (SST-P). He explained that the SST-U covers local switching and Common Transport, while the SST-P is used to develop exchange port material prices.

Witness Page asserted that the reason BellSouth developed SST was to make it "open and available to inspection by all interested parties." He stated that, through use of Microsoft Excel, parties can examine the SST templates. He noted that these templates do not contain input data; thus, the templates may be viewed without a confidentiality agreement. He argued that the SST also allows more flexibility to add or change elements in a relatively short period of time, as compared to other models. Additionally, he contended that the SST is easier to use and understand than previous models.

Witness Page further explained that the SCIS/MO model was not replaced in this study because BellSouth believes that SCIS/MO

> . . . meets the need to conveniently perform deaveraged studies. Since the SCIS/MO process inherently looks at individual switches, it already contains all the data needed for switch-specific studies.

BellSouth witness Caldwell stated that the first step in developing switching costs is the population of the SCIS/MO database using data for each digital central office in BellSouth's territory. She continued that for offices using analog technology, digital has been assumed for purposes of the model, using Network's replacement forecasts. She noted that less than 15% of BellSouth's access lines are served by analog.

Witness Caldwell averred that a number of factors impact usage costs, such as distribution of calls, percent local tandem occurrence, busy hour-full day ratio, average number of facility terminations per call, minutes per call, and airline miles per call. She emphasized that "[t]he outputs from SCIS/MO also are important contributors to the development of the usage costs."

Witness Caldwell explained that busy hour usage is an important component of the investment in vertical features. She contended that "[i]nputs need to reflect the anticipated demand that is going to be placed on the switch due to the request for feature-enhanced call processing." She asserted that "[c]onsideration must be given to the number of feature-related calls, holding times, and activations/deactivations that occur."

BellSouth witness Caldwell argued that "only BellSouth-specific data will appropriately reflect the costs BellSouth will incur in the provisioning of switch-related UNEs to competitors in Florida." She explained that important factors to be considered are those things which will cause the switch to exhaust, because these are the investment drivers. She continued that such drivers include originating plus terminating usage, CCS, quantity of analog lines, quantity of digital lines, processor utilization, and discount rate. She argued that the discount rate reflects a combination of the way BellSouth will purchase switching equipment in the future, and the manner in which BellSouth currently grows capacity in its existing central offices.

Several facts presented by witness Page facilitate the understanding of BellSouth's switching cost development. He testified:

- The switch is a partitioned entity. The switch is not simply a single material price that is shared by all services and features.

- The deployment of most services and features generally do not impact the entire switch. Services and features may rely on different

> components of the switch depending upon the resources required to provide the proper functionality.
>
> • Some switching components are traffic sensitive and others are non-traffic sensitive. For example, the number of switch terminations (ports) is non-traffic sensitive.

Witness Page stated that a two-stage process is used to develop switching material prices. He explained that fundamental studies are performed to identify material prices for basic switching functions, i.e., non-traffic sensitive line termination, call setup, and line-trunk usage. He noted that the next step is to identify which of the basic switching functions is used for each network element or retail service, and which material prices are unique to that element or service.

Witness Page described the process BellSouth used to develop material prices for basic switch functionality using SCIS/MO. He testified:

> . . . [T]he SCIS/MO uses a 'bottoms-up' approach to establish the fundamental switching material prices for each central office switch included in the cost study. The individual switch architecture and the switch vendors' engineering rules are used to identify the material price drivers. The material price drivers are reflected as SCIS/MO user input data such as originating plus terminating (O+T) usage expressed in CCS (one hundred call seconds), quantity of analog lines, quantity of digital lines, and processor utilization. Using this input data in conjunction with the switch vendor engineering rules, material price tables, vendor discount tables, and other miscellaneous tables within the model, SCIS/MO employs equations to determine the material prices associated with the various central office functions. The functional categories

> express switching equipment components or groups of components on a fundamental unit basis, e.g., per line, per CCS, per call, per millisecond, etc.

Witness Page contended that a comparison of the results produced in this study and those of previous studies shows changes in the following areas: switching costs have declined; discount levels have changed significantly; and disparities between BellSouth's two major switch technologies have grown smaller.

AT&T/WorldCom witness Pitts stated that BellSouth used the new or replacement switch discount for equipment included in the first cost or getting started cost of the switch and a melded new and growth discount for all remaining switch investment. She argued that "if the new switch discount is melded with the growth discount, the overall switch prices and ultimately the switch element costs will be higher." She further argued that "even if melding were appropriate, BellSouth's melded discount input to SCIS/MO appears to assume that the majority of lines are at the higher growth price." She opined that BellSouth purchases most lines on a switch at the new switch price; thus, the use of the higher growth prices would allow BellSouth to over-recover its switch investment from the ALECs. She noted that BellSouth used an example that includes growth at ten percent per year over 10 years. She contended that ten percent growth is not reasonable nor is ten years a foreseeable time period in the telecommunications industry. Witness Pitts asserted that BellSouth used a switch planning horizon of 2-3 years, based on the testimony of BellSouth witness Page.

Z-Tel witness Ford also argued that the calculation of replacement or new switch discount is flawed. He noted that a larger discount applies to the new switch than to the upgrade of an existing switch. He noted that for growth discounts BellSouth uses discount percentages that are stated in contracts with the switch vendors. He pointed out, however, that for new/replacement switches, BellSouth computes the discounts "based on a comparison of historical contract prices to the current (non-discounted) output of SCIS/MO." He argued that there is no reason given as to why contract amounts are not used for replacements.

Witness Ford opined that the replacement discount rate may "possibly" be understated, because he believes switch prices are declining. However, he stated that he does not know what impact it would have on the replacement discount if contract amounts were used. Nevertheless, he recommended that the replacement discounts should equal to the stated discounts in BellSouth's contracts. He concluded that if such discount amounts cannot be obtained directly from the contracts, "then the historical contract prices and the non-discount prices from SCIS/MO must be from the same time period to avoid discount deflation."

BellSouth witness Page contended that contracts for replacement switches do not contain stated discounts. He explained that this is the reason BellSouth computed a discount for replacement switches. He noted that the replacement discount used by BellSouth is based on actual bills for switch orders from the years 1997, 1998, and 1999. He argued the time frame used is consistent with the discount computation.

AT&T/WorldCom witness Pitts recommended that the new switch discounts associated with getting started costs should be used for all switch equipment. She claimed that the use of these discounts will result in switch investments for ports that are approximately 50% less than the amounts proposed by BellSouth. She stated that "[u]nbundled local switching and trunk ports are approximately 40% and 50%, respectively of BellSouth's claimed BellSouth costs."

Witness Pitts argued that BellSouth's switch-related elements in its revised model were not corrected. She stated that "BellSouth's revised study uses a melded discount that assumes only 45% of line purchases from 1999 through 2002 will be for 'new' lines and 55% of the purchases will be at the higher-priced growth." She disagreed with BellSouth's use of "3 years of demand, rather than the entire demand associated with the switching element." She contended that the demand used by BellSouth causes a higher percentage of BellSouth's total lines in Florida to be calculated at growth rates, instead of the lower replacement rates.

Thus, AT&T disagrees with BellSouth's use of a melded switching cost. At issue here is whether the switch discount percentage input into SCIS/MO should be based upon the discount associated with the purchase of a new switch, or whether a melded discount using a combination of new and growth discounts is appropriate. The new switch discount is lower than the growth discount. Predictably, AT&T recommends the use of the lower new switch discount.

Witness Pitts argued that BellSouth did not correct switch-related elements in its model. However, she complained about the manner in which BellSouth computed the melded discount rate. While it is not clear exactly what it was that BellSouth failed to correct, it appears that it was the discounts, rather than the model. This is not a matter of failing to correct the model; rather, it is a continued disagreement over methodology.

Decision on Switch Costs

We find that BellSouth's methodology is an appropriate approach to developing an average switch cost. As noted above, BellSouth applied the new switch discount to the getting started investment in all switches modeled, but used a 45% new/55% growth weighted average discount to the remaining switch investments. Contrary to AT&T witness Pitts' claim, the record indicates that prospectively 55% of BellSouth's switch line additions will be for growth additions, thus demonstrating the reasonableness of BellSouth's weighting. We find that BellSouth's selection of discounts represents a reasonable compromise.

Z-Tel argued that BellSouth should use contract discount percentages for replacement switches (called getting started switches by AT&T). BellSouth witness Page pointed out that contracts for replacement switches do not contain stated discounts, unlike contracts for growth switches. No witness refuted BellSouth witness Page. Therefore, we find that BellSouth's use of historical pricing discounts instead of contract discounts should be used for replacement or getting started switch costs.

Witness Pitts stated that AT&T had difficulty calculating ISDN on DMS RSC-S remotes. She noted that certain values in the model appear to be misstated. She argued that "[t]he SST model, when importing the detailed results from SCIS, does load the individual subcategory values to calculate an incorrect investment for ISDN BRI ports."

BellSouth witness Page contended that BellSouth did not encounter the problems described by witness Pitts. However, he noted that BellSouth did correct a problem with a formula adjustment that caused the investment per BRI to calculate incorrectly.

AT&T/WorldCom witness Pitts agreed that BellSouth corrected this error in its revised cost study. However, she argued that this was not the only error impacting ISDN costs. Witness Pitts stated that "BellSouth's revised 2-wire ISDN Port (B.1.5) and its related 2-wire ISDN Line Side Port Combination (P.4.2.) have increased 6.92% and 7.86%, respectively" as a result of BellSouth's revised cost study. She opined that the reason for these changes is that BellSouth had already tried to incorporate a correction into the SST model; thus, when the SCIS/MO patch was run, higher numbers resulted.

2. Recurring Rates

As discussed above, Witness Pitts argued that "BellSouth's revised 2-wire ISDN Port (B.1.5) and its related 2-wire ISDN Line Side Port Combination (P.4.2.) have increased 6.92% and 7.86%, respectively." We find, however, that the recurring rates did increase, but the non-recurring rates decreased for each of the elements decreased. The recurring rate for B.1.5 did increase by 6.92%, as witness Pitts contended. However, we find that the recurring rate for element P.4.2 increased about 3.2%, not 7.86%. The decreases for most of the non-recurring rates were less than 1%. Only the disconnect non-recurring rate for element P.4.2 decreased by about 6.4%.

Although there is no explicit discussion in BellSouth witness Page's testimony that explains why the cost of the 2-wire ISDN port increased by 6.92%, we presume it is due to BellSouth's change in how it adjusted for the a SCIS/MO problem in modeling ISDN on DMS RSC-S remotes. Witness Page explained:

> The Simplified Switching Tool© (SST) model included in BellSouth's April 17, 2000 cost study filing contained a formula adjustment that compensated for the Minimum Investment per BRI problem. Since Telcordia has now corrected the SCIS/MO model, the adjustment has been

> removed from the SST model included in the August 16, 2000 filing. The corrected investments are reflected in BellSouth's updated cost study.

We are satisfied with BellSouth's explanation and we thus find there is no need for any further adjustment.

Witness Page explained that BellSouth considered "approximately 100 of the most significant features in terms of demand." He argued that BellSouth chose to study those features that the company believes have significant market interest. He stated that the features include those that are most commonly used.

Witness Page argued that "the same set of customer characteristic inputs and Fundamental Study inputs" will produce results similar to those used in previous models. He noted that the differences between the feature cost studies produced for this docket and those of previous dockets are due primarily to changes in Fundamental Study inputs. These inputs reflect a decline in BellSouth's switching capacity costs.

Witness Pitts described the manner in which BellSouth's SST-U model determines the cost of features. She testified:

> BellSouth's SST-U model categorizes features into thirteen categories, based on the type of switch resource used to operate the feature. BellSouth used the SCIS/MO model outputs as inputs to SST-U, along with the results of BellSouth's feature Hardware Study, and makes numerous simplifying assumptions about switch resources consumed by features, to calculate a theoretical cost for a given feature category. The features in each category are then added together to generate BellSouth's composite feature, shown as Central Office Features Category 13, that makes up Element B.4.13. An additional feature that purportedly idéntifies the cost of Centrex Intercom Usage is calculated under the name Centrex Functionality, Element B.4.10.

Witness Pitts argued that certain key inputs to feature material prices have serious flaws. She testified:

- The SCIS/MO output results used as inputs to SST were generated using melded discount inputs weighted heavily towards higher-priced growth costs rather than new switch prices, and contribute to overstating feature costs.

- The Hardware Study uses incorrect investments, incorrect capacities and utilization adjustments that produce inflated hardware costs for features.

- The entire conceptual methodology of averaging disparate feature inputs together in an attempt to force the costs to fit a theoretical feature category, and making broad assumptions that are used as critical inputs is flawed.

Witness Pitts contended that feature cost errors were not corrected in BellSouth's revised cost study.

Witness Pitts stated that "the SCIS/MO model produces investments for switch functions on a usage sensitive basis." She continued that the unit costs of usage are multiplied by what she characterized as BellSouth's "'guesstimates' of the amount of resources used by a feature category." Witness Pitts contended that if the switch costs are inflated, as she believes, then the feature costs will also be inflated.

Witness Pitts asserted that BellSouth continues to use the melded discounts in its revised cost study. She pointed out that BellSouth also added a new element - P.3.2.2-wire DID Port for Combinations. She noted that this element uses the melded discount, which she contended causes the cost to be overstated. She proposed that this element be reduced by the same percentage as the 2-wire DID Port (B.1.3) which would result in a restated cost of $3.46.

Witness Pitts explained that BellSouth's Hardware Study is used "to calculate the cost of unique feature-related hardware, such as conference circuits and announcements." She stated that more than 70% of BellSouth's proposed composite feature investment is comprised of hardware. She further explained that the hardware study

> . . . divides the investments for specific hardware components by their respective capacities, adjusted for utilization, to produce an average cost per CCS for each feature hardware component. The cost per CCS for each component was then averaged together to produce a simple average cost per CCS for all hardware. Then the cost per CCS was multiplied by an assumed average holding time for all features that use hardware to generate a cost for hardware for the feature category.

Witness Pitts disagreed with this approach for several reasons. She argued that investments in the numerator were usually too high and the capacities in the denominator were too low, which caused inflated hardware costs per CCS. She also asserted that "the method of averaging the hardware costs, the holding times and the number of calls using the hardware is flawed."

Witness Pitts stated that prices for feature hardware components are discounted in the model in the same manner as the rest of the switch. She complained that using the SCIS/IN model, with no discounts applied at all, produced lower costs for most of the hardware than the costs produced by BellSouth's hardware study.

Witness Pitts noted several factors that she believes may be the cause of the disparity. They were:

- BellSouth used the list price with no discount for the CLASS Modem Resource Card.

- The investment for the Call Waiting Tone, which was discounted using the melded rate, was 88% higher than the investment produced in the SCIS/IN model, but witness

Pitts was unable to find the associated investment to support the current investment numbers.

- Loadings and costs for associated resources appear to have been included in one technology's investments.
- Some of the associated resources may be double counted in the hardware study and again in the telco installation factor and/or other factors.

BellSouth witness Page agreed that "BellSouth's Class Modem Resource Card investment should have been discounted instead of being included at list price."

However, he argued that witness Pitts' claim that associated resources may be double counted is untrue. He stated that "[b]ased on information provided by Lucent, these 'associated resources' are switch cabinets, which are not included in any other BellSouth factors."

Witness Pitts also took issue with capacity figures used in the Hardware Study. She testified that:

- Capacity information provided by BellSouth is not in CCS units and no explanation was provided for units used by BellSouth in the Hardware Study;
- BellSouth used an undocumented investment for two circuits associated with Call Waiting.
- BellSouth divided the investment of two circuits by the capacity of one circuit, which produced a cost twice as high is it should have been.
- The capacity of the CLASS Modem Resource Card is labeled CCS, but it is actually the number of lines that can share the card.

- The number of lines that can share a CLASS Modem Resource Card is more than ten times the number used by BellSouth.

- BellSouth used the capacity from SCIS/IN for a DSU2/RAF/BRCS announcement, but used the investment from a higher capacity announcement called an SAS. Dividing the high cost SAS announcement by the RAF announcement's comparably smaller capacity results in a seriously overstated cost per CCS.

- Most of the values in the SCIS/IN capacity table for hardware are utilization values, not ultimate capacity. Applying a utilization value to figures that are already a utilization value double counts spare capacity.

Witness Pitts argued that there is a more accurate way to perform the calculations. She noted that, even using the melded discount for hardware components, SCIS/IN produces results that are approximately 50% of the costs produced in BellSouth's study. She asserted that going one step further to change the discount rate to that used for new switches, the results produced are approximately 33% of the hardware investments used by BellSouth.

BellSouth witness Page disagreed with a number of witness Pitts' conclusions. He contended that BellSouth's use of two Call Waiting tone circuits is correct, which is shown by an examination of the SCIS/IN formulas. Witness Page discussed witness Pitts' claim that BellSouth's estimate for the number of lines sharing a CLASS modem card is too low. He noted that

> the number of lines sharing a CLASS modem card from [sic] should be changed from 76.8 to 435.75. The revised number of lines reflects utilization, so the utilization input for the CLASS modem should be 100%.

Witness Page noted that "the capacities for the SAS announcement circuit should be modified based on new information from the switch vendor as reflected in [his] exhibit JHP-03." He also provided confidential CCS capacity modifications.

Witness Page agreed with witness Pitts that utilization inputs should be changed on the following items in the table entitled "Uitlization Input Changes for Capacity" shown below.

Utilization Input Changes for Capacity

EQUIPMENT	SWITCH MANUFACTURER	CURRENT %	RECOMMENDED CHANGE
6-Port Conference Circuit	Nortel	85%	100%
3-Port Conference Circuit	Nortel	85%	100%
Call Waiting Tone	Nortel	85%	100%
6-Port Conference Circuit	Lucent	85%	100%
3-Port Conference Circuit	Lucent	85%	100%
Class Modem Card	Nortel	85%	100%

Witness Page also agreed that witness Pitts' restated hardware study contained in her exhibit CEP-4 includes some corrected inputs. However, he noted several flaws. Fundamentally, he disagreed with her use of what he characterized as a hypothetical replacement discount. He asserted that witness Pitts :

> . . . never disputes the core principle at issue, which is that switches are purchased with the number of lines needed to serve two or three years' worth of demand. The switch is then grown as necessary, at regular intervals, to accommodate expected increases in demand.

He stated that the hypothetical example in his Exhibit JHP-1, which assumed a ten percent growth rate, demonstrated that it was economically reasonable to accept pricing that allowed for a higher initial discount with a lower replacement discount. He argued that changing the growth rate to 5% as recommended by witness Pitts does not invalidate this principle.

Witness Page found witness Pitts' exception to the use of a 10-year switch life inexplicable. He noted that "BellSouth's economic life for switching is 10 years, as provided by Mr. Cunningham's testimony."

Witness Pitts argued that many of the errors remain in BellSouth's revised cost study. She testified that the switch element costs only changed minimally in all but three cases. She contended that the revised cost study does not correct the hardware errors she identified.

As we discussed above in dealing with switch discounts, we found BellSouth's methodology for calculating an average to be reasonable. We see no reason, based on this record, to treat switch discounts differently for development of feature costs.

BellSouth agreed with AT&T that the CLASS Modem Resource Card should be discounted.

Witness Page rebutted witness Pitts' point that the investment in Call Waiting Tone produced a cost twice as high as it should have been. He argued that the formulas shown in SCIS/IN support the SST's assumption of two Calling Waiting Tone circuits. Since BellSouth did not use SCIS/IN nor submit SCIS/IN in this proceeding, we have no way of verifying the BellSouth witness' assertion. However, nothing in the record controverts witness Page's statement. Thus, we shall not require any changes to BellSouth's study on these two points.

We find that BellSouth's explanation that certain resources AT&T claimed to be double counted are actually switch cabinets is reasonable. Moreover, BellSouth's explanation is unrebutted and thus shall be accepted.

Witness Pitts contended that the number of lines that can be shared by CLASS Modem Card is ten times the number used by BellSouth. Witness Page agreed that the number of lines should be changed from 76.8 to 435.75.

Witness Page also agreed that an adjustment should be made to announcement capacity, as shown in exhibit JHP-03. Finally, the BellSouth witness acknowledged that changes to the utilization inputs in the hardware study, as indicated above in the table entitled "Utilization Input Changes for Capacity" are appropriate.

It appears that witness Pitts' complaint that BellSouth failed to correct its cost study is more a concern that BellSouth did not agree with her on all points -- especially what discount to use -- rather than a failure to correct an actual flaw. We find that each point raised by witness Pitts has been specifically addressed. Therefore, no further action is required by us.

Witness Pitts stated that BellSouth took the simple average or mean of "all the inputs for the features in a category to derive the average number of times a feature is used." However, she noted considerable disparity among the features, such as PBX attendant features, residential features, Centrex features, multiline group features, and trunk-side connection features. She argued that there are two significant problems with this approach. First, she contended that the use of a simple average rather than a weighted average of features that have different penetration rates causes a distorted result. Second, she asserted that the basis for the inputs varies, with some being on a single line basis, some on a per business group basis, and some on a trunk group basis. Witness Pitts argued that one cannot simply add the inputs up and divide by the number of features to arrive at a per port average. Witness Pitts noted that BellSouth uses these calculations to produce a composite feature investment for features used during the busy hour.

BellSouth witness Page agreed in principle that a weighted average should be used instead of the mathematical average. However, he argued that the features will be used by ALEC customers, not BellSouth customers. Witness Page claimed that BellSouth has no way to know what features will be used by the ALEC's customers. He opined that the approach BellSouth has used is reasonable to use until the ALECs provide market forecasts to BellSouth.

Witness Pitts complained that "BellSouth uses the estimates of holding times of five hardware components to derive a simple average, rather than a weighted average, holding time for all hardware." She stated that BellSouth mixes holding times for announcements of different types with holding times for conference circuits. She argued that this produces distortions in the costs. She noted that Features per Port (B.4.13) decreased 6.59% in BellSouth's revised cost study. She asserted that the per port element decreased because BellSouth made a "mathematical correction to its hardware study to apply a discount to the Call Waiting Tone investment." She stated that the remaining changes that she recommended in her rebuttal testimony were not made by BellSouth.

BellSouth witness Page responded that witness Pitts misunderstands the methodology used by BellSouth to develop the busy hour. He explained that "BellSouth compiled the busy hour calling rates for 56 features." He advised that the calling rates show a wide range in the number of busy hour calls. He continued that BellSouth divided the simple sum of the calling rates by the 56 features to produce an average of busy hour calls per feature. He stated that dividing the average busy hour calls per feature by the number of features that the typical subscriber uses produces the average feature calls per busy hour. Witness Page argued that the number produced using this methodology "is reasonable because it reflects both originating features, such as 3-Way Calling and Speed Dialing, as well as terminating features, such as Call Waiting or Hunting, as well as CLASS features such as Caller ID.

Witness Pitts explained that "processor realtimes are the individual measurements of central and/or distributed processor time it takes to activate or use a feature." She noted that "processor-related costs are 13% of BellSouth's claimed feature costs, second only to the hardware costs." She stated that BellSouth makes an assumption that every feature uses the same amount of processing time. She also noted that BellSouth assumes that its different switches, the Nortel DMS switch and the Lucent 5E switch, use the processor in the same manner. However, she argued that the Lucent switch performs the bulk of feature call processing through processors other than the central processor, thus using very little central processing time for that function. As a result, she argued that BellSouth is incorrect in assigning the same amount of call set-up time to the different switches.

BellSouth witness Page argued that "the SST-U model algorithms recognize that the Lucent and Nortel switches have different architectures and process calls differently." He contended that witness Pitts has misunderstood the SST-U model algorithms. He pointed out that a variable called "Processor Realtime (Milliseconds) per Call" is used by the SST model. He explained that this variable "represents the total realtime milliseconds available for call processing divided by the vendor's stated call processing capacity for the switch." He noted that this variable can be found in the "SST-U model, worksheet UNE Main, Column F, where it is labeled an average number of milliseconds per call."

Witness Page explained the differences between Lucent and Nortel switches in processing for call setup and features. He noted that

> The Lucent 5ESS® switch uses a distributive processing architecture, in which the Switch Modules (SMS) (the same modules that house line and trunk terminations) perform the bulk of the call processing and vertical feature processing. The 5ESS® switch has two other processors, the Communications Module Processor (CMP) and the Administrative Module (AM) which perform call processing functions such as overall call routing, resource allocation, and billing.
>
> The Nortel DMS-100® switch, by contrast, performs call and feature processing within a central switch processor.

Witness Page argued that it is appropriate to attribute the CMP and AM components to feature and call processing because "these components are responsible for maintaining the overall call processing flow and administrative functions of the switch."

AT&T/WorldCom witness Pitts also disagreed with BellSouth that features must be assigned a portion of the cost for the use of the processor. She argued that adding features to a switch does not cause BellSouth to purchase additional processing equipment. She contended that the start-up cost of a switch is fixed, and is not impacted by the addition of features.

BellSouth witness Page argued that witness Pitts is incorrect on both practical and theoretical grounds. He disagreed that the start-up cost of the switch is fixed, stating "[o]ne fundamental principle of long-run costing is that the replacement of a large 'lumpy' investment, such as a switch processor, is advanced in time by increased usage." He also contended that there is "plentiful evidence from the switch vendors themselves that features do affect the useful capacity of a switch, and therefore will help determine the number and type of switches that must be placed." He noted that documentation of this was provided to AT&T in response to AT&T's First Production of Documents, Request No. 14. He pointed out an example which shows that there are capacity constraints in the number of calls a switch can process in a busy hour.

Witness Pitts stated that BellSouth corrected a "mathematical error in the feature hardware study that reduced the Composite feature port additive by 6.59%." However, she noted that none of the other changes that she recommended were made.

Witness Pitts explained that with modern switches, it is the ports that limit the capacity of a switch. She asserted that the processor and getting started costs should be allocated to the ports in a switch, not to the traffic sensitive minutes of use and feature costs.

BellSouth witness Page disagreed, arguing that there is "abundant evidence that switches generally have three capacity limitations: ports, processor capacity, and minutes of use (MOU) capacity." While he agreed that the port is one limiting factor, he provided evidence from Lucent documentation that shows that busy hour calls are the limiting factor for the 5ESS switch, not lines.

Witness Page noted that we have previously considered the arguments raised by witness Pitts. He quoted from Order No. PSC-98-0604-FOF-TP, Dockets Nos. 960757-TP, 960833-TP, and 960846-TP, p. 159:

> The local usage rates that we set in Order No. PSC-96-1579-FOF-TP included processor usage for vertical features. We believe that this is consistent with the FCC's definition that all features, functions, and capabilities of the switch are included with the switching element.

Witness Pitts stated that "BellSouth's Centrex functionality feature costs out intra-Centrex intercom usage and assigns it as a flat-rate port additive." She explained that it is her understanding that an ALEC's UNE-P lines purchased from an ILEC would result in chargeable UNE MOUs for every minute the line is used. Accordingly, she argued that the additional Centrex charge results in double recovery of the cost.

Witness Pitts noted that this item was not changed in BellSouth's revised cost study. She argued that it should be set to zero. She contended that the error was made due to faulty methodology, not SCIS/MO errors.

BellSouth witness Page agreed that the Centrex Intercom Usage feature should be set to zero. He explained that at the time the original cost study was filed, BellSouth did not believe it would have the ability to bill for these calls on a usage basis. However, he noted further evaluation has shown that BellSouth will indeed be able to do so.

Witness Page agreed in principle with witness Pitts that a weighted average would be better than the simple average that BellSouth has used. However, he argued that it is the ALECs' customers that will use the features, so BellSouth has no way to determine what features will be used during the busy hour. Neither party discussed what the potential impact would be on the cost study of using a weighted average for features used in the busy hour. Further, no party provided an alternative to BellSouth's model. As stated by witness Page, the parties "do not bring any constructive alternatives for feature usage data to the table." Absent any viable alternative, we find that no adjustment should be made.

We also find that the SST's technique of averaging the busy hour calling rates of various features, though perhaps not ideal, appears to yield acceptable results and no alternative appears in the record. Moreover, we find that the SST's assumption that the Communications Module and the Administrative Module should be attributed to feature and call processing, as well as attributing a portion of processor costs to features, are reasonable. Although the 5ESS employs a distributed processing architecture, it appears that the AM and CMP modules are indirectly involved in overall call processing. Similarly, we agree that the record indicates that call handling capacity is a limiting factor on a switch, and that since features can accelerate the switch processor's exhaust, assigning a pro rata share of processor costs to features is appropriate.

Witness Pitts argued that SST's charge for Centrex functionality double-recovers the cost. Witness Page agreed that the Centrex Intercom Usage feature should be set to zero.

Witness Pitts argued that "BellSouth's example for charging a line path to a feature is incorrect." She described an example used by BellSouth for three-way calling. She noted that BellSouth claims a three-way call ties up a call path in addition to the one established with the original call. She disagreed with BellSouth, arguing that "[t]here is no incremental line path to be charged as part of the 3-way feature cost that isn't already recovered via [the calls made by one subscriber to the other two subscribers involved in the call]." She stated that the Line Path costs used by BellSouth only accounts for 2% of the composite feature costs. She recommended that the cost of line paths be excluded from the cost study because BellSouth's example does not adequately explain the costs.

BellSouth witness Page argued that the statement quoted by witness Pitts regarding the use of additional line path resources in the switch was a general statement. He noted that, in fact, "the feature usage data set developed for the SST does not include any additional line path usage for 3-Way Calling." Accordingly, witness Page asserted that the SST feature cost results are correct.

It is not clear what witness Page is referring to in his testimony. The cost study does say that ". . . a three-way call invokes another call path in addition to the one established with the original call." Nevertheless, we accept witness Pages's claim that no additional line path usage is attributed to the 3-Way Calling feature.

Witness Pitts stated that BellSouth uses the number of lines per office to develop Caller ID penetration and lines that are remotely call-forwarded. She contended that "the SCIS inputs show different average office line counts than what BellSouth used in its separate analysis documented in [BellSouth response to AT&T] POD Item #33 for these two features . . ." She argued that using the POD Item #33 line counts instead of the SCIS line counts causes the penetrations for Caller ID and RCF to change. Her testimony is unrebutted on this point.

Our review of her Exhibit CEP-8 (contained in EXH 130) confirms Witness Pitts' statement concerning line counts. There is no explanation as to why the line counts are different. Accordingly, we find that the Caller ID and Remote Call Forwarding penetration rates to be used in the SST should reflect the average number of lines per central office in BellSouth's SCIS/MO inputs; these values and the resulting penetration rates are shown on page 26 of AT&T witness Pitts' confidential rebuttal testimony.

Witness Pitts argued that "BellSouth has not met its burden of proof to document and support its costs for features." Due to the problems discussed previously in this issue, she argued that the feature cost model and its costs should be rejected.

AT&T/WorldCom witness Pitts noted in her testimony that the following recommended changes are included in AT&T/WorldCom witness King's restated costs. The changes are:

- Changes to discounted inputs in SCIS.
- Restated ISDN port investments. Inputs to ISDN investments were partially corrected in BellSouth's revised cost study.
- Changes to BellSouth's Hardware Study. One mathematical error was corrected in BellSouth's revised cost study.
- Excluded cost of line paths from feature costs.
- Changes to line counts for Caller ID and RCF.

Witness Pitts noted that AT&T/WorldCom witness King's restated costs do not include the recommended changes to customer usage characteristics and switch realtime estimates. She stated that she does not have accurate call usage data. Additionally, she argued that the model only allows one call usage input per feature category. Therefore, she knew of no way to input different call usages to accommodate the different types of features in each category.

BellSouth witness Page argued that, if witness Pitts does not have accurate call usage data, "she has no basis for judging whether the inputs are reasonable or not."

While witness Pitts recommended that Centrex intercom usage be set to zero, she did not comment on whether this change is included in Witness King's revised costs.

Witness Pitts asserted that the cost revisions made by witness King in his rebuttal testimony are still valid for switch related costs in BellSouth's revised model.

AT&T/WorldCom witness Pitts concluded that BellSouth's SST ". . . has too many errors, generalizations and methodological faults and should be rejected." In lieu of BellSouth's approach, AT&T offered the following simplified methodology:

1. Obtain the line and trunk port costs from SCIS/MO, using the correct new switch discounts.

2. Allocate the total Getting Started Cost of the switch, from SCIS/MO using the correct new switch discounts, to all ports.

3. Divide the trunk port cost from SCIS/MO using the correct new switch discounts, by the minutes per trunk to produce the investments per trunk MOU, and use the same methodology to derive the tandem trunk port MOU cost.

4. The remainder of the total switch investment (after subtracting out the above items) from SCIS/MO using the new switch discounts, is the traffic sensitive cost. Divide this total

investment (augmented by the corrected feature hardware costs) by total minutes to calculate the investment per end office switch MOU, and use the same methodology (without feature hardware) to derive the tandem switch MOU cost.

BellSouth witness Page argued that the methodology recommended by witness Pitts is "too vague and sketchy to support a cost study." He noted that while witness Pitts complains that the SST is to generalized, her methodology is more generalized than that used in the SST. The specific problems he pointed out are that the methodology:

- ignores long established rate structures for UNEs, toll and access because it does not distinguish between the very real costs of setting up a call, as opposed to per-minute costs;

- lumps feature costs with other traffic-sensitive costs in the switch, forcing all subscribers to pay for features whether they use them or not;

- violates cost causation principles by assigning Getting Started costs to line ports; and

- produces unusable results because it does not account for remote switches.

AT&T\WorldCom has raised some valid points regarding specific problems with the SST model, as discussed above. However, we do not find that the points raised are a sufficient basis to throw out the entire feature cost portion of the SST model. The use of estimates is necessary in any modeling situation. The model may simulate the real world, but it is not the real world.

Decision

Except where otherwise noted, we find that the averages used by BellSouth provide a reasonable approach. We agree with witness Page that AT&T/WorldCom's alternative approach is a gross oversimplification. Although the simplicity of it may be appealing, we do not find that the AT&T/WorldCom proposal is a workable solution.

Many of the changes to inputs included in witness King's restated costs have been agreed to by BellSouth. All of those changes, as well as any other changes made by us will be used when we formulate the proposed rates.

With the aforementioned adjustments, we accept the feature cost portion of the SST model for purposes of setting UNE rates.

In conclusion, we approve BellSouth's use of a melded discount for switches, which is based on historical discounts for replacement or getting started switch prices and contract discounts for growth or upgrade switches. In addition, we find that AT&T's recommended changes to the discounts on the CLASS modem card shall be made. We also find that the capacities of the SAS announcement circuit shall match those on EXH 114 (JHP-3 revised) and the revised utilization inputs shown on the "Utilization Input Changes for Capacity" table shall be changed in the model. We find that the Centrex Intercom Usage feature shall be set to zero. Finally, we find that the Caller ID and Remote Call Forwarding penetration rates to be used in the SST shall reflect the average number of lines per central office in BellSouth's SCIS/MO inputs.

L. Traffic Data

Next we must decide the appropriate assumptions and inputs for traffic data to be used in the forward-looking recurring UNE cost studies. Traffic data, according to BellSouth witness Page, is an input to BellSouth's switching models. Witness Page "assumed" that traffic data "means data that address the characteristics of line and trunk usage, for example, the number of calls in the switch Busy Hour." According to witness Page, SCIS/MO, Exchange Ports, Features, and Switched Usage and Common Transport switching cost modules all use traffic data inputs.

AT&T/WorldCom witness Pitts criticized BellSouth's customer usage characteristics. She testified:

> BellSouth mixed and matched busy hour call usages for individual features, that are themselves suspect, to derive an average busy hour call usage per line for an entire category of features.
>
> When asked for supporting documents, analysis and calculations to support the busy hour call estimates per feature category, BellSouth provided a listing and indicated that the source was its own retail study inputs. Just a casual review causes concern that these inputs are not correct.

Witness Pitts provided several examples; however, all of her examples contain proprietary data. BellSouth witness Page provided rebuttal to witness Pitts' criticisms; however, his rebuttal also contains proprietary data.

Decision

Although AT&T/WorldCom witness Pitts criticized BellSouth's usage characteristics, no ALEC took a position on this issue in a post-hearing brief. Therefore, we find that the assumptions and inputs for traffic data should be those recommended by BellSouth except as modified by the changes we approved concerning switching costs and associated variables.

M. Signaling System Costs

We next must determine the appropriate assumptions and inputs for signaling system costs to be used in the forward-looking recurring UNE cost studies. The Signaling System 7 (SS7) signaling network is separate from the voice network. It provides for call setup and query messaging. The use of BellSouth's regional SS7 network, called the Common Channel Signaling Network (CCS7), will enable an ALEC to provide signaling without using its voice network. As a result, quicker call setup and disconnect can be achieved. Additionally, it enables query messaging to various databases, such as LIDB, 800, Calling Name (CNAM), and Advanced Intelligent Network (AIN) service.

BellSouth witness Caldwell described the manner in which SS7 was modeled in the current study. She testified:

> [T]he Signaling System 7 ("SS7") Price Calculator, determines the unit costs associated with BellSouth's SS7 network. This price calculator calculates the vendor prices for the equipment and facilities deployed in the [sic] BellSouth's regional SS7 signaling network.

She explained that the per unit material prices are developed by dividing material prices for SS7-related equipment by the total annual octets. She continued that the study components consist of Gateway Signal Transfer Point (STP) pairs, Local STP pairs, BellSouth signaling links, the Link Monitoring System (LMS), and the integrated Digital Service Terminals (IDSTs).

Decision

Other than the description provided by witness Caldwell, no party addressed BellSouth's modeling techniques for the signaling systems. The UNE rate elements associated with signaling are per call setup (ISUP) and per Transaction Capabilities Application Part (TCAP) message. While no party challenged the modeling methodology used by BellSouth, the proposed rates may be impacted by changes in other inputs, such as changes in cost of capital, which impact the rates overall. We find that, for purposes of this study, the assumptions and inputs for signaling systems that were used by BellSouth shall be accepted.

N. Transport System Costs and Variables

In its simplest definition, transport system costs and associated variables refer to the costs of transport between wire centers. It is commonly known as interoffice transport. We note that while Sprint originally filed testimony rebutting BellSouth's transport system costs and associated variables, Sprint's final position does not take issue with BellSouth's proposals.

BellSouth's witness Caldwell described how BellSouth developed its transport system cost inputs:

> Transport costs incorporate the forward-looking Synchronous Optical Network (SONET) architecture in determining network design and subsequent costs. Inputs to this calculation reflect BellSouth-specific costs for Florida. They include fill factors, SONET material prices, number of nodes on a ring, air-to-route factor, and the mix of aerial, underground and buried fiber in the interoffice transport.

Sprint's witness Cox explains that transport of the unbundled Interoffice Transmission Facilities is composed of two basic network components: terminals and fiber cable. The witness adds that terminals are the equipment housed at the central office locations, which serve as entry and exit points for telecommunications traffic to be moved between interoffice points in the network. Additionally, witness Cox explains that the fiber transport routes in a forward-looking network are constructed in a ring design, which provides route diversity meaning that in the event of a fiber cable cut, or terminal node failure, the traffic is automatically rerouted over the remainder of the ring.

Witness Cox also explains that the development of interoffice transport system costs should utilize/recognize the following items, which he agrees BellSouth has included in its cost studies:

- 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

Witness Cox agrees with BellSouth that the associated variables to be considered with transport system costs include traffic volume, terminal bandwidth, and distance. He asserts that the largest single determinant in the unit cost of a DS1, DS3, OC3, or OC12 transport circuit, is the volume of traffic transmitted over a specific transport route. This volume of traffic, or demand, determines both the appropriate capacity sizing of the terminal equipment and fiber cable and defines the units over which these costs are spread.

The volume of traffic that can be carried over fiber is a function of the optical terminal's bandwidth/capacity (OC3, OC12, OC48) placed on the fiber ring, witness Cox maintains. The same traffic volume that drives the unit cost of the terminals is also a major determinant in the transport unit cost of the fiber. As with terminals, explains the witness, the more traffic that a specific transport route carries, the lower the unit cost of a DS0, DS1, DS3, OC3, or OC12 on that route.

Regarding distance, witness Cox contends that as the distance around a transport ring increases, more fiber cable must be placed, thereby increasing the cost of bandwidth on that ring. The potential for multiple SONET rings to transport traffic between certain end offices is unavoidable due to ultimate capacity constraints of terminal equipment. Additionally, the witness argues that there is the need to construct fiber rings that link the predominant communities which originate and terminate the largest volumes of traffic on any given ring.

<u>Decision</u>

Sprint's only concern with BellSouth's inputs for interoffice transport and associated variables appears to relate to the issue of geographic deaveraging, as indicated by both witness Cox and witness Dickerson. However, Sprint was the only party in the proceeding advocating the deaveraging of switching and interoffice transport, but we note that it abandoned that position in its brief. This being the case, there is no other opposing position to BellSouth's on interoffice transport inputs. Lacking any evidence or argument to the contrary, we find that BellSouth's inputs shall be adopted.

O. Loadings

Annual cost factors are translators used to determine the annual recurring cost associated with acquiring and using equipment. When an investment is multiplied by an annual cost factor, the product reflects the annual recurring cost incurred by the company. There are basically two types of costs associated with an investment, capital-related costs and operating-related costs, explains BellSouth's witness Caldwell. The witness further explains that one group of inputs that significantly impacts costs is loadings. BellSouth applies loading factors as multipliers on per unit material investments to arrive at a total installed ready-for-service cost.

BellSouth's witness Caldwell explains that the term "loadings" means:

> These factors are designed to augment calculated material prices to account for additional costs that are difficult to ascertain on an individual, element-specific basis. Thus, BellSouth develops mathematical relationships between the material prices and the additional labor expense, miscellaneous material, and support structures to capture the total cost BellSouth will incur on a going-forward basis.

Witness Caldwell also explains that the BellSouth Cost Calculator (BSCC) is the mechanism that performs the mathematics in applying the inflation factors, support loadings, annual cost factors, labor rates, tax factors, and shared and common factors to the material price inputs. Additionally, to ensure consistency between studies, the witness contends that the BSCC warehouses the annual cost factors, labor rates, loading factors, and inflation factors.

BellSouth's cost study uses essentially four types of loadings: In-Plant (In-Plants), Loadings, Miscellaneous Factors, and Right-To-Use (RTU) Fee. In-plant factors include material and telco loading representing the installation or placement of the equipment and plug-in and hardwired equipment. Loadings includes structure loadings for poles, conduit, land, buildings, and central office equipment. Miscellaneous factors include Supporting Equipment and Power (SE&P) and inflation. RTU fees are unique to the digital switching account.

Witness Caldwell explains that all loading factors are calculated from BellSouth's accounting records and the projected view of BellSouth's future additions in the various accounts. As such, these values reflect costs that an efficient provider would be able to expect to achieve on a going forward basis. Further, the loadings are all Florida-specific, except for land and building loadings associated with general purpose computers, which reflect regional loadings. According to Hearing Exhibit 61, this is because general purpose computer facilities perform computing functions for multiple states, rather than just the state where the facilities are actually located.

According to the cost study methodology, BellSouth develops its loadings by converting historical investment levels into forward-looking average investment levels for the projected study period by: (1) identifying the 1999 investment levels;(2) applying Current Cost/Book Cost ratios to develop current replacement investment; (3) adding projected annual net additions to determine the forward-looking investment levels for each of the years 2000-2002; and (4) determining average forward-looking investment levels for the 2000-2002 study period.

The Current Cost/Book Cost ratios represent weighted averages or composite Telephone Plant Indices (TPIs) of all existing historical vintages. The current cost factors are developed from investment data detailed by account, by state, for all surviving vintages and are computed by dividing the current cost by the average book cost of a specific investment at a given point in time. As demonstrated in Hearing Exhibit 61, the current cost development includes the application of a relative index to investment data by vintages. That is, total investment by account at a given time is categorized by the year in which the investment was booked. The appropriate TPI for each year is applied to the corresponding vintage investment, and all vintage investments are totaled for the account. This total is the current cost of the account. The current cost of the account is then divided by the total book cost to produce the Current Cost to Book Cost Ratios.

The Data ALECs, the FCCA, Time Warner, and Sprint all assert that BellSouth's loadings are linear and, as a consequence, distort the installation investment between urban and rural wire centers. Witnesses Donovan, Pitkin, and Dickerson argue that the distortion is of particular concern when UNE prices are deaveraged, as deaveraging serves to magnify the distortion. Additionally, the FCCA contends in its brief that the distortion is also a concern for UNEs associated with higher bandwidth capacity, which receive a disproportionate amount of installation investment.

1. In-Plants

In-plant loadings are account-specific factors that add engineering and installation labor and miscellaneous equipment to the inflation-adjusted material price and/or vendor installed price (EF&I). In other words, in-plants convert a material price to an installed investment in the BellSouth Cost Calculator (BSCC), explains BellSouth's witness Caldwell. The witness maintains that the factors are developed based on BellSouth-specific information on the state level. The individual components of installation and placement are not, however, explicitly identifiable.

The following table sets forth BellSouth's proposed in-plant loading factors:

BellSouth's In-Plant Factors

Account	In-Plant Factors				
	Plug-In Inventory	Material	TELCO	Plug-In	Hard-wired
Buildings					
Motor Vehicles					
Aircraft					
Garage Work Equipment					
Other Work Equipment					
Furniture					
Office Equipment					
Office Support Equipment					
Other Communication Equip.					
General Purpose Computers					

Account	In-Plant Factors				
	Plug-In Inventory	Material	TELCO	Plug-In	Hard-wired
Analog Switching					
Digital Switching	1.0587	1.3249	1.1361	1.1768	3.7651
Operator Systems					
Radio					
Analog Circuit					
Digital Circuit-DDS		1.0428			
Digital Circuit-Pair Gain	1.0587	1.5742		1.1682	2.5184
Digital Circuit-Other	1.0587	1.1640	1.0254	1.1835	3.9061
Station Apparatus					
PBX					
Pay Telephone					
Other Terminal Equipment					
Poles					
Aerial Ca.-Copper Bldg. Ent.		6.3450			
Aerial Cable-Copper		6.3443			
Aerial Ca.-Fiber Bldg. Ent.		6.7006			
Aerial Cable-Fiber		2.2621			
Underground Cable-Copper		4.4404			
Underground Cable-Fiber		1.8253			
Buried Cable-Copper		6.8489			
Buried Cable-Fiber		3.6881			
Submarine Cable-Copper		6.4311			
Submarine Cable-Fiber		2.7137			
Intrabuilding Cable-Copper		7.5110			
Intrabuilding Cable-Fiber		2.7137			
Conduit					

(Source: Hearing Exhibit 95)

BellSouth's witness Caldwell explains that the concept of an in-plant loading factor is to capture the costs necessary to engineer, install, and get the plant ready for service. She argues that the factor is essentially a multiplier to the material investment and is theoretically based on the ratio of the 1998 material prices and the additional costs for labor, miscellaneous material, and support structures, to capture the total cost BellSouth will incur on a going-forward basis. She also contends that this captures the actual 1998 placement costs by category type (i.e., telco plant labor, telco engineering, vendor engineering, vendor installation, exempt material, and non-exempt material) for a given type of cable (fiber or copper, aerial, underground, or buried). The witness adds that drop terminals for line sizes below 100 pairs are included as exempt material. For these reasons, BellSouth contends that the use of loading factors is representative of the broad range of activities and costs required to install cable in a variety of locales and under a variety of conditions.

An implicit assumption in using ratios is that if any component changes over time, e.g., by inflationary or deflationary forces, then all components will change in a like fashion. Since the change would appear in both the denominator and the numerator of the ratio, BellSouth claims that the ratio itself would remain relatively unchanged. BellSouth asserts that this relationship is indicative of future expenditures.

BellSouth witness Caldwell identifies four types of in-plant loadings it applied to the inflated material cost: (1) material, (2) telco, (3) plug-in, and (4) hardwire. Witness Caldwell explains that the material loading is applied to a material price, the telco loading to the vendor-installed investment, the plug-in loading to the deferrable plug-in and common plug-in material prices, and the hardwire loading to the hardwire portion of an equipment material price.

a. Material and Telco

As set forth in Hearing Exhibit 61, BellSouth's material in-plant factors are account specific ratios of total installed investments divided by capitalized material costs. The numerator includes plant labor. Data sources for material and telco loadings are the 1998 State and Local Sales Taxes, Resource Tracking Analysis and Planning (RTAP) System, and Special Report/File 542-1998 Investments. BellSouth asserts that this data captures total construction activity as actually experienced by BellSouth. As a consequence, it is representative of the broad range of installation activity and costs in a variety of locales and under a variety of conditions.

BellSouth's witness Caldwell notes that manhole costs are incorporated through the conduit loading factor. Additional discussion on this is contained in the section of this Order addressing Supporting Equipment loadings. The manhole placement costs, however, are considered in the in-plant factors associated with underground cable.

BellSouth contends that its in-plant factors produce representative cost results when viewed from a total cable placement basis and any distortions from a "size of cable placed" are minimal since it places very few large cables. For this reason, BellSouth chose to use a loading factor rather than applying explicit placement, structure, and engineering related investments to the network built in the BSTLM.

The primary criticism of the Data ALECs, FCCA, Sprint, and Time Warner regarding BellSouth's loading factors to account for engineering and installation costs, are that they are linear and distort cost relationships between rural and urban areas, as explained by witnesses Donovan, Pitkin, and Dickerson. This is of particular concern, the witnesses advocate, in a proceeding where rates are being deaveraged.

As Sprint's witness Dickerson asserts:

> The BSTLM has the ability to apply the actual engineering placement, and structure, related investments to the network built in BSTLM, but BellSouth has chosen not to use its model's full capability. As a result, the costs are inaccurate. BellSouth should, therefore, be required to modify its costing methods to more accurately reflect its actual experience.

Along the same lines, AT&T and WorldCom witnesses Donovan and Pitkin assert:

> While the BSTLM is designed to calculate the total loop investment required to provide the various loop elements, BellSouth disabled many of these features and instead used the BSTLM to calculate only the <u>material</u> investment associated with the loop elements. BellSouth's filing then applies a series of factors to these material investments, for

> engineering and installation costs, in order to derive total installed investment.
>
> . . . .
>
> BellSouth's factor approach to calculating installed investment distorts the actual investment required by assuming that engineering and installation costs are directly proportional to the material costs. (Emphasis in original.)

AT&T and WorldCom's witnesses Donovan and Pitkin and Sprint's witness Dickerson assert that BellSouth's loading factors are linear and essentially assume that engineering and investment costs are directly proportional to material prices. At hearing, however, BellSouth's witness Caldwell argued that if the material price of a 2400-pair cable is 20 times greater than the material price of a 25-pair cable, the BellSouth cost model assumes that the 2400-pair cable has 20 times more installed investment-related costs than the 25 pair cable, even though it may not cost 25 times more to install the smaller cable.

In response to AT&T and WorldCom's criticism that in-plant factors overstate the cost of larger sized cables, BellSouth's witness Caldwell also claims:

> While the relationship of the combined costs of installation labor, exempt material, sales tax and engineering to total material costs may not be perfectly linear, the use of in-plant factors produces representative cost results when viewed on a total cable placement basis. While the use of in-plant factors may potentially overstate, to some degree, the costs for large size cables, Mr. Donovan and Mr. Pitkin conveniently disregard the fact that if one believes that in-plants overstate the cost of large sized cables, then the corollary is also true; i.e., that in-plants potentially understate, to some degree, the costs for small size cables.

Sprint's witness Dickerson asserts that while loadings for engineering, installation, poles, and conduit are certainly a necessary part of the cost of a loop, the method BellSouth uses to apply the loadings totally distorts the cost variance between urban and rural wire centers. Witness Dickerson explains that BellSouth's in-plant factors are developed using state level relationships applicable to all investments. Applying a generic markup to material investment, regardless of density or geography, results in an overstatement of costs in higher density urban areas and an understatement of costs in rural areas, the witness contends.

BellSouth agrees that application of linear loading factors produces a distortion in installation investment; the only issue is the degree of such distortion, notes witness Caldwell. BellSouth's witness Caldwell and AT&T and WorldCom's witness Pitkin both agree that the distortion is particularly acute in urban areas, which tend to have bigger cables, and thus, are assigned disproportionately higher installed investment amounts. AT&T and WorldCom's witness Pitkin argues that the distortion is a particular concern when UNE prices are deaveraged, as deaveraging magnifies the distortion in the urban areas. Additionally, he argues that the distortion is also of particular concern for UNEs associated with higher bandwidth capacity that tend to have higher cost equipment, and also receive a disproportionate amount of installation investment when loadings are applied.

The Data ALECS' witness Murray asserts that cable installation costs exhibit economies of scale because the cost to install larger cables should not differ substantially from the cost of installing smaller cables. In other words, on a per-pair basis, witness Murray opines that installing a 3,000-pair copper cable is much less expensive than installing a 25-pair cable. To the contrary, however, BellSouth's in-plant factors assume installation costs will increase in direct proportion to the increased investment in those cables, the witness contends.

AT&T and WorldCom's witnesses Donovan and Pitkin assert that it is essential to recognize that in this proceeding, rates are being deaveraged. Thus, overstatements and understatements will not average out but will, instead, result in skewed cost-based rates that will not reflect BellSouth's cost in each zone. The witnesses emphasize that the distortion will inflate the costs and investments attributed to the higher-density zones and understate them in the lower-density zones. Because rates are being deaveraged, the use of any average multipliers will distort the low end and the high end. They add that the use of an average multiplier will create a subsidy on a different geographic level.

In response, BellSouth contends that in-plants give as good a result as using the direct placement feature of the BSTLM as suggested by intervenors. BellSouth's witness Caldwell explains that an in-plant factor is going to be the average across the investment dollars. Witness Caldwell explains that the BSTLM is placing predominantly 25-pair cables in the distribution network. Additionally, BellSouth is actually placing in the network predominantly 25-pair cables. Witness Caldwell, therefore, believes there is a good correlation between the BSTLM results and BellSouth's network. In terms of getting better data, witness Caldwell is not sure explicit placement values would yield a more accurate number. Notwithstanding this, BellSouth asserts that, at this point, BellSouth does not have the requisite engineering and installation information available to explicitly input for every cable, all poles, essentially every piece of equipment included in the model. Witness Caldwell asserts there is a lot of underlying data that is required to populate the model and BellSouth hasn't assembled it at this point and time. Therefore, witness Caldwell argues that BellSouth's in-plant loadings are more accurate than using the BSTLM capability to account for installation and placement costs, because there is nothing else available at this time.

Sprint's witness Dickerson asserts that the application of BellSouth's outside plant in-plant factors overstates the "per pair" cost of wire centers in higher density areas and understates the "per pair" cost of wire centers in rural areas. Also, witness Dickerson implies that BellSouth makes no distinction between the type of facility being studied; therefore, engineering and installation costs are loaded equally to fiber and copper. Further, witness Dickerson asserts that BellSouth's use of in-plant factors causes projected installation costs to vary linearly with the number of pairs placed.

In response, BellSouth witness Caldwell contends that BellSouth developed unique in-plant factors for each type of cable based on costs incurred during 1998 in cable placements. Therefore, engineering and installation costs are not loaded equally to all loops, ignoring the type of cable, fiber or copper. BellSouth argues it developed unique in-plant factors for each type of cable based on costs incurred during 1998. Therefore, BellSouth does not load engineering and installation costs equally to all loops. Additionally, witness Caldwell explains that because BellSouth's in-plant factors convert a material cost into a fully installed, ready-for-service cost, they do not vary linearly with the number of pairs, but with the material costs of the specific cable type. Thus, witness Caldwell claims that whatever distortions may exist from a wire center density or cable size perspective are minimal.

In Hearing Exhibit 93, witness Caldwell demonstrates that actual cable placements generated by the BSTLM follow somewhat of a bell-shaped curve with the great preponderance -- over 75% --of cable placements affecting only 25-pair, 50-pair, 100-pair, and 200-pair cable placements. The BSTLM assumes that 56% of the cable placed in Florida will be 25 or 50-pair cable. Only 18% of the placing assumed will be 400-pair or larger. As a result, witness Caldwell claims that the in-plants are used against the smaller cable sizes, indicating a minimal disparity rather than that proffered by the other parties. Additionally, witness Caldwell notes that the 1998 historical data, upon which BellSouth's in-plants are based, reflects that only 20% of BellSouth's 1998 placements related to cable sizes of 400-pair and larger.

BellSouth's in-plant factors are theoretically based on the composite total installed and material costs for the universe of cables placed in 1998. Further, the network placed by the BSTLM assumes a greater incidence of small cable placement, i.e., 42% of the placements relate to 25-pair cable. Only about 18% of the placements relate to cable sizes of 400-pair and larger. Thus, if the theory advanced by AT&T and WorldCom's witnesses Donovan and Pitkin is true, witness Caldwell argues that BellSouth has understated the cost of its copper network, because the BSTLM has projected a greater percent of small cable placements than what was used to develop the factors.

The AT&T, WorldCom, and Sprint witnesses argue that even if BellSouth's embedded plant has 12% 25-pair cables and 20% over 400-pair cables, the network that the model constructs will probably place the 20% larger cables in a Miami type area that has sufficient density to justify those cables and 25% will be in the more rural areas. AT&T and WorldCom's witness Donovan asserts:

> If we were talking about developing statewide average rates, it could be appropriate. But because we are deaveraging, it is wrong to assume you're going to have the same mix of 25-pair cables and 4,200-pair cables throughout every wire center and every density zone. You are overstating the costs in higher-density zones and understating the costs in lower-density zones so this is not a balancing-out exercise.

Sprint's witness Dickerson notes, as set forth in Hearing Exhibit 108, that using the exact uniform pair investment across all wire centers completely distorts cost relationships between rural and urban areas.

AT&T and WorldCom's witnesses Donovan and Pitkin advocate the use of Standard Time Increments (STIs) in lieu of in-plant factors for developing installation costs. While BellSouth's STIs are available, witness Caldwell asserts that such an approach should only be used in an environment where detailed engineering information is available for the specific network segment being installed. Witness Caldwell maintains that the BSTLM does not contain all of the necessary engineering criteria; and if STIs were employed, numerous assumptions would have to be made based on typical situations or probable occurrences. Additionally, witness Caldwell believes that the cost results would be subject to the same frailties that witnesses Donovan and Pitkin criticize in the use of BellSouth's in-plant process. Witness Caldwell surmises that BellSouth's in-plant factors produce representative cost results when viewed from a total cable placement basis, and whatever distortions may be present from a "size of cable placed" perspective are minimal.

In using STIs, witness Caldwell asserts there likely exists a standard time to perform some activity such as splicing a pair, but other activities such as opening the manhole, cleaning the manhole, putting cable in, pulling the cable, and splicing the cable would have to be clearly identified and a STI assigned. Additionally, BellSouth would need to assume how many manholes, how many cables, etc. Witness Caldwell knows of no source for the STIs for every activity, not including the engineering of the loops. However, she did acknowledge that BellSouth has not conducted a time and motion study of any of the above activities.

BellSouth argues that the alternative advocated by the other parties is not reasonable. Witness Caldwell claims that BellSouth does not have readily available all of the detailed information necessary to populate the BSTLM in lieu of using in-plant factors and other loadings. Additionally, BellSouth argues that the assumptions that would have to be made to implement such a solution are subject to the same frailties by which the parties complain in using the in-plant factors. Witness Dickerson, however, asserts that BellSouth's in-plant loadings result in inaccurate costs because the factors apply a generic mark-up to material investment and do not consider density or geographic differences.

Witness Caldwell nevertheless believes that the use of in-plant factors produces results fairly representative of the cables that are being placed in the individual loops. The concept of the in-plant factor is to capture the amount needed to convert every dollar of material into an investment, installed to provide service. Witness Caldwell asserts that, in terms of representing any type of density or geography, the individual or the underlying material prices are based upon wire center-specific data that conceivably consider that information.

Witness Dickerson argues that in any given section of cable, the cost to engineer or install a 400-pair cable is not four times the cost to engineer and install a 100-pair cable. Likewise, the cost to engineer and install a 3,200-pair cable is not 32 times that of a 100-pair cable. Witness Dickerson explains that there is a small incremental time difference for the engineer to note the additional cable pair counts and their connectivity. However, because BellSouth applies a common in-plant factor per unit, the witness contends that the indication is that the installation costs are four times and thirty-two times greater.

Additionally, witness Dickerson explains that the engineer normally starts with a records review, which may be accompanied by a field location visit, to determine the type of terrain across which the plant will be placed, any obstacles or external conditions that must be taken into account, and the basic route, type, and size of the facility. Witness Dickerson asserts that these work functions are generic to any size or type of cable. Witness Dickerson asserts that the engineer will consider such items as whether streets must be opened or bored under, whether rock or difficult soil will require different placement techniques, whether a water obstacle is present, and ultimately whether new cable should be placed as underground, buried, or aerial plant. According to witness Dickerson, the density of the area has a large impact on the number and types of obstacles present. Finally, witness Dickerson concludes that this activity does not vary with the number of circuits being placed, but rather with the number and types of cable sheaths that are determined necessary.

Furthermore, witness Dickerson asserts that cable construction work requirements do not vary directly with the number of pairs or fibers except for any splicing. Because BellSouth's model logic applies an installation factor to the unit cost, witness Dickerson argues that the resulting installation costs vary linearly with the number of pairs placed. To illustrate, he offers the following:

> For example, that logic would propose that a 2400 pair cable has 96 times the installation cost of a 25 pair cable. That is not how installation costs vary. For example, Sprint's aerial cable construction cost variance from the smallest (6 pair) to largest (1800 pair) cable increases only 93%. 1.93 times is a long way from 96 times. In another example, both 25 pair and 2400 pair 26 gauge underground cables fit into a four inch diameter conduit. The work operations to install both cables including clearing and setting up the manholes, rodding the ducts, and pulling the cables are exactly the same.

> The application of an installation loading to a unit cost, i.e. a linear cost per pair relationship, is flawed and should be rejected. (Emphasis in original)

Finally, witness Dickerson argues that BellSouth's application of a linear structure cost per cable pair, regardless of the geographic location, fails to reflect customer density which is one of the most basic and significant drivers of geographic loop cost variances. Customer density equates to cable size and yields tremendous economies of scale on per loop structure costs in highly dense urban areas versus sparse rural areas. The result is overstated prices for unbundled loops in BellSouth's urban markets where the demand for unbundled loops is the greatest.

In order for accurate deaveraged prices for unbundled loops to be set, witness Dickerson asserts that BellSouth's loop cost studies must be modified to reflect structure cost loadings that follow from increasing customer densities and cable sizes in BellSouth's urban areas to decreasing customer densities and cable sizes in rural areas.

Both witness Pitkin and witness Dickerson conclude that BellSouth's application of an installation loading to a unit cost, i.e., a linear cost per pair relationship, is flawed and should be rejected. While Sprint makes no specific recommended adjustments to BellSouth's fiber and metallic cable costs to account for the linear loading problem, witness Dickerson recommends that BellSouth be required to develop its structure cost inputs utilizing the capability of the BSTLM on a cable sheath basis, not on a per pair basis. While witness Dickerson indicates that this Commission is not in an optimal position, he asserts that we should not overlook the problems or "back away" from them because of the work necessary to correct the problems.

In the meantime, witness Dickerson suggests that interim rates be established, subject to true-up, until a new cost study is filed, reviewed, and analyzed. He suggests that there may be some logic to use the inputs adopted in the universal service proceeding as a basis for determining interim rates.

The FCCA recommends that we rely on the material and unit prices we adopted by Order No. PSC-99-0068-FOF-TP in Docket No. 980696-TP (USF proceeding). Witnesses Donovan and Pitkin recommend that BellSouth's in-plant factors be fixed by setting the material multiplier to 1.0 and inputting a corrected installed cost directly into the model for each one of the cable types and pair sizes. For simplicity sake, however, the witnesses recommend the same input costs the Commission adopted in the USF case. Sprint's witness Dickerson recommends that BellSouth be required to use the BSTLM capability to account for engineering and installation costs rather than using implicit linear loading factors that distort costs on a geographic basis.

BellSouth's witness Caldwell acknowledges that we rejected the use of linear loading factors in Order No. PSC-99-0068-FOF-TP, Docket No. 980696-TP. Therefore, because of the inflation factor as well as the linear loading factor issue, we adopted actual ILEC material investment inputs. AT&T and WorldCom's witness Pitkin asserts that we should remain consistent with its USF decision on the linear loading factor issue and reject the use of such factors in the development of UNE costs.

Further, BellSouth witness Caldwell suggests that AT&T and MCI's proposed solution, to use selective BenchMark Cost Proxy Model (BCPM) inputs adopted by us in our USF proceeding, is no solution. BellSouth's witness Stegeman explains that the BCPM was designed as a universal service model. As a result, inputs were established from the standpoint of developing the engineering practices and resulting costs of the most efficient provider in Florida and thus did not and still do not represent BellSouth in Florida. In addition, he argues that directly transferring inputs from a universal service cost model (BCPM) to an unbundled network element model (BSTLM) should only be done by considering the basis for the inputs, their inter-relationships, and the engineering practices reflected by each unique model.

BellSouth states that it analyzed all of the BCPM inputs adopted in the USF proceeding, brought them up to date, and converted them into inputs to the BSTLM to the extent practicable. BellSouth's witness Stegeman explains that in certain instances where BCPM inputs were not available or too difficult to translate

(Digital Loop Carrier (DLC) and SONET), BellSouth used the BSTLM. The results of this analysis are as follows:

BCPM with Commission inputs	$892
BSTLM with BellSouth inputs	852
BSTLM with BCPM inputs	832
BSTLM with ATT/MCI inputs	436

These results, BellSouth claims, demonstrate that BellSouth's use of in-plant factors is reasonable, contrary to the selective use of BCPM inputs advocated by AT&T and MCI.

Another point made by BellSouth's witness Caldwell is that Universal Service funding is designed to set a subsidy level for all providers, while the UNE proceeding is designed to set permanent rates for BellSouth. She notes that the FCC stated in its discussion of the use of forward-looking economic costs with respect to USF, that "long run, forward-looking economic cost best approximates the costs that would be incurred by an efficient carrier in the market." With that objective in mind, the Commission issued its USF Order relying heavily on inputs from Sprint, considered by this Commission to be representative of an "efficient provider." On the other hand, BellSouth argues that the rates set for UNEs should be set at a level that compensates BellSouth for the use of its network, not Sprint's. In fact, the FCC's Third Report and Order alluded to this difference; the "benchmark of forward-looking cost and existing network design most closely represents the incremental costs incumbents actually expect to incur in making network elements available to new entrants."

b. Plug-In and Hardwire

BellSouth's hardwire and plug-in factors were developed using hardwire and plug-in costs actually experienced during 1998 in placing 257C (DLC) equipment into service. The DLC placement costs are computed by multiplying the material by BellSouth's in-plant factors. The source data for determining these factors is BellSouth's Special report/File 542-1998 Investments, as set forth in Hearing Exhibit 61.

While AT&T and WorldCom's witnesses Donovan and Pitkin recommend eliminating BellSouth's loading factors and utilizing inputs adopted in Docket No. 980696-TP, they note that the BSTLM Digital Loop Carrier inputs are complex and do not lend themselves easily to use the inputs previously adopted. However, these witnesses, as well as the Data ALECs witness Murray, believe the engineering and installation costs for plug-in and hardwire equipment resulting from BellSouth's in-plant factors appear too high. The witnesses estimate it takes 66.5 hours to engineer and install a complete pre-fabricated DLC unit, whereas BellSouth's in-plant factor implies 17% more time than this. For this reason and the fact that the DLC unit-cost inputs reflect material only, the witnesses state there is no other alternative in this proceeding than to develop and apply an in-plant factor. The factors for hardwired and plug-in equipment the witnesses recommend are 1.168 for hardwire equipment and 1.00239 for plug-in equipment. These factors are based on the ratio of installed investment to material investment included in the HAI Model which witnesses Donovan and Pitkin assert are reasonable.

According to BellSouth, their factors capture the "real life" relationships of total in-plant costs to material costs that have actually been experienced in the placement of DLC. It does not reflect some theoretical approach to installing a DLC system with "cook-book" like engineering, placement, splicing, and testing components, but rather it reflects the real world experience of actually placing hundreds of these systems into service.

BellSouth witness Caldwell asserts that AT&T and WorldCom's witnesses Donovan/Pitkin's recommended plug-in and hardware factors do not resemble the real world costs associated with the complete job of placing DLC into service. Where both parties agree on the relative portion of total costs related to engineering functions (about 3 1/2% of total costs), witnesses Donovan/Pitkin approximate installation costs at about 6% of total installed costs, while witness Caldwell attributes more than twice that amount to installation activities. Additionally, witness Caldwell asserts that witnesses Donovan and Pitkin appear to have not included in-service costs such as sales taxes, right of way costs, license/permit fees, etc. Recognizing this, witness Caldwell argues that the hardwire and plug-in factors derived by witnesses

Donovan and Pitkin do not represent the real costs associated with the complete job of placing DLC into service.

c. In-Plant Loading Factors Summary

As discussed previously, BellSouth's in-plant loading factors are applied to material costs, then adjusted for inflation. As such, the in-plant factors are linear, meaning no adjustment is made for size.

Upon review, it appears that BellSouth's use of linear loading factors, while easy for BellSouth to apply, can generate questionable results, especially in light of deaveraged rates. For example, for 26 gauge buried copper cable, actual material cost as a percentage of total cost stays constant at about 14.6 percent no matter whether the cable is 12 pair or 4200 pair. This means that the total cost of this cable is always about seven times the actual material cost; thus, no economies of scale for exempt material, engineering, or labor, for example, ever occur. It seems very unlikely that there are no economies generated as cable sizes grow larger.

BellSouth claims that whatever distortions may be present from a "size of cable placed" basis are minimal in the BSTLM since it places very few large size cables. However, we do agree with the AT&T and WorldCom and Sprint witnesses that when deaveraging rates, inputs should be geographic-specific to avoid distortions in the costs of high density and low density areas. Unfortunately, we find the record of this proceeding deficient of geographic-specific engineering and placement information. While Sprint testified that it had gathered this type of information to develop inputs on a per sheath basis, it appears that BellSouth simply chose not to use the BSTLM to account for placement costs because it apparently believed the in-plant loading factor gives a representative cost based on the size of the cables being placed.

The FCCA believes that we should reject the material inflation factor proposed by BellSouth, and adopt its material inputs from Order No. PSC-99-0068-FOF-TP, in Docket No. 980696-TP, for use in the BellSouth cost model. Regarding the inputs ordered in Docket No. 980696-TP, BellSouth contends:

> BellSouth did not use or modify for use any of the inputs ordered in Order No. PSC-99-0068-FOF-TP in this filing. Those inputs were ordered in the context of establishing a permanent universal service support mechanism and were specifically ordered to be used in the Benchmark Cost Proxy Model 3.1 (BCPM 3.1). Docket No. 990649-TP is not addressing universal service, but rather deals with establishing unbundled network element (UNE) costs. BellSouth developed inputs and models expressly for that purpose.

We agree with BellSouth that the inputs ordered in PSC-99-0068-FOF-TP were for a specific purpose and are not appropriate in this instance. This proceeding is to determine generic prices for UNEs provided by BellSouth, while our proceeding in Docket No. 980696-TP was established in response to a legislative mandate. As we stated in our order in that docket, "[W]e note that this proceeding is not to determine the actual cost faced by any of these LECs, but is rather to estimate the forward-looking cost of an efficient provider building a scorched node network all at once, all at the same time." Order No. PSC-99-0068-FOF-TP at p. 129. Furthermore, the data provided in the Universal Service docket is more than two years old and the cable material and placement inputs adopted represented those from Sprint not BellSouth.

Decision

In principle, it appears that some of the loading factors BellSouth has recommended are tenable. However, conceptually, especially recognizing the capability of the model and the fact that loops and loop type items are being deaveraged, it is disconcerting that BellSouth did not avail itself of the model's flexibility. While certainly easier to use, we are persuaded by the other parties that linear loading factors will distort costs in a proceeding where rates are being deaveraged. Additionally, we are concerned that BellSouth could not provide any evidence demonstrating that installation costs are directly proportional to material prices or that the relationships for land and building factors or pole and conduit loadings would be representative of the future forward-looking study period as its factors imply.

Also, we are troubled by BellSouth's use of linear in-plant factors and agree with AT&T, WorldCom, and Sprint that linear loadings distort costs between rural and urban areas. However, because the record does not support any other alternative, we shall accept BellSouth's in-plant loading factors for use in setting UNE rates. Nevertheless, in order to determine the magnitude of discrepancies between using a loading factor approach as opposed to a "bottoms up" approach for placements of plant directly related to loops and loop type items, we shall require BellSouth to refile the BSTLM within 120 days from the issuance of this order explicitly modeling all cable and associated supporting structure engineering and installation placements. This should provide adequate time for BellSouth to gather the requisite information needed to populate the BSTLM in this manner. Thereafter, we shall address whether it would be appropriate to revisit the loop rates set in this proceeding on a prospective basis. The refiling shall include all BellSouth assumptions used in developing cable placements, the basis and source data for the revised input values, and a clear identification and listing of all input values.

2. Structure Loading

Structures include the costs of trenching, conduit, and telephone poles, which are associated with the installation of buried, underground, and aerial cable, respectively. Witness Barta explains that structure sharing refers to the practice of sharing these investments with other utilities and/or carriers. BellSouth's witness Caldwell asserts that structure sharing is a major cost driver of loop costs and that structure sharing percentages should be BellSouth-specific and representative of BellSouth's achievable sharing arrangements in Florida. She explains that BellSouth reflects structure sharing in the loading factors for poles and conduit and in the in-plant factor associated with buried cable.

The following table shows BellSouth's proposed structure loading factors.

BellSouth's Structure Loadings

Account	Loadings			
	Pole	Conduit	Land	Building
Buildings				
Motor Vehicles				
Aircraft				

Account	Loadings			
	Pole	Conduit	Land	Building
Garage Work Equipment				
Other Work Equipment				
Furniture				
Office Equipment				
Office Support Equipment				
Other Communication Equip.				
General Purpose Computers			0.0282	0.5438
Analog Switching				
Digital Switching			0.0078	0.1267
Operator Systems				
Radio				
Analog Circuit				
Digital Circuit-DDS			0.0078	0.1267
Digital Circuit-Pair Gain			0.0078	0.1267
Digital Circuit-Other			0.0078	0.1267
Station Apparatus				
PBX				
Pay Telephone				
Other Terminal Equipment				
Poles				
Aerial Ca.-Copper Bldg. Ent.				
Aerial Cable-Copper	0.2986			
Aerial Ca.-Fiber Bldg. Ent.				
Aerial Cable-Fiber	0.2986			
Underground Cable-Copper		0.9466		
Underground Cable-Fiber		0.9466		
Buried Cable-Copper				
Buried Cable-Fiber				
Submarine Cable-Copper				
Submarine Cable-Fiber				
Intrabuilding Cable-Copper				
Intrabuilding Cable-Fiber				
Conduit				

(Source: Hearing Exhibit 95)

BellSouth acknowledges that the BSTLM has the capability of determining the amount of structure along a cable route based on the length of the route and the mix of aerial, buried, and underground plant as input by the user. The user may input structure costs, such as poles, conduit, trenching, etc., and the model will calculate the investment required for structures. However, BellSouth does not currently use this capability in the

BSTLM. As set forth in Hearing Exhibit 61, BellSouth asserts that the requisite information is not readily available. Instead, BellSouth's filing uses a combination of in-plant factors and pole and conduit loading factors to determine the cost of structures.

Structure loading factors are used in the BSCC as being representative of the amount of poles and conduit and land and buildings required to place and support the associated aerial and underground cable and central office equipment, respectively, explains witness Caldwell. Even though the BSTLM has the flexibility to place structures, witness Caldwell contends that the use of loading factors more accurately portrays the costs BellSouth is expected to incur in provisioning loops on a going-forward basis. As part of the development of these factors, witness Caldwell explains that BellSouth's anticipated net rents (expenses paid to other parties for attaching to their structures less revenues received from others for attaching to BellSouth's structures) from sharing arrangements are considered. Thus, she asserts, structure sharing is implicitly reflected in the factors. Since in-plant factors are developed by analyzing the relationship between total installed investments and material prices, witness Caldwell maintains that any savings from the sharing of placement costs is inherently considered in the structure loadings.

Witness Caldwell also notes that in Florida, BellSouth only owns about 40% of the poles to which it attaches cable, supporting BellSouth's assumption that the sharing of poles is a relatively common occurrence. However, for conduit and trenching, witness Caldwell asserts that the sharing is not as extensive, as reflected in the relatively low amount of rent BellSouth receives from these structures. Additionally, she notes that the sharing of trenching is reflected in the in-plant factor associated with buried cable.

BellSouth's witness Caldwell further explains that poles and conduit are related only to cable placements. The factors are developed as ratios that allow each dollar of underground cable investment to include a fraction of the conduit investment, and each dollar of aerial cable investment to include a fraction of the pole investment. According to witness Caldwell, the pole loading factor is developed by comparing the forward-looking investment in poles to the forward-looking investment in aerial cable. Similarly, the conduit loading factor is determined based on the relationship between the forward-looking investment in conduit and the forward-looking investment in underground cable. The average forward-looking investments are developed by taking a simple average of the 1999-2002 forecasted investments developed by bringing forward the end-of-year 1998 historical investments with BellSouth's projected view of the 1999-2002 net additions. The pole loading factor is developed by dividing three years' cumulative forward-looking pole investment by three years' cumulative aerial cable investment. The conduit loading is developed in the same fashion using three years of conduit investment and underground cable investment. BellSouth's resulting pole loading factor is 0.2986; the conduit loading factor is 0.9466.

The degree to which structure sharing exists is accounted for in the derivations of the pole and conduit investment factors accounted for in (i.e., the fact that BellSouth often attaches to power company poles is reflected in a diminished pole rent revenue received by BellSouth from parties that attach to BellSouth poles). As set forth in Hearing Exhibit 61, the sharing of the buried cable support structure (trenching costs) would also be implicitly reflected in the numerator of the buried cable in-plant factor in that plant or vendor labor costs required to dig the trenches would be diminished due to the sharing of trenching costs.

Witness Caldwell also states that manhole costs are incorporated into the study through the conduit loading factor rather than being developed individually. The manhole placement costs are considered in the in-plant factors associated with underground cable. The component costs for handholes, adders, conduit, and a sharing factor are not explicitly or individually identified in the accounts that are used to develop the conduit loading factor, but are implicitly included in the factor development.

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

Witness Caldwell explains that to populate the BSTLM's structural inputs for poles will require information regarding activities such as placing costs and spacing. For conduit, information regarding activities such as digging a trench, placing the conduit in the trench, and pouring the concrete over the conduit, as well as placing costs of different sized manholes will be needed. Witness Caldwell also notes that the cost difference in placing conduit where there are streets and sidewalks versus placing conduit in a yard or some type of dirt type environment would also need to be reflected. Finally, witness Caldwell claims using the BSTLM structure capability will require extensive work with the BellSouth network department to gather the pertinent data, as it is not readily available. Therefore, witness Caldwell argues that the pole and conduit loadings are more accurate than using the BSTLM capability to place structures because there is nothing else available at this time.

Notwithstanding the above, BellSouth believes its loading factors are just as accurate as using BSTLM's capability to place structures. BellSouth believes that pole and conduit loading factors represent relationships between the supporting plant and supported plant that are not expected to change significantly over the forward-looking period in question. Consequently, BellSouth asserts that the use of factors is a mutually verifiable and reasonably accurate way of predicting the expected future costs of poles and conduit. For this reason, BellSouth believes that the use of loading factors to determine the cost of poles and conduit more accurately portrays the cost BellSouth is expected to incur in provisioning loops on a going-forward basis.

In addition, witness Caldwell explains that BellSouth applies additional loadings to central office and circuit equipment investments to account for associated investments in land and buildings. Witness Caldwell notes that ratios are developed by comparing central office land and building investments to central office, circuit, and general purpose computer investments. These ratios are determined in a similar manner as the pole and conduit ratios. As noted earlier, the general purpose computer land and buildings loading factors are regional rather than Florida-specific to recognize that computers perform functions for multiple states rather than just the state where the facilities are located. The resulting central office land and building factors are 0.0078 and 0.1267, respectively, for digital switching and digital circuit, and 0.0282 and 0.5438, respectively, for general purpose computers.

Witness Caldwell also states that the land and building loading factors potentially overstate the costs for 'high cost/small size' central office equipment, and claims that this is offset because "they also potentially understate the costs for 'low cost/large size' central office equipment," which she claims was ignored by witnesses Donovan and Pitkin. The reason the issue of in-plant factors (land and building) comes up is the fact that the land and building factor is basically a multiplier on investment and that some pieces of equipment have higher investment, even though they do not occupy any greater land and building space.

Sprint's witness Dickerson asserts that BellSouth's use of pole and conduit loading factors assumes that as the number of pairs vary, so varies the cost of poles and conduit. He argues that costs in reality do not follow such a uniform and linear variance. Witness Dickerson argues that pole cost is partially impacted by cable weight and cable diameter, which are a function not only of pairs in the sheath, but of the gauge of the cable. Also, the cost is affected by clearance requirements, the slope of the ground, the wind conditions, the type of ground into which the poles are placed, and changes in direction, either side to side or up and down, of the pole line. Witness Dickerson argues that placing poles down a straight street is less costly than along a winding road. He notes that poles along a winding road need an anchor and guy wire on any pole that has a significant change in cable direction. Additionally, he proffers that road curves can impact the spacing between poles.

Further, witness Dickerson asserts that, in the underground plant, a single four-inch conduit duct in place has the same cost regardless of whether it carries a 100-pair copper cable, a 2400-pair copper cable, a six-strand fiber cable, or a 288-strand fiber cable. Even though the number of pair equivalents contained in each of those four sheaths are different, witness Dickerson argues that the larger the capacity of the sheath that rides the structure, the lower the actual cost per pair or equivalent pair for the structure supporting the sheath. He illustrates that using each of the above cable sizes in the same four-inch conduit and assuming each set of four fibers serves 500 digital loop carrier derived loops and the cost of the duct is $100, the number of loops provided by each cable and the duct cost per loop are:

Size	Number of loops	Duct Cost per loop
100 pair cable	100 loops	$1.00
2400 pair cable	2400 loops	$0.042
6 fiber cable	500 loops	$0.20
288 fiber cable	36000 loops	$0.0028

As shown, duct cost per loop varies and is not uniform per pair, as BellSouth's approach implies, asserts witness Dickerson.

Witness Dickerson also argues that the relationship of pole investment to aerial cable investment and conduit to underground cable investment is not the best practical approach to developing representative pole and conduit costs as witness Caldwell asserts, when it is done on a per pair basis. While he acknowledges it is appropriate to look at relationships, he disagrees with doing so on a per pair basis. Additionally, he argues that applying a uniform loading to all wire centers results in cost distortions between urban and rural areas. Two extremely different wire centers - - for example, Miami and Pensacola - - could have, on average, quite different average cable sizes. In effect, a uniform loading overstates the cost of poles in Miami and perhaps understates the cost of poles in Pensacola. Witness Dickerson characterizes this as a systematic overstatement of urban costs and an understatement of rural costs.

Witness Dickerson asserts that BellSouth's in-plant and pole and conduit factors are developed using state level relationships of the respective loadings to all applicable investments. The statewide loading factors are then applied to the unit investments from the BSTLM. For example, a statewide pole investment to aerial cable investment factor is applied to the aerial cable investment per unit from BSTLM. Witness Dickerson explains:

> While loadings for engineering, installation, poles, and conduit are certainly a necessary part of the cost of a loop, the method BellSouth uses to apply the loadings totally distorts the cost variance between urban and rural wire centers. The same cost loading is applied to all wire centers regardless of density. This fails to recognize the variance in the quantity of cable pairs (units) that "ride" a single structure or are engineered/installed in a single section. This causes the per pair costs of wire centers in higher density areas to be overstated while per pair costs in the rural areas are understated.

To this, BellSouth's witness Caldwell responds that BellSouth developed its pole and conduit loading factors based on a relationship of pole investment to aerial cable investment and conduit investment to underground cable investment, respectively. BellSouth's pole and conduit loadings are not based on a fixed installed cost loading per pair. She states that while the loading process does not individually capture each of the items witness Dickerson asserts as being cost drivers, BellSouth's loadings produce representative cost results when viewed from a total pole and conduit placement basis. She argues that such loadings do not translate to a uniform per pair amount. Further, witness Caldwell asserts that the relationships of pole investment to aerial cable investment and conduit investment to underground cable investment provide the best practical approach to developing representative pole and conduit costs.

Witness Murray notes in her testimony that BellSouth appears to assume that three times the digital loop carrier, fiber cable and related structure investment is needed for an ISDN loop as needed for a voice grade loop. She asserts that the BSTLM calculates both the DLC common equipment investment and the fiber cable costs associated with a service based on its DSO equivalents. BellSouth has assumed that one ISDN-capable loop requires the equivalent of three DSOs. Thus, she claims, BellSouth assigns three times the remote terminal cabinet costs, for example, to ISDN loops. She deduces that because the fiber cable costs attributed to an ISDN-capable loop are tripled, and structure costs are proportionate to the investment, the structure costs are tripled as well. This would be true of not only pole and conduit investment, but also for land and building investment.

AT&T and WorldCom's witnesses Donovan and Pitkin question the validity of using loading factors to reflect the land and building costs associated with central office equipment. They allege that the use of central office-related land and building investment loadings overstate the land and building investment associated with plug-in cards. The concern is not with the total land and building cost, but with the way the costs are assigned. BellSouth's witness Caldwell responds that while two plug-in cards of the same size should require relatively the same amount of central office-related land and building space, there is no feasible way to measure the exact size of every conceivable type of plug-in card and other central office-related equipment.

Witnesses Donovan and Pitkin add that the BSCC develops land and building investment by applying a factor to other investments in the BSCC, specifically Digital Loop Carrier (DLC) investment. This process, they claim, assumes that required land and building investment is directly proportional to these underlying investments. To illustrate, they indicate that about eight times the land and building investment is assigned to a DS1 card than to a Plain Old Telephone Service (POTS) card simply because one card costs more than the other, not because there is any card size difference. Witnesses Donovan and Pitkin assert that this is not an appropriate way to develop investment because it assumes that two different types of plug-in cards, which are each exactly the same size, would require different amounts of land and building investment. They state:

> The current problem is created by the way BSCC calculates land and building investment. Unfortunately, BellSouth has not provided us with a way to correct this error in the BSCC. This Commission should require BellSouth to use a more appropriate methodology for allocating land and building investment. Two possible options would be to calculate land and building investment based on equipment

> size or to apply a fixed land and building investment per line.

BellSouth's witness Caldwell disagrees with witnesses Donovan and Pitkin's claims. While witness Caldwell recognizes that using a land and building loading can skew the cost of a very expensive line card by picking up additional land and building costs, witness Caldwell asserts that predominantly voice-grade circuits are studied, and there is very minor demand in the BSTLM for any of the high-cap services anyway. She contends that Account 377C, Switching, carries the biggest portion, about 12%, of the land and building costs; the loop carries less than 4%. Witness Caldwell believes these are reasonable results given the alternative of developing a method of assigning a piece of equipment for land and buildings. Witness Caldwell professes that BellSouth does not know how to base land and building costs on equipment size or the cost per line, as witnesses Donovan and Pitkin recommend.

While the use of BellSouth's land and building loading factors potentially overstates the costs for "high cost/small size" central office equipment, witness Caldwell asserts that they also potentially understate the costs for "low cost/large size" central office equipment. For the preponderance of central office-related items, witness Caldwell argues that the simple relationship of central office-related land and building investment to central office-related equipment investment appears to be a reasonable allocation method for recovering the costs of central office-related land and building investment. She surmises that this methodology produces representative cost results when viewed from a total-central office equipment perspective. However, witnesses Donovan and Pitkin assert that witness Caldwell's argument is not valid given that the overstatements occur for a subset of UNEs and the understatements occur for a different subset of UNEs.

Because the BSCC does not provide the user with the flexibility to apply land and building costs in a different fashion, witnesses Donovan and Pitkin assert they are unable to recommend specific adjustments. Additionally, they ask us to recognize that the land and building costs of advanced services are overstated and the land and building costs of basic service are understated. The FCCA propose that we adopt the material inputs from the Universal Service docket for use in this proceeding.

Again, we disagree with the FCCA that the inputs from that Docket are appropriate in this instance. As previously noted, this Commission stated in our order in the universal service docket, "[W]e note that this proceeding is not to determine the actual cost faced by any of these LECs, but is rather to estimate the forward-looking cost of an efficient provider building a scorched node network all at once, all at the same time." Order No. PSC-99-0068-FOF-TP at p. 129.

3. Structure Loadings Summary

AT&T and WorldCom were unable to use the BSTLM to develop structure costs using material prices and other disaggregated information, as the ALECs generally suggest as the appropriate method to determine supporting structure costs. BellSouth acknowledges that the BSTLM has the capability of determining the amount of structure along a cable route based on the length of the route and the mix of aerial, buried, and underground plant as input by the user. However, BellSouth does not currently use this capability in the BSTLM. BellSouth asserts that the requisite information is not readily available and instead uses a combination of in-plant factors and supporting structure loading factors to determine the cost of structures.

Decision

Upon consideration, we note that we share Sprint's witness Dickerson's concern that the pole and conduit loading factors, because they are based on statewide average relationships and applied to unit material prices, will distort the costs of wire centers in high density areas and understate the costs in low density areas. In a proceeding where deaveraging loops and loop type items are at issue, this is particularly troublesome. In principle, we expect that modeling cable and conduit structure costs bottoms-up would be preferable and more accurate. We believe that BellSouth's conclusion that loading factors are more accurate simply because the data to populate the BSTLM is not readily available cannot not be made without comparing the results of one approach to the other.

We also share AT&T and WorldCom's concern that BellSouth's land and building loading factor can skew the allocated land and building costs since the factors are multipliers to investments, and some equipment have higher investment, even though they do not occupy any greater land and building space. In fact, BellSouth also acknowledges the resulting allocation problem. While an alternative approach for allocating land and building costs may be preferable and more accurate, the record evidence in this proceeding is unclear what the alternative approach should be, how to implement it, or how material or significant the problem is. Also, BellSouth's loadings allocate the largest portion of the land and building costs, about 12%, to switching with only about 4% allocated to the loop. Since herein we have determined that only loops and loop type items will be deaveraged in this proceeding, and recognizing that an alternative allocation scheme to BellSouth's land and building loading factor is not available, we find that BellSouth's land and building loading factors shall be used in determining UNE rates at the present time. Notwithstanding our acceptance of these factors, we strongly encourage BellSouth to investigate the feasibility of using other approaches, such as those suggested by AT&T and WorldCom.

4. Miscellaneous Factors

Miscellaneous loading factors include Support Equipment and Power (SE&P) and inflation. The following table shows BellSouth's proposed miscellaneous factors.

BellSouth's Miscellaneous Factors

Account	Miscellaneous Factors			
	Support Equip/Power	Support Equipment	Power	Inflation
Buildings				1.0487
Motor Vehicles				1.0201
Aircraft				1.0405
Garage Work Equipment				1.0405
Other Work Equipment				1.0405
Furniture				1.0405
Office Equipment				1.0033
Office Support Equipment				1.0000
Other Communication Equip.				1.0000
General Purpose Computers				0.6885
Analog Switching	1.0848	1.0362	1.0486	1.0405
Digital Switching	1.1011	1.0232	1.0779	1.0201
Operator Systems	1.0511	1.0066	1.0445	1.0100
Radio	1.0885	1.0881	1.0445	1.0000

Account	Miscellaneous Factors			
	Support Equip/Power	Support Equipment	Power	Inflation
Analog Circuit	1.0475	1.0304	1.0171	1.0889
Digital Circuit-DDS	1.0608	1.0162	1.0445	0.9703
Digital Circuit-Pair Gain	1.0251	1.0162	1.0205	0.9800
Digital Circuit-Other	1.0370	1.0172	1.0335	0.9412
Station Apparatus				0.9900
PBX				0.9834
Pay Telephone				1.0201
Other Terminal Equipment				1.0033
Poles				1.0768
Aerial Ca.-Copper Bldg. Ent.				1.0822
Aerial Cable-Copper				1.0822
Aerial Ca.-Fiber Bldg. Ent.				1.0201
Aerial Cable-Fiber				1.0201
Underground Cable-Copper				1.0926
Underground Cable-Fiber				1.0000
Buried Cable-Copper				1.0715
Buried Cable-Fiber				1.0405
Submarine Cable-Copper				1.0785
Submarine Cable-Fiber				1.0509
Intrabuilding Cable-Copper				1.0926
Intrabuilding Cable-Fiber				1.0405
Conduit				1.0700

(Source: Hearing Exhibit 95)

a. SE&P

Witness Caldwell explains that BellSouth uses SE&P factors to calculate the incremental investment for such items as power equipment, distributing frames, ladders, tools, alarms, and test sets, required to support the additional dollar of central office and circuit investment. BellSouth applies SE&P loadings to the switching, circuit, and radio accounts. The witness further explains that the SE&P loadings are developed from investment data from a 1998 Central Office Monthly Allocation Process (COMAP) extract of power and supporting equipment, a year-end report extract that identifies the total investment and supporting investments for each of the switching, circuit, and radio accounts.

In cases where the calculated SE&P factors are less than 1/2% of supported or power investment, Hearing Exhibit 61 demonstrates that BellSouth has used a composite factor for all accounts. In these situations, BellSouth considers the extracted data not reflective of physical reality. In the digital data systems and radio accounts, BellSouth asserts this is probably due to the small amounts of equipment being supported by equipment in other accounts. For digital loop electronics where the calculated loading is also less than ½%, BellSouth considers this an anomaly, likely caused by a large number of installation projects relying on preexisting support equipment. Composite factors of all accounts were used for the radio account because the extracted amount for power was inadequate to support the stated investment.

b. Inflation

According to BellSouth's cost study methodology, the first step in developing recurring total element long-run incremental cost (TELRIC) studies is to determine the forward-looking architecture that, when deployed, represents the most efficient design to provision the network element. Witness Caldwell explains that BellSouth used BellSouth-specific material prices for copper and fiber cable, the drop, NID, DLC, and terminals. Next, account specific Telephone Plant Indexes (TPIs) are applied, when necessary, to trend material prices to the base study period, the witness adds.

Witness Caldwell also explains that the TPI is an "account specific" regional telephone plant index that ". . . estimate[s] the change in the material price and/or installed investment from one year to a future year." Witness Caldwell notes that this future price change may be inflationary or deflationary, depending on the account. Further, witness Caldwell contends that the TPI forecasts are forecasts of price changes for equipment being installed and are not intended to be forecasts of technology changes or productivity improvements.

BellSouth also explains that TPIs are price indices that measure the relative changes in the prices BellSouth pays for the construction of telephone plant between specific periods of time. TPI forecasts are forecasts of price changes of equipment that is being installed. Although BellSouth asserts that it is important to re-estimate the relationships as new index values are added, it has relied on 1998 TPI forecasts in this proceeding.

BellSouth's investment inflation factors represent the cumulative average of three years' projected inflation rates. The average inflation loading is then applied to base year material prices to develop the average forward-looking investment for 2000, 2001, and 2002, as set forth in Hearing Exhibit 93. Witness Caldwell asserts that productivity is not included because these are simply pure material prices. BellSouth contends that the inflation factor is nothing more than a straight material price change.

According to BellSouth, the inflation factor is applied to a specific vintage material cost to produce an adjusted material cost that is considered representative of the 2000-2002 period. For example, BellSouth demonstrates the following:

> [E]lement A.1.1 (2-Wire Analog Voice Grade Loop - Service Level 1 Aerial Cable - Metallic Building Entrance FRC 12C) had a "Material" cost of $0.379259 against which an "Inflation Factor" of 1.0822155 was applied to develop an "Adjusted Material" cost (before in-plant loadings) of $0.410417. The "Inflation Factor" of 1.0822155 was based on a material vintage of 1999 with projected annual year-over-year inflation factors of 1.04 for each year 2000-2002. The projected TPIs indicate that a 1999 material cost of $1.00 would be projected to cost $1.040000 in 2000, $1.081600 in 2001, and $1.124864 in 2002 for an average cost for the 2000-2002 study period of $1.0822155-thus the derivation of 1.082155 "Inflation Factor."

The inflation loadings represent the average of the cumulative effect of each year's inflation factors for the three-year study period although it must be noted that the source for the TPIs used by BellSouth is the 1998 Forecast of Percent Cost Change.

The other parties in this proceeding all disagree with BellSouth's use of an inflation factor. The Data ALECs, the FCCA, and Time Warner assert that the use of inflation in determining the material costs and also applying the nominal cost of capital is double counting the effects of inflation. Sprint witness Dickerson asserts that BellSouth's methodology applies an inappropriate inflation factor to an average per unit cost.

AT&T and WorldCom's witness Pitkin states that the cost of capital input is a nominal cost of capital and, as such, compensates investors for the effects of inflation. He alleges that BellSouth is double counting the effects of inflation by applying an inflation factor to material investment in the loop model and by updating unit costs from what was previously determined by the Commission. If the investment has been increased by an inflation factor, then applying the nominal cost of capital to that investment results in the double counting of inflation, according to witness Pitkin. To avoid this double counting, unit prices for material and labor must be locked in at the levels initially established by this Commission. Witness Pitkin recommends that we adopt the material and unit prices we adopted in the USF proceeding, Docket No. 980696-TP, to avoid double counting.

In response, BellSouth's witness Caldwell notes that there are two distinct types of inflation that impact the costs that BellSouth will incur. One type of inflation compensates investors for the use of their funds and the other type captures the increase or decrease in the cost of the plant. Witness Caldwell refers to a financial text, relied upon by AT&T and WorldCom's cost of capital witness Hirshleifer, that states that inflation factors must be included in both the discount rate and the cash flows in a net present value analysis. Witness Caldwell concludes that BellSouth's reflection of inflation in the cost of capital and in investment is valid.

Witness Pitkin disagrees, however, with witness Caldwell's assertions. Witness Pitkin argues that there is a distinction between forecasted revenues and the revenues determined by the cost model. He contends that forecasted revenues may include an inflation factor but revenues from the cost model are like a regulatory revenue requirement in that it is revenue required to provide a return on investment. That return includes an allowance for inflation. Any additional adjustment for inflation would be double-counting, according to the witness.

Witness Pitkin does, nevertheless, acknowledge that we have established UNE rates using an inflationary factor in previous proceedings, though he notes that he is unsure of the type of cost of capital used in those proceedings. Witness Caldwell further confirms that BellSouth included inflation factors in the cost models for arbitration proceedings conducted in 1996 and 1998 for establishing the costs of UNEs.

We note that in Docket No. 980696-TP, we considered the cost of basic local service. In that docket, we did not allow inflationary (or deflationary) factors for the cost proxy model because the model was for a certain point in time. We left open the possibility of applying inflation factors when a specified time or planning period, as with a contract, was involved. See Order No. PSC-99-0068-FOF-TP. BellSouth used a three-year planning period for calculating its investment inputs in this proceeding. We emphasize that while we believe witness Caldwell makes an important distinction between the types of inflation, we are, however, concerned about BellSouth's use of inflation factors in its cost model, as explained later in this Order.

Sprint's witness Dickerson does not believe there is a need to address inflation in the cost study. His main concern with BellSouth's use of inflation centers around his allegation of a mismatch between inflated equipment unit costs without a commensurate increase in projected demand. Sprint's witness Dickerson notes that BellSouth's inflation factors are composed of three components: projected inflation rates based on BellSouth's TPIs, productivity, and a loading factor. According to BellSouth's cost study methodology, inflation accounts for percentage changes in Union Wages between 1999 and 2002, load factors account for forecasted increases in access lines in service between 1999 and 2002, and Operating Productivity accounts for the increases in process improvements between 1999 and 2002. To determine the Inflation Adjustment Factor, witness Dickerson exlains that BellSouth adds the loading factor to inflation and then subtracts productivity. Sprint asserts that BellSouth's methodology inappropriately applies growth in access lines to its inflation calculation.

Sprint's witness Dickerson asserts that the investments/costs to which BellSouth applies an inflation factor are unit costs. He explains that access line growth appears as new units - not as an inflationary adjustment to unit costs. Further, growth in access lines results in a larger number of cable pairs. Witness Dickerson surmises that some portions of this growth will no doubt be served by existing aerial and underground structures, and feeder and distribution routes, thereby increasing structure cost economies of scope resulting in a lower per unit cost for those customers -- not higher. Accordingly, witness Dickerson argues, including any loading factor on unit costs means that a competitor that buys a loop facility must share a burden applicable to BellSouth's or another competitor's growth even if it has no growth of its own. If facilities grow, additional units are subject to their own revenue streams. That growth, witness Dickerson asserts, should not be arbitrarily loaded onto any unit cost.

Witness Dickerson claims that the proper way BellSouth should have performed its cost studies would be for BellSouth to identify the current vendor costs that it pays for state-of-the-art equipment items. He asserts that these would be the least-cost, most efficient equipment items that BellSouth would deploy in its network on a forward-looking basis. Witness Dickerson then asserts that BellSouth should appropriately include the installation and engineering costs of those devices. BellSouth should also account for the expenses to operate that investment at current costs, and should divide it by current demand. He asserts that this process would provide a proper matching of the demand levels that are used to calculate current costs with the cost of current equipment.

Sprint argues that BellSouth's speculation of what the cost of equipment will be in the future does not constitute factual evidence. Not only is the application of an inflation factor speculative, Sprint asserts that it is also inconsistent with our Order No. PSC-99-0068-FOF-TP, at page 159.

Witness Dickerson also professes that BellSouth is incorrect in projecting equipment cost increases and operating expense increases associated with potential future demand growth, but yet dividing those inflated costs with current demand levels. He claims this mismatch inaccurately increases unit costs. Witness Dickerson argues that increases in future equipment costs very well may be accompanied by equipment capacity changes and enhanced capabilities including the ability to self-provision or self-diagnose problems that would reduce labor costs. Most importantly, Sprint claims that to suggest growth in access lines will inflate unit costs in a unit cost calculation when those grown units have not been included in the cost calculation is an obvious mismatch.

Witness Dickerson testified that the proper method of handling access line growth is to periodically, every two to three years, recompute unit costs using total access lines and updated vendor costs, technology assumptions, demand quotations and all major cost determinants. By looking periodically at all issues that will potentially change in the future, the analysis will capture technology changes, the associated operational changes that often accompany technology changes, increased or decreased units, and changes in the cost of technologies. All of that should be done simultaneously, not in a piecemeal fashion such that only one potential change, i.e., inflation, is reflected.

Witness Dickerson disagrees with the presumption that vendor costs will increase. He asserts that no one knows whether that is correct, and even if prices do increase, those increases are often accompanied by greater equipment functionality or greater capacity, availability, or capability. This often enables labor cost savings, according to the witness. He asserts that to speculate an increase in equipment costs without recognizing the potential interactive impacts of those cost increases can distort the unit costs.

In response, BellSouth's witness Caldwell contends that witness Dickerson does not question the appropriateness of an inflation factor; he simply confuses the process by which BellSouth projects plant-specific expenses for future years with how the inflation adjustment factor that is used in conjunction with material prices is developed. Witness Caldwell asserts that in determining future plant-specific expenses, BellSouth uses the following components to project a growth rate: load (percent change in average access lines in service), inflation related to labor, and productivity offset. This calculation recognizes the fact that expenses related to maintenance, such as plant-specific expenses, are highly labor intensive. On the other hand, the inflation factor applied to material prices simply recognizes the increase/decrease in prices of plant on average over a three-year period and is nothing more that a straight average of the cumulative effect of inflation over the study period. Since inflation relates to the pure material price, witness Caldwell asserts that there is no need to include productivity when looking at a straight material price change.

We are persuaded that BellSouth's application of its inflation factors results in a mismatch between the inflation-adjusted material costs and the demand levels utilized in BellSouth's cost study. We note that BellSouth acknowledges:

> In general, the methodology uses econometric techniques to establish a mathematical relationship between the historical movement in each of the labor and materials components that make up the TPIs and the historical movement in the explanatory variables.
>
> . . . .
>
> Use of these relationships implicitly makes the assumption that history will more or less repeat itself. It is important to re-estimate the relationships as new index values are added each year.

While the above response indicates that TPIs should be re-estimated every year, it is interesting that the inflation factors utilized in BellSouth's cost study were taken from a forecast made in 1998. When BellSouth refiled its cost study in August 2000, it did not update the inflation forecasts with the most current information available. We find this troubling.

<u>Decision</u>

No party commented specifically on BellSouth's SE&P factors. Therefore, based on the evidence, we find it is reasonable to assume a portion of SE&P investment with the switching, radio, and circuit accounts which use this equipment. Lacking any record evidence to the contrary, we accept BellSouth's methodology as a reasonable approach in attributing investments in supporting and power equipment.

As for inflation, we are persuaded, as explained above, that BellSouth's application of its inflation factors results in a mismatch between the inflation-adjusted material costs and the demand levels utilized in BellSouth's cost study.

Therefore, upon consideration, BellSouth's SE&P loading factors shall be used in setting UNE rates in this proceeding, but the inflation factors shall be eliminated.

5. RTU Fees

As discussed earlier, BellSouth's RTU Fee is unique to the digital switching account and computes the Right-To-Use (RTU) costs related to central office switching equipment. Witness Caldwell explains:

> The switch vendors' practice of packaging RTU fees together, the preponderance of buy-outs in effect, and the discounting schemes offered to BellSouth made the direct allocation of switching RTU investment impossible.

The RTU loading factor represents the ratio of the RTU capitalized investment to digital switching investment over the study period. The investments, as demonstrated by witness Caldwell, are based on budgeted forecasts of network additions in digital switching and software. According to BellSouth's cost study methodology, the RTU factor is applied to digital switching material, when required, to determine the associated capitalized RTU material amount which is then included as input in the BSCC.

BellSouth further explains that 96.2% of Intangible Software RTU Investment-Network Switching expenses is related to digital switching investment. This study was based on an analysis of 1998 Software RTU expenditures, as set forth in Hearing Exhibit 61.

According to BellSouth, the Network Switching Software RTU Factor for Account 560C, Digital Switching, is developed based on projections of Account 560C and Account 377C, Network Switching Software RTU investment, for the 2000-2002 study period. Neither the numerator (560C) nor the denominator (377C) is developed on an UNE or service specific basis. The Network Switching RTU Factor simply recognizes that for every dollar of digital switching investment there exists a related and measured amount of network switching software RTU investment. BellSouth's UNE costs only include RTU fees for UNEs, as opposed to RTU fees for other services, because the loading factor was only applied to the UNE investment for 377C. The resulting BellSouth RTU loading factor is 0.05248.

Of particular interest with the RTU Fee factor is that BellSouth uses regional rather than Florida investments in determining the factor. This is contrary to the Florida-specific data BellSouth used in determination of other loading factors.

No other party expressed concern with BellSouth's RTU loading factor. Thus, finding no evidence to the contrary, we shall accept BellSouth's methodology, which attributes RTU investment to digital switching, as reasonable and appropriate for use in this proceeding. BellSouth's RTU factor of 0.05248 shall, therefore, be used in determining UNE rates in this proceeding.

6. Loading Factors Summary and Conclusion

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

While AT&T and WorldCom suggest that the inputs from the USF proceeding be adopted, this would not be appropriate. We believe that UNE rates should be company-specific. Also, recognizing that engineering and installation costs should vary depending on the specific plant, soil and environmental conditions of the installation, we are unable to determine based on this record what would be a fair adjustment to make to reflect these things. Further, the basic problem with BellSouth's loading factors is that they are linear. Therefore, adjusting each factor may not correct the problems we have defined. As such, we shall approve the loading factors proposed by BellSouth, with the exception of its proposed inflation factors. Regarding the inflation factors, we are persuaded that the application of inflation results in an inappropriate mismatch of as much as 18 months between the inflation-adjusted material costs and the demand levels utilized in BellSouth's cost study. Thus, in effort to reduce or eliminate this mismatch, the proposed inflation factors are rejected.

In summary, UNE rates for BellSouth shall be set using BellSouth's loadings factors as indicated below.

LOADING FACTORS SUMMARY

Proposed Loading	COMMISSION-APPROVED/REJECTED
EF&I	APPROVED
Plug-In	APPROVED
Pole and Conduit	APPROVED
Land and Buildings	APPROVED
SE&P	APPROVED
Inflation	REJECTED
RTU	APPROVED

However, BellSouth shall be required to refile the BellSouth Telecommunications Loop Model (BSTLM) within 120 days of the issuance of this Order. As previously explained, the revised model shall explicitly model all cable engineering and installation placements and associated structures. Thereafter, we shall consider whether it is necessary to revisit and revise, on a prospective basis, the loop rates we set in this proceeding. The refiling shall include all BellSouth assumptions used in developing the cable placements, the basis and source data for the revised input values, and a clear identification and listing of all input values. We note that to the extent BellSouth can come forward with information in its refiling indicating an appropriate inflation adjustment that eliminates the growth mismatch, we will consider that information at that time.

P. Expenses

BellSouth's witness Caldwell explains that expenses impact three areas of the cost study: 1) the shared cost component, 2) the common cost component, and 3) the plant specific costs. According to witness Caldwell, "[t]here are basically two types of cost associated with an investment, capital-related costs and operating-related costs." The economic cost of each UNE is determined "by converting the installed investment into its capital costs and operating expenses, and included [sic] the appropriate amount of shared and common costs and taxes." Investments are converted into annual costs:

> . . . by applying account specific TELRIC annual cost factors to the various investments. The annual cost factors calculate the capital costs (depreciation, cost of money, and income tax) and operating expenses (plant specific expense, ad valorem taxes, and other taxes).

The expenses and common costs inputs are components used in these calculations.

AT&T/WorldCom witness Darnell contends that BellSouth's expense and common cost factors do not reflect forward-looking cost for the following reasons:

- BellSouth has not eliminated all retail expense from its UNE rates;

- the productivity factor used to forecast its expenses is too low;

- BellSouth is proposing to double-recover land, building and power expense;
- plant-specific expenses should be lower; and
- common costs should be declining.

With the exception of plant-specific expenses, the points made by witness Darnell primarily address shared and common costs. Accordingly, plant-specific expenses will be addressed in this section, while the remaining topics will be dealt with in the following section of this Order.

Witness Darnell argues that BellSouth has proposed plant-specific expense factors in this case that are higher than those proposed in certain proceedings before the FCC. Based on his exhibit, the FCC proceedings appear to be a 1998 universal service funding proceeding and a 1996 plant specific expense study. He states that expense as a percent of investment is declining; therefore, he contends that expense factors should also be declining. He performed a trend analysis which he argues can be applied to BellSouth's books of account to produce forward-looking expenses.

BellSouth did not address this point, either in testimony or in its brief.

In order to test the veracity of witness Darnell's contention that BellSouth has proposed higher plant specific expense factors than those used before the FCC, we have reviewed the following table. The column labeled "Current Docket" was compiled from BellSouth's non-proprietary cost documentation, Appendix F. The columns labeled "FCC PSE Study" and "FCC USF" are from an exhibit submitted by witness Darnell. The FCC PSE study appears to be a study of plant-specific expense factors. No other information is available in the record as to the purpose of this study. The FCC USF study appears to have been used in its universal service proceedings. The final column showing "higher" and "lower" is the result of analysis of the previous columns.

This analysis indicates that witness Darnell's assertions are not supported by the evidence. A comparison of each row of factors shows that some factors are higher, while others are lower than those used in certain FCC proceedings. For example, the Operator Systems factor in the FCC PSE Study was higher than that used by BellSouth in the current docket. Many factors used by BellSouth in its cost study were not included in the FCC factors provided by witness Darnell. It is not clear what the factors provided by witness Darnell were used for by the FCC or whether they are appropriate for use in this docket.

FACTOR COMPARISON

Description	Current Docket	FCC PSE Study	FCC USF	Higher (H) /Lower (L)
Land	0	0	None	No change
Buildings-Central Office Equip.	.054536	.0053	None	H
General Purpose Computers	.324506	None	None	N/A
Analog Switch	.057602	None	None	N/A
Digital Switch	.022084	.0400	.0400	L
Digital Switch	.019633	None	None	N/A
Operator Systems	.061441	.0906	None	L
Radio	.020445	None	None	N/A
Digital Data	.038857	.0281	None	H
Digital Circuits-Pair Gain	.016093	.0169	.0169	L
Digital Circuits-Other	.016093	.0227	None	L
Analog Circuits	.026991	None	None	N/A
Poles	.020367 .002990	.0179	.0179	One H/One L
Aerial Cable-Metal	.044641	.0558	.0558	L
Aerial Cable-Fiber	.010326	.0029	.0029	H
Underground Cable-Metal	.020173	.0196	.0196	H
Underground Cable- Fiber	.003639	.0032	.0032	H

Description	Current Docket	FCC PSE Study	FCC USF	Higher (H) /Lower (L)
Buried Cable-Metal	.046195	.0346	.0346	H
Buried Cable-Fiber	.005732	.0039	.0039	H
Submarine Cable-Metal	.000564	.0061	None	L
Submarine Cable-Fiber	.001654	.0061	None	L
Interbuilding Network- Metal	.004102	.0023	None	H
Interbuilding Network- Fiber	.019398	.0023	None	H
Conduit systems	.002618	.0033	.0033	No change

(Source: Hearing Exhibit 95)

Decision

We note that witness Darnell does not address any particular plant-specific factors. As a result, there is insufficient record to make a recommendation on this point. No other points were raised with regard to expenses. Therefore, no adjustments shall be made to BellSouth's plant-specific expense factors, except for those necessitated by the elimination of the inflation ajustment, which we eliminate for the same reaons that we have eliminated the inflation adjustment related to investment.

Q. Common Costs

As discussed in the previous section, expenses impact three areas of the cost study: 1) the shared cost component, 2) the common cost component, and 3) the plant-specific costs.

Witness Reid explains that for the development of shared costs, the costs are first divided into cost pools, and then attribution factors are developed. These factors assign the shared costs into three different categories: 1) wholesale network investment, 2) other wholesale, or 3) retail. Any shared costs that do not fit into any of these categories are treated as common costs. Wholesale shared costs associated with an investment category "are used to calculate the shared cost factor for that investment item." The witness adds that "A shared cost factor is the ratio of the shared cost assigned to a particular type of investment divided by the projected average investment." Witness Reid further explains that after common costs are divided between wholesale and retail, "[t]he wholesale common cost factor is then calculated as the ratio of total wholesale common costs divided by the total of wholesale direct costs and wholesale shared costs."

AT&T/WorldCom witness Darnell contends that BellSouth's expense and common cost factors do not reflect its forward-looking cost for the reasons identified in the previous section of this Order.

FCTA witness Barta also expresses concern with retail expense, productivity factors, and common costs.

BellSouth witness Reid states that there are four categories into which total costs can be placed. These are:

- Direct wholesale costs. Costs which are clearly and directly assignable to the "wholesale" function. Example--costs of switches. Wholesale direct costs are further divided into recurring and non-recurring.

- Direct retail costs. Costs which are clearly and directly assignable to the "retail" function. Examples -- marketing, billing, collection and other costs that will be avoided by the Company when it provides services at wholesale.

- Shared costs. Costs that are incurred in the production of two or more products or services by the same production process that do not span all activities of the business. Examples -- general support equipment, procurement, engineering expenses.

- Common costs. Those costs that generally span the activities of the business, and the products and services it produces. These costs are not directly assignable to one product or service, but are necessary for the

> operation of the business as a whole. Examples -- accounting and finance costs, executive costs.

1. Retail Expense

Witness Reid describes the manner in which shared and common costs are separated between the wholesale and the retail functions, as follows:

> The process BellSouth has followed to reach this goal has two fundamental steps. First, the "shared costs" are segregated into cost pools similar to those utilized in the CAM [Cost Allocation Manual]. The costs accumulated in these cost pools are attributed to "wholesale" and "retail" functions .
>
> . . . .
>
> In the second step, the "common costs" are apportioned between "wholesale" and "retail" functions based on the relative proportion of the direct and shared costs that have been assigned to these functions.

Witness Reid asserts that all retail costs have been excluded from the cost study.

AT&T/WorldCom witness Greg Darnell contends, however, that BellSouth has not eliminated all retail expense from its UNE rates. He points out that BellSouth eliminated $1,426,416,105 of retail expense from its forward-looking costs in Uniform System of Accounts (USOA) accounts 6611 (Product Management), 6612 (Sales), 6613 (Product Advertising), and 6623 (Customer Services). He argues that it is also appropriate to reduce expenses in Accounts 6710 (Executive and Planning), 6720 (General and Administrative) and 6120 General Support). He asserts that in Docket No. 960833-TP, we found that retail expense in Accounts 6120, 6710, and 6720 should be determined "'based on the ratio of the costs [the FPSC] identified as directly avoided total expenses.'" See Order No. PSC-96-1579-FOF-TP, December 31, 1996.

Witness Darnell notes that in Docket No. 960833-TP, witness Reid determined that $1,925,591,887 of retail cost should be eliminated from UNE rates. He argues that retail expenses have actually grown significantly as a percent of revenue and in absolute terms, and states that "BellSouth's $500 million reduction in the amount of avoided retail expense is contrived through differences in cost modeling assumptions."

Using his proposed methodology, witness Darnell identifies $223,376,929 of retail expense that should be eliminated from the cost study in accounts 6120, 6710, and 6720, bringing the total retail expense to be eliminated to $1,649,793,034. He notes that "[t]his amount of retail expense is still $276,798,853 below the amount of retail expense that BellSouth witness Reid determined in Docket No. 960833-TP."

BellSouth witness Reid agrees with the amount of $1,925,591,887 of retail cost that was eliminated in Docket No. 960833-TP. However, he contends that witness Darnell is incorrect regarding the amount of retail cost eliminated in the current study. In addition to the accounts noted by witness Darnell, BellSouth witness Reid states that BellSouth removed accounts 6621 and 6622, which contain retail expense, from the cost study. He points out that BellSouth has actually eliminated $2,188,554,658 in direct and indirect retail costs. He notes that this amount is $261,962,771 more than the amount eliminated in Docket No. 960833-TP, not the $500 million less that witness Darnell argues.

FCTA witness Barta also argues that the avoided retail cost adjustment made by BellSouth understates the level of costs that should be excluded from the cost studies. He contends that:

> The avoided retail cost adjustment should reflect the wholesale percentage discount ordered by the [FPSC] for each carrier. In the case of BellSouth, the FPSC ordered a resale discount of 21.83% for residential customers and 16.30% for business customers.

Witness Barta explains that his Exhibit WJB-2 shows the impact of using the residential avoided cost percentage. As shown in that exhibit, based on witness Barta's calculation, the amount of retail costs to be avoided would increase by $2,075,991,131, from $2,188,369,392 to $4,264,360,523.

BellSouth witness Reid argues that witness Barta really did not address what is actually in BellSouth's study. Witness Reid contends that, instead, witness Barta, ". . . merely took the Florida residence resale discount factor and applied it to BellSouth's total company projected cost and opined that this represents the amount of retail cost to exclude as retail in BellSouth's study." Witness Reid contends that "[t]he multiplication of Florida's residence resale discount rate times BellSouth's nine-state total forward-looking costs can only result in a meaningless number."

Witness Reid also notes the accounts used by BellSouth to determine the amount of retail expense to remove are those that the FCC has indicated are most likely to contain retail related costs. He explains that those accounts total $2,143,822,370 of which $212,620,641 in operator services expenses were excluded from shared and common costs. He explains that the remaining $1,931,201,729 of expense in these accounts is then separated between wholesale and retail. He states that "[a]fter allocating indirect costs to retail, BellSouth's total retail costs to be avoided per the revised cost study is $2,188,554,658." He points out that witness Barta proposes to exclude some $4,262,360,523, which is "approximately twice the total in the expense accounts that normally include a portion related to retail." He argues that "[t]here is no justification for such a proposal."

There appear to be three areas of contention with regard to retail expenses. First, there is disagreement on how much retail expense BellSouth actually eliminated from its cost study. Second, witness Darnell contends that BellSouth should exclude a portion of accounts 6120, 6710, and 6720 from its cost study. Third, witness Barta argues that BellSouth should apply the wholesale percentage resale discount previously ordered by this Commission to determine the correct amount of retail expense to be removed.

Having analyzed BellSouth's filing, we agree with BellSouth witness Reid that the amount of retail expense that has been eliminated is $2,188,554,658. This figure has been verified as being contained in the common cost factor calculation of the model, as an output of BellSouth's Shared and Common Cost Calculator. However, the numbers cannot be traced throughout the model.

It appears to us that the source of confusion on the amount stems from files contained in Appendix F of BellSouth's non-proprietary cost study. Four accounts are shown in that appendix: 6611, 6612, 6613, and 6623. While witness Reid claims these include the direct portion of retail expenses, totaling $1,599,222,134, the actual total shown is that expressed by witness Darnell, $1,426,416,105.

In addition to the accounts shown in Appendix F, BellSouth removed accounts 6621 and 6622, which contain retail expense, from the cost study, as explained by witness Reid. Witness Reid also explains that the analyses of Accounts 6621 and 6622 are not included in Appendix F because these accounts contain operator services costs, which are not included in shared and common costs at all. He asserts the amounts have been removed from the cost study.

Based on witness Reid's explanation, it appears, that the following retail expenses would have been removed from BellSouth's cost study.

Direct retail expense	$1,599,222,134
Operator services	212,620,641
Attributed indirect	376,711,883
Total	$2,188,554,658

While the amount of direct retail expense shown in Appendix F differs from that noted by witness Reid, nevertheless, the total retail expense removed from the common cost factor calculation appears to be the same as that noted by witness Reid.

As discussed above, witness Darnell also asserts that in Docket No. 960833-TP, we found that retail expense in Accounts 6120, 6710, and 6720 should be determined "'based on the ratio of the costs [this Commission] identified as directly avoided total expenses.'" See Order No. PSC-96-1579-FOF-TP, December 31, 1996.

As previously discussed, BellSouth removed more retail expense from the cost study than witness Darnell contends. While witness Reid asserts that indirect retail costs have been removed from the cost study in addition to the direct retail costs, he provides no evidence as to what accounts they come from. He did describe where BellSouth's retail expense adjustment could be found in the cost study. However, anything other than the total amount, as noted above, is unverifiable.

A review of BellSouth's workpapers from its cost study that witness Reid described reveals that amounts related to these accounts were either attributed to retail or excluded completely from the analysis. Although the dollar amounts cannot be traced through the model, it was clear from the workpapers that led to the derivation of the common cost factor that the accounts, or in some instances, a portion of them, were removed from the calculation. Thus, it appears that BellSouth has made adjustments to the accounts. What remains is a disagreement over the amount.

Further, the intrastate amounts contained in each of these accounts totals nowhere near what witness Darnell recommends to be removed. Those intrastate totals are:

Acct. 6120 (summary of accounts 6121-6124)	$ 92,449,807
Acct. 6710 (summary of accounts 6711-6712)	$ 16,278,457
Acct. 6720 (summary of accounts 6721-6728)	$201,956,485
Total	$310,684,749

Witness Darnell's assertion regarding our findings in Docket No. 960833-TP does not apply here, as discussed below. Further, as discussed previously, there appears to be confusion over the amounts that were removed for retail expenses, due to the manner in which BellSouth presented them. It appears to us that the total amount of retail expenses that were removed is reasonable when compared to previous studies. Therefore, no further adjustment shall be made to these accounts.

As for the wholesale percentage discount, FCTA witness Barta asserts that avoided retail expenses should be calculated based on the wholesale discount percentages ordered by this Commission in

Docket No. 960833-TP, Order No. PSC-96-1579-FOF-TP. The manner in which witness Barta uses the discounts differs, however, from the way it was calculated in Docket No. 960833-TP. "To arrive at the appropriate discount, [this Commission] divides the total avoided costs by the revenues for the service subject to discount." Instead, witness Barta multiplies the total expenses in BellSouth's cost study by the residential discount to arrive at an amount of avoided cost to be removed from the cost study.

Witness Barta used the residential discount of 21.83%, rather than the lower business discount of 16.81%. See Order No. PSC-96-1579-FOF-TP at p. 58. He stated that:

> [t]he residential retail cost percentage was used in the testimony because a Commission-approved blended rate was unavailable. In retrospect, it may have been better to provide a range for the recommended adjustment with the high end representing the residential avoided retail cost percentage and the low end representing the business avoided retail cost percentage.

He did not propose the use of a blended rate.

One difference between the adjustments made in Docket No. 960833-TP and the current cost study is the adjustment for uncollectible expense. Witness Reid explains that the shared and common cost in the current study is a "bottoms up" approach. He notes that no uncollectible expense was included in the study; therefore, there is none to exclude.

Decision

As in the prior discussions, it appears to us that witness Barta's recommended adjustment is unfounded. As explained by witness Reid, the methodology recommended by witness Barta results in a meaningless number. There is no apparent basis upon which to recommend the removal of retail expenses that are approximately twice the amount of expenses that are in the appropriate accounts.

2. Productivity Factor/Inflation Factor

As for the productivity factor, AT&T/WorldCom witness Darnell notes that BellSouth used a productivity factor of 3.1% to project its expenses. However, witness Darnell argues that this factor is based on a study the United States Telephone Association (USTA) filed with the FCC that has never been adopted. He recommends the use of a 6.5% factor, which he argues is the most recent factor approved by the FCC for BellSouth. He contends that "[g]iven the FCC's currently effective 6.5% productivity factor has been subject to in depth analysis and debate from both BellSouth and ALECs, there is no reason for this Commission to undertake an effort to set a Florida state-specific productivity factor."

Witness Darnell further asserts that the use of an inappropriately low productivity factor will result in UNE rates that are not forward-looking. He contends that

> . . . the FCC's and USTA's productivity factors are derived for [sic] expense and investment trend analysis. Forward-looking UNE pricing should only concern itself with the result of the trend. As such, the use of a productivity factor based on a trend analysis, such as the FCC's, may tend to overstate forward-looking cost.

As for the inflation faction, FCTA witness Barta points out that BellSouth used an inflation factor of 3.2% to 3.5 %, which exceeds the productivity offset of 3.1%. He notes that "[t]his results in "a growing level of expenses each year during the forecast period." He argues that BellSouth's expense level, on a per access line basis, has actually been declining in recent years. He provides Exhibit WJB-1 in support of this conclusion, which shows BellSouth's expenses, as derived from total operating expense less depreciation expense, have declined steadily since 1995. The following table shows the figures used by witness Barta in development of his graph.

Year	Operating Expense	Depreciation	Difference
1995	$2,530,875,000	$710,207,000	$1,820,668,000
1996	$2,500,482,000	$736,661,000	$1,763,821,000
1997	$2,425,474,000	$754,641,000	$1,670,833,000
1998	$2,463,296,000	$774,689,000	$1,688,607,000
1999	$2,438,313,000	$810,987,000	$1,627,326,000

Source: (Hearing Exhibit 74)

BellSouth witness Reid argues that witness Darnell "has not performed any studies or provided any reasonable evidence that would indicate that the 3.1% productivity factor used by BellSouth for projecting certain expenses in its study is understated." He asserts that witness Darnell has simply recommended that we require BellSouth to use the factor previously used by the FCC in its interstate price cap formula, with no explanation why that is appropriate.

Witness Reid notes that we used a 2.9% productivity offset in Docket No. 960833-TP. He further argues that the 3.1% productivity factor proposed by BellSouth in the current proceeding is "more ambitious" than that used in the previously referenced study.

Witness Reid also points out that we recognized previously that "because BellSouth's shared and common factors are based on the relationship between projected investments, and applied against forward looking investments, . . . BellSouth's factors have some inherent productivity gains." In our order, we also found that "BellSouth's use of inflation/growth factors that range from 3.4 per cent to 5.1 per cent is reasonable." Order 98-604-FOF-TP at p. 55.

Finally, witness Reid argues that the use of the 6.5% factor for interstate price cap purposes rejected by the United States Court of Appeals for the District of Columbia Circuit and remanded to the FCC for further proceedings. He asserts that the FCC subsequently established a new interstate price plan in the CALLS proceeding, which rendered the use of the productivity factor moot.

Upon consideration, we are unpersuaded by the ALECs' recommended use of a 6.5% productivity factor. A review of the reasons for the FCC's adoption of this particular factor and the subsequent reversal and remand by the U.S. Court of Appeals for the D.C. Circuit is the basis for our concern. The following is a discussion of the FCC's reasons for the use of the productivity, or X-factor:

> The introduction of LEC price cap regulation was expected to stimulate cost reduction and accelerate technological innovation because the regulated firms would be able to benefit from such behavior and accelerate technological innovation because the regulated firms would be able to benefit from such behavior as they could not do under rate-of-return regulation.

FCC Order 99-345 at ¶6.

> To achieve these goals, the [FCC's] LEC price cap scheme allows prices to increase by a measure of inflation minus a productivity offset, or X-factor. The X-factor represents the amount by which LECs can be expected to outperform economy-wide productivity gains. The Commission has periodically adjusted the LEC price cap plan to ensure that it continues to provide strong incentives to incumbent LECs to provide a substantial benefit to customers, while not basing permitted prices explicitly on individual firms' costs.

FCC Order 99-345 at ¶7.

From the outset, it appears to us that the FCC's use of the X-factor, or productivity factor, was not intended to be used as a mechanism for projecting costs. Rather, it was a mechanism used to implement the FCC's interstate pricing policy. In 1997, the FCC revised the price cap plan by eliminating all sharing requirements and setting the X-factor at 6.5%, based primarily on an FCC staff study of historical growth. Id. at ¶10. However, as pointed out by BellSouth, the U.S. Court of Appeals for the D.C. Circuit reversed and remanded the case back to the FCC.

> The court questioned the [FCC's] stated rationales for selecting 6.0 [sic] percent, from the high end of the 5.2-6.3 percent zone of reasonableness, as the historical component of the X-factor. Specifically, the court found that the [FCC] had not supported its conclusion that the two lowest TFP [total factor productivity] year averages, from 1986-1995 and 1991-1995, should be accorded less weight in the selection of the X-factor. The court also questioned the Commission's reliance on an upward trend in the X-factor from 1993, noting that the trend could be part of a larger cyclical pattern, in which case a downward turn in the X-factor could be expected. In addition, the court noted that there was no discernible trend in either of the two X-factor components . . . .

Id. at ¶18.

It is apparent that the court had serious doubts about the X-factor selected by the FCC. Although the case was remanded to the FCC, to date, the FCC has not specifically responded to the court's concerns. Subsequently, the approval of the CALLS plan, which set specific rates, thereby eliminating the reliance on price caps, rendered the use of the price cap moot. Therefore, contrary to witness Darnell's contention, it is apparent that the 6.5% productivity adopted by the FCC in 1997 was not a settled matter.

The only basis upon which the ALECs rely in recommending the 6.5% productivity factor is that the FCC adopted it. No other rationale was given, even when specifically questioned as to the propriety of this factor. For the reasons stated above, we decline to give any weight to the fact that the FCC adopted the factor.

We are also somewhat perplexed by witness Darnell's statement that "the use of a productivity factor based on a trend analysis, such as the FCC's, may tend to overstate forward-looking cost." It is not clear the witness would recommend such a factor if, in fact, it overstates cost. He argues that one should only be concerned with the results of the trend analysis for which such a factor is used, but if the result is overstated cost, and the ALECs are advocating lower costs, the result appears contrary.

Further, the data used to produce witness Barta's graph of expenses reveals that total expenses have declined only 3.66% over a four-year period, while depreciation expense increased 14.19%. Thus, it appears that the decrease in expenses that witness Barta uses to support a higher productivity factor is actually due largely to an increase in depreciation expense, not enhanced productivity, as one could infer from witness Barta's testimony.

Decision

BellSouth witness Reid's assertion that the productivity factor used by BellSouth in this study is higher than that used in Docket No. 960833-TP is accurate, and we find no basis in the record upon which to make an adjustment. Accordingly, the productivity factor used by BellSouth for purposes of this study is accepted. We note that for the reasons discussed with regard to investment, the inflation and deflation factors have been removed from the cost study.

3. Land, Building, and Power Expenses

Witness Darnell argues that BellSouth's proposed UNE rates double-recover Land, Building, and Power Expense, but he does not know by how much. He states that BellSouth has not provided the necessary information for him to make that determination. Witness Darnell contends that "[s]imply put, BellSouth has the opportunity to double recover some of its costs unless the appropriate adjustments have been made." He bases this contention on the fact that BellSouth responded in discovery that no adjustments had been made to several common cost components prior to their application to the study. As an example, he explains that BellSouth receives revenues for services it provides, such as collocation rate elements. He argues that the costs associated with providing these services should be offset against associated expenses before apportioning the remaining amounts to the UNE rate elements.

BellSouth witness Reid argues that there is no double recovery. Rather, he contends that witness Darnell does not understand BellSouth's cost study. Witness Reid discusses in detail each item with which witness Darnell takes exception.

Witness Reid explains that power expense, Account 6531, "is assigned by the shared and common cost application to an expense bucket called 'power' and is excluded from all of the shared and common cost used to determine the shared and common cost factors." He argues that power expense would only impact shared and common cost because it would be part of the common cost factor, which would lower the factor.

He notes that power produced for house service is included in Land and Building Expense, Account 6121. He states that this account is divided into cost pools for allocation in the shared and common cost study. He asserts that expenses related to space leased to others and to BellSouth owned central office buildings are excluded from recovery in the shared and common cost factors. Witness Reid contends that witness Darnell's proposal to offset the expenses "is inappropriate because costs related to leased space are not included in shared and common cost in the first place."

Witness Reid states that the land and building costs are treated in a manner similar to the way power expenses are treated. He explains that the amounts associated with space leased to others and to BellSouth owned central office buildings are excluded from recovery in the shared and common cost factors.

However, witness Reid does advise that, in reexamining its cost study, BellSouth determined that one cost pool associated with central office land and buildings rented from others was included in central office shared cost. He provided a recalculation of the common cost factor which shows no change as a result of this correction.

We note that witness Darnell has proposed no specific adjustments to Land, Building, and Power Expense, except that he believes BellSouth should offset revenues received from leases against these expenses. Witness Reid soundly rebuts this notion, explaining that the costs witness Darnell proposes to adjust are not included in the cost study. Thus, it would be inappropriate to offset revenues against a cost that is not there. There is no other evidence contrary to witness Reid's position in this record. The mere opportunity to double-recover, as cited by witness Darnell, is insufficient to base an adjustment upon. Therefore, we shall require no adjustments to these costs.

4. Shared and Common Costs

BellSouth witness Reid states that "the relationship between wholesale common costs and the total of wholesale direct and wholesale shared costs yields the common cost factor." He notes that BellSouth has used a common cost factor of 6.24% in the current study, versus a 5.30% factor previously. He explains that shared cost factors are "derived by determining the relationship, by investment type, between wholesale shared costs related to investment accounts and the associated network investment." He contends that "application of these factors in the cost development process allows BellSouth to associate a reasonable amount of forward-looking shared and common costs with each UNE."

Witness Reid states that the reasons the common cost factor is higher in the current proceeding as compared to prior proceedings stem from changes in cost assignment procedures for computer and software related expenses and the allocation of a portion of billing and collection costs to wholesale. He explains that:

> [t]he accounting profession issued a Statement of Position 98-1 that BellSouth adopted on 1/1/1999 that changed the way software was capitalized. In the past [BellSouth] had only capitalized initial operating software. . . . If the software increased the functionality of the application, then it should be capitalized.

He notes that the amount of software expense that was capitalized as a result of a normalizing adjustment was $369,779,000.

Witness Reid provides a comparison between the current study and the previous study. He notes that the comparison shows an increase in wholesale common cost of $177 million, but a decrease of wholesale shared cost of $181 million, for a net decrease of approximately $4 million.

Witness Darnell argues, however, that BellSouth has not shown any compelling reason to increase the common cost factor for this proceeding to 6.24%. He bases his conclusion that the common cost factor should be lower primarily on two points. First, he states that BellSouth revised the methodology used in previous dockets such that some costs are shifted from non-recurring rates to recurring rates. He continues that "[if this is true, it begs the question of why this was not done two years ago." He also asserts that Corporate Operations expense, which is a primary contributor to the Common Cost factor, has been declining as a percentage of revenue. He contends that this is evidence that the common cost factor should be reduced, not increased.

<u>Decision</u>

BellSouth's evidence as to the cause of the increase in the common cost factor, particularly with regard to the accounting change noted by witness Reid, appears reasonable. We note that Witness Darnell focuses on his concern that the methodology change BellSouth made shifts some costs from non-recurring rates to recurring rates. His comment that BellSouth should have done so two years ago, however, lacks support. As emphasized by witness Reid, we ordered BellSouth to make the change, as set forth in our Order:

> . . . we find it appropriate for shared costs to be reflected by means of the shared cost factors. These costs shall not be associated with labor rates. This does not prohibit BellSouth from recovering these costs. It merely shifts the recovery of these costs from non-recurring rates to recurring rates.

Order No. PSC-98-0604-FOF-TP at p. 63. Witness Darnell has provided no evidence as to why BellSouth should not use the methodology ordered by this Commission.

Witness Darnell's second point is that a lower common cost factor should be used because corporate operations expense is declining. We note that witness Darnell compares corporate operations expense to revenue in determining that the expense has declined. However, the common cost factor is derived by dividing wholesale common costs by direct wholesale costs. It is not readily apparent how the fact that corporate operations expense is declining as a percentage of revenue fits into this equation.

Witness Reid's explanation as to why the common cost factor has risen is far more plausible, particularly when one notes that shared costs have declined. This is the very impact that was described by this Commission when we ordered a change in methodology.

In conclusion, we find the evidence and arguments provided by BellSouth most persuasive. As a result, we find that no appropriate adjustments to the shared and common cost factors have been identified, other than any adjustments that may be necessitated to remove inflation for the reasons identified in the previous sections of this decision. Thus, for purposes of this cost study, BellSouth's shared and common cost factors are accepted. Again, we note that the inflation and deflation factors have also been removed from the shared and common cost portion of the cost study.

X. ASSUMPTIONS AND INPUTS USED TO DEVELOP NON-RECURRING COSTS

We must next determine what are the appropriate assumptions and inputs for network design, labor rates, required activities, OSS design and the mix of manual versus electronic activities to be used in the forward-looking non-recurring UNE cost studies.

A. Network Design

We note at the outset that there was limited testimony directed to this specific issue. According to BellSouth witness Caldwell, a Total Element Long Run Incremental Cost (TELRIC) cost methodology incorporates five basic principles: (1) based on current technology and an efficient network configuration; (2) it is long run in nature; (3) considers both volume sensitive and volume insensitive costs; (4) reflects a forward-looking perspective; and (5) provides for a reasonable allocation of shared and common costs. Witness Caldwell notes, however, that the implementation of these five principles is often in dispute. In particular, she notes that "[i]n the past, the main areas of contention with respect to cost development were: network design, work time estimates and the provisioning process, and economic parameters, e.g., cost of money and depreciation." Witness Caldwell testifies that the costs submitted by BellSouth in this proceeding ". . . are based on an efficient network, designed to incorporate currently available forward-looking technology, but recognize BellSouth's provisioning practices and network guidelines, as well." Specifically with respect to the development of nonrecurring costs, the witness asserts that the network modeled should also ". . . consider potential process improvements, and should be attainable."

AT&T/WorldCom witness King states that non-recurring costs ". . .are the efficient, one-time costs associated with establishing, disconnecting or rearranging unbundled network elements purchased from an ILEC at the request of a customer (e.g., ALEC)." He emphasizes that non-recurring cost development must comport with TELRIC costing principles. In particular, he asserts that:

> Often, in these UNE cases, nonrecurring charges are based on the activities the ILEC **has** incurred in the past. This methodology may not be TELRIC. According to TELRIC rules, non-recurring charges must be based on the activities the ILEC **should** incur if it was operating in a forward-looking least cost most efficient manner. (emphasis in original)

In response to AT&T/WorldCom witness King's implication in his testimony that BellSouth's nonrecurring cost analyses are based on outdated processes, BellSouth witness Caldwell states that such a conclusion is in error. Rather, she contends that ". . . BellSouth's nonrecurring studies are based upon anticipated work times and forward-looking processes that exist today and will be used to provision UNEs for the foreseeable future."

In his revised rebuttal testimony AT&T/WorldCom witness King describes the various adjustments to BellSouth's nonrecurring cost studies that he made; these are reflected on his Exhibit JAK-3. Witness King asserts that he has eliminated those costs which he believes have no place in a ". . . forward-looking network architecture and efficient provisioning process." As an example, he contends that BellSouth has included unnecessary intermediary work groups, such as the Local Customer Service Center (LCSC) and the UNE Center (UNEC)/Access Customer Advocacy Center (ACAC), in the wholesale provisioning process; he states these work groups are middlemen and their inclusion inserts inefficiencies in the processes.

During cross-examination concerning the zero fallout assumption in the ordering process that he used in his adjustments to BellSouth's nonrecurring studies, he agreed that " . . . the zero percent fallout assumption is based on the notion that every time a CLEC submits an order that may have an error on it, BellSouth's systems will be able to electronically identify that error, electronically resubmit the order back to the CLEC, and have the CLEC correct that error; . . . ." However, he admitted that BellSouth's systems today are unable to do this. Moreover, he acknowledged that he is not aware of any carrier that has deployed technology that would allow an ILEC to identify every error in an ALEC's electronically submitted order. However, in his revised rebuttal testimony witness King testified that a forward-looking cost study should reflect forward-looking but currently available and deployed technology.

In her direct and rebuttal testimony Data ALECs witness Murray states that there are at least three reasons why an ILEC's recurring and nonrecurring cost studies should be based on a single forward-looking network architecture. First, she asserts that ". . . each incumbent has only one integrated network over which it provides all of the functions associated with unbundled network elements both now and in the future. It does not matter whether the costs of those functions are classified as recurring or nonrecurring." Hence, the witness concludes that common sense implies that an ILEC should assume one network design for all its studies.

Second, witness Murray contends that the FCC's pricing rules do not distinguish between recurring and nonrecurring costs where they refer to the assumption of the appropriate technology and network configuration in a forward-looking cost study. She continues:

> Under FCC rules, the total of recurring and nonrecurring charges for a given network element may not exceed the total forward-looking economic cost for that element. [47 C.F.R. § 51.507(e)] It is hard to imagine how one could test whether a cost study complies with this rule if the cost study assumes one network design in computing recurring costs for an element and a completely different design in computing nonrecurring costs.

Third, the Data ALECs witness states that use of a single network design would prevent an incumbent LEC from double-recovering its costs of providing a particular UNE. Moreover, if an ILEC is allowed a "mix-and-match" approach to cost modeling that allows for double-recovery, incumbent LECs will receive incorrect network modernization signals. She explains how this phenomenon could occur:

> . . . if new entrants must reimburse the incumbents for both the recurring cost of building a brand-new, modern network (akin to the monthly payment on a new car) *and* the nonrecurring cost of maintaining and/or modifying their existing networks to provide both voice and advanced services, the incumbents will have less incentive to invest in new, forward-looking technology.

Witness Murray observes that BellSouth agrees that the same network architecture should underlie both recurring and nonrecurring cost studies. However, she alleges that BellSouth:

> Unfortunately did not put this theory into practice. At page 20 of her direct testimony, Ms. Caldwell indicates that individual subject matter experts supplied the key assumptions

> used in BST's nonrecurring cost studies. These experts have not assumed a network design that is consistent with the network assumptions in BST's recurring cost analysis.

The Data ALECs witness complains that BellSouth's loop conditioning study ignores the CSA design guidelines that BellSouth witnesses claim are the basis for their cost modeling. Further, she states that BellSouth improperly uses multiple network scenarios and, as a result, bases its loop conditioning charges on an all-copper network that "does not exist today and that BellSouth has no plans to build."

BellSouth witness Caldwell disagrees with witness Murray's claim that it does not matter whether costs are classified as recurring or nonrecurring. With respect to nonrecurring costs, witness Caldwell states that these ". . . costs are incurred at the time of service connection and must be recovered regardless of how long the UNE is used or remains in service." Moreover, the BellSouth witness asserts that witness Murray erroneously assumes that costs of the same network components are included in both recurring and nonrecurring prices. To the contrary, witness Caldwell testifies:

> Recurring and nonrecurring costs for services are costed differently because they use network components in different degrees or use different components altogether. Recurring prices recover one set of costs, e.g., depreciation, cost of money and maintenance. Nonrecurring prices recover a different set of costs. For example, the cost of the technician installing the circuit for used [sic] by the ALEC is recovered through a nonrecurring price. Again, this nonrecurring cost is fully incurred when the service is installed, and must be recovered regardless of how long the customer uses the service.

Witness Caldwell also takes exception to witness Murray's claim that by receiving compensation based on the cost of a new network, plus the cost of maintaining an old network, ILECs have no incentive to deploy new technology. She discusses the automobile analogy used by Ms. Murray and contends it is incorrect:

> In the premise for the analogy, she assumes that the car owner is only being reimbursed for upkeep of the old car. She then claims that premise is similar to someone being reimbursed for both the up keep of the existing car and payments on the new one. She uses this nonsensical analogy to support her contention that BellSouth is doing something that, in fact, it is not doing. BellSouth is not asking ALECs to pay for two different means of providing the same service. For example, when an ALEC orders an unbundled loop, BellSouth is not asking the ALEC to pay the full cost of that loop provided with one technology plus the full cost of providing it with a different technology. BellSouth is not "mixing and matching," we are simply asking to recover the cost of the functions BellSouth actually performs to provide a UNE.

In his refiled direct testimony Sprint witness McMahon states that a non-recurring cost study should not emphasize the development of a single, average charge; rather, he believes a forward-looking non-recurring cost study ". . . should reflect as closely as possible the actual costs incurred in performing the required activity. . . ." Such a study would incorporate the time required by an efficient provider to perform the necessary activities, and the cost to perform those activities based on current loaded labor rates. Basing non-recurring rates on such properly conducted studies would result in ALECs paying ". . . Non-recurring charges that relate directly to work actually performed on their behalf which, in turn, would ensure that the ILEC neither over, nor under-recovers, non-recurring costs."

<u>Decision</u>

We agree with AT&T/WorldCom witness King's characterization of non-recurring costs as being the ". . . the efficient, one-time costs associated with establishing, disconnecting or rearranging unbundled network elements . . ." In his review and critique of BellSouth's cost studies witness King essentially assumed, e.g., the existence of a fully automated ordering system which could identify all errors on an electronically submitted local service request (LSR) and resubmit it to an ALEC. However, he subsequently admitted that he was unaware if such a system had actually been implemented anywhere. Moreover, especially since the AT&T/WorldCom witness had asserted that a non-recurring cost study should reflect the use of efficient forward-looking technologies but those which were currently available and being deployed, we believe that witness King's OSS assumption is unrealistic. Rather, we believe witness Caldwell was on mark when she testified that the network modeled in a non-recurring study should be "attainable." We also agree with witness King that a non-recurring study should not necessarily be restricted solely to modeling activities incurred in the past; we endorse witness Caldwell's assertion that non-recurring studies should ". . . consider potential process improvements, . . ."

Accordingly, we find that non-recurring studies should be forward-looking reflecting efficient practices and systems, but this perspective should be tempered by considerations of what is reasonably achievable.

We disagree with Data ALECs witness Murray's claim that it does not matter whether network functions are classified as recurring or non-recurring. By definition, non-recurring costs are one-time costs, typically associated with the initiation of service. In contrast, recurring costs reflect recovery of ongoing costs of providing a given service, such as capital-related costs and maintenance expenses. Notwithstanding our disagreement on this point, we acknowledge in Part VIII that there may be circumstances where it may be reasonable to recover non-recurring costs through recurring prices.

As previously discussed, we agree in principle that a single network design is appropriate for cost studies. However, since we disagree that recurring and non-recurring costs are interchangeable, we agree with BellSouth witness Caldwell that no "mixing and matching" occurs in the studies filed in this proceeding because the same costs are not included in both a recurring and non-recurring study. Finally, we believe that witness Murray mischaracterizes FCC rule 51.507(e), which she says provides that the sum of a given UNE's recurring and non-recurring charges cannot exceed the total TELRIC of the UNE. We observe that the rule actually states:

> State commissions may, where reasonable, require incumbent LECs to recover nonrecurring costs over a reasonable period of time. Nonrecurring charges shall be allocated efficiently among requesting telecommunications carriers, and shall not permit an incumbent LEC to recover more than the total forward-looking economic cost of providing the applicable element.

B. Labor Rates

BellSouth witness Caldwell describes how BellSouth develops its labor rates:

> This Commission accepted BellSouth's methodology for developing the direct labor rates in the previously filed UNE studies. It did, however, eliminate the shared component from the labor rate. (Order No. PSC-96-1579-FOF-TP at Page 63) . . . BellSouth followed the same process in developing labor rates in this filing . . . .
>
> Labor rates for specific work groups are developed based on extracts of previous year's data from the Financial Front End System. This extract accumulates labor expense and hours. A PC application processes this information to produce labor rates. During processing, the actual costs for a given work group are accumulated by expenditure type (e.g., direct labor productive, premium, other employee, etc.). These actual costs are divided by the actual hours (classified productive hours for plant and engineering

> work groups and total productive hours for cost groups) reported by work group to determine the basic rates. The base year of labor rate data collection was the 1998 calendar year. A labor inflation factor is developed from the BellSouth Region TPIs and is applied to inflate these rates to the study period 2000-2002.

AT&T/WorldCom witnesses Donovan and Pitkin refer to labor rates in their testimony, but in the context of recurring costs, specifically the cost of capital, not nonrecurring costs.

Sprint's position on this issue is identical to its positions on the other subparts addressing inputs for non-recurring costs, although Sprint does refer to the "most current loaded labor rates" in its position.

Sprint witness McMahon addresses labor rates in his testimony:

> The forward-looking, non-recurring UNE cost studies should reflect as closely as possible the actual costs incurred in performing the required activity rather than developing a single "average" charge. This would include the amount of time required by an efficient provider to complete the activity and the cost to perform the activity, using most current loaded labor rates.

According to witness McMahon, a non-recurring cost study "should consist of four main steps," including step number 3:

> Identifying the labor rates for each work group that completes the activity and multiplying that amount by the time identified to complete the activity.

Witness McMahon, however, does not address whether BellSouth's labor rates comport with his view of how labor rates should be calculated.

Decision

Absent any evidence by any party to the contrary, we believe that BellSouth's labor rates are reasonable. Therefore, we find that the appropriate assumptions and inputs for labor rates are those recommended by BellSouth. However, consistent with our decision regarding the loadings, the labor TPI shall be excluded. The labor rates shall be based upon 1998 base without adjustment.

C. Required Activities

According to BellSouth witness Varner's rate proposal, BellSouth has proposed over 330 distinct nonrecurring installation and disconnect rates. These rates appear in witness Varner's rate proposal approximately 1,050 times because BellSouth is proposing the same nonrecurring installation and disconnect rates for each zone for a particular deaveraged element. The ALECs also have proposed the same nonrecurring installation and disconnect rates for each zone for a particular deaveraged element.

BellSouth and the ALECs have not proposed deaveraged nonrecurring work activities and work times. Given the parties' apparent agreement, and absent any evidence to the contrary, we believe that nonrecurring work activities and times need not be adjusted for different deaveraging zones.

We have closely analyzed BellSouth's nonrecurring cost studies for representative types of unbundled network elements (UNEs); based on our examination, we chose three representative UNEs to present at length in this analysis: ADSL loop, CCS7 Signaling, and Interoffice Transport - DSO. Based on the record, this analysis would be equally applicable to all UNES. These three representative UNES were chosen due to a greater amount of testimony addressing the ADSL loop and to provide an example of a signaling element and a transport element, and in order to prevent redundancy in this analysis. Based on these extensive reviews, we applied the results of what was learned to other UNE nonrecurring cost studies that included similar activities, probabilities, etc. The nonrecurring cost study for the ADSL loop generated the most scrutiny by the ALECs, consequently producing the most ALEC rebuttal of any of the nonrecurring cost studies, so that is the first cost study we analyze.

BellSouth's submission of a revised cost filing on August 16, 2000, approximately one month prior to the hearing date, has made our analysis more complex for several reasons. First, ALEC rebuttal testimony was due on July 31, 2000, over two weeks prior to BellSouth's revised cost study filing. Second, the parties deposed several BellSouth subject matter experts in July. During the depositions, the only cost study the parties had to use was, of course, the original one. Third, although the ALECs were permitted to file supplemental rebuttal on the revised cost study, because of the closeness to the September 19 hearing date, the supplemental rebuttal testimony was due less than two weeks after the revised cost study filing. Finally, BellSouth filed its revised cost study on an electronic basis, and in the case of some nonrecurring rates, changed the spreadsheet (Excel) file names from the first filing. BellSouth also changed the measurement of work times from hours in the original study to minutes in the revised study for the detailed labor work times. Additionally, we discovered calculation errors in BellSouth's revised study for certain xDSL-type loops that overstate total work times by approximately 1.3 hours.

1. Nonrecurring vs. Recurring Activities

There is a fundamental disagreement between the parties, notably BellSouth and the Data ALECs, on the definition of appropriate nonrecurring activities.

According to BellSouth witness Caldwell,

> . . . the nonrecurring costs BellSouth incurs to provision an unbundled loop for an ALEC are incremental to BellSouth's capitalized costs associated with installing the facilities in the first place. The nonrecurring costs reflect the activities required to activate the circuit, such that it is working for the ALEC and only once BellSouth receives a service request from the ALEC. Examples of nonrecurring activities include running the jumpers at the cross-box, making the physical connection at the Network Interface Device ("NID"), and testing the circuit to ensure that it meets the transmission requirements

> set for the specific loop ordered. None of the costs of these activities are included in BellSouth's recurring costs and therefore, there is no double recovery of costs.

Data ALECs witness Murray views this issue differently:

> . . . all of the fieldwork costs associated with providing fully connected unbundled loops are (or should be) included in the recurring cost of the unbundled loop. A forward-looking recurring cost analysis includes *all* [emphasis in original] of the investment and expense necessary to establish a complete connection from its central office main frame to the end user. In other words, the recurring cost that new entrants incur already includes costs for all of the installation work that BST also seeks to include in its nonrecurring cost study even if an end-user customer is establishing service at a "new" location. Therefore, it is inappropriate to again count portions of the fieldwork costs required to install portions of the loop as a nonrecurring cost.
>
> . . . not only does a recurring cost analysis such as BST's include the cost of both placing and connecting a complete unbundled loop as a recurring cost, it also include [sic] the entire cost for placing a substantial quantity of spare capacity. As part of the price that competitor pays for each and every unbundled loop, the competitor also prepays BST to carry the capacity necessary to provide whatever ultimate additional loop capacity BST built into its study assumptions.

BellSouth witness Varner asserts in rebuttal to witness Murray that:

> Nonrecurring costs are incurred at the time of service connection and must be recovered

> regardless of how long the UNE is used or remains in service.
>
> Furthermore, Ms. Murray incorrectly assumes that the same network components are reflected in both the recurring and the nonrecurring prices. Recurring and nonrecurring costs for services are costed differently because they use network components in different degrees or use different components altogether. Recurring prices recover one set of costs, e.g. depreciation, cost of money and maintenance. Nonrecurring prices recover a different set of costs. For example, the cost of the technician installing the circuit for used [sic] by the ALEC is recovered through a nonrecurring price. Again, this nonrecurring cost is fully incurred when the service is installed, and must be recovered regardless of how long the customer uses the service.

AT&T/WorldCom witness King states:

> Non-recurring cost activities are those that only benefit the ALEC requesting the elements. If the activity being performed is a one-time activity, but has the potential to benefit future users of a particular telecommunications facility, the costs of the activity should be characterized as recurring. The cost of constructing a loop is one such example . . . .

We are not persuaded by witness Murray's argument that nonrecurring costs are included in recurring costs. Rather, we are persuaded by BellSouth witnesses Caldwell and Varner that when an ALEC requests service, there are specific activities that occur that may not occur otherwise and that these activities should be costed and priced separately from recurring costs and prices. We agree with AT&T/WorldCom witness King that non-recurring activities are those that benefit only the specific ALEC. What the appropriate nonrecurring activities are, and their work times, is the focus of this issue.

2. Steps in Determining Nonrecurring Activities

BellSouth witness Caldwell describes the network design that should be used in developing nonrecurring costs:

> The same network design assumptions that provide the foundation for recurring costs should be utilized when developing nonrecurring costs. Thus, the network should be forward-looking, reflect BellSouth's guidelines and practices, should consider potential process improvements, and should be attainable.

Witness Caldwell describes how BellSouth determined the required activities, stating that BellSouth does not have a nonrecurring cost model "in the formal sense." BellSouth's study methodology states:

> Nonrecurring costs are one-time expenses associated with provisioning, installing and disconnecting an unbundled network element or combination. These costs potentially include five major categories of activity: service inquiry, service order processing, engineering, connect and test, and technician travel time. Examples of the work activities in each of these categories are:
>
> Service Inquiry - Review network facilities for availability
>
> Service Order Processing - Prepare and issue service orders

> Engineering - Assign cable and pair; design circuit; order plug-in; perform translations in the switch
>
> Connect and Test - Install circuit; test circuit; disconnect
>
> Technician Travel Time - Travel to the customer's premises
>
> The first step in developing nonrecurring costs is to determine the cost structure, i.e., determine if the costs occur only once, on a first and additional basis, or on an initial and subsequent basis. Individuals familiar with the provisioning process associated with each unbundled network element or combination describe the tasks required to handle a service request from a CLEC. In other words, they determine the workflow. Then subject matter experts identify the amount of time required to perform the tasks and also determine the probability that the activity will occur. Nonrecurring costs are developed by multiplying the work time for each work function by the labor rate for the work group performing the function.
>
> Utilizing work functions, work times, and labor rates, disconnect costs are calculated in the same manner as the installation costs.

BellSouth witness Caldwell explains how BellSouth updates its nonrecurring cost information:

> Let me explain the process BellSouth used to update the nonrecurring cost information. Existing input information was gathered, and the different activities for each loop were compared to other loops that had similar provisioning requirements. This comparison

> was provided to the product teams for review, possible update, and final concurrence.
>
> If Mr. Riolo is alleging that the cost analyst produced the inputs that went into the study, he is sadly mistaken. As I described previously, the current product teams were provided then existing inputs that had been provided to the cost group as a starting point for the product team's review. The original inputs also were obtained from network experts that participated on prior product teams and were in no way, shape, or form "developed" by the cost analyst.

AT&T/WorldCom witness King asserts that

> The theory behind the development of a non-recurring cost model is fairly simple. First, it is necessary to identify the non-recurring actions required to provision unbundled network elements to ALECs. Second, it is necessary to break down each action into the detailed work activities that comprise each action, and determine both the time necessary to complete these activities and the associated labor rates. Finally, it is necessary to determine, for each action, the probability that a particular work activity will be required to provide the action.
>
> The non-recurring cost of a particular action, then, is simply the sum of the costs of each of the necessary work activities, calculated as the product of (1) the required time, (2) the labor rate, and (3) the probability of occurrence of each work activity.

Sprint witness McMahon details the steps he believes should occur in a nonrecurring cost study:

1. Identifying the work activities or tasks performed to complete service order, installation, and other related service functions for each unbundled element.

2. Identifying the work times related to performing each function above.

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

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

It appears to us that the witnesses quoted above agree in general terms about how nonrecurring costs should be determined. We agree with witness King that the theory behind developing a nonrecurring cost is "fairly simple." We also agree with the witnesses that, for this issue, identifying the work activities, work times, and any probabilities that the activities will occur is the appropriate way to study nonrecurring costs. We note that these cost studies are to be forward-looking, according to the BellSouth, and according to FCC, "the network should be forward-looking, reflect BellSouth's guidelines and practices, should consider potential process improvements, and should be attainable." 47 C.F.R. §51.505. Therefore, it is the specific nonrecurring actions required in a forward-looking cost study, the work times, and the probability that the work will be performed, which is subject to differing interpretations by the parties.

3. Determination of the Nonrecurring Activities

In this part, we discuss who determined the required activities and the process or methodology used to determine these activities, including what criteria were taken into account.

According to BellSouth witness Caldwell:

> . . . personnel familiar with the provisioning process provided input into the nonrecurring cost development. They provide the process flow, the work centers involved, any probabilities that may be required, and the time required by work center.

When asked whether "personnel familiar with the provisioning process" means the same as "subject matter expert" (SME), BellSouth responded that the "terms are used interchangeably." These personnel

> . . . are BellSouth staff employees who represent each of their functions/departments for the BellSouth line organizations. Their work experience and expertise qualify them to provide the data used in BellSouth's Cost Study Filing in this proceeding.

Several BellSouth SMEs were deposed in this proceeding: James Franklin Ennis, Daniel Eric Stinson, Michael K. Zitzmann, James R. McCracken, and Nancy Pauline Murphy.

BellSouth SME Ennis supplied work times for the UNE Center. The functions performed by the UNE Center:

> . . . include coordination activities, such as tracking the status of orders and escalating and handling orders in jeopardy. The major function of the UNEC is to perform frame continuity and due date coordination and testing.

When BellSouth SME Ennis was asked if there was "any written document showing efforts to record how long people took to perform these tasks," he stated yes and that the document "was given to me by the person requesting cost inputs." Later in the deposition he stated that inputs were given to him and that he was asked "to verify that they were correct." He "looked at them, thought that they were not correct and supplied inputs to the cost people." He "was told that [his] inputs are in the Florida filing." It is not clear to us whether the first document and the inputs are the same, although it appears likely that they are.

SME Ennis based the work times on, in his words, "Experience. . . Having done the work myself in the past, supervised the people doing the work, and now as a staff person."

SME Ennis states that he was not asked to perform a time and motion study. In response to a question asking him whether he had "ever suggested to anyone that's the right way to get to the precise answer here," he responded "yes." When SME Ennis was asked what the response to his question was, he stated, "[T]he response was yes, that's true." He had this discussion with his "superiors."

BellSouth SME Stinson supplied time estimates for Central Office operations, also known as Central Office Installation and Maintenance or CO I&M. CO I&M employees "wire the circuit at the collocation site." SME Stinson had "actually performed" the activities for which he provided time estimates but he did not "talk to anybody in the Central Office in the course of assembling the data." He stated in his deposition that BellSouth had not requested a time and motion study in CO I&M.

According to the BellSouth SME for Outside Plant Engineering (OSPE), Michael K. Zitzmann, "Engineers don't install loops. They engineer them and they draw them up on jobs and they plan them; . . . ." Zitzmann relies on his "knowledge and experience as an outside plant engineer" when he supplies estimates. When asked how he supplied time inputs for cost studies, he stated, "Sometimes it's verbally and sometimes in meetings, we have weekly meetings on the UNE teams and we provide inputs to them. Sometimes it's e-mail."

SME Zitzmann stated that he did not recall providing an estimate in writing. However, he has "reviewed the documents where they [the cost group] incorporated" his estimates.

BellSouth SME McCracken did not supply work times for the Special Services Installation and Maintenance (SSI&M) organization to anyone in BellSouth's cost organization; rather, he was given a spreadsheet with times "to actually go out and turn up that product;" he understood the times to come from a 1993 study. SSI&M employees work in the field and are responsible for, among other activities, performing the cross-connection at the cross-box, testing, and trouble resolution. SME McCracken did know of a 1993 time and motion study, although he had not seen the study. He was not asked to provide estimates or revisions "due to a recent court decision by the Eighth Circuit." He was also not asked to review "any revisions to BellSouth's cost studies and cost models," due to the recent court decision. He had not heard of either "TELRIC" or "total element long run incremental cost."

SME McCracken indicates that he verifies work times by, ". . . taking a look at them and ensuring that the flow was correct and that the times - that there was a time associated to the flow." He stated that he "really wasn't worried about whether the time was correct, knowing that those numbers are coming from at least a time and motion study instead of just estimating times off - pulling them out of the air and saying well, it takes approximately this time." He indicates that the time and motions study to which he refers is the study done in 1993. SME McCracken states that the study was explained to him as a time and motion study, but that he was not told how it was performed. He does not know the study assumptions.

BellSouth SME Murphy provided work times for the Local Carrier Service Center (LCSC). The LCSC is "specifically for the CLECs' used to process the local service order for BellSouth to provision." <u>See</u> Order No. PSC-98-0604-FOF-TP at p. 164. When BellSouth SME Murphy was asked if she were "given any guidance or directions on how to go about determining these work times," she replied that she "was asked to give the amount of time in minutes to how long it takes in today's environment to process a clean and accurate LSR [local service request] from receipt to FOC [firm order confirmation]." She has done the work for which she submitted times and supervised those who have done the work. She provided the times verbally, not in writing or through e-mail. Her times came from "watching what they [service reps] do, knowing what they do and doing [her] own end-to-end test orders." She did not record her observations. SME Murphy explained that the times she uses "are times that I incorporated with my time and the time that the service reps are actually processing the work." The time she provides is "mainly" from observing others and is an "average" time. She explained that the average time is not the time of the fastest worker but rather comes from observing the times of a new employee, an average employee, and a "more" experienced employee. She was not asked to perform a time and motion study.

BellSouth SME Murphy was not asked to "review any document with [her] work times," although the documents were available to review if she chose. She stated that she has provided work times for a cost study "approximately ten times" and that she has never "been made aware" that the work times she provided were not correctly incorporated into the cost study.

BellSouth witness Caldwell describes BellSouth's nonrecurring categories in general terms:

> Provisioning activities can be desegregated [sic] into five basic categories: Service Inquiry, Service Order Processing, Engineering, Connect & Test, and Travel. (Every category is not applicable to every unbundled network element.). Service Inquiry reflects an up-front process by which the availability/suitability of facilities is determined. Service Order Processing considers activities incremental to the Electronic and Manual Service Order rate elements previously described. Let me note that the only work center considered in the two Service Order elements is the LCSC. However, other work centers may be involved in service processing for certain elements. Engineering times reflect activities such as, the work required to construct design lay-out records, review of pending jobs, and

> confirmation of network design standards. Connect & Test considers the physical activities required to provision the requested element and to ensure the transmission quality of the element. Forces involved with Connect & Test include such groups as Installation and Maintenance, Special Services Installation and Maintenance, Circuit Provisioning Group, and Recent Change Memory Administration Group. The Travel category reflects the amount of time needed by technicians to get to the work location. Travel times consider accomplishing more than one task per trip.

BellSouth filed its recurring cost study on April 17, 2000 and its nonrecurring cost study on May 1, 2000. On August 16, 2000, approximately one month prior to the September 19, 2000 hearing, BellSouth filed revisions to its cost models, including revisions to its nonrecurring cost analyses. According to BellSouth witness Caldwell,

> . . . since the original April 17th filing, BellSouth has revised its nonrecurring provisioning process for Digital Subscriber Line ("xDSL") elements. Originally, BellSouth conducted the cost study under the assumption that a manual service inquiry and loop make-up would be required for xDSL loops to ensure that specific transmission parameters are met. However, with the FCC's 319 rules concerning loop qualification, it was necessary for BellSouth to revisit the provisioning process and modify some of the underlying assumptions.
>
> . . . BellSouth will be offering both a manual and a mechanized provisioning process to support service inquiry and access to loop make-up information. BellSouth has revised its cost study to reflect these new processes. . . .

> . . . During revisions to the xDSL nonrecurring costs, BellSouth reviewed all of the nonrecurring inputs for all types of loops to ensure consistency of work time estimates and the correctness of the underlying assumptions. Several inputs were modified as part of this process.

Witness Caldwell provided a brief summary of some of the changes in her August 18, 2000, revised direct testimony.

> All nonrecurring costs for non-loop elements decreased due to the decrease in gross receipts tax. Nonrecurring costs associated with service level ("SL")1 and SL2 loops increased mainly as a result of an increase in the dispatch rate. The sub-loop feeder has been reclassified as a designed loop, which involves more provisioning activities and thus increased nonrecurring costs.
>
> BellSouth also has changed its cost recovery for xDSL loops and Unbundled Loop Modification ("ULM"). This change, by itself, would not have impacted the total cost of loop provisioning and loop modification; however, other input changes were also made. Originally, the Unbundled Loop Modification ("ULM") element included 100% of service inquiry activity. The savings obtained when the xDSL loop and ULM were ordered together were reflected in the cost of the loop. Additionally, the manually ordered xDSL loops (with loop make-up) increased due to the inclusion of 100% costs associated with service inquiry activity. Now, the savings are reflected in the ULM rather than the loop. BellSouth has also restructured the input files for the nonrecurring cost development associated with loops in order to display calculations which previously were only visible if the file was opened electronically.

We note that we found calculation errors in BellSouth's spreadsheet, FL-xdsl.xls that overstated work times for the ADSL loop, 2 and 4-wire HDSL loops, and short and long 2 and 4-wire copper loops ordered with loop makeup. The errors increase the total work time for each of these loops by 1.305 hours. The error occurred in the Engineering category.

4. BellSouth's ADSL Loop Nonrecurring Cost Studies

In this section, we discuss BellSouth's original ADSL loop cost study, its revised study, and provide a comparison of the two studies; discuss ALEC testimony and BellSouth's rebuttal of ALEC testimony; and provide our analysis. Both studies are included because Data ALECs witness Riolo's rebuttal testimony was on the original study and because there is a significant time difference between the two studies.

BellSouth's cost studies include work activities and work times for the first installation, and each additional installation, as well as for the first disconnect and each additional disconnect. When we and the parties refer to work activities and times, unless otherwise noted, the reference is to the first installation. Some of the same work categories may not be included in the additional installation or the first and additional disconnect, and the work times may differ.

BellSouth's original proposed work activities for the 2-wire ADSL loop are shown in the table below, with the work times in hours. BellSouth's original cost study had eight footnotes for the 2-wire ADSL loop. These footnotes are:

1. Assumes 100% dispatch to connect.

2. OSPE [Outside Plant Engineering] engineering time assumes a 10% fall-out rate requiring manual intervention (RMA) - occurs with unbundling when loop terminates other than in the switch.

3. 90% of loops are new; 10% are reused facilities which require additional UNEC time.

4. Fallout rate for AFIG [Address Facility and Assignment Group] is 30% on installs and 5% on disconnects.

5. UNEC [UNE Center] and CO I&M Field (connect and test) [Central Office Installation and Maintenance] times assume 15% of total are carried in other transport elements.

6. SSI&M [Special Services Installation and Maintenance] travel is captured in Drop/NID investment.

7. CPG [Circuit Provisioning Group] time assumes 15% fallout on installations and 10% fallout on disconnects.

8. CRSG [Complex Resale Support Group], LCSC [Local Carrier Service Center], OSPE and SAC [Service Advocacy Center] installation times are adjusted by 52% to reflect situations when loop and modification are ordered at the same time.

We note that Footnote 8 refers to the activities in the Service Inquiry category.

BellSouth's original cost study structure provided that when loop modification (e.g., removal of load coils) is not ordered at the same time that the loop is, then the CRSG, LCSC, OSPE and SAC installation times increase. Both sets of numbers are shown below.

BellSouth's Proposed 2-wire ADSL Loop Nonrecurring Activities (Times in Hours) - Original Filing

	Installation		Disconnect	
Category	First	Add'l	First	Add'l
Service Inquiry				
CRSG receives firm order SI from CLEC and screens documents; CRSG prepares/sends transmittals to OSPE for verification of facility availability. Upon completion of job, CRSG informs CLEC facilities are available.	.5356* or 1.0300	.2678* or .5150	.4250	.2125
LCSC receives SI from CRSG, validates for accuracy and processes order.	.3900* or .7500	.0867* or .1667	.5000	.1667

	Installation		Disconnect	
Category	First	Add'l	First	Add'l
OSPE reviews request, assigns FRN and returns SI to CRSG	1.3000* or 2.500	1.3000* or 2.500	0	0
SAC logs SI in/out which involves interaction with CRSG	.2600* or .5000	.2600* or .5000	0	0
Engineering				
CPG processes request; designs circuit & generates DLR & WORD [undefined, we assume it refers to Microsoft Word] document for CLEC & Field.	.0825	.0450	.0442	.0067
AFIG assigns loop facilities	.0400	.0400	.0058	.0058
Connect & Turn-up Testing				
UNEC pulls info, assigns to work forces; verifies & ensures accuracy of design; creates cut sheets to verify reuse of facilities; ensures dispatch, performs frame continuity and due date coordination and testing; performs manual order coordination.	1.4212	.9651	.4823	.0500
WMC coordinates dispatched technicians	.2500	0	.2500	09
CO I&M Field wires circuit at collocation site.	.2823	.1417	.2125	.0992
SSI&M processes order; places cross-connect at cross-box, checks continuity and dial tone, resolves trouble, performs test from NID and completes order.	1.9210	1.2710	.7833	.1333
Travel				
SSI&M dispatched to cross-box	.3333	0	.3333	0

*The first number is the time when the loop and modification are ordered together. The second number is the time when the loop is ordered without modification.
(Source: Hearing Exhibit 39)

In its revised proposed work activities for the ADSL loop, BellSouth expanded the descriptions and changed the work times to minutes; the revised proposed activities are shown in several tables because of their length and complexity.

In its revised filing BellSouth altered the Service Inquiry activities. The category Service Inquiry applies when a loop is ordered with loop makeup. BellSouth lists three work activities for the Complex Resale Support Group (CRSG), four "Incremental Work for Service Inquiry Complications," and one activity for the Local Carrier Service Center (LCSC).

BellSouth's ADSL Loop Nonrecurring Activities - Revised Filing - Service Inquiry - Time in Minutes

	Installation		Disconnect		Probability Installation		Probability Disconnect	
	First	Add'l	First	Add'l	First	Add'l	First	Add'l
Service Inquiry								
Complex Resale Support Group (CRSG) receives firm order SI from CLEC, screens document	15	15	7	7	100%	50%	100%	50%
CRSG prepares / sends transmittals to OSPE for site set-up (or to I&M for site visit)	10	10	0	0	100%	50%	100%	100%
Upon completion of job, CRSG informs CLEC site is ready for provisioning	20	10	18	9	100%	100%	100%	100%
Incremental Work for Service Inquiry Complications								
CRSG -not processed within commitment; follow up required.	20	10	0	0	33%	33%	100%	100%
CRSG - response "No Facilities", negotiate with OSPE & CLEC	30	15	0	0	24%	24%	100%	100%
CRSG - LCSC does not log within 2 hours; requires followup	20	10	10	5	25%	25%	25%	25%
CRSG - less 2 minutes for manual process; assume electronic	2	1	2	1	100%	100%	100%	100%
TOTAL	61.8*	30.9	25.5	12.75				

	Installation		Disconnect		Probability Installation		Probability Disconnect	
	First	Add'l	First	Add'l	First	Add'l	First	Add'l
Local Carrier Service Center (LCSC) receives SI from CRSG validates for accuracy and sends Firm Order Commitment (FOC) to CLEC	45	10	30	10	100%	100%	100%	100%

*BellSouth uses 61.8 minutes in its chart; however, applying the probabilities and adding up the minutes totals to 65.8 minutes.
(Source:Hearing Exhibit 95)

The following table contains engineering activities for the revised filing.

BellSouth's ADSL Loop Nonrecurring Activities - Revised Filing - Engineering - Time in Minutes

	Installation		Disconnect		Probability	
	First	Add'l	First	Add'l	Installation	Disconnect
Service Advocacy Center (SAC) - clerical input	15	0	0	0	10%*	
SAC - OSPE investigation	30	30	0	0	10%*	
SAC - pull LMU	22	22	0	0	10%*	
SAC - LFACS input of LMU	10	10	0	0	10%*	
SAC - LFACS reservation	10	10	0	0	10%*	
Address and Facility Inventory (AFIG) - assigns loop facilities	8	8	7	7	30%	5%

	Installation		Disconnect		Probability	
	First	Add'l	First	Add'l	Installation	Disconnect
Circuit Provisioning Group (CPG) - processes request	15	0	15	0	15% 1st & 0% additional	15% 1st & 0% additional
CPG - designs circuit and generates DLR and WORD document for CLEC and field	18	18	4	4	15% 1st & additional	10% 1st additional

(Source: Hearing Exhibit 95)
* BellSouth described this probability as "fallout" and did not show it as applying to installation or disconnect.

We discovered SAC time discrepancies on page 6 of the spreadsheet Fl-xdsl.xls between the loop with loop makeup and without loop makeup. Page 14 of the spreadsheet shows that there is a 10 percent probability for the SAC times. On the page which sums BellSouth's work times for the ADSL loop (page 6), only the ADSL loop without loop makeup includes properly calculated SAC work times, i.e., the work times on page 14 multiplied by the 10 percent probability. On page 6 the SAC work times for the ADSL loop with loop makeup have not been multiplied by the 10 percent probability. The overstatement of the SAC work times is 1.305 hours.

This same error is repeated for each of the loops with loop makeup in this spreadsheet: 2 and 4-wire HDSL, and 2 and 4-wire short and long copper loops. The error is the same: an overstatement of the SAC work times of 1.305 hours. BellSouth shows a total work time for the ADSL loop with loop makeup as 7.6113 hours; the corrected total time is 6.3063 hours. In effect, BellSouth's error inflates the work time for the ADSL loop with loop makeup by approximately 20 percent.

The next table completes the activities for the ADSL loop with Connect & Test and Travel activities.

BellSouth's ADSL Loop Nonrecurring Activities - Revised Filing - Connect & Test and Travel - Time in Minutes

	Installation		Disconnect		Probability		
	First	Add'l	First	Add'l	Reuse	Reuse	Reuse
Connect & Test							
Provisioning Variables							
Unbundled Network Element Center (UNEC) - Status/Info (55% of orders at 2.4 minutes)	*2.40*	*2.40*	*2.40*	*0*	*55%*		
UNEC - escalations (12% of orders at 7.2 minutes)	*7.20*	*7.20*	*7.20*	*0*	*12%*		
UNEC - assist Calls (6% of orders at 15.6 minutes)	*15.60*	*15.60*	*15.60*	*0*	*6%*		
UNEC - jeopardy (25% of orders at 1.8 minutes)	*1.80*	*1.80*	*1.80*	*0*	*25%*		
Total of Worktimes x the Probabilities	***3.57***	***3.57***	***3.57***	***0***			
UNE pulls order info. & assigns to work groups.	8.00	0	8	0	100%		
Provisioning variables - when UNEC pulls order information (see line above)	3.57	3.57	3.57	0	100%		
UNEC verifies and ensures accuracy of order design	3.00	3.00	3.00	3.00	100%		
UNEC creates cut sheets to verify reuse of facilities	4.00	4.00	0	0	80%	10%	100%
UNEC ensures dispatch	5.00	0	0	0	20%	100%	

	Installation		Disconnect		Probability		
	First	Add'l	First	Add'l	Reuse	Reuse	Reuse
UNEC performs frame continuity and due date coordination and testing	54.00	54.00	0	0	85%		
Provisioning variables - testing - (see line above)	3.57	3.57	0	0	85%		
UNEC performs manual order coordination (remote call forward, disconnect and unbundled loop order) when service is converted on existing facilities	20.00	20.00	0	0	80%	10%	100%
UNEC contacts customer and completes order	10.8	0	10.8	0	100%		
Provisioning variables - when UNEC contacts customer and completes order (see line above)	3.57	0	3.57	0	100%		
Special Services Installation & Maintenance (SSI&M) - processes requests	20	0	20	0	100% probability, dispatch rate, fallout		
SSI&M places/removes cross-connect at cross-box	16	16	8	8	100% probability, dispatch rate, fallout		
SSI&M checks continuity and dial tone	15	15	0	0	100% probability, dispatch rate, fallout		
SSI&M trouble resolution at crossbox	45	45	0	0	30% probability, dispatch rate, fallout		
SSI&M tests from NID & Tags Loop	23	23	0	0	100% probability, dispatch rate, fallout 100%		

	Installation		Disconnect		Probability		
	First	Add'l	First	Add'l	Reuse	Reuse	Reuse
SSI&M trouble resolution at premises	56	56	0	0	21% probability, dispatch rate, fallout		
SSI&M completes order	19	0	19	0	100% probability, dispatch rate, fallout 100%		
Work Management Center (WMC) - coordinated dispatched technicians	15	0	15	0	100% probability		
Central Office Forces Field wires circuit at collocation site	20	10	15	7	85% (15% carried in other transport elements)		
Travel							
SSI&M - dispatched to crossbox	20	0	20	0	100% probability		

(Source: Hearing Exhibit 95)

5. Differences Between the Original and Revised Cost Studies

In this section, we analyze the differences between the original cost study for the ADSL loop (includes Service Inquiry time) and the revised cost study for the ADSL loop with loop makeup (includes Service Inquiry time). First, the following table summarizes the activities and work times for both studies.

Summary of Work Times Original and Revised Cost Study (time in hours)

	Original Study	Revised Study (with corrected SAC times)
Service Inquiry: CRSG	.5356 or 1.0300*	1.0300
LCSC	.3900 or .7500*	.7500
OSPE	1.300 or 2.500*	-

	Original Study	Revised Study (with corrected SAC times)
SAC	.2600 or .5000*	-
TOTAL SERVICE INQUIRY	2.4856 or 4.78 hours*	1.7800 hours
Engineering: CPG	.0825	.0825
AFIG	.0400	.0400
SAC	-	.1450
TOTAL ENGINEERING	.1225 hour	.2675 hour
TOTAL SERVICE INQUIRY + TOTAL ENGINEERING	2.6081 or 4.9025 hours	2.0475 hours
Connect & Test: UNEC	1.4212	1.4212
WMC	.2500	.2500
CO I&M	.2823	.2833
SSI&M	1.921	1.9710
TOTAL CONNECT & TEST	3.8745 hours	3.9255 hours
Travel: SSI&M	.3333	.3333
GRAND TOTAL	6.8159 or 9.1103 hours*	6.3063 hours

*The first number is the time when the loop and modification are ordered together. The second number is the time when the loop is ordered without modification.
(Source: Hearing Exhibits 39 and95)

6. Differences in the Service Inquiry and Engineering Categories

There are some differences between the original and revised cost studies. In this section, we will compare the installation of the first loop, ordered without loop modification (service inquiry times in the original study were adjusted by 52 percent to reflect a loop ordered with modification). The original Service Inquiry activities include the work groups CRSG, LCSC, OSPE, and SAC. The revised Service Inquiry activities include only the CRSG and LCSC. The cost study does not explain why the number of work groups decreased from four to two.

The original time for the CRSG is 1.03 hours or 61.8 minutes. The revised time for the CRSG, including a separate part for Incremental Work for Service Inquiry Complications, is also 61.8 minutes.

CRSG's Incremental Work for Service Inquiry Complications includes, "Not processed within commitment; follow up required," for 20 minutes 33 percent of the time or 6.6 minutes. The second activity is "Response 'No Facilities', negotiate with OSPE & CLEC," for 30 minutes 24 percent of the time, or 7.2 minutes. The third complication is "LCSC does not log within 2 hours; requires followup," for 20 minutes 25 percent of the time, or 5 minutes. The last activity under complications is "Less 2 minutes for manual process; assume electronic," at 2 minutes 100 percent of the time. These complications actually total 20.8 minutes. When added to the other CRSG work, the total is 65.8 minutes. However, page 13 of BellSouth's spreadsheet FL-xdsl.xls shows a CRSG total of 61.8 or 1.03 hours, which happens to match BellSouth's original filing. BellSouth's summary chart also indicates a total time of 61.8 minutes. Since 61.8 minutes is the total in both the original and revised filings, we assume that 61.8 minutes is the time BellSouth proposes.

The LCSC's activity in the original study is "receives SI from CRSG, validates for accuracy and processes order." This takes .75 hour or 45 minutes. In the revised study the LCSC "receives SI from CRSG validates for accuracy and sends Firm Order Commitment (FOC) to CLEC." The times are identical.

Of the two remaining Service Inquiry activities from the original study involving OSPE and SAC, the OSPE activity, "OSPE reviews request, assigns FRN and returns SI to CRSG" does not appear in the revised study. BellSouth originally estimated this activity at 2.5 hours. The SAC activity, "SAC logs SI in/out which involves interaction with CRSG," takes .5 hour and appears to correspond to the revised study's Engineering category SAC activities:

- clerical input: 15 minutes 10% of the time or 1.5 minutes
- OSPE investigation: 30 minutes 10% of the time or 3 minutes
- pull LMU [loop makeup]: 22 minutes 10% of the time or 2.2 minutes
- LFACS input of LMU: 10 minutes 10% of the time or 1 minute
- LFACS reservation: 10 minutes 10% of the time or 1 minute

These revised SAC activities total to 8.7 minutes, a decrease in time of 21.3 minutes from the original study.

Both CPG and AFIG are in the Engineering category in each study; however, the revised study disaggregates CPG's activities. The times remain the same from the original study to the revised study.

7. Differences in the Connect & Test and Travel Categories

The original and revised filings include the same four work groups: UNEC, WMC, CO I&M, and SSI&M.

- WMC activities and times are the same for both studies.
- For CO I&M, the activity is identical; however, the time varies very slightly, from .2823 hour or 16.938 minutes in the original study, to 20 minutes 85 percent of the time or 17 minutes in the revised study. Since rounding 16.938 to a whole number equals 17, the time in the revised study, we assume the times are identical.
- For SSI&M, the activities appear to be virtually identical, except that there appears to be slightly more detail in the revised study. The time in the original study is 1.921 hours or 115.26 minutes. The time in the

revised study totals to 118.26 minutes. It is unclear to us why the time increased three minutes, or roughly 2.5 percent.

- For the UNEC, the revised filing includes "Provisioning Variables." These include status/info (2.4 minutes 55 percent of the time), escalations (7.2 minutes 12 percent of the time), assist calls (15.6 minutes at 6 percent of the time), and jeopardy (1.8 minutes 25 percent of the time), for a total of 3.57 minutes. This variable appears three separate times in the UNEC work times.

For the Travel category, the explanations for this category are the same for the original and revised studies. The time in the original study is shown as .3333 hour or 19.998 minutes, which is almost identical to the 20 minutes shown in the revised study.

8. Summary of Differences in Cost Studies

When a loop is ordered without modification, Service Inquiry time decreased from 4.78 hours to 1.78 hours, while Engineering time increased from .1225 hour to .2675 hour because BellSouth moved some functions from Service Inquiry to Engineering in the revised study. Combined Service Inquiry and Engineering time of 4.9025 hours decreased to 2.0475 hours, for a decrease of 2.855 hours or 171.3 minutes.

Connect and Test time increased from 3.8745 hours to 3.9255 hours in the revised study for an increase of .051 hour or 3.06 minutes, while Travel time remained essentially the same.

Overall, the total time to install an ADSL loop with loop makeup, using loops ordered without modification (in the original study) and loops with corrected SAC work times (in the revised study), decreased from 9.1103 hours in the original study to 6.3063 hours in the revised study for a decrease of 30.8 percent or 2.804 hours. We believe that this is a significant decrease apparently resulting from BellSouth's review of inputs between the first and second cost study filings.

9. Arguments

Data ALECs witness Riolo critiqued BellSouth's nonrecurring cost study and provided proposed times, to which BellSouth witnesses Greer and Caldwell provided rebuttal. A description of witness Riolo's experience is followed by his testimony, after which BellSouth witnesses provide their rebuttal.

> The tasks and work-times presented in Mr. Riolo's testimony are his expert opinion based on over thirty years of personal experience in performing such operations, and in supervising others who performed such operations.
>
> Mr. Riolo has personally engineered and supervised those that have engineered all manner of outside plant including underground, aerial and buried plant in urban, suburban and rural environments. He has engineered copper and fiber plant as well as provisioned analog and digital services. He has participated in the design, development and implementation of methods and procedures relative to engineering planning, maintenance and construction. During the course of his career, he has had opportunities to place cable (both copper and fiber), splice cable (both copper and fiber), install digital loop carrier, test outside plant, and perform various installation and maintenance functions. He has prepared and awarded contracts for the procurement of materials. He has audited and performed operational reviews relative to matters of engineering, construction, assignment, and repair strategy in each company throughout the original 22 company Bell System. In addition, he directed operations responsible for an annual construction budget of $100 million at New York Telephone Company. His responsibilities included but were not limited to engineering, construction, maintenance, assignment and customer services.

Witness Riolo's rebuttal testimony refers to BellSouth's original cost study filing. His critique begins with the Service Inquiry function.

> The CRSG, for which BST reports more than an hour of labor (61.8 minutes) "receives firm order SI from ALEC and screens documents; CRSG prepares/sends transmittals to OSPE for verification of facility availability. Upon completion of job, CRSG informs ALEC facilities are available." This effort appears to consist entirely of reviewing the ALEC request and translating it into a different format that another work group uses and, ultimately, sending notice back to the ALEC when the Service Inquiry is done. Those are functions that a mechanized OSS does automatically. There is no reason whatsoever to have a forward-looking cost analysis assume the equivalent of a room full of monks transcribing the ALEC transcripts by hand.
>
> The next step is that the LCSC "receives SI from CRSG, validates for accuracy and processes order." BST reports that this requires another 45 minutes. I have been unable to find any workpaper supplied by BST that even basically identifies specifically how the 45-minute estimate was developed. However, the last page of BST's response to Rhythms' Request for Production of Documents 3, Attachment 1, states "Manual worktimes for the LCSC . . . 1st install . . . 30(15 min to screen & 15 min to process order)." Based on that discovery, it appears that BST began by overstating its input by 50%. More importantly, this step appears to be entirely busy-work created by BST's own manual transcription of the ALEC's request. In other words, it is for a second room full of monks that do nothing but check the transcriptions of the first group - all before the request

gets to a group that is close to the actual work effort.

Fortunately, we have some additional detail regarding the two remaining work groups because the subject matter expert, Michael K. Zitzmann, who supplied the task times for the Outside Plant Engineering and "SAC" group portions of the "Service Inquiry" was deposed by parties on July 20, 2000. Mr. Zitzmann revealed that his 180 -minute estimated task time for those groups consists of 30 minutes for clerical processing and updating of BST's plant records, plus 150 minutes for a BST engineer to look up the facility records for the requested loop route. At 2.5 hours per loop, this means that Mr. Zitzmann has assumed that a BST engineer, working with plant records for a central office with which he is familiar, with full access to all of BST's mechanized plant records for that office and with the paper records for that office at hand, can trace *three loops per day*. [emphasis in original] Based on my experience, that estimate is substantially off base. Because he was not able to provide a detailed breakdown of how he arrived at his estimates, it is not possible to analyze exactly how Mr. Zitzmann went wrong. His deposition does, however, provide some clues. For example, Mr. Zitzmann is only marginally familiar with BST's mechanized plant databases such as LFACS because he acknowledges that 13 years ago ". . . when I was an engineer, LFACS was brand new." In fact, Mr. Zitzmann seems to have exaggerated the time required for even the most basic uses of mechanized systems. For example, Mr. Zitzmann first asserted that "[i]t takes longer than five minutes . . . " just to log into LFACS. He later seemed to admit that the log-in process involves only two screens and a few key strokes.

> Contrary to Mr. Zitzmann's exaggerated estimate, when BST has complete records, a qualified engineer or even an experienced clerical assistant would never need to leave his terminal to qualify loop facilities and might complete the job in the matter of a few minutes. In those cases in which the BST engineer must consult paper records, the process should still take an hour in a worst case scenario. As an overall average, I believe an efficient BST operation could look up the required information and forward it to a ALEC within 30 minutes.
>
> BST's notion that this lookup will need to be done 52% of the time is also a substantial overstatement of the likelihood that an ALEC will require BST to look up a record manually. Such an effort should only be required when mechanized qualification fails, which should be no more than 10 % of the time.

Witness Riolo then critiques BellSouth's engineering work activities:

> The second cluster of tasks in the BST analysis is for "engineering." The first engineering task is for the "CPG" work group, which "processes request; designs circuit and generates DLR & WORD document for CLEC and Field." This task appears to consist of two distinct time estimates for correcting fallout in the automated engineering process at two different points, which take 15 and 18 minutes respectively. BST assumes that each type of fallout will occur on 15% of all orders. [*See* BST's response to Rhythms' Request for Production of Documents 3, Attachment No. 2.] The limited supporting documentation provided to support the BST study inputs for this group suggests that the task times came from a time and motion study, which was not provided.

BST's workpapers provide no clue as to how the fallout percentages in its study were developed. Hence, because BST failed to provide the source documents for either portion of its cost calculation formula, no detailed analysis is possible.

In addition to the "CPG" work, but also without support, BST assumes that the "AFIG" work group will spend 8 minutes to "assign loop facilities" as needed to correct fallout in the assignment process for an additional 30% of "ADSL loops." Overall, BST is assuming that its automated processes will fail an astounding 60% of the time on a cumulative basis.

As I have shown above, this entire engineering process is unnecessary. If, however, the Commission wishes to include it, an assumed breakdown rate of 60% (in this single, minor portion of the order process) is totally out of line with any reasonable forward-looking OSS process. I recommend that the Commission should allow no more than a few percentage fallout occurrence across the entire "engineering" activity (*e.g.*, 1 percent each for the BST's three types of fallout would be conservative). (In part, I am relying on this adjustment to the occurrence factor for "engineering" tasks to compensate for any overstatement in task times, which BST failed to explain or support).

Witness Riolo turns to Connect and Test:

Under the label "Connect & Turn-up Test" in its cost study BST includes work by a number of disparate groups, each of which I will address separately below.

UNE Center Group

BST reports 85.2 minutes for work by the "UNE Center." BST describes this function as "UNEC pulls info, assigns to work forces; verifies & ensures accuracy of design; creates cut sheets to verify reuse of facilities; ensures dispatch, performs frame continuity and due date coordination and testing; performs manual order coordination (RCF, disconnect and UL [unbundled loop] order) when service is converted on existing facilities, and contacts customer and completes order." Based on the July 20, 2000 deposition of Mr. James Franklin Ennis, the BST expert who provided the UNE Center inputs, it appears that the basic role of the UNE Center is to coordinate and perform remote testing on design loops such as BST "ADSL Loop." As noted above, I do not believe that it is necessary or appropriate for an xDSL-capable loop to be designed and specially wired to allow the ILEC remote test access. (Indeed, neither GTE nor Sprint is proposing to provide such designed loops for xDSL.) Without such design steps and extra wiring, no remote testing would even be possible, and the UNE Center work would be eliminated.

. . . BST reports that the "pull info" task requires 8 minutes. This task should not require any manual time at all, as information required for work on an assigned order is typically either printed or loaded into a queue in a work terminal automatically in a mechanized OSS environment. Even if, for some odd reason, a manual lookup were required, it should not take anything near 8 minutes merely to retrieve the information needed to process an order.

Even if the Commission were improperly to adopt a designed "ADSL Loop" assumption for BST, the UNE Center cost for testing those loops would be overstated. As an example, the UNE Center time includes functions such as "ensures dispatch" meaning that a UNE Center employee literally checks to make sure that BST's automated systems did not fail to schedule the dispatch of a field technician to coordinate the testing process with the UNE Center. Such obvious redundancy should be removed from a forward-looking analysis.

A continuity test is one of the most routine, simple and rapid activities in central office operations. If required at all, it is typically done at the same time a connection is made and involves little more than clipping standard test apparatus onto the newly completed connection. This task should take substantially less than one minute and should only be done once at most. BST's reported task time is more than 54 times too high. Indeed, even the BST person responsible for the UNEC group inputs admits that the testing time should not have been duplicated in the study.

The BST reported result also includes basic errors. For example, BST appears to include the time for two distinct 27-minute remote tests. Not only is it implausible that a remote test would take 27 minutes, Mr. Ennis indicated BST's process actually performs only one test. That single error overstates BST's task times substantially. Given such loose coordination between the cost study group and the experts who supposedly validated the study inputs, there is no telling how many other such errors may have entered into BST's analysis.

The inputs that BST did accurately capture also appear to be generally overstated. For example, Mr. Ennis attempted to justify the task times that BST relied on for the "first install" of a loop by explaining that those times consider that BST may actually have to process multiple loops on the same order. Mr. Ennis seemed unaware that the BST study is not stated on a per order basis, but adds additional time and cost for any additional loops on an order. Therefore, if the initial loop time does include bundled time for multiple loops as BST's expert asserted, the BST study times are generally and significantly overstated.

Fundamentally, a far more efficient approach would be for BST to simply have the technician test the loop manually at the time it is installed. That effort would require considerably less than the 27 minutes the UNE Center allegedly requires for each individual test. Being conservative, I would therefore allocate an additional five minutes work activity for an efficient equivalent of the UNE Center testing process.

It is not surprising that BST's estimates are so far off. Although Mr. Ennis was the subject matter expert on which BST relied to support the UNE Center cost estimates, he did not actually develop those estimates. Instead, he merely agreed to accept the cost estimates provided to him by the cost group. He had no idea from where the estimates used actually came or how they were developed.

Witness Riolo then discusses BellSouth's Work Management Group, followed by the Central Office Installation and Maintenance Group:

> BST reports 15 minutes for the "WMC" group to "coordinate dispatched technicians." BST failed to provide a word of explanation regarding how this time was developed or what exactly is supposed to take place for the reported 15 minutes. [*See* BST's Response to Rhythms' Request for Production of Documents 3, Attachment 3. The supporting work papers provided therein for the "WMC" show that someone signed off on the input estimates but nothing more.] BST's alleged need for yet another layer of manual coordination is contrary to efficient engineering practices using forward-looking OSS. The Commission should not allow any recovery for this group and activity until BST provides compelling justification concerning why it is necessary.
>
> BST includes 20 minutes for 85% of loops for the CO I&M group to "wire circuit at collocation site." Based on the July 20, 2000 deposition of Mr. Daniel Eric Stinson, it appears that this is based on an assumed ten minutes to review the order and walk to the frame location, and five minutes to run each of two frame jumpers one on the main distribution frame and another to connect a BST remote test head (thereby making the loop "designed"). Other than the assumption that a second jumper is required to include a designed test point, I agree that the basic functions for this work group are required. I do not agree with the BST time estimates and present my own recommended alternative times for those functions later in this section of my testimony. If and only if the Commission approves BST's recommendation to design in a

> test point, I recommend that this task should take a total of 11 minutes.
>
> The 85% assumption appears to be based on a BST note that the study ". . . assume[s] 15% of total are carried in other transport elements." This is not explained and does not make any obvious sense. Indeed, Mr. Stinson seemed unclear as to where or how the remaining 15% of the CO I&M costs might be captured. Therefore, I recommend increasing the occurrence of this work from 85% to 100% when applying the occurrence to my more reasonable time estimates.

Witness Riolo's remaining non-proprietary discussion is on outside plant or field work activities.

> Finally, BST assumes 115.2 minutes of outside plant or field work plus 20 minutes of travel time for *every* ADSL loop order. Ms. Murray's testimony explains that this work should not be included in a forward-looking analysis of nonrecurring costs because it is already captured in the recurring cost analysis.
>
> Not only is this cost entirely double counted, BST's analysis again overstates task times. xDSL loops will not require a dispatch in 100% of cases under any reasonable set of assumptions. As a forward-looking assumption, the Commission should not assume that an xDSL loop will require a dispatch of outside plant technicians any more often than is required for a basic loop, which BST assumes will be required for only 20% of basic unbundled loops.
>
> BST also appears to have substantially inflated the times for a dispatch. To begin, BST appears to have double-counted travel time by including it both in the aggregate 115.2

> total minutes and again as a separate line item in the study. Therefore, I recommend that the Commission eliminate the additional separate time for travel.

Witness Riolo provides a chart with his recommended work times as compared to BellSouth's that "are appropriate for either a forward-looking cost study of a basic loop, including an xDSL loop, or a realistic study of a designed loop process."

Data ALECS Witness Riolo's Proposed Work Activities and Times

Group/Function	BST Reported Time	Realistic Time Assuming a Forward-Looking Process with No Design	Realistic Time Assuming BST's Engineered/ Designed Loop Process
Group I: Service Inquiry	286.8 minutes on 52% of orders	0 minutes (Should be mechanized and is part of another element.)	30 minutes on 10% of orders.
Group 2: Engineering	15 minutes on 15% of orders, 18 minutes on 15% of orders, 8 minutes on 30% of orders	0 minutes (ADSL loops should not be designed)	15 minutes on 1% of orders, 18 minutes on 1% of orders, 8 minutes on 1% of orders
Group 3: UNEC	85.2 minutes for multiple tasks at various occurrences	0 minutes (remote testing is not required or possible on a non designed loop)	5 minutes additional time for a test at the frame in central office at installation
Group 3: WMC	15 minutes per loop	0 minutes (not required for a basic loop)	0 minutes (BST has not provide[d] even a basic explanation of what this element is for)
Group 3: CO I&M	20 minutes on 85% of loops	8 minutes on 100% of loops	11 minutes for 100% of loops

Group/Function	BST Reported Time	Realistic Time Assuming a Forward-Looking Process with No Design	Realistic Time Assuming BST's Engineered/ Designed Loop Process
Group 3: SSI&M (Outside plant)	90 minutes for multiple tasks at various occurrences	0 minutes (this activities is a recurring cost in a forward-looking analysis)	50 minutes total time for 20% of loops (including 5% additional error correction time)
Total Cost	$281.61	$5.33	$20.52

(Source: Witness Riolo's testimony)

Witness Riolo's total cost is based on an estimated labor rate of $40.00 per hour.

BellSouth witness Greer responded to witness Riolo's rebuttal, disagreeing with what he believes to be witness Riolo's suggestion that the CRSG and LCSC times be eliminated or reduced.

> First, the work activities that are at issue here occur only when BellSouth performs the Service Inquiry function. In other words, when an ALEC performs Loop Makeup for itself, neither the CRSG nor the LCSC perform service inquiry functions with respect to the loop. Second, in advocating that Service Inquiry should take only 30 minutes, Mr. Riolo's testimony only describes some of the work functions performed by the CRSG and the LCSC. The CRSG is an extension of the Account Team and is the customer advocate within BellSouth. Some of the additional functions that were not detailed in Mr. Riolo's testimony include: (1) serving as the first point of contact for ALECS ordering certain UNE types; (2) providing information on service availability; (3) researching ALEC agreements to ensure that the services the ALEC orders are included in the agreement and advising the ALEC of any needed amendments to provide those desired services; and (4) providing guidance to the

> ALEC on completing the required documentation for desired UNEs (SIs and LSR, End User form, Loop Service form).
>
> The service representatives in the LCSC review the SI and the LSR from the CRSG/Account Team and then validate the information contained on these forms. This involves a time consuming process of accessing numerous databases and checking various input fields. Additionally, if the SI or the LSR contains an error, the service representative must clarify the problem and work with the ALEC to resolve it.
>
> In short, the work activities of the CRSG and the LCSC are not nearly as limited as Mr. Riolo suggests. Thus, Mr. Riolo's proposed Service Inquiry time of 30 minutes is without merit. Equally without merit is Mr. Riolo's proposal that Service Inquiry will take place on only 10% of orders. I can find nothing in Mr. Riolo's testimony to support this assumption, which is also inconsistent with the notion that these activities are performed 100% of the time when BellSouth must perform the Service Inquiry function.

BellSouth witness Caldwell provides additional rebuttal:

> On page 19, Mr. Riolo states that BellSouth "erroneously" used 61.8 minutes instead of 45 minutes for Complex Resale Support Group ("CRSG") time. Mr. Riolo apparently disregarded the second page of the CRSG document upon which Mr. Riolo relies. This document clearly states that the 45 minutes "Assumes perfect flow." Of course, "perfect flow" is rarely achieved. Thus, the additional 16.8 minutes is appropriately considered for resolving order complications. Mr. Riolo also implies that BellSouth did not consider the fact that multiple loops may be

> ordered at the same time when calculating CRSG work times. (Page 25) This is not true. BellSouth's cost study reflects a "First and Additional" rate structure, designed to recognize just such cost savings. Further, if one were to review the input file, it is clear the work times for the CRSG differ between First and Additional.
>
> Also . . . Mr. Riolo claims that BellSouth has overstated the Local Carrier Service Center ("LCSC") work time for service inquiry by 15 minutes. The document upon which Mr. Riolo relied is outdated and was not used by the cost organization in developing the time for LCSC functions. The 45 minute assumption was provided by the LCSC subject matter expert based on more current information.

BellSouth witness Greer provides rebuttal of Data ALECs witness Riolo's testimony on engineering groups, Service Advocacy Center (SAC), Address and Facility Inventory Group (AFIG), and the Circuit Provisioning Group (CPG).

> The SAC is involved with outside plant engineering investigation of the loop makeup and availability. The activities performed by the SAC include obtaining LMU [loop makeup] from the engineer; inputting LMU into LFACs, and reserving the facility. Because the work functions performed by SAC are highly mechanized for the most part, it is assumed that the manual efforts by the SAC will occur only 10% of the time.
>
> The AFIG performs the following work activities: (a) investigates for errors; (b) contacts the appropriate organization, such as the LCSC, to correct any errors (which generally involves incorrect collocation information provided by the ALEC): and (c) ensures that the collocation information

> returned on the order has been built into BellSouth's systems. BellSouth assumes that the AFIG will be involved only 30% of the time.
>
> Finally, the CPG is involved when the ALEC's order falls out for manual handling (which is assumed to be only 15% of the time). The CPG is responsible for designing a circuit and generating the necessary documentation in TIRKS [although undefined, we believe it stands for Trunk Information Record Keeping System].
>
> Mr. Riolo does not question the work times assumed by BellSouth for engineering work in the SAC, the AFIG, and the CPG ([sic] other than with respect to his issue about nondesigned versus designed circuits, which is discussed below. However, Mr. Riolo proposes arbitrary adjustments to the frequency when these work groups are involved, proposing that their involvement be limited to 1% of orders. Nothing in Mr. Riolo's testimony, nor in BellSouth's experience, supports such limited involvement. Because of the complexity of designed circuits, the SAC, the AFIG, and the CPG are involved in significantly more than 1% of orders, and, based on BellSouth's experience, BellSouth's assumptions on their involvement are, at the very least, conservative.

Witness Greer next turns to the Connect and Test activities.

> The work activities associated with actually putting the facility to work (i.e., the Connect and Test function) are performed by the following work groups or centers at BellSouth: Unbundled Network Element Center ("UNEC"); Special Services Installation and Maintenance ("SSI&M"); the Work Management

Center ("WMC"); and Central Office Installation and Maintenance ("CO I&M").

Several witnesses, including Mr. Riolo, question the need for the involvement of the UNEC and the WMC. Both of these centers perform functions critical to provisioning xDSL loops. The UNEC performs functions similar to those that the Access Carrier Advocacy Center ("ACAC") performs for access carriers. These include coordination activities, such as tracking the status of orders and escalating and handling orders in jeopardy. The major function of the UNEC is to perform frame continuity and due date coordination and testing.

The WMC determines the "dispatchability" of orders to outside field forces. In particular, the WMC personnel: (a) pull a list of all unbundled orders due for that specific day; (b) scan each individual order for facilities and related orders and for facilities that may be reused (which requires not only the verification of facility availability, but also a check to see if the facility is compatible with the service requested); (c) screen orders for the Network Channel type for verification to ensure that the appropriate technician will be assigned to the facility; (d) handle any exceptions (i.e., whether to re-use facility) when appropriate; and (e) assign the proper technician to the order.

Both the UNEC and the WMC are involved 100% of the time (although not every function performed by these centers occurs each and every time). The work activities by the UNEC and WMC are critical to the Connect and Test of xDSL loops and cannot be disregarded, as Mr. Riolo and others attempt to do.

BellSouth witness Milner also addresses the WMC and UNEC. He states that the WMC:

> . . . pre-assigns work to a technician in order to ensure that the technician is at the conversion site at a time that ensures the conversion will be completed as ordered. On the cutover date, the WMC monitors the progress of the technician to ensure that the technician arrives at the designated time.

Witness Milner states that the UNEC "is the center responsible for coordinating the conversion of an end user's service from BellSouth to an ALEC." Coordination includes:

- Ensuring that the service as ordered by the ALEC is correct.
- Verifying the conversion time with the ALEC.
- Ensuring that BellSouth's central office and field forces are able to perform the conversion at the time ordered by the ALEC.
- Performing pre-service testing to ensure that dialtone is received from the ALEC.
- Ensuring that wiring is completed by BellSouth's central office personnel.
- Coordinating the start of the conversion with the central office and field personnel.
- Testing with central office or field personnel to ensure that the conversion is complete.
- Performing any cooperative acceptance testing with the ALEC.
- Providing the completion notification to the ALEC that the conversion is complete for any number

> porting activities, which are required of the ALEC.

BellSouth witness Caldwell also responded to witness Riolo's testimony regarding the two 27 minute tests.

> . . . Mr. Riolo claims that BellSouth's cost study inappropriately includes two test procedures and thus, overstated the costs. The real problem is one of terminology and perspective. From the viewpoint of the UNE Center ("UNEC"), it is coordinating one test, but for two locations, one inside the central office and one in the field. Thus, in actuality there is one test that takes 54 minutes (2X27).

In his deposition BellSouth SME Ennis was asked why the test takes "that long?" He responded:

> It's 16.8 minutes to test a circuit. The reason it takes that long is because the technician has to pull up documentation that tells him the information that he needs in order to remotely access the test point. Once he has the information, he has to get into the test point, which is a process that takes so long. . . . You have to understand that any given circuit could possibly be tested more quickly or it could take quite a bit longer, so 16 minutes is a good average.

SME Ennis did not think that "two minutes [for the test] would be accurate, because it takes longer than that just to find the information for the test point to actually get into the SARC [corrected by the witness to "SARTS," but undefined in the transcript] system and access the test point." When asked about the remaining ten minutes, he replied:

> That's for the coordination. The UNE Center is responsible for ensuring that the wiring in the Central Office is complete and, of course, there's time there for -- there is other time

> there for ensuring the dispatch. But this particular coordination is for the Central Office. If there is any -- the UNE Center will, when they do their test, they will ensure that the wiring has been completed, do all the escalations that they have to, and they will ensure that a technician is available for them in case they need to do any testing with the Central Office. So it is coordination of people in the places that they need them.

Witness Greer addresses the SSI&M and CO I&M work groups in his rebuttal testimony:

> In addition to the UNEC and the WMC, both the SSI&M and CO I&M groups perform Connect and Test activities in installing xDSL loops. SSI&M personnel perform cross-connection at the cross-box, check continuity on a cross-box, trouble resolution at the cross box (30% of the time), perform testing from the Network Interface Device ("NID"), tag the loop, perform trouble resolution at the premises (21% of the time) and complete the order. CO I&M personnel wire the circuit at the collocation site. Although this activity by CO I&M personnel occurs 100% of the time on xDSL loops, the costs are discounted 15% to reflect costs recovered in related elements purchased by the ALEC (i.e., the cross connect).
>
> Mr. Riolo proposes that the time that it takes for SSI&M and CO I&M personnel to perform these various work functions be adjusted downward and that the involvement of the SSI&M be assumed on only 20% of xDSL orders. Neither of these proposals is reasonable. In particular, the notion that only 20% of xDSL loop orders require a dispatch is unrealistic. As I explain below, a dispatch is required on

> every xDSL loop order, which means that SSI&M personnel are involved 100% of the time.
>
> Whether or not the same loop that is providing voice service can be reused to provide xDSL service, a dispatch is required in order to ensure that certain parameters are met so that the loop will be suitable for the intended xDSL service. These parameters, as stated in BellSouth's TR 73600, include loading, foreign voltage, capacitance, resistance, and actual measured loss. If these parameters are met, the field technician will then attempt to test cooperatively with the ALEC. These parameters cannot be accurately tested without a technician in the field to send/receive the appropriate tones and/or read the measurements, which necessitates a dispatch 100% of the time.

BellSouth witness Caldwell provides rebuttal on travel time:

> . . . Mr. Riolo asserts that BellSouth has double counted travel time. If one were to review the explanation of the activities that comprise his 115.2 minutes, however, it is evident that these minutes relate to activities that take place only after the technician is at the work site. Because the technician is not magically transported to the work location, travel time must be included! Travel time is not reflected in the 115.2 minutes, notwithstanding, Mr. Riolo's claim to the contrary. The 20 minutes contained in the equation in the input file reflects the time required for the technician to receive and analyze the service request, not for travel. This information is also contained in the document that generated the chart Mr. Riolo presented as part of his testimony.

AT&T/WorldCom witness King describes the "[U]nderlying themes" of his exhibits, including JAK-1, which "contains the total results of the proposed modifications."

> Least-cost engineering design, including investment choices;
>
> Forward-looking, yet currently available and deployed, technology; and
>
> Non-discriminatory, including competitive efficiencies such as direct access to OSS and removal of workgroups and activities that the ILECs' own retail operations do not experience. In other words, ALECs must only incur costs which the ILEC would incur using a forward looking network architecture and efficient OSS or else the ALEC is burdened with an excessive barrier to entry and the ILEC has no incentive to become efficient.

Witness King's exhibit JAK-3 contains modified versions of BellSouth's nonrecurring cost study. Describing his changes, witness King states:

> I have eliminated costs that have no justification in a forward-looking network architecture and efficient provisioning process. For example, BellSouth introduces unnecessary workgroups and costs in the ALEC provisioning process, which BellSouth's own retail operations do not incur. Such workgroups as the Local Customer Service Center (LCSC) and the UNE Center (UNEC)/Access Customer Advocate Center (ACAC) are intermediary work groups not intended for efficient operations. In other words, these workgroups are the middlemen.
>
> I adjusted work times for certain work group activities. Most of these changes entail consistent application of work times between individual UNE studies covering similar work routines.

> Fiber technology and the intelligent digital and optical support equipment also provide for remote electronic access and mechanized efficiencies for installing, disconnecting and rearranging UNE and UNE combinations. BellSouth has assumed 100% manual work by a host of work centers. For those work groups that should be involved if an electronic mechanized order were to "fall-out" of the provisioning process, I have assumed BellSouth's affected work centers will be manually involved 10% of the time.
>
> Activities associated with manual assistance due to errors in the network management systems and databases (Operational Support Systems) are examples of activities that do not benefit the customer. This is because efficiently managed systems do not experience these errors. Most, if not all fallout from the OSS is a result of mismatching data from one system to the other. Maintaining the accuracy of these databases is a function of normal day to day maintenance and is recovered through recurring costs. Poorly maintained systems results in high recurring costs. Such manual activities are a function of embedded inefficiencies, and result in costs for which ALECs should not compensate an ILEC. Viewed another way, the customer (ALEC) did not cause the error, they caused the ILEC to discover the error and, therefore, should not be penalized through additional charges.

Witness King proposes work activities and times for the ADSL loop:

a. Service Inquiry

Witness King eliminates both groups in BellSouth's Service Inquiry category, the CRSG and the LCSC, because they are "intermediary workgroup[s] not in BST's own process and [each] creates [an] excessive barrier to entry."

b. Engineering - SAC

Witness King eliminates SAC because:

> Loop Make-Up is engineering data to determine technical specifications of a particular loop.
>
> Confusion: BST is applying this work when ordering UNE 'without LMU', yet work is activity to load LMU into LFACS (Loop Facility Assignment and Control System) OSS. This suggests that BST wants all records properly inventoried and is charging the CLEC when a [sic] LFACS record is not present for a particular loop.

c. Engineering - AFIG

Witness King changes the worktimes and probabilities. BellSouth's work times for first and additional installation is eight minutes, while first and additional disconnect is seven minutes. Witness King's proposed times for all installation and disconnect activities are seven minutes. BellSouth's probabilities are 30 percent each for first and additional installation and five percent each for first and additional disconnect. Witness King reduces the installation probability to five percent and the disconnect probability to zero percent.

> 7 minutes to manually update inventory. 5% install fallout consistent with previous study. No activity required for disconnects since managed by OSS.

d. Engineering - CPG

BellSouth has two actions in CPG: first, process request (15 minutes), and second, design circuit and generate DLR and WORD document for CLEC and Field (18 minutes). For the first action, witness King does not change the work times, but he eliminates the probability for the first disconnect and reduces the probability for the first install from 15 percent to 10 percent. For the second action, witness King does not change the work times, but he eliminates the probability for the disconnect activities and reduces the installation probabilities from 15 percent to 10 percent. His explanation is:

> Actions to design a circuit (i.e., build to existing demand) are loaded into recurring recovery. Provided, however, a conservative 10% fallout allowance for new installs only.

e. Connect & Test - UNEC

Witness King eliminates all UNEC activity because "UNE Center is intermediary workgroup not in BellSouth's own process and creates excessive barrier to entry."

f. Connect & Test - SSI&M

Witness King eliminates all SSI&M work activity because "SSI&M work activity at crossbox/remote is recovered in recurring rates and captured through in-plant loading factors applied to recurring rates."

g. Connect & Test - WMC

Witness King eliminates the WMC activity because "[T]echnician dispatch handled by WFA [although not defined by witness King, we believe this means Work Force Administration] OSS."

h. Connect & Test - Central Office Forces

Witness King reduces the work activity times and changes the probabilities, although he does not provide an explanation on his spreadsheet. BellSouth's first and additional installation times are 20 and 10 minutes, respectively. Witness King reduces them to 11.31 and 8.33, respectively. BellSouth's first and additional disconnect times are 15 and 7 minutes, respectively. Witness King reduces them to 6.55 and 3.57 minutes, respectively. BellSouth has a reuse probability of 85 percent; however, witness King proposes

BellSouth's "15 percent carried in other transport elements" at 100 percent instead of BellSouth's 85 percent.

i. Connect & Test - Travel

BellSouth's travel times for its SSI&M forces is 20 minutes for the first installation and first disconnect. Witness King eliminates this time because "[T]ravel to Crossbox recovered in recurring rate."

BellSouth witness Caldwell responds to witness King.

> . . . Mr. King's elimination of the LCSC and UNEC/Access Customer Advocate Center ("ACAC") work centers is based upon an incorrect premise. His reasoning that "BellSouth's own retail operation do not incur" costs associated with these work centers misses the point. In the retail environment, BellSouth has a business office that corresponds to the LCSC and an ACAC for Access customers. The LCSC and the ACAC are integral centers involved in the provisioning of UNEs and UNE combinations and the cost of operating these centers must be reflected in developing forward-looking costs.

Data ALECs witness Murray discusses what constitutes a forward-looking nonrecurring network.

> At an overall level, the BST and GTE nonrecurring cost studies rely on data pertaining to their existing, embedded processes and their existing, embedded network architectures. BST and GTE consider minor modifications to their embedded or "current state" by considering process modifications that are planned in the immediate future. . . . BST merely agrees that its nonrecurring cost analysis "should consider potential process improvements" [BST, Caldwell Direct, at 51],

> but fails to define that requirement. Moreover, although Ms. Caldwell admits that "the same network design assumptions that provide the foundation for recurring costs should be utilized when developing nonrecurring costs [*id.*], BST's actual nonrecurring cost analysis *entirely ignores* [emphasis in original] that forward-looking requirement.
>
> This approach - considering planned changes over a horizon of a few years at most, . . . *is typical of a short-run analysis* [emphasis in original]. In contrast, a long-run cost methodology considers all costs as variable and potentially avoidable.
>
> The BST and GTE nonrecurring cost studies do not comply with this foundational requirement of a forward-looking cost analysis because neither company developed work flows, task times or probability factors considering a forward-looking network design. Indeed, both BST and GTE (and Sprint relative to DSL-capable loops) selected their nonrecurring cost study inputs based on their existing network architectures, wholly different network designs from those on which the incumbents based their filed recurring cost analysis.
>
> By basing their recurring and nonrecurring costs on inconsistent network designs, BST and GTE maximize (by greatly overstating) costs.

In his revised rebuttal testimony, Sprint witness McMahon addresses BellSouth's proposed installation charges for 2-wire xDSL loops (including ADSL and HDSL), asserting that BellSouth's proposed charges are not "based upon efficient methods and procedures and reasonable work time estimates."

The non-recurring charges proposed by BST assume manual processes and unreasonable work times. BST claims it takes about 7 total labor hours to install a standard 2-wire xDSL-capable loop. The only BST work time component that appears reasonable is technician travel for which BST allocates 20 minutes. The remaining 6 ½ hours of labor is due to BST's assumption of manual work activities and inflated work times.

For instance, BST's costs include 2.5 hours for "Service Inquiry" work functions. The descriptions provided include various work group activities such as "screens documents" and "reviews request" and "processes order". [sic] These do not reflect the operations of an efficient service provider.

BST's costs also include 3.8755 hours for the actual installation of an xDSL-capable loop. Sprint's position is that such loops do not need to be "designed" circuits as claimed by BST. BST relies on this unfounded categorization in an attempt to justify the excessive labor times associated with manual order coordination and dispatching of technicians.

Other work activities comprising BST's 3.8755 hours for "Connect & Turn-up Testing" include the following: "assigns workforces; ensures dispatch; performs manual order coordination; resolves trouble". [sic] Time spent on trouble resolution activities should not be included. These maintenance costs are captured in the annual charge factors and are reflected in the monthly loop rates.

The remaining reasons are due to questionable work times allocated by BST for certain other work functions. For instance, BST allocates

> 0.2833 hours (17 minutes) to "wire circuit at collocation site". [sic] Sprint allocates a more reasonable 9 minutes to place and test this jumper on the MDF [main distribution frame]. All this involves is a technician running a jumper wire from the OSP cable pair terminal block to the collocator's terminal block on the MDF. The costs associated with additional engineering and jumpers for "test point access" are unnecessary.
>
> Additionally, the BST cost model allocates a total of 1.921 hours for an I&M field technician to hook-up a single 2-wire xDSL-capable loop. This is about double the time that it takes in reality.

In discovery responses, witness McMahon expanded upon some of his testimony:

> The maintenance cost that Mr. McMahon was referring to was "resolves trouble". The other work activities such as "assigns workforce", "ensures dispatch", "performs manual order coordination" are examples of inefficient manual processes with inflated work times whereas an efficient provider would utilize automated processes for such activities.
>
> Sprint subject matter experts provided the work times used in Sprint's analysis for both the central office activity (jumper work) and field technician activities. The BellSouth jumper activity work times would be acceptable if the time to wire to a test point was backed-out of the BellSouth study.
>
> However, Sprint can not reconcile the difference with BellSouth's allegation that it takes them almost 2 hours for a field technician to hook-up a 2-wire xDSL-capable

> loop. Sprint's work times for these field work activities (72 minutes) are based upon the experience of Sprint's SMEs and represent the operations of an efficient service provider.

Sprint witness McMahon also addresses BellSouth's proposed disconnect charges for xDSL loops, asserting that they are not reasonable.

> In reality, ILECs leave such loops in place as "cut-throughs" and/or "DCOPs" (Dedicated Central Office Plant) in order to avoid the unnecessary costs associated with dispatching a technician to disconnect and reconnect when a new customer orders service for the same location. For most services, including POTs [plain old telephone service] and xDSL-capable loops, the same cable pair(s) can be reused. BST should not be allowed to charge for disconnects, as such, for copper pair-based xDSL services.
>
> For xDSL-capable loops, which Sprint considers to be any standard voice-grade all-copper loop (less than 18,000 feet in length and free of inhibitors), the only costs involved with disconnecting service would be a few minutes for a technician to remove the MDF jumper wires. Sprint does not believe that BellSouth needs to or should send technicians to the cross connect boxes (SAI's) [Serving Area Interfaces] or serving terminals to perform any activities due to the industry-wide "cut-through" practice mentioned in the subject testimony.
>
> The removal of jumpers in the central office is normally accounted for as a rearrangement and change maintenance expense. Generally, maintenance costs as such are recovered through the monthly recurring rates, unless

> adjustments are made in the Annual Charge Factor to offset these projected NRCs.

Summarizing briefly our analysis so far, we are persuaded by BellSouth witnesses Caldwell and Varner that when an ALEC requests service, there are specific activities that occur that may not occur otherwise and that these activities should be costed and priced separately from recurring costs and prices. We agree with AT&T/WorldCom witness King that non-recurring activities are those that benefit only the specific ALEC.

We note that the ALEC witnesses, for the most part, recommend very different work times from BellSouth, including the elimination of certain BellSouth work groups. In our evaluation of the record evidence and our findings, we must also balance what appear to be widely divergent views.

BellSouth's cost studies include work activities and work times for the first installation, and each additional installation, as well as for the first disconnect and each additional disconnect. When the Commission and the parties refer to work activities and times, unless otherwise noted, the reference is to the first installation. Some of the same work categories may not be included in the additional installation or the first and additional disconnect, and the work times may differ.

We believe that determining the work activities, work times and probabilities that the work will occur is an appropriate way to determine nonrecurring costs; however, we note that, according to the FCC, these studies must be considered forward-looking. BellSouth witness Caldwell agrees:

> The same network design assumptions that provide the foundation for recurring costs should be utilized when developing nonrecurring costs. Thus, the network should be forward-looking, reflect BellSouth's guidelines and practices, should consider potential process improvements, and should be attainable.

Although we do not completely agree with witness Murray that BellSouth's nonrecurring cost studies are "typical of a short run analysis," we do believe that the record, including the depositions of BellSouth's SMEs, raises considerable doubt as to whether BellSouth's nonrecurring cost studies are truly forward-looking. We are most troubled by BellSouth's apparent use of only current practices in its nonrecurring cost study design, without any specific mention of potential process improvements. We also note that the apparent precision of BellSouth's numbers in its cost study presentations gives a false sense of security because it implies that BellSouth's cost study methodology is more rigorous than it appears to be. In this context, we will begin our analysis of BellSouth's nonrecurring work activities and work times with how BellSouth determined its nonrecurring activities.

According to BellSouth witness Caldwell, BellSouth used personnel familiar with the provisioning process or subject matter experts (SMEs) to "provide the process flow, the work centers involved, any probabilities that may be required, and the time required by work center." BellSouth's SMEs for the LCSC, UNEC, SSI&M, CO I&M, and Outside Plant Engineering work groups were deposed for this proceeding and provided information on how the work activities and times were developed.

In only one of these areas was a time and motion study apparently used, and that was a study from 1993. We note that local competition was signed into law in 1995 in Florida and in 1996 on a federal basis, so this study was not performed for the provision of unbundled network elements.

As described previously, in some instances the SMEs had actually performed the work themselves, in others the SMEs had not. Time estimates were typically provided by the SMEs to the cost group verbally but sometimes were provided via e-mail. Apparently SMEs had the option of reviewing their inputs after the inputs had been placed into the cost study. We are troubled by the lack of a paper trail with regards to SME inputs. It makes it extremely difficult for us and the ALECs to analyze BellSouth's cost studies.

Were the SMEs given instruction on how to proceed? It is difficult to tell, because different SMEs reported different approaches in determining the work activities and work times. In the LCSC the time reported is an average, but in the other areas, the time is simply reported.

Based on the depositions, we believe that BellSouth's SMEs did what they were told to do; that is, they developed or reviewed work activities and times based on their knowledge, experience, and observations. However, we believe that there is a higher standard that these cost studies must presumably meet. According to her testimony, BellSouth witness Caldwell apparently agrees, because she asserts that the same network designed for recurring costs should also be used for nonrecurring costs: "forward-looking, reflect BellSouth's guidelines and practices, should consider potential process improvements, and should be attainable."

Were the SMEs told that this was to be a forward-looking cost study? If they were, it is not readily apparent from the depositions; the SMEs typically referred to the work as it is done today. We acknowledge that the definition of "forward-looking" is not easily discernable. Is manual work required? Why? How much? Under what circumstances? Will some type of manual work always be necessary? Are certain activities always required and will they always be required? Admittedly, there are no simple answers to these questions, and we believe that any answers that currently exist may well change in the future.

Should BellSouth have performed time and motion studies for nonrecurring activities? We believe the answer is "perhaps," because time and motion studies imply that the activities to be studied are already known and agreed upon and that the parties are comfortable with BellSouth performing the time and motion studies.

Was BellSouth's methodology for determining required work activities and times forward-looking? BellSouth apparently used the work activities and times currently in place based on the information available to the current SME. Neither BellSouth witnesses nor BellSouth SMEs testified to any directive given to the SMEs of how a forward-looking study should be done.

An example of problems in BellSouth's nonrecurring cost study methodology is how a change in SME can alter a cost study. On August 16, 2000, approximately one month prior to the September 19, 2000 hearing, BellSouth filed its revised cost study. One of the changes to the SL1 loop nonrecurring cost study was an increase in the field dispatch rate from 20 percent to 38 percent - an almost 100 percent increase. BellSouth did not file any supporting documentation for this increase; however, BellSouth did provide documentation as a late-filed deposition exhibit just prior to the hearing. The 20 percent rate was asserted to have been an estimate, but the 38 percent dispatch rate was based on a regional BellSouth report on service orders and dispatches. The reason this report came to light was that a new SME knew of the report and used it. Leaving aside whether the report is sufficient documentation for the dispatch rate, we are concerned about the adequacy of other work activities, times, and probabilities. If a simple change in SME can produce such a dramatic change, then additional questions arise as to the overall validity of the study.

These difficulties in determining the appropriate way to decide nonrecurring activities and times are not confined to Florida alone. In considering nonrecurring studies and ILEC employee estimates of times involved, the Massachusetts Department of Telecommunications and Energy (MDTE) stated its concerns about how Bell Atlantic (n/k/a Verizon) had determined nonrecurring charges in an arbitration with AT&T, WorldCom, Sprint, and other ALECs, citing as a "flaw" the fact that:

> . . . employees were not always informed of and instructed to assume forward-looking technologies in making their assessments. These flaws introduce an element of bias into the estimation process and impair its reliability. . . . There is also a strong likelihood of bias when employees are instructed to provide estimates that they are told will be used to derive charges for their employer's competitors.

In this particular case the MDTE was unhappy with both Bell Atlantic's and the competitors' nonrecurring cost models. However, Bell Atlantic provided "minimum," "maximum," and "most likely" time frames. The MDTE concluded:

> We could choose to send Bell Atlantic back to the drawing board to conduct new studies, but

> we are reluctant to do so because we are not convinced that such studies would be a productive use of company time or the regulatory process or that they could be completed in a period frame appropriate for these proceedings. Accordingly, we are left with no choice but to modify the numbers presented by Bell Atlantic to offset, to the extent possible, the biases in its approach. We choose to do so by adopting a set of numbers produced by Bell Atlantic that is least likely to be biased, the 'minimum' figures produced by its employees.

We share the MDTE's concerns that the reliability of cost studies can be impaired if employees are not instructed to assume a forward-looking perspective. We also believe that it is completely natural for some bias to be introduced into a study where employees provide work times for activities that they know will be performed for a competitor. Similarly, we believe that BellSouth's nonrecurring cost study methodology may have flaws, and that any such flaws are likely to create an upward bias in an resulting numbers.

Summarizing the above analysis, we believe that BellSouth's nonrecurring cost studies have not provided complete documentation that permits this Commission and the ALECs to perform an exhaustive analysis. We also believe that BellSouth's nonrecurring cost study methodology may have flaws, and that any such flaws are likely to create an upward bias in an resulting numbers. Additionally, the ALEC parties dispute which activities are even required.

In the next several sections, we examine its analysis of work times and probabilities for the ADSL loop.

10. Analysis of ADSL Loop Service Inquiry Work Times

In the space of 45 minutes, the CRSG receives the firm order SI from the ALEC, screens the document (15 minutes), prepares/sends transmittals to OSPE for site set-up (or to I&M for site visit)(10 minutes), and upon completion of its job, CRSG informs the CLEC that the site is ready for provisioning (20 minutes). Assuming no complications, the LCSC then receives the SI from CRSG and it "validates for accuracy and sends Firm Order Commitment (FOC) to CLEC." The LCSC activity takes an additional 45 minutes for a total of 1.5 hours.

Sprint witness McMahon criticizes BellSouth's original Service Inquiry times because they "do not reflect the operations of an efficient provider." Witness McMahon asserts that BellSouth's proposed nonrecurring charges "assume manual processes and unreasonable work times," with the only "reasonable" work time to be the travel time (considered below).

As part of his critique Data ALECs witness Riolo asserts that the LCSC time of 45 minutes in the cost study is 50 percent higher than the time indicated in BellSouth's response to Rhythms' Request for Production of Documents No.3. BellSouth witness Caldwell responds to this criticism by stating

> The document upon which Mr. Riolo relied is outdated and was not used by the cost organization in developing the time for LCSC functions. The 45 minute assumption was provided by the LCSC subject matter expert based on more current information.

The assumed LCSC time is 45 minutes in both the original and revised cost studies. Witness Riolo relied upon a document provided by BellSouth in discovery. If the document used by witness Riolo is "outdated," why did BellSouth provide it in a discovery response? Witness Riolo reasonably relied on what BellSouth provided in discovery. BellSouth witness Caldwell now asserts that the document is outdated and that 45 minutes, 50 percent higher than the time in the document, is correct "based on more current information." At the hearing, when questioned about this, witness Caldwell stated that BellSouth "did not have a written document that had an updated number, that we obtained that number verbally from the subject matter expert to change it." If it was verbally changed for the original study, we wonder why BellSouth provided outdated documentation in a discovery response.

BellSouth also allows for "Incremental Work for Service Inquiry Complications." These functions include, for example, "CRSG - not processed within commitment; followup required." We believe that an ALEC should not be charged for the types of "complications" enumerated in this category, since they seem to be caused by problems within BellSouth and its network. We agree with AT&T/WorldCom witness King when he asserts that, "the customer (ALEC) did not cause the error, they caused the ILEC to discover the error and, therefore, should not be penalized through additional charges." Therefore, based on the evidence, we find that the costs of the activities in the Incremental Work for Service Inquiry Complications category should be excluded from the cost study.

BellSouth witness Greer defends BellSouth's time estimates for the CRSG and LCSC in the Service Inquiry category by providing additional information on the activities or responsibilities of each group. This additional information was not contained in the original cost study, nor was it provided with the revised cost study. The additional information witness Greer provides is helpful; however, the activities he describes are very general in nature. Witness Greer describes the CRSG as an "extension of the Account Team," explaining that it serves as the first point of contact for ALECs ordering "certain" UNEs, and helping ALECs with completing the documentation for UNEs.

Witness Greer explains that in the LCSC, a service representative reviews and validates the service inquiry and the LSR, which is a "time consuming process of accessing numerous databases and checking various input fields." However, according to the actual cost study, the CRSG does not just receive the service inquiry from the ALEC; it also "screens documents," and then the CRSG "prepares/sends transmittal to OSPE for site set-up." It is not clear to us why the LCSC must "validate" the service inquiry if the CRSG has already screened the documents and sent them to OSPE. According to BellSouth, this happens with 100 percent of the orders. This seems to be duplicative effort, manual checking and re-checking.

Although BellSouth witness Greer explained some of the other duties of the CRSG and LCSC in his rebuttal to witness Riolo, on balance we find Data ALECs witness Riolo to be more persuasive on this aspect. While witness Riolo has not worked for BellSouth, we believe his experience lends considerable authority to his criticisms. On the other hand, we feel that there probably is some amount of time that should be allowed for Service Inquiry; however, it is not clear to us what that should be, based on the record evidence. Witness Riolo's proposal, "[R]ealistic Time Assuming BellSouth's Engineered/Designed Loop Process," is 30 minutes on 10 percent of the orders or 3 minutes.

AT&T/WorldCom witness King eliminates this category entirely because he contends they are "intermediary workgroup[s] not in BellSouth's own process and [each] creates [an] excessive barrier to entry." We do not agree with witness King's reasoning. Simply because a group does not appear in BellSouth's retail operations does not mean that it is not necessary for an ALEC.

BellSouth's total time in Service Inquiry for the first installation is 106.8 minutes (1 hour 46.8 minutes) for 100 percent of the orders. We believe that BellSouth's Incremental Time for Service Inquiry Complications, 16.8 minutes, as described above should be eliminated because based on BellSouth's description, that is time to resolve problems within BellSouth. This leaves a balance of 90 minutes. Data ALECs witness Riolo proposes 30 minutes on 10 percent of the orders (3 minutes) while AT&T/WorldCom witness King proposes a probability of 0 percent, resulting in 0 minutes.

We believe that the work times for each function are overstated. As an example, we feel that the CRSG's 20 minutes for first installation and 18 minutes for each additional installation seem high for its stated function in an age of voicemail, email, and fax machines: once a job is complete, the CRSG informs the ALEC that the site is ready to be provisioned. We also find Data ALECs witness Riolo's assertion of duplicative work effort between the CRSG and the LCSC persuasive. In addition, we are troubled by BellSouth's lack of documentation for an increase in LCSC time from 30 to 45 minutes particularly when its discovery response provides documentation of 30 minutes. Data ALECs witness Riolo allows 30 minutes at a probability of 10 percent while AT&T/WorldCom witness King reduces the probability to 0 percent for the total Service Inquiry function. We believe that these proposals appear to be too low.

Decision

Upon consideration, it appears to us that CRSG time is overstated, and based on the description of the activity, a more reasonable time is approximately 20 minutes, or 44.4 percent of BellSouth's proposed total time, conservatively rounded up to 45 percent of the total time. This is higher than witness Riolo's recommended time of 30 minutes (10 percent of the time) and witness King's recommended 0 percent probability for all of Service Inquiry. Therefore, we find that the time in each CRSG function shall be reduced by 55 percent, resulting in a total CRSG time of 20.25 minutes for an ADSL loop.

We find that LCSC time is more seriously overstated than CRSG time, because it appears that work functions between the CRSG and LCSC are duplicative. We also do not believe that the record evidence supports BellSouth's increase of its documented time of 30 minutes to an undocumented time of 45 minutes. Taking these factors into account, we believe that a reasonable amount of time for the LCSC function, based on the description of the activity, is approximately 10 minutes, or 22.2 percent of BellSouth's total time, conservatively rounded up to 25 percent of the total time. This is higher than witness Riolo's recommended time of 30 minutes (10 percent of the time) and witness King's recommended 0 percent probability for all of Service Inquiry. Therefore, we find that the time for the LCSC function shall be reduced by 75 percent, resulting in an LCSC time of 11.25 minutes for an ADSL loop.

BellSouth's probability for these functions is 100 percent, compared to witness Riolo's 10 percent and witness King's 0 percent. We believe that it is reasonable to leave BellSouth's probability at 100 percent because Service Inquiry only applies, in BellSouth's revised filing, to those loops ordered with loop makeup. Therefore, we find that the probabilities for these functions shall remain at 100 percent.

We believe that reducing the CRSG and LCSC work times by 55 percent and 75 percent, respectively, accounts for the overstated work times in a reasonable way, resulting in a total time of 31.5 minutes for Service Inquiry. Therefore, we find that the CRSG category Incremental Time for Service Inquiry Complications shall be eliminated, that CRSG work times be reduced by 55 percent, and that LCSC work time be reduced by 75 percent, with the probabilities remaining the same.

Witness Riolo directed criticism towards BellSouth's inclusion of OSPE time of 2.5 hours in the original study. We note that BellSouth's revised study eliminated this function.

11. Analysis of ADSL Loop Engineering Work Times

There appears to be an error in BellSouth's Excel file, FL-xdsl.xls that results in overstating Engineering work times by 78.3 minutes for xDSL loops ordered with loop makeup.

This file contains the cost studies for the ADSL loop, 2- and 4-wire HDSL loops, and short and long 2- and 4-wire loops. Each of the loops in this file shows two costs: one when the loop is ordered with loop makeup (Service Inquiry is included), and one when the loop is ordered without loop makeup (Service Inquiry is not included). This error only applies to the loops ordered with loop makeup. The error occurs because the spreadsheet does not multiply the work times by the probability of occurrence for the Service Advocacy Center, or SAC.

BellSouth's proposed Engineering activities and work times are shown in the preceding table. Time for SAC totals to 87 minutes at a 10 percent probability, or 8.7 minutes. However, the SAC time on BellSouth's summary sheet in the Excel file is 87 minutes, for an overstatement of 78.3 minutes or 1.305 hours. Our analysis assumes that the error has been corrected.

SAC times were included in Service Inquiry in the original study but were moved to Engineering in the revised study. This means that ADSL loops ordered both with and without loop makeup include SAC time under the new study. If SAC time were still included in Service Inquiry, as it was in the original study, then in the revised study, SAC time would have been included only for loops with loop makeup.

BellSouth's SAC time totals 87 minutes and includes the following activities, each at a 10 percent probability: clerical input (15 minutes), OSPE investigation (30 minutes), pull loop makeup (22 minutes), LFACs input of loop makeup (10 minutes), and LFACS reservation (10 minutes), for a total of 8.7 minutes. According to BellSouth witness Greer, the SAC work functions are "highly mechanized for the most part, it is assumed that the manual efforts by the SAC will occur only 10% of the time." Witness Greer characterizes BellSouth's SAC 10 percent probability as "conservative".

AT&T/WorldCom witness King eliminates SAC because:

> Loop Make-Up is engineering data to determine technical specifications of a particular loop.
>
> Confusion: BST is applying this work when ordering UNE 'without LMU', yet work is activity to load LMU into LFACS (Loop Facility Assignment and Control System) OSS. This suggests that BST wants all records properly inventoried and is charging the CLEC when a [sic] LFACS record is not present for a particular loop.

However, BellSouth includes activities other than those referencing loop makeup. In addition, the probability of SAC activities is 10 percent. We are not persuaded by witness King's assertion that SAC time should be eliminated entirely.

Data ALECs witness Riolo concludes that a "Realistic Time Assuming BellSouth's Engineered/Designed Loop Process" for Service Inquiry, including SAC (SAC was included in Service Inquiry in the original study) should be 30 minutes on 10 percent of the orders or 3 minutes total.

BellSouth's times for the SAC seem excessive to us based on the overall record evidence; we believe a more reasonable total time would be 40 minutes or about 46 percent of BellSouth's total time. Rounding up to 50 percent, we believe that SAC times be reduced by 50 percent, resulting in a time of 43.5 minutes, or after BellSouth's 10 percent probability is applied, a total time of 4.35 minutes.

In addition to the SAC, BellSouth has two other work groups in this category: Address Facility and Inventory Group, or AFIG, and the Circuit Provisioning Group, or CPG. BellSouth's AFIG time for assigning loop facilities is 8 minutes at a 30 percent probability, or 2.4 minutes. BellSouth's CPG time is 15 minutes to process the request and 18 minutes to design the circuit and generate the design layout record and WORD document for the CLEC and field, each at a probability of 15 percent, resulting in times of 2.25 minutes and 2.7 minutes, respectively. Witness Greer characterizes BellSouth's Engineering probability (or fallout) percentages of "only" 30 percent (AFIG) and "only" 15 percent (CPG) as "conservative."

BellSouth witness Greer states that Data ALECs witness Riolo does not appear to disagree with the work times for the CPG and AFIG; rather, he disagrees with BellSouth's probabilities of occurrence. Witness Riolo states, however, that he is "[I]n part, . . . relying on this adjustment to the occurrence factor for 'engineering' tasks to compensate for any overstatement in task times, which BellSouth failed to explain or support." Witness Riolo does provide for time "Assuming BellSouth's Engineered/Designed Loop Process:" "15 minutes on 1% of the orders, 18 minutes on 1% of the orders, 8 minutes on 1% of the order," for a total time of 41 minutes at 1 percent or .41 minute.

AT&T/WorldCom witness King reduces the work times and probabilities for AFIG and eliminates the disconnect probability because "[N]o activity required for disconnect since managed by OSS." However, we are not persuaded by witness King's assertion. For CPG, witness King asserts that circuit design is included in recurring activity; however, he does allow for fallout for new orders. He does not change the work times but he eliminates the probability for disconnect and reduces the installation probability. Based on BellSouth's network design of designed circuits for DSL-type loops, we are not persuaded that circuit design is included in recurring activity.

Although Data ALECs witness Riolo and AT&T/WorldCom witness King reduce BellSouth's probabilities, witness Riolo uses his reduction of probabilities to take into account any "overstatement in task times, which BellSouth failed to explain or support," for Engineering. In effect, then, witness Riolo apparently believes that BellSouth's work times are overstated. The record evidence also implies that BellSouth's work times are overstated. We do not, however, believe that there is sufficient record evidence to recommend probabilities other than those that BellSouth has proposed. Therefore, we believe that it is appropriate and reasonable to reduce BellSouth's work times rather than its probabilities. We must, however, determine the amount by which those times should be reduced.

BellSouth's AFIG time for assigning loop facilities is 8 minutes at a 30 percent probability or 2.4 minutes. Data ALECs witness Riolo proposes a total of 41 minutes for Engineering with a probability of 1 percent, for a time of .41 minute. AT&T/WorldCom witness King recommends 7 minutes at a 5 percent probability, or .35 minute for AFIG. We believe a more reasonable time to be 4 minutes, 50 percent of BellSouth's proposed time, resulting in a time of 1.2 minutes after BellSouth's probability is applied. We note that this time is greater than witness Riolo's time for the entire Engineering category and witness King's AFIG recommendation. Therefore, based on the arguments and the description of the activity, we believe that BellSouth's AFIG time should be reduced by 50 percent, resulting in a time of 4 minutes, with BellSouth's probability intact.

BellSouth's CPG time is 15 minutes to process the request and 18 minutes to design the circuit and generate the design layout record and WORD document for the CLEC and field, each at a probability of 15 percent. Data ALECs witness Riolo proposes a total of 41 minutes for Engineering with a probability of 1 percent, for a time of .41 minute. AT&T/WorldCom witness King keeps BellSouth's proposed times but reduces the probability to 10 percent. We believe a total of 33 minutes seems too long for these activities in a computerized environment, but we believe BellSouth should be allowed to recover a reasonable level of such costs. As such, we believe 16 minutes total or 48.5 percent of BellSouth's time, rounded up to 50 percent to be reasonable. After BellSouth's probabilities are applied, this results in a total time of 2.475 minutes. This is greater than witness Riolo's entire time for Engineering. This time is less than witness King's proposed time of 3.3 minutes for CPG; however, we believe the difference is so small as to be negligible. Therefore, we believe that CPG time should be reduced by 50 percent, to a total of 16.5 minutes, or 2.475 minutes after BellSouth's probabilities are applied.

12. Analysis of ADSL Loop Connect & Test and Travel Work Times

BellSouth's proposed work activities, times, and probabilities for Connect & Test contain four work groups - - UNEC, WMC, CO I&M, and SSI&M, plus Travel. The WMC and CO I&M have the fewest activities; we discuss them first, followed by the UNEC, SSI&M, and Travel.

According to the BellSouth cost study, the WMC "coordinates dispatched technicians," at a time of 15 minutes, 100 percent of the time. BellSouth witness Greer describes the WMC personnel as responsible for several activities including pulling a list of each day's orders, scanning each order for facilities, screening orders to ensure that the appropriate technician is assigned to a facility, and handling any exceptions. BellSouth witness Milner states that the WMC:

> pre-assigns work to a technician in order to ensure that the technician is at the conversion site at a time that ensures the conversion will be completed as ordered. On the cutover date, the WMC monitors the progress of the technician to ensure that the technician arrives at the designated time.

Data ALECs witness Riolo asserts that BellSouth's "alleged need for yet another layer of manual coordination is contrary to efficient engineering practices using forward-looking OSS." He then recommends that no recovery be allowed for the WMC "until BellSouth provides compelling justification concerning why it is necessary." AT&T/WorldCom witness King eliminates WMC times because he assumes that it would be handled by OSS. We agree with witness Riolo that the WMC appears to provide "yet another layer of manual coordination." Additionally, we wonder why the WMC must monitor the progress of the technician to ensure that the technician arrives at the designated time. Frankly, we are surprised that the technicians are not responsible for ensuring that they arrive at the designated time, and if there is a delay, notifying the WMC or other appropriate work group. We believe that a forward-looking cost study would tend to minimize human intervention. Although we do believe that there is some room in a forward-looking model for human intervention we believe that witness Riolo presents the more persuasive argument. Given a choice between 0 minutes and 15 minutes, we believe that approximately 5 minutes, or 33 percent of total time, rounded up to 35 percent of BellSouth's proposed total time, is a reasonable accommodation for this center's manual coordination activity. We do not believe that there is sufficient record evidence to order a change in BellSouth's proposed probability of 100 percent. Accordingly, we find that the work times for the WMC be reduced by 65 percent with the probability remaining as BellSouth proposed, resulting in a work time of 5.25 minutes.

According to the BellSouth cost study, CO I&M "wires circuit at collocation site." BellSouth's study recommends 20 minutes at 85 percent or 17 minutes. Data ALECs witness Riolo disagrees that an xDSL loop needs to include a "designed test point," but he does agree that the "basic functions for this work group are required." He recommends 11 minutes 100 percent of the time. AT&T/WorldCom witness King recommends 11.31 minutes 100 percent of the time. Sprint witness McMahon asserts that, "Sprint allocates a more reasonable 9 minutes to place and test this jumper. . . ." We find witnesses McMahon's and Riolo's arguments for a lower time persuasive, although 9 and 11 minutes, respectively, seem to be on the low side for the described activity. On balance, we believe that providing for approximately 13 minutes for this function is a reasonable compromise. We also believe that there is insufficient record evidence to find a probability other that BellSouth's proposed 85 percent. Therefore, we find that BellSouth's probability shall remain at 85 percent and that BellSouth's work time be reduced by 20 percent. This results in a work time of 13.6 minutes.

The next work group we address is the UNE Center or UNEC. BellSouth's proposed total work time for the UNEC is 1.4212 hours or 85.272 minutes, including 10.175 minutes for provisioning variables.

UNEC Provisioning Variables include: status/info (55 percent of orders at 2.4 minutes), escalations (12 percent of orders at 7.2

minutes), assist calls (6 percent of orders at 15.6 minutes), and jeopardy (25 percent of orders at 1.8 minutes); these activities are handled by the UNE Center. After the probabilities are applied, the total time is 3.57 minutes. The 3.57 minutes is included three separate times in the work times for the UNE Center: twice as 3.57 minutes 100 percent of the time and once as 3.57 minutes 85 percent of the time, for a total of 10.175 minutes. Although it is not entirely clear to us what these activities are (this part of the cost study was not in the original filing; it was only filed August 16, 2000 on CD ROM), it appears that some of these variables have to do more with potential problems in BellSouth's work groups, and are not dependent upon whether an ALEC order is completely correct. The only exception is "status/info" which appears to refer to ALEC calls into the UNE Center. We believe that there is insufficient record evidence to show that BellSouth should recoup these costs from the ALECs, especially since most of these functions appear to occur because of difficulties within BellSouth. Therefore, we find that the work times and probabilities for these provisioning variables shall be eliminated.

Other functions performed by the UNEC in BellSouth's cost study include such items as pulling order information and assigning to work groups (8 minutes), verifying and ensuring accuracy of design (3 minutes), creating cut sheets to verify reuse of the facility (4 minutes), ensuring dispatch (5 minutes), performing manual order coordination when service is converted on existing facilities (20 minutes), and contacting the customer and completing the order (10.8 minutes). BellSouth's proposed total work time for the UNEC, after applying its probabilities and excluding provisioning variables, is 75.097 minutes.

In BellSouth's Probability column, there are three columns all titled "Reuse." We were unable to find definitions for these three columns and a description of how they are applied in the spreadsheet other than the formulas in the spreadsheet. This makes it difficult to understand what BellSouth does in this spreadsheet. What they represent is important to an understanding of BellSouth's methodology because while most UNEC activities are multiplied by the first column, some are not. For the ADSL loop, BellSouth's use of probabilities from the different columns does result in a smaller work time for the UNEC than simply using the first columns, although that does little to mitigate our concern over the lack of documentation.

Data ALECs witness Riolo devotes considerable rebuttal to the UNEC. He asserts that the UNEC cost for testing ADSL loops is "overstated." Witness Riolo also takes issue with BellSouth's testing; he asserts that BellSouth erred when including time for two remote tests at 27 minutes each. BellSouth witness Greer asserts that the UNEC "perform[s] functions critical to provisioning xDSL loops." He states that the UNEC's "major function is to perform frame continuity and due date coordination and testing." BellSouth witness Caldwell states that the UNEC "is coordinating one test, but for two locations, one inside the central office and one in the field. Thus, in actuality there is one test that takes 54 minutes (2X27)." One test or two, 54 minutes appears to us to be excessive. In his deposition BellSouth SME Ennis was asked why the test takes "that long?" He responded:

> It's 16.8 minutes to test a circuit. The reason it takes that long is because the technician has to pull up documentation that tells him the information that he needs in order to remotely access the test point. Once he has the information, he has to get into the test point, which is a process that takes so long. . . . You have to understand that any given circuit could possibly be tested more quickly or it could take quite a bit longer, so 16 minutes is a good average.

SME Ennis did not think that "two minutes [for the test] would be accurate, because it takes longer than that just to find the information for the test point to actually get into the SARC system and access the test point." When asked about the remaining ten minutes (16.8 plus 10 minutes equals 27 minutes per test for each of two tests for a total of 54 minutes), he replied,

> That's for the coordination. The UNE Center is responsible for ensuring that the wiring in the Central Office is complete and, of course, there's time there for -- there is other time there for ensuring the dispatch. But this

> particular coordination is for the Central Office. If there is any -- the UNE Center will, when they do their test, they will ensure that the wiring has been completed, do all the escalations that they have to, and they will ensure that a technician is available for them in case they need to do any testing with the Central Office. So it is coordination of people in the places that they need them.

BellSouth witness Milner states that the UNEC "is the center responsible for coordinating the conversion of an end user's service from BellSouth to an ALEC." Coordination includes:

- Ensuring that the service as ordered by the ALEC is correct.
- Verifying the conversion time with the ALEC.
- Ensuring that BellSouth's central office and field forces are able to perform the conversion at the time ordered by the ALEC.
- Performing pre-service testing to ensure that dialtone is received from the ALEC.
- Ensuring that wiring is completed by BellSouth's central office personnel.
- Coordinating the start of the conversion with the central office and field personnel.
- Testing with central office or field personnel to ensure that the conversion is complete.
- Performing any cooperative acceptance testing with the ALEC.
- Providing the completion notification to the ALEC that the conversion is complete for any number porting activities, which are required of the ALEC.

Witness Riolo proposes 5 minutes "additional time for a test" at the central office frame. AT&T/WorldCom witness King eliminates all UNEC activity because he considers it to be an intermediate work group that is not in BellSouth's retail process and it "creates excessive barrier to entry." As stated earlier, we disagree with witness King's contention that a work group not in BellSouth's own process should necessarily be eliminated from a UNE process. We are not persuaded by witness King that the UNEC creates an "excessive barrier to entry" by itself.

It is not clear from BellSouth's description whether or not these activities are performed manually or electronically, although these appear to be manual activities based on the description and length of time required to complete the activities. We believe that in a forward-looking environment many of these activities would not need to be performed manually. We do not believe, for example, that pulling order information and assigning to work groups should always be done manually in a forward-looking environment. Certainly, taking almost 11 minutes to contact the customer and complete the order seems excessive in a computer, voicemail, email, and fax environment. It appears to us as if BellSouth's UNEC activities include more manual effort and coordination than would be appropriate in a forward-looking environment.

BellSouth's proposed time of 85.272 minutes includes the provisioning variables, which shall be eliminated, leaving a total time of approximately 75.097 minutes. In evaluating the record, we find witness Riolo's arguments with respect to the UNEC to be persuasive; however, we believe witness Riolo's 5 minutes (for testing) to be insufficient. Based on the evidence, this Commission believes a more reasonable time in a forward-looking environment would be approximately 40 minutes or about 53.3 percent of BellSouth's total time, rounded up to 55 percent. This reduces BellSouth's work time by 45 percent, resulting in a new work time of 41.3034 minutes. We believe that there is insufficient record evidence to conclude appropriate probabilities other than those proposed by BellSouth. Therefore, we believe that BellSouth's proposed probabilities should be left intact. As such, we find that for the UNEC, its Provisioning Variables' work times shall be eliminated and its other work times shall be reduced by 45 percent, with the probabilities remaining as BellSouth proposed.

SSI&M, the second major work group in the Connect and Test category, is responsible for 1.971 hours or 118.26 minutes. SSI&M personnel perform fieldwork. Activities other than trouble resolution (45 minutes 30 percent of the time at the crossbox, and 56 minutes 21 percent of the time at the premises), have a probability of 100 percent because BellSouth assumes 100 percent dispatch for xDSL loops. BellSouth's cost study allows 16 minutes for field personnel to place/remove a cross-connect at the crossbox, 15 minutes to check continuity and dial tone, 23 minutes to test from NID and tag loop, and 19 minutes to complete the order.

Data ALECs witnesses Riolo and Murray both assert that these activities are already included in BellSouth's recurring cost studies. Further, witness Riolo contends that xDSL loops do not require 100 percent dispatch "under any reasonable set of assumptions." We note that the argument that the costs of BellSouth's nonrecurring activities are already recovered in recurring costs is covered earlier in this analysis. Witness Riolo recommends 50 minutes for 20 percent of the loops (which includes 5 percent "additional error correction time"), or 10 minutes.

AT&T/WorldCom witness King eliminates all SSI&M work times because he asserts that the work performed by SSI&M personnel is "recovered in recurring rates and captured through in-plant loading factors applied to recurring rates." We are not persuaded by witness King's assertion that no field work is ever required for any ADSL loop ordered by an ALEC.

Sprint witness McMahon asserts that:

> . . . Sprint can not reconcile the difference with BellSouth's allegation that it takes them almost 2 hours for a field technician to hook-up a 2-wire xDSL-capable loop. Sprint's work times for these field work activities (72 minutes) are based upon the experience of Sprint's SMEs and represent the operations of an efficient service provider.

We note that witness McMahon appears to be referring to Sprint's cost study, which was withdrawn from this proceeding.

BellSouth's xDSL cost study assumptions include 100 percent dispatch. Data ALECs witness Riolo argues that 100 percent is not necessary and proposes 20 percent, because he believes the dispatch rate should not be any higher than what BellSouth experiences for basic loops. We note that BellSouth's dispatch rate for the SL1 loop in its original study was 20 percent; BellSouth increased it to 38 percent in its revised study. We agree that 100 percent dispatch may not always be necessary; however, it is not clear to us from the record evidence exactly how frequently dispatch is required. We also believe BellSouth's work times are overstated based on the record. Data ALECs witness Riolo believes that when these activities are performed 50 minutes is an appropriate time. Fifty minutes at a dispatch rate of 20 percent equates to 10 minutes; however, 50 minutes at BellSouth's revised dispatch rate of 38 percent equates to 19 minutes. Sprint witness McMahon believes 72 minutes or 60.9 percent of BellSouth's time to be appropriate when the activities are performed. We believe that a conservative and reasonable approach is to accept witness McMahon's estimate of 72 minutes or 60.9 percent of BellSouth's total proposed time, rounding up to 65 percent. This results in a reduction of 35 percent to BellSouth's SSI&M work times, for a total SSI&M work time of 76.869 minutes. This compares to 118.26 minutes proposed by BellSouth and 10 minutes proposed by witness Riolo based on a basic loop dispatch rate of 20 percent. We suspect that 100 percent dispatch is not always necessary; however, we believe that there is insufficient evidence to determine a particular dispatch rate. Therefore we find that BellSouth's SSI&M work times shall be reduced by 35 percent and that the probability percentages remain unchanged.

BellSouth's Travel category is the last one to be considered. BellSouth's travel time is 20 minutes 100 percent of the time. BellSouth's cost study describes travel time as: SSI&M - dispatched to crossbox. Data ALECs witness Riolo asserted that BellSouth double counted travel time by including it in the other SSI&M time and as a separate item. BellSouth witness Caldwell responded that travel time is not included in the other SSI&M time. She asserts that "travel time must be included," "[B]ecause the technician is not magically transported to the work location. . . ." In response to witness Riolo, she explains that the time "contained in the equation in the input file reflects the time required for the technician to receive and analyze the service request, not for travel." AT&T/WorldCom witness King eliminates travel time because he asserts that it is recovered in the recurring rate. Sprint witness McMahon believes, on the other hand, that BellSouth's travel time appears "reasonable."

Again, we disagree with witness King. We believe that if an ILEC is required to dispatch a technician, then some measure of travel time should be included because part of the activity must include getting to the work location, as noted by witness Caldwell. Although we are not entirely convinced that BellSouth's proposed time is reasonable, we are is persuaded by Sprint witness McMahon's endorsement. Since the probability of travel time is dependent on the dispatch rate, we believe that BellSouth's 100 percent probability should be left as proposed. Therefore, we find that BellSouth's proposed time and probability for its Travel category shall not be adjusted but shall, instead, remain as BellSouth proposed.

13. Additional Installation and First & Additional Disconnect

BellSouth's cost studies include work activities and work times for the first installation, and each additional installation, as well as for the first disconnect and each additional disconnect.

As can be seen in our earlier analysis of the ADSL loop, specifically for the AFIG, CPG, and Central Office Forces work groups, AT&T/WorldCom witness King does make adjustments to BellSouth's proposed work times and probabilities for the additional installation, and the first and additional disconnects. However, we are is not persuaded by his explanations for these adjustments.

With regards to disconnect activities, Sprint witness McMahon asserts that:

> For xDSL-capable loops, which Sprint considers to be any standard voice-grade all-copper loop (less than 18,000 feet in length and free of inhibitors), the only costs involved with disconnecting service would be a few minutes for a technician to remove the MDF jumper

> wires. Sprint does not believe that BellSouth needs to or should send technicians to the cross connect boxes (SAI's) or serving terminals to perform any activities due to the industry-wide "cut-through" practice mentioned in the subject testimony.
>
> The removal of jumpers in the central office is normally accounted for as a rearrangement and change maintenance expense. Generally, maintenance costs as such are recovered through the monthly recurring rates, unless adjustments are made in the Annual Charge Factor to offset these projected NRCs.

On their face, witness McMahon's assertions appear reasonable; however, we believe that overall there is a paucity of evidence for activities other than for the first installation.

Therefore, we believe that the appropriate way to address witness King's and witness McMahon's proposals and concerns, as well as the lack of record evidence, is through our adjustments to BellSouth's work times, described earlier in this issue. We believe this to be a reasonable, yet conservative approach. Therefore, our findings on specific activities apply whether the activities are for a first or additional installation or a first and additional disconnect. For example, our findings on the Local Carrier Service Center (LCSC) applies any time the LCSC is included in a cost study, whether it is the first or additional installation or disconnect.

In summary, we find that certain times shall be eliminated and others reduced. The following table illustrates our findings.

Adjustments to BellSouth's ADSL Loop Cost Study

Category	Commission Findings
Service Inquiry	
CRSG Incremental Time	Eliminate work times
CRSG	Reduce work times by 55%
LCSC	Reduce work times by 75%

Category	Commission Findings
Engineering	
SAC	Reduce work times by 50%
AFIG	Reduce work times by 50%
CPG	Reduce work times by 50%
Connect & Test	
UNEC Provisioning Variables	Eliminate work times
UNEC	Reduce work times by 45%
WMC	Reduce work times by 65%
CO I&M	Reduce work time by 20%
SSI&M	Reduce work times by 35%
Travel	
Travel	No adjustment

As a point of reference, we note that nonrecurring cost study issues have been considered in contracts arbitrated by this Commission. For example, in Order No. PSC-98-0604-FOF-TP, issued April 29, 1998 (the 1998 proceeding), this Commission excluded the Local Carrier Service Center (LCSC) costs from cost recovery in that proceeding:

> We recognize that OSS costs, manual and electronic, may be recoverable costs incurred by BellSouth. We did not, however, contemplate in Order PSC-96-1579-FOF-TP [issued earlier in the same proceeding] that BellSouth would file cost studies including OSS costs in these proceedings other than for its legacy systems. We stated in Order PSC-98-0123-PCO-TP that, as it pertains to OSSs, only testimony regarding BellSouth's proposal to recover costs associated with its legacy systems shall be retained in the record for these proceedings.

> Upon consideration, we find that BellSouth's LCSC costs are a component of its OSSs and therefore they must be excluded from recovery in these proceedings. Indeed, all ordering charges, manual or electronic, shall be excluded from the non-recurring rates in these proceedings.

Order No. PSC-98-0604-FOF-TP at p. 165.

Our finding in this proceeding retains the LCSC work group, but it adjusts downward BellSouth's proposed work times, based on the record evidence. The 1998 proceeding excluded LCSC costs from recovery based upon a prior Commission order in the same proceeding. Additionally, in this proceeding, BellSouth offers loops with loop makeup (which includes Service Inquiry) and without loop makeup (which excludes Service Inquiry). Therefore, we do not believe our finding in this proceeding is inconsistent with the 1998 proceeding.

This Commission also addressed nonrecurring work times in the same order three years ago:

> As we earlier observe, the assumptions of BellSouth and AT&T/MCI concerning work functions and work times represent the spectrum boundaries for task work times involved in provisioning the loops here in question. We characterize AT&T/MCI's view as representing the "best case" scenario, the most automated, least cost provisioning. We do not believe that AT&T/MCI's view, which is optimistic, captures all of the manual intervention that is actually required to provision UNES. For example, according to witness Lynott, AT&T/MCI assumes that the time required to make a cross connect at the cross box, test the circuit with the central office at the premise and FDI [feeder distribution interface], tag the circuit, and complete the order only takes just over 30 minutes for 2-

> wire loop distribution and only about 25 minutes for 4-wire HDSL compatible loops.
>
> By the same token, BellSouth's view represents a "worst case" scenario. For example, witness Landry testifies that the time required for that same process takes about one hour and 35 minutes for 2-wire loop distribution and about 2 hours and 40 minutes for 4-wire HDSL compatible loops. In other examples, witness Landry testifies that BellSouth assumes 100 per cent dispatch to connect for all loops and that all xDSL loops are new.
>
> We again find it appropriate to apply our judgment to reasonably resolve the disparities in the parties' positions. Thus, we shall reduce BellSouth's work time proposals by 25 percent of the difference between them and AT&T/MCI's proposals. BellSouth has its technicians in the field every day actually installing, repairing and maintaining service, and presumably has, for that reason, the better information with respect to the associated work times. We find, however, that BellSouth's proposed incidental travel time is acceptable without adjustment.

Order No. PSC-98-0604-FOF-TP at pp. 95-96.

We note that our findings in this proceeding generally differ from our 1998 Order. Our adjustments to BellSouth's work times in this proceeding are based on the evidence in this record; evidence that we believe firmly supports adjustments different from the adjustments in the 1998 proceeding.

14. Bellsouth's CCS7 Signaling Transport Nonrecurring Cost Study

BellSouth witness Caldwell lists an Excel spreadsheet file for Element # E.3, CCS7 Signaling Transport, ccs7_fl.xls. For this element BellSouth proposes nonrecurring rates for two sub elements: CCS7 Signaling Connection, Per 56 Kbps Facility and CCS7 Signaling Point Code, Establishment or Change, per STP affected.

AT&T/WorldCom witness King also proposes installation and disconnect nonrecurring rates for these two elements. Where BellSouth proposes $71.08 for installation and $32.88 for disconnect of CCS7 Signaling Connection, Per 56 Kbps Facility, AT&T/WorldCom proposes a nonrecurring installation charge of $17.87 and a disconnect rate of $14.31. For CCS7 Signaling Point Code, Establishment or Change, per STP affected, AT&T/WorldCom's proposed nonrecurring installation rate is $5.59 while the disconnect rate is $6.85, compared to BellSouth's rates of $58.04 and $71.16, respectively.

BellSouth's Excel file for this element is not on the non-proprietary CD ROM that BellSouth filed; however, witness King, in his exhibit, does include his revisions to this file. BellSouth's proposals includes work times for the Engineering and Connect & Test categories; however, BellSouth does not provide the names of the work groups (e.g., AFIG, SSI&M). BellSouth does provide job function codes, however, we believe that there is insufficient record evidence that a particular job code always matches up with a particular work group.

Witness King's proposal is for .019 hour in Engineering time and a total time in Connect & Test of .4913 hour.

There is a paucity of record evidence on this element, other than witness King's proposed work time adjustments. Lacking insufficient evidence for analysis, we believe that the most appropriate finding is that our adjustments for the ADSL loop's work groups apply if those work groups are used in this element. If there are additional work groups that we have not already addressed or it is not possible to determine which work groups are included, then we find that its adjustments for all other work groups, as described below, be applied.

15. Bellsouth's Interoffice Transport - DS0 Nonrecurring Study

BellSouth's nonrecurring cost study for Interoffice Transport - DS0 is available in a public spreadsheet. Unlike the ADSL nonrecurring cost study which provided brief descriptions of the nonrecurring activities involved, this spreadsheet, shown in the following table, does not provide detailed information on the work activities performed. However, unlike the CCS7 Signaling Transport cost study, it does provide the work groups (e.g., UNEC) in addition to the cost categories (e.g., Engineering).

AT&T/WorldCom witness King's proposed work activities, work times, and assumptions for this rate element are shown in the following table.

BellSouth's Nonrecurring Cost Study for Interoffice Transport - DS0 - Time in Hours

		Installation		Disconnect	
Work Group	Description	First	Add'l	First	Add'l
Access Customer Advocate Center (UNEC)	Connect & Test	.0600	.0600	.1800	.1800
Circuit Provisioning Group (CPG)	Engineering	.1900	0	.1280	0
Work Management Center (WMC)	Connect & Test	.2500	.0500	0	0
Network Planning & Engineering (PICS)	Engineering	.0333	0	0	0
CO Install & MTCE CKT & FAC (NTEL)*	Connect & Test	.4160	.1660	.3330	.0830
Access Customer Advocate Center (UNEC)	Connect & Test	1.0600	1.0600	0	0

(Source:Hearing Exhibit 95)
*Although BellSouth did not provide a definition in this spreadsheet, we believe that it is likely that this means Central Office Installation Maintenance Circuit and Facilities.

The following table provides AT&T/WorldCom witness King's proposal.

AT&T/WorldCom's Proposed Nonrecurring Activities and Work Times for Interoffice Transport - DS0 - Time in Hours

		Installation		Disconnect	
Work Group	Description	First	Add'l	First	Add'l
Access Customer Advocate Center (UNEC)	Connect & Test	0	0	0	0
Circuit Provisioning Group (CPG)	Engineering	.0190	0	0	0
Work Management Center (WMC)	Connect & Test	0	0	0	0
Network Planning & Engineering (PICS)	Engineering	.0033	0	0	0
CO Install & MTCE CKT & FAC (NTEL)	Connect & Test	.3833	.3000	.2500	.1667
Access Customer Advocate Center (UNEC)	Connect & Test	0	0	0	0
Assumptions					
Assumes Engineering manual work at a fallout of: 10% install only					
UNEC/ACAC are intermediary work groups not utilized in BellSouth's own processing.					
CO I&M - 5 minutes to process and compete order. 10 minutes to install x-connect, 5 minutes to test, 3 minutes to tag.					
SONET infrastructure					

(Source: Hearing Exhibit 135)

Again there is virtually no discussion or supporting evidence for this element; however, the names of the work groups are provided. Absent any other basis, we believe that the most reasonable finding is that the adjustments for the ADSL loop's work groups apply when those work groups are used in this element. For the additional work groups that we have not already addressed, we find that the adjustments for all other work groups, as described below shall be applied.

16. Remaining Nonrecurring Work Groups & Rate Elements

There was little record evidence for the CCS7 Signaling and Interoffice Transport - DS0 rate elements. In researching other elements, we found that BellSouth provided the most cost study information for loops, e.g., detailing what a particular work group's responsibility is. However, as can be seen with CCS7 Signaling, for some elements it is not even clear what work groups are involved.

We have struggled with how best to reach findings for any other work groups involved and for the remainder of the elements. On balance, we believe that BellSouth has flaws in its study that overstate its work times. At the same time, there is very limited record evidence addressing required work activities and times for elements other than the ADSL loop (and to some extent, other loops). We believe that there are two alternatives. The first alternative leaves in place BellSouth's proposed work activities and times for other work groups that were not specifically analyzed because of a lack of record evidence. The second alternative is based on our belief that it is possible to extrapolate from the record in order to develop an adjustment to the remainder of BellSouth's work groups and elements. After much deliberation, we believe that the most appropriate course is to make adjustments to BellSouth's other work groups and times as well as other elements because we believe that if the work times are overstated for some groups, it is extremely likely that work times are overstated for groups not examined.

Based on our examination of the record evidence for the ADSL loop, we believe that the most reasonable extrapolation involves a simple average of our adjustments to work times for the ADSL loop. This method takes into account our findings of adjustments of 20 percent for CO I&M and 75 percent for the LCSC. We believe that the work times of those work groups/functions that we found should be eliminated entirely should be excluded from this calculation because we do not believe there is sufficient record evidence to include an elimination of a work time. Likewise, we believe that the Travel category should be excluded from this calculation because we do not believe that there is sufficient record evidence to include an unadjusted work time. Our findings of the appropriate adjustments are set forth in the following table. Our adjustments average 49.4 percent, conservatively rounded down to 45 percent. Therefore, we find that the work time for any other work group not explicitly listed in this recommendation be reduced by 45 percent.

Approved Work Time Adjustments

Category	Approved Adjustments
CRSG	Reduce work times by 55%
LCSC	Reduce work times by 75%
SAC	Reduce work times by 50%
AFIG	Reduce work times by 50%
CPG	Reduce work times by 50%
UNEC	Reduce work times by 45%
WMC	Reduce work times by 65%
CO I&M	Reduce work time by 20%
SSI&M	Reduce work times by 35%
All other work groups	Reduce work times by 45%

In order to illustrate our proposal to reduce the work times in work groups not specifically addressed, we show the effects of our findings on the first installation of two other loops, the SL1 and SL2, in the tables below.

Effect of the Commission's findings on the First Installation of the SL1 Loop (time in minutes)

Category	BellSouth's Proposed Time	Commission's Finding of Time
PICS	.29	.29 - 45% or .1595
AFIG	2.4	2.4 - 50% or 1.2
SAC	6	6 - 50% or 3
UNEC	27.84	(27.84 - 7.14 (Provisioning variable of 3.57 applied twice)) - 45% or 11.385
WMC	15	15 - 65% or 5.25

Category	BellSouth's Proposed Time	Commission's Finding of Time
CO I&M	12.75	12.75 - 20% or 10.2
SSI&M	48.91	48.91 - 35% or 31.7915
Travel	7.6	7.6
TOTAL	120.79	70.586

(Source: Hearing Exhibit 95)

Effect of the Commission's findings on the First Installation of the SL2 Loop (time in minutes)

Category	BellSouth's Proposed Time	Commission's Finding of Time
CPG	4.95	4.95 - 50% or 2.475
PICS	.29	.29 - 45% or .1595
AFIG	2.4	2.4 - 50% or 1.2
SAC	6	6 - 50% or 3
UNEC	101.73	(101.73 - 10.175 (Provisioning variable of 3.57 applied three times at different probabilities)) - 45% or 50.3553
WMC	15	15 - 65% or 5.25
CO I&M	17	17 - 20% or 13.6
SSI&M	128.71	128.71 - 35% or 83.6615
Travel	20	20
TOTAL	296.08	179.7013

(Source: Hearing Exhibit 95)

SUMMARY

In summary, we find that BellSouth's work times shall be adjusted as follows.

Adjustments

Category	Approved Adjustments for BellSouth's Installation and Disconnect Work Groups and Work Times
CRSG Incremental Time	Eliminate work times
CRSG	Reduce work times by 55%
LCSC	Reduce work times by 75%
SAC	Reduce work times by 50%
AFIG	Reduce work times by 50%
CPG	Reduce work times by 50%
UNEC Provisioning Variables	Eliminate work times
UNEC	Reduce work times by 45%
WMC	Reduce work times by 65%
CO I&M	Reduce work time by 20%
SSI&M	Reduce work times by 35%
Travel	No Adjustment
All other work groups	Reduce work times by 45%

D. <u>Mix of Manual versus Electronic Activities (OSS)</u>

BellSouth witness Caldwell explains how projections are obtained. "Each analyst is responsible for obtaining estimates of the activities required to provision the element under study. BellSouth personnel familiar with the provisioning process identify the work groups involved and the amount of time it takes to complete the necessary tasks."

Witness Caldwell states that BellSouth developed interfaces that allow ALECs access to BellSouth's existing legacy systems, as directed by the FCC. She quotes from ¶523 of the FCC's First

Report and Order in CC Docket No. 96-98, FCC Order 96-325, "We thus conclude that an incumbent LEC must provide nondiscriminatory access to their operations support systems functions for pre-ordering, ordering, provisioning, maintenance and repair, and billing available to the LEC itself."

Witness Caldwell states that BellSouth provides ALECs access via mechanized interfaces to certain operational support systems (OSS). She describes the interactive pre-ordering activities and states that ALECs are allowed to access BellSouth's internal network legacy systems with a single log-on. The ALEC is then authorized to access the electronic interfaces to perform interactive pre-ordering and ordering functions. BellSouth also provides ALECs the option of submitting LSRs manually. LSRs not submitted through a BellSouth electronic interface will be considered a manual LSR. A service representative in the Local Carrier Service Center (LCSC) manually enters the LSR information into BellSouth's legacy service order systems. Once the Firm Order Confirmation ("FOC") status is returned from the systems, this notification is faxed back to the ALEC. As required by a previous commission order, BellSouth does not seek (in this docket) to recover the cost for developing interfaces or the ongoing costs associated with interfaces utilized by the ALECs in Florida.

BellSouth does reflect the labor costs associated with the tasks required to fill an order. Two cost elements encompass these costs: Electronic Service Order per local service request, and Manual Service Order per local service request. The Electronic Service Order costs were developed based upon projected fall-out rates for orders placed electronically and include fall-out generated by ALEC errors and "by design." Experts familiar with ALEC order processing provided the distribution of the different types of UNE orders, e.g., individual unbundled network elements, combinations, and complex orders, the time required to handle the different types of orders, and the amount of fall-out that occurs for electronic orders.

BellSouth's study makes the assumption that 7% of both basic and complex orders will fall out of the system due to the manner in which the system is designed; it assumes that fallout due to CLEC errors will be at a rate of 3% of basic orders and 50% for complex orders. In discussing fallout assumptions, BellSouth witness Pate testified that he reviewed the data and provided "input on what the fallout has been and a projection going forward."

Witness Pate explains that another error may occur due to errors resulting from ALEC input. These orders must first be processed by the LCSC because the mechanized system has not been programmed to return the error automatically to the ALEC that submitted the order. The system does not automatically return the order due to the possibility that the error may have been caused by BellSouth's systems. Consequently, a representative in the LCSC must review the transaction in order to make that determination. If the representative finds that the error is the result of the ALEC input, it is returned to the ALEC for correction. If the error is the result of BellSouth's systems, the representative in the LCSC will make the necessary input to correct the request.

Witness Pate testifies that based on a three-month period (May through July 2000), BellSouth's data reflects ALEC errors in a range of 8.3% to 15.1% of Non LNP UNE validated LSRs. Validated LSRs are mechanically submitted LSRs after removing the number of LSRs that fall out by design for manual processing, in addition to the LSRs where the system has generated an error message and automatically sent the LSR back to the ALEC for correction.

AT&T/WorldCom witness King agrees that fallout assumptions in the cost study drive nonrecurring costs. He explains:

> Manual human intervention causes the cost. To the extent that a particular work group is involved in any particular provisioning activity at the request of the ALEC, there is a variable called fallout that determines whether something should be mechanically or electronically managed by operational support systems in the database that support that process, and that would be a factor determining whether that work group would need to be involved in any one particular order, yes.

Witness King admits that fallout occurs in the ordering process and in the downstream provisioning process. However, he also admits that he has assumed no fallout in his proposal, and that his "zero percent fallout assumption is based on the notion that every time a CLEC submits an order that may have an error on it, BellSouth's systems will be able to electronically identify that error, electronically resubmit the order back to the CLEC, and have the CLEC correct that error . . . ."

When asked if he agrees that BellSouth's current systems cannot electronically do that, witness King admits "They probably cannot on every order today; correct." When asked if he is aware of any carrier that has "deployed the technology that would enable an incumbent to identify every error in every CLEC order electronically," witness King responds "Well, I'm hoping you're going to be there. No. I'm hoping you're going to be there."

Witness King responds to the assertion that, to his knowledge, the technology he assumes for purposes of his OSS fallout has not been deployed. He states:

> I'm not sure how to answer that question. I don't know. And clarification would be, we traditionally look at operational support systems today as being classified as so-called legacy systems. They have been around for a lot of years now, have continued to go through enhancements. I think the current goal is the so-called total network management. TNM is kind of the buzzword where OSSs ultimately will be driven to total machinazation, the ability to communicate with any other piece of OSS equipment. That has been something that the industry has been working on over the last 20 years and investing a lot of money to enhance existing operational support systems. You have various companies such as Bellcore and others that are continuing to provide new enhancements, new operational support systems to do the things that I"m essentially claiming should be considered in a forward-looking cost study. Whether BellSouth may or may not have implemented them today is somewhat irrelevant to trying to create that competitive

> environment, because if a company were to manage the network that is being modeled today, and I am -- and BellSouth had the capability to indeed go in and put new systems in, it would have every capability in which I have based my cost study adjustments against.
>
> So, yes, they are -- or I don't know in that I'm not sure how many of these new TNM conformant OSSs are currently in place, but that does not mean that a legacy OSS has not been enhanced to have somewhat equivalent functionality.

When asked if he could name a carrier with the functionality assumed in his study, witness King responds, "100 percent, no."

Sprint witness McMahon states that:

> . . . an efficient provider would develop NRCs based upon the availability of 'fully automated' Operational Support Systems (OSS) for a CLEC to submit Local Service Requests (LSRs) to the Company. Other automated processes would include order routing, facility assignment, switch activation and technician dispatch.

Witness Pate contends "BellSouth provides ALECs nondiscriminatory access to its OSS functions . . . through robust and reliable manual and electronic interfaces" and that these interfaces :

> . . . allow ALECs to perform pre-ordering, ordering, provisioning, maintenance and repair, and billing for resale services in substantially the same time and manner as BellSouth does for itself in conformance with the FCC's requirements; and, in the case of unbundled network elements, provide a reasonable competitor a meaningful opportunity to compete which is also in compliance with

> the FCC's requirements. BellSouth is not obligated to provide ALECs with any additional access to its OSS.

Witness Pate provides additional insight as to the differences between manual submissions and electronic submission with subsequent manual handling. He states that manual submission refers to "manual or non-electronic submission of LSRs, which can be accomplished by facsimile" and that this occurs with services ordered that require substantial manual handling and cannot be submitted electronically. He concludes "Therefore, the computer programming necessary to allow mechanical generation of the service order is not available." Witness Pate further explains that "Alternatively, some ALECs may simply choose not to utilize BellSouth's electronic interfaces."

Electronic processing with subsequent manual handling means the LSRs are able to be electronically submitted, but the requested service orders are designed to "fall out" for manual handling by the LCSC. This type of fall out occurs when requested services are complex or for other specified reasons, such as a request to expedite the order. Once these LSRs are electronically transmitted to BellSouth, they are handled as if they had been faxed to the LCSC.

Witness Pate asserts that nondiscriminatory access does not require that all LSRs must be submitted electronically and involve no manual handling. He points out that many of BellSouth's retail services, primarily complex services, involve substantial manual handling for BellSouth's own retail end user customers. Therefore, nondiscriminatory access to certain functions for ALECs also legitimately may involve manual processes for these same functions. He states that there is no requirement that every LSR has to be submitted electronically in order to provide nondiscriminatory access.

Coalition witness Stacy assumes an order fallout factor of 2%. He states that his assumption is appropriate to use as it assumes "nothing more than an electronic system that is functioning properly and efficiently."

Witness Pate refutes witness Stacy's assumption of a fallout rate of 2% of the time by stating that the assumption is "incorrect and unsubstantiated." He supports the reasonableness of BellSouth's assumption of 7% fallout by design by citing an example from the BellSouth Percent Flow-through Service Requests (Detail)report. From May through July 2000, the percent of Non LNP UNE LSRs submitted electronically that fell out by design ranged from 15.8% to 20.4%. This is based on 43,450 total mechanized LSRs submitted and the total manual fallout of 8,861. This provides an example, according to witness Pate, that shows that BellSouth's assumption "is more than reasonable."

The parties basically disagree as to what qualifies as a forward-looking OSS design or network. Witness Pate describes BellSouth's attempts to continually improve its systems and processes. He asserts:

> BellSouth will continue to develop electronic submission capabilities on such factors as ALEC input through BellSouth's Change Control Process ('CCP'), transaction volume, and standards development. Additional capabilities are continually being assessed.

When asked whether BellSouth, over the next three years would be able to "autoclarify every conceivable CLEC error that would be on an order", witness Pate responded that he did not believe that it is a feasible goal for BellSouth to pursue. He further stated, "There's too many permutations, possibilities. It's just not feasible."

Witness Pate also points out that "nondiscriminatory access" does not mean that all LSRs must be submitted electronically and require no manual handling. He states that "Many of BellSouth's retail services, primarily for complex services, involve substantial manual handling by BellSouth Account Teams for BellSouth's own retail end user customers."

Other witnesses also emphasize automation in forward looking OSS. In discussing what he considers to be inefficient tasks, Data ALEC witness Riolo states:

> ILECs with forward-looking OSS have automated all of these activities and should not require any standard manual intervention. BST also seems to have mechanized at least some of these tasks but, amazingly, then has built in a 100% manual backup to make sure, for example, that the automated dispatch that should have been scheduled automatically was actually scheduled. I can only assume that BST is deliberately causing fallout (i.e., a need for manual intervention and additional labor costs) for those activities merely because a competitor for xDSL service will use the ordered loop. Likewise, BST includes both time to manually contact customer and to manually 'complete order,' two tasks that should accomplish the same objective. BST's analysis is replete with such duplicative and unnecessary manual activities, which even a moderately efficient ILEC, and likely BST in its own retail operations, has fully automated.

Likewise, Data ALEC witness Murray criticizes, for example, BellSouth's nonrecurring cost analysis for DSL-capable loops by saying that the analysis

> appears to include numerous manual order processing tasks and costs. . . . Such manual intervention assumptions are inappropriate in a long-run, forward-looking cost study given the current advanced state of automation in the local exchange network and related Operations Support Systems ("OSS").

Witness Riolo further states that "Typically, ILECs' OSS are fully capable of managing the flow of a basic order" and that:

> . . .the only manual task time required to process an order for an unbundled loop would be to manually sort out problems for the small percentage of cases in which the automated OSS cannot identify facilities and assign the work correctly. Given that the ILEC in question should have decent up-front order edits in place and have maintained reasonably accurate database records, the percentage of such fallout should be very low. I estimate that it should be around 2% in an analysis of efficient, forward-looking costs.

Section 251(c)(2)(C) of the Telecommunications Act of 1996, requires ILECs to provide interconnection with network elements "at least equal in quality to that provided by the local exchange carrier to itself or to any subsidiary, affiliate, or any other party to which the carrier provides interconnection." Therefore, BellSouth is actually only required to provide service to ALECs at parity with what it provides to its own retail division.

We agree with witness Pate that nondiscriminatory access does not mean that all orders must be submitted electronically and require no manual handling. Witness Pate also notes that BellSouth must also resort to manual handling in serving its own retail end user customers. However, we also note, as discussed in Issue 8(d), that BellSouth's evidence in this proceeding is somewhat vague with regards to potential improvements.

Decision

BellSouth's competitors appear to have based their assumptions on a hypothetical highly automated network rather than "the use of the most efficient telecommunications technology currently available" as specified in FCC Rule 47 C.F.R. § 51.505(b)(1).Therefore, we hereby accept BellSouth's proposed and inputs for assumptions and inputs to be used in the forward-looking non-recurring UNE cost studies for Issue 8(b), OSS design, and Issue 8(e), mix of manual versus electronic activities.

There are no other assumptions and inputs to be used in the forward-looking non-recurring UNE cost studies.

XI(A). APPROPRIATE RECURRING RATES AND NON-RECURRING CHARGES FOR PRESCRIBED UNES

Our findings of the appropriate rates are contained in Appendix A, which is attached an incorporated in this Order. These rates reflect re-running the appropriate cost models to incorporate our ordered inputs, and then re-running the BellSouth Cost Calculator to yield the appropriate rates. The rates in Appendix A also reflect, where applicable, the specific rate design findings made in certain other issues (e.g., deaveraging). However, subject to our findings regarding loadings and, specifically, the inflation factor, BellSouth shall be required to resubmit the BSTLM. Thus, the loop-related UNE prices, including combinations containing a loop, may be revisited and possibly revised, depending upon the outcome of the hearing on the revised model.

XI.(B) DISCUSSION OF ADDITIONAL ELEMENTS

Herein, we address whether we should require BellSouth to unbundle any additional elements or combinations, subject to the standards of the FCC's Third Report and Order.

BellSouth witness Varner states that:

> UNEs which BellSouth currently makes available to ALECs are those required by the FCC's 319 Order. Absent a showing that access to a UNE is "necessary" and where failure to provide such access "impairs" the ability of an efficient ALEC to provide telecommunications services, BellSouth believes it is not necessary for this Commission to impose additional unbundling obligations beyond those UNEs identified in the FCC's national list. Since the FCC recently completed its exhaustive review of UNEs, BellSouth is not

> aware of any additional elements that need to be examined.

Data ALECs witness Murray's testimony on this issue was directed to BellSouth's proposed rates for line sharing splitters. Witness Murray notes, however, that the parties to this proceeding stipulated to the exclusion of line sharing issues in this proceeding. In its August 16, 2000 refiling of its cost study, BellSouth "removed all reference to Line Sharing, elements J.4."

FCTA witness Barta does not identify any additional UNEs or combinations of UNEs; however, he does recommend that

> . . . if access to any of the unbundled network elements that have been removed from the FCC's list of minimum unbundling requirements proves to be only available at noncompetitive rates, or under unacceptable service quality levels, then the Commission should initiate proceedings to investigate the unbundling of network elements at issue.

We believe that should an ALEC believe witness Barta's scenarios to be occurring, that there is a structure already in place for the Commission to address such a problem (i.e., it may be handled through a complaint or arbitration).

Sprint witness Sichter states that there are no other UNEs or UNE combinations of elements that this Commission should require ILECs to unbundle and that the line sharing and Operational Support Systems (OSS) UNEs will be addressed in separate proceedings. Witness Sichter does, however, provide Sprint's definition of "currently combined": "a requesting carrier should be able to obtain any UNE combination if the incumbent LEC offers, through its wholesale or retail tariffs, any service that includes that UNE combination."

BellSouth witness Varner, in his rebuttal testimony, refers to witness Murray's discussion of unbundled access to digital subscriber line access multiplexers; however, we could find no discussion of DSLAMs in witness Murray's direct testimony.

Decision

As demonstrated by the testimony, the parties agree that, excluding line sharing and OSS, no other elements or combinations have been identified in this proceeding that we should require BellSouth to unbundle. The ALECs have identified line sharing and OSS as two other UNEs that they believe would fall under this issue, but for the fact that these UNEs are specifically precluded from consideration in this proceeding because of the stipulation the parties signed. Therefore, we find that there are no other elements or combinations of elements that we shall require BellSouth to unbundle at this time.

XII. CUSTOMIZED ROUTING

In this section, we address the appropriate rates, if any, for customized routing. In the limited testimony presented by the parties on this issue, no party disputed the fact that some rate is applicable for customized routing. Hence, there is no need for us to specifically address the "if any" portion of the issue.

BellSouth offers two types of customized (or selective) routing. They are the Line Class Code (LCC) method and the Advanced Intelligent Network (AIN) method. Customized routing allows ALECs to route 0+, 0-, and 411 calls to an operator other than BellSouth's or to route 611 repair calls to a repair center other than BellSouth's. BellSouth is required to determine which ALEC is serving the caller and route the call based on instructions provided by the ALEC. The LCCs instruct the switch on how to route calls from all end users associated with that LCC. The AIN Selective Carrier Routing (AIN SCR) service provides an AIN solution to this routing problem.

According to BellSouth, the benefit of using the AIN method versus using the LCC method is that the AIN method allows the use of the AIN "hub" concept, which yields several advantages. These advantages include:

1) allowing the use of appropriate AIN "triggers" for all call types rather than only a limited set of call types;

2) allowing even those end office switches that are not AIN-capable to use AIN customized routing; and

3) optimizing the use of trunk groups between the end office and the AIN hub.

While BellSouth believes that the AIN SCR may ultimately prove to be the preferred method of customized routing for most ALECs, BellSouth will continue to offer customized routing using LCCs.

BellSouth and AT&T/WorldCom were the only parties to propose rates for customized routing. These rates are shown below. While Z-Tel witness Ford did not propose rates, he did note that he believed BellSouth's rate structure for AIN may result in double recovery of certain switching costs and that the specific questions regarding rates and rate structures are better left to the second phase of the hearing. However, witness Ford did not address this issue further in the second phase of the hearing.

PARTIES PROPOSED RATES FOR CUSTOMIZED ROUTING		
Element	**BellSouth's Proposed Installation Rate/ Disconnect Rate**	**AT&T/WorldCom's Proposed Installation Rate/ Disconnect Rate**
G.9.1- Selective Routing Per Unique LCC Per Request, Per Switch	$169.46/$28.23 (NRC)	$16.99/$0 (NRC)
G.11.1 - AIN SCR - Service Establishment per ALEC	$202,270.80/$17,188.36 (NRC)	$202,766/$17,230.00 (NRC)
G.11.2 - AIN SCR - Service Establishment per End Office	$341.01/$3.39 (NRC)	$341.84/$3.40 (NRC)
G.11.4 - AIN SCR - Query Cost	$.0034057 (RC)	$.0027922 (RC)

NRC= Nonrecurring Charge, RC = Recurring Charge
(Sources: Hearing Exhibits 92 and 135)

The appropriate rates for the two methods of customized routing are addressed separately below.

A. Line Class Code Method

AT&T/WorldCom witness King had three specific criticisms regarding BellSouth's nonrecurring inputs for customized routing using the Line Class Code method. First, he noted that BellSouth does not provide an explanation for the work time associated with the Equipment Billing Accuracy Center (EBAC). He asserts that there is a workgroup involved (the EBAC) but that he cannot determine what they do based on the description provided.

Second, witness King believes that the LCC activity is like developing a macro once per switch and then having the capability to perform the activity for multiple LCC requests. Witness King recommends that BellSouth establish customized routing using the LCC for ten carriers at one time instead of one carrier per request, per switch. He asserts:

> The thing about line class codes is or how it works is you go into - - and it has to be done on a switch-by-switch basis. So I agree that it is something, you know, that is on a switched basis. But what essentially occurs is that you are going to go in and create almost like a template that says I'm going to use this code for these carriers. All of the mapping, per se, has already been done the first time around. So essentially what I have done is to say when they go in there they are going to do multiple. And I believe ten is a conservative approach. So essentially what I have done is I've divided their work times by ten. So if it is going to be applied on a per order per switch basis, then it should be allocated to multiple carriers.

Third, witness King believes that disconnect translations should be mechanized with no fallout. He assumes that the time associated with the disconnect should be zero, while BellSouth assumes 0.5 hours in its study for this function.

When BellSouth witness Caldwell was asked to comment on AT&T/WorldCom witness King's proposal, she stated:

> . . . he makes the assumption that you can do 10 at a time. And the cost department has worked with these individuals. We've talked to them numerous times. And basically, they tell us you cannot do that; that when you put in a switch entity line class code, the amount of time estimate that they've given here, assuming he brought the number on here, which is a little over two hours, but that's how much time it takes, that they cannot build, as he says, a macro that gives them the ability to put in 10 at a time, that there is unique information required and they do - - the average that they have given is the amount of time it takes to put in a line class code per switch entity. And, I believe, that's the difference here. He's assuming 10 versus we assume that you do one, and that's what our experts say.

Furthermore, in supporting documents provided by BellSouth in response to our discovery it is noted that: "Since each LCC requires detailed manual work by experienced electronics technicians no economies of scale are expected. The four hour (4 hrs) estimate to provision and test each LCC is based on the detailed activities listed on table 1 and 2." BellSouth's tables 1 and 2 are shown below.

BELLSOUTH'S TABLE -1
ELECTRONICS TECHNICIAN

Item	Activity	Time
1.	Log into WFA, Retrieve Work Request, Review Ordering Document	0.25hrs
2.	Identify and Plan Work Requirements Associated with the Work Request	0.25hrs
3.	Log in Systems to be Used for this Work	0.25hrs
4.	Identify the Source LCC and Retrieve System Information on Source Code	0.25hrs

BELLSOUTH'S TABLE -1 ELECTRONICS TECHNICIAN		
5.	Make Changes to the Source Code and Schedule for Download in MTS	**0.50hrs**
6.	Log back in System after Scheduled Download Date, Verify Packet Successful	**0.25hrs**
7.	Make Operational Test Calls, and Complete WFA Work Request	**0.50hrs**
Total		**2.25hrs**

BELLSOUTH'S TABLE -2 Billing Verification Assistant/RCMAG Assistant		
Item	**Activity**	**Time**
1.	Log into WFA and Review Work Request	**0.25hrs**
2.	Log into System and Verify/Change MATV LCC	**0.25hrs**
3.	Change ATICS LCC	**0.25hrs**
4.	Schedule test	**0.25hrs**
5.	Retrieve Results	**0.25hrs**
6.	Analyze Results	**0.25hrs**
7.	Complete Work Request, File Documentation	**0.25hrs**
Total		**1.75hrs**

(Source: Hearing Exhibit 61)

After reviewing record, we are unable to find any compelling evidence that supports witness King's recommendation that BellSouth establish customized routing using the LCC for ten carriers at one time. Witness King argues that he does not know what the EBAC group does; however, we could not locate any documents in which AT&T/WorldCom attempted to explore what this group does and what would be an appropriate adjustment to the work time for this group. Instead of making a specific adjustment to the work times proposed by BellSouth, witness King divides all work times associated with the LCC by 10. We believe that this is strictly based upon the unsupported assumption that a macro can be developed to replicate the LCC activities. We believe that AT&T/WorldCom provides no factual basis which supports its "macro" assumption. On the other hand, BellSouth has provided supporting documents which show what steps its technicians must take to establish customized routing per switch entity.

Decision

Accordingly, we find that the appropriate rates for the LCC method of customized routing are those proposed by BellSouth, as modified by our findings in other applicable issues.

B. AIN Selective Carrier Routing (AIN SCR)

There is extremely little testimony regarding the AIN Solution to Selective Carrier Routing. As noted above, AT&T/WorldCom and BellSouth are the only parties which proposed rates for these elements. The NRCs proposed by AT&T/WorldCom for these elements are actually higher than those proposed by BellSouth.

In its Cost Study Documentation, BellSouth notes that the cost components for AIN SCR include:

> (1) Signaling System 7 (SS7), (2) Service Transfer Point Ports (STPs) and Right-to-Use (RTU) fees, (3) Service Control Point (SCP) and SCR RTU fees, (4)STP to SCP Links, and (5)additional End Office Switching and Trunking. The SS7 and additional End Office Switching and Trunking investment was developed on a call/query basis. The investment for the remaining components were development [sic] by quantifying the total investment for each component and then multiplying by the portion dedicated to SCR and dividing by the annual average queries.
>
> The nonrecurring components include (1) Service Establishment per CLEC, which includes work times for the Local Service Request, Local Carrier Service Center, and Hub translations, and (2) Service Establishment per End Office per CLEC, which includes work times for the Local Service Request and Local

Carrier Service Center, and End office and Sub Hub office translations.

According to AT&T/WorldCom witness King, his exhibit contains modified versions of BellSouth's NRC study. He notes, "The affected worksheets also document the assumptions used to adjust each cost study." We reviewed his exhibit and could not locate a worksheet for the AIN SCR elements. Because the specific BellSouth NRC study for this element is proprietary, we also reviewed his fourth exhibit, which is the proprietary exhibit attached to witness King's testimony. After a review of that proprietary exhibit, we did locate the worksheet. However, it appeared to be the same as originally filed by BellSouth, as no modifications were noted. Therefore, we could not determine what modifications AT&T/WorldCom proposed for these elements which would cause the NRCs to be slightly greater than those proposed by BellSouth.

Decision

We are unable to find any evidence to support witness King's proposed rates for AIN SCR; therefore, we find that the appropriate rates for AIN SCR are those proposed by BellSouth, as modified by our findings in other applicable issues.

XIII. LINE CONDITIONING

A. Loop Conditioning[5]

In order to provide DSL-based services over copper loops, the loops must be free from disturbers such as load coils, bridged tap, and repeaters. Loop conditioning, line conditioning, and loop modification are all terms used by the parties to describe the activities associated with the removal of equipment such as load coils, repeaters, and bridged tap from copper loops so that the loops may be used to provision broadband services.

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[5] We note that while not separately identified, the appropriate rate for access to loop make-up information has been addressed in this proceeding. Since loop make-up information is needed prior to conditioning or modifying a loop, it appears appropriate to address that issue following our analysis on loop conditioning.

1. Load Coils and Repeaters

Load coils are used on copper loops longer than 18,000 feet to counteract the effect of capacitance. Generally, a load coil on a loop amplifies an analog signal by boosting the entire voice band channel so it can be heard on loops extending farther from the original point of analog transmission, as explained by witnesses Greer, Riolo, McPeak, and McMahon. There is disagreement among the parties as to whether or not loops under 18,000 feet require load coils. The Data ALECs witness Riolo states that load coils are completely unnecessary on any loop less than 18,000 feet. However, BellSouth witness Greer notes that in metropolitan areas many loops as short as 12 Kft. are loaded in order to improve the transmission characteristics for Centrex lines and for PBX trunks.

A repeater is used to amplify a signal over a copper loop. Without such amplification, the signal would be lost over distance. Coalition witness McPeak explains that repeaters are either voice frequency repeaters or digital repeaters. The witness adds that the existence of a repeater on a loop will interfere with xDSL signals; therefore, the loop must be conditioned.

2. Bridged Tap

According to Sprint witness McMahon, bridged tap is any piece of the cable pair that is not in a direct path between the customer and the switching device. Bridged tap allows the ILEC to maximize utilization of its loop facilities, according to witnesses Greer and McPeak. Like load coils, witnesses McPeak and McMahon indicate that bridged tap is an issue because it degrades the quality of a signal.

We note that paragraph 172 of the FCC's UNE Remand Order states:

> We clarify that incumbent LECs are required to condition loops so as to allow requesting carriers to offer advanced services. The terms "conditioned," "clean copper," "xDSL-capable" and "basic" loops all describe copper loops from which bridge taps, low-pass

> filters, range extenders, and similar devices have been removed. Incumbent LECs add these devices to the basic copper loop to gain architectural flexibility and improve voice transmission capability. Such devices, however, diminish the loop's capability to deliver advanced services, and thus preclude the requesting carrier from gaining full use of the loop's capabilities. Loop conditioning requires the incumbent LEC to remove these devices, paring down the loop to its basic form.

FCC Order 99-238. Therefore, the issue at hand is what is the appropriate rate, if any, for line conditioning, and in what situations should the rate apply. There was a great deal of testimony presented on this issue, including a live demonstration and a video tape showing load coils being removed.

According to BellSouth witness Varner, line conditioning charges are applicable when an ALEC requests BellSouth to remove equipment that has been placed on copper loops, i.e., load coils, low-pass filters, range extenders, etc., or by removing bridged tap attached to the copper loop. He notes that the FCC permits BellSouth to charge ALECs for loop conditioning. The FCC's UNE Remand Order in CC Docket No. 96-98 states:

> We agree that the networks built today normally should not require voice-transmission enhancing devices on loops of 18,000 feet or shorter. Nevertheless, the devices are sometimes present on such loops, and the incumbent LEC may incur costs in removing them. Thus, under our rules, the incumbent should be able to charge for conditioning such loops.

FCC Order 99-238 at ¶ 193.

Witness Varner notes that because the FCC allows the recovery of costs for conditioning loops under 18 Kft., rates for conditioning loops greater than 18 Kft. are also appropriate.

BellSouth's loop conditioning element is called Unbundled Loop Modification (ULM). The ULM associated with removing load coils, low-pass filters, and other equipment, such as range extenders, is sub-divided into specific offerings. These offerings are:

- ULM Load Coil Short (ULM/LC-S) - This offering is for equipment removal on short loops (18 Kft. or less).

- ULM Load Coil Long (ULM/LC-L) - This offering is for equipment removal on long loops (over 18 Kft.).

- ULM Bridged Tap (ULM-BT) - This offering is for the removal of bridged tap for any length of loop.

- ULM LC and BT - This offering is for equipment removal and bridged tap removal for 2-wire or 4-wire copper distribution.

According to BellSouth witness Caldwell, BellSouth has structured the ULM costs to appropriately reflect the way in which costs to provide this service will occur. Costs were developed for loops less than 18,000 feet and for loops greater than 18,000 feet.

In its study BellSouth assumes that for loops less than 18,000 feet, 10 pairs will be conditioned by doing such things as removing load coils, low-pass filters, and other equipment, such as range extenders at the same time. According to BellSouth witness Caldwell, this is based on demand for conditioned loops. Additionally, she notes, for loops less than 18,000 feet, the impact of loop modification on voice grade service will be minimal since load coils neither enhance nor impair the quality of voice transmission for loops of that length. Of the ten pairs modified, it is expected that on average two pairs will be ordered initially by the ALEC, four pairs will be used by BellSouth, and the remaining four pairs will be ordered in the future by the same or a different ALEC. The cost of the last four pairs is determined as an ULM - Additive. The additive applies to all ADSL-capable, HDSL-capable, and short unbundled copper loops.

For loops greater than 18 Kft., witness Caldwell contends that the removal of intermediary electronics would likely degrade the voice grade (VG) transmission quality, rendering the loop unusable for VG transmission. Thus, to minimize the quantity of VG circuits that will be unavailable for transmission of VG level service, BellSouth's practice assumes only one circuit will be conditioned at a time on these long loops, according to the witness.

Additional assumptions associated with ULM/LC and ULM/BT are:

- ULM/LC-S, which require conditioning, are expected to have a weighted average of 2.1 load/coils/equipment per loop.

- ULM/LC-L, which require conditioning are expected to have an average of 3.5 load coils/equipment per loop.
- It is estimated that the majority of pairs requiring ULM/LC reside on underground facilities with a minority residing on aerial or buried facilities.

As set forth in Hearing Exhibit 95, it is assumed that an average of three bridged tap/end section removals is expected to significantly affect the transmission of data/digital services. It is assumed that one of the three bridged tap locations will reside in underground facilities and the remaining two in either an aerial or buried application.

BellSouth's other study assumptions include:

- The ordering procedures for loop conditioning are to be handled manually through the Service Inquiry process.

- The loop order and the conditioning order will be issued simultaneously with the loop order status as pending with reserved facilities.

- Modifications on short loops are assumed to be separate orders 20% of the time and on long loops 5% of the time.

- The load coil and bridged tap order for conditioning can also occur through the same ordering process. They are assumed to be separate orders 67% of the time.

- Outside plant engineering (OSPE) will verify equipment locations and prepare records for posting. Outside plant construction is involved in set-up and removal procedures; a 100% dispatch rate applies to this work group.

According to Data ALECs witness Murray, we should not permit BellSouth to impose any nonrecurring loop conditioning charges because its recurring charges recover the forward-looking cost of conditioning loops. However, she notes that if we do decide to adopt nonrecurring conditioning charges, we should base those charges on the efficient conditioning practices described by Data ALECs witness Riolo.

Data ALECs witness Riolo believes that incumbent LECs should be removing load coils as they continually upgrade their outside plant to conform with their own engineering guidelines. Furthermore, he contends that the ILECs inflate conditioning costs by substantially overstating work times and by understating the number of loops that they should condition whenever a technician is dispatched to do that type of work. Witness Riolo believes that if we allow any nonrecurring charges for loop modification, we should require multiple loops to be conditioned at one time. Witness Riolo also recommends that we require that conditioning be done 50 pairs at a time. He notes that for loops under 18 Kft., it makes no sense, from an engineering perspective, to dispatch a technician to remove load coils and to remove anything less than all of the coils currently deployed. He believes that load coils are not useful and are harmful to loops under 18,000 feet. He contends that the total number of loops under 18,000 feet to be deloaded at once would range from a minimum of the 25 pairs in a binder group to potentially hundreds of pairs in multiple binder groups at the same location.

For loops over 18,000 feet, witness Riolo argues that it makes no sense, again from an engineering perspective, to condition one line at a time. He contends that the ILEC should "pre-condition" a reasonable projection of total spare plant to meet anticipated demand for xDSL-based services every time it dispatches a technician and splices are being opened. He believes that on average, a 25-pair binder group should be unloaded even for loops longer than 18,000 feet. Therefore, he recommends that, combining the over-and-under-18,000 feet estimates, removing 50 pairs per load coil dispatch across all loop lengths is a reasonable average.

Witness Riolo does acknowledge that occasionally only one pair will be conditioned at a time. However, he notes that his recommended approach will be reasonable for the vast majority of cases. For bridged tap removal witness Riolo believes conditioning 50 pairs at a time is also a reasonable average.

AT&T/WorldCom witness King believes that the nonrecurring rate an ALEC should pay for line conditioning is zero. He notes:

> We have developed in the recurring rates an adequate compensation for BellSouth to have a network free of load coils and bridged tap. And the other, the subsequent, or the additional argument is, again, in the maintenance factors that BellSouth applies when -- if they get a request today and they need to go out and remove load coils on one of their own customers, that is maintenance type work on that plant and they will bill it to that maintenance account.

Furthermore, he believes that BellSouth is being compensated because the ALECs are paying recurring charges today that are based on a new network without any loop conditioning.

As stated in their post-hearing brief, the Data ALECs believe that in a forward-looking network line conditioning is unnecessary; hence, a rate of zero should apply. However, if we establish line conditioning rates, the Data ALECS contend that we should adopt a rate of $8.32/loop for load coil removal and $.89/loop for bridged tap removal, reflecting the efficiencies of conditioning multiple loops at a time.

We note that Coalition witness McPeak proposed rates that are different than those proposed by the Data ALECs. The rates proposed by witness McPeak apparently are no longer being sponsored by any member of the Coalition, which are a subgroup off the FCCA. Accordingly, we do not specifically address the rates proposed by witness McPeak.

Sprint makes no specific proposals for rates that we should establish for BellSouth. Sprint's criticisms of BellSouth's NRCs involve various elements such as two-wire xDSL loop installations, loop qualification, loop conditioning, Extended Links (EELs), and high capacity DS3 loops, and center around work times considered by Sprint to be excessive that comprise or are used by BellSouth in its cost studies to derive NRCs.

According to Sprint witness McMahon, loop conditioning costs should be based upon current, actual costs incurred by an efficient provider. He believes that for load coil removal on loops over 18,000 feet, and all bridged tap and repeater removals, the costs should be determined on a per location basis, dependent upon the type of outside plant facilities, such as underground, aerial, or buried. Witness McMahon believes that this methodology would enable the recovery of costs that vary with the different types of plant conditions encountered when performing loop conditioning activities.

Sprint contends that NRCs for load coil removal on loops under 18,000 feet in length requires a different cost study approach. Witness McMahon believes that because cable pairs are generally loaded in groups of 25, and load coils are not needed at all on loops less than 18,000 feet, separate costs should be determined based upon a more efficient load coil removal process. Sprint considers it reasonable to spread the fixed costs of accessing the cable pairs across all the pairs that would be unloaded in a 25-pair binder group. The incremental labor costs associated with unloading 24 more cable pairs should be added to a single engineering and travel charge and then divided by 25 to determine the cost per pair for the entire binder group. Furthermore, the witness contends, ILECs that cover more urban areas, with greater customer densities and larger cable sizes should employ a cost model that assumes even greater efficiencies, such as performing load coil removal in greater quantities such as 50 or 100 pairs at a time.

For bridged tap removal, Sprint advocates a rate structure that would be based upon the actual costs associated with removing bridged tap from the actual locations. Sprint does not propose any distinctions with respect to loop length for bridged tap removal, as set forth in Hearing Exhibit 106.

As noted above, there was a great deal of testimony on this issue. In addition, there are few, if any, aspects of this issue about which BellSouth and the various ALECs agree. Accordingly, we believe it necessary to address each ULM element individually. However, we shall first must address whether any rate is appropriate for line conditioning.

B. <u>Applicability of a Rate for Loop Conditioning</u>

While BellSouth and Sprint may not agree upon the rates, or the assumptions to be used to develop the rates, they appear to agree that currently some rate is appropriate for the ULM elements, as indicated by witnesses Varner and McMahon. On the other hand, AT&T/WorldCom, the Data ALECs, and the FCCA ALECs believe there should not be any rate associated with ULM, or stated differently, a rate of zero is appropriate, as indicated by witnesses Murray and King.

Regarding the issue of compensation for loop conditioning, the FCC stated in Order FCC 99-238 (the UNE Remand Order):

> In the Local Competition First Report and Order, the Commission also stated that requesting carriers would compensate the incumbent LECs for the cost of conditioning the loop. Covad and Rhythms argue that, because loops under 18,000 feet generally should not require devices to enhance voice-transmission, the requesting party should not be required to compensate the incumbent for removing such devices on lines of that length or shorter.
>
> . . . .
>
> We agree that networks built today normally should not require voice-transmission enhancing devices on loops of 18,000 feet or shorter. Nevertheless, the devices are sometimes present on such loops, and the incumbent LEC may incur costs in removing them. Thus, under our rules, the incumbent

> should be able to charge for conditioning such loops.
>
> . . . .
>
> We recognize, however, that the charges incumbent LECs impose to condition loops represent sunk costs to the competitive LEC, and that these costs may constitute a barrier to offering xDSL services. We also recognize that incumbent LECs may have an incentive to inflate the charge for line conditioning by including additional common and overhead costs, as well as profits. We defer to the states to ensure that the costs incumbents impose on competitors for line conditioning are in compliance with our pricing rules for nonrecurring costs.

FCC Order 99-238 at ¶¶ 192-194.

It appears that the Data ALECs have several reasons why they believe the rates for ULM should be zero. One of the primary economic reasons is that they believe that the recurring charge for unbundled loops will recover the full cost of providing conditioned loops on a forward-looking basis, as witness Murray contends. Therefore, witness Murray argues that a NRC is not necessary or appropriate.

Data ALECs witness Murray also argues that BellSouth's recurring loop cost study includes the full cost of building conditioned loops that meet modern outside plant engineering guidelines. Therefore, she believes that adoption of any nonrecurring conditioning charges would violate the requirement that the total recurring and nonrecurring charges for conditioned loops be limited to total forward-looking economic costs. She contends that we should not permit BellSouth to impose any nonrecurring conditioning charges because its recurring charges recover the total forward-looking costs of conditioned loops. Witness Murray notes that if BlueStar, Covad, and Rhythms are all willing to pay that recurring cost, which would provide voice grade service without having load coils, then there is no reason for them also to pay to remove load coils that would not exist in that forward-looking network.

When asked whether the ALECs would be willing to pay for load coil removal on a loop longer than 18Kft., she replied:

> . . . I am willing on my client's behalf to suggest that the client should pay a recurring charge that doesn't reflect that old loop that is there, but reflects the cost of a new loop that wouldn't have a load coil. And once they paid that recurring charge, I am not willing for them to pay in addition.

When referred to the compensation provisions in the FCC's UNE Remand Order, witness Murray agreed, with two caveats, that the Order authorizes ILECs to recover the costs of removing load coils and other impediments that exist on embedded plant. Her first caveat is that she believes that conditioning costs and charges must be based on forward-looking economic costs, just like the costs of all other UNEs. Second, she believes that the rules that apply to conditioning costs include the pricing rule that is in 47 C.F.R. §51.507(e). She notes that the rule states that the total of the recurring and nonrecurring charges for an UNE cannot exceed the total forward-looking economic cost of the element.

In addition, witness Murray does not believe that the language in ¶193 and ¶194 of the UNE Remand Order, nor the modified pricing rules, require that this Commission establish a NRC for conditioning. She argues that the FCC's pricing rules do not require a NRC for conditioning even if we find that there are nonrecurring costs associated with such conditioning. Instead, she believes that §51.507(e) explicitly provides that the state commission may require an incumbent to recover any nonrecurring costs through recurring charges. In addition, the witness contends that the FCC's language does not explicitly consider the possibility that the incumbent's recurring costs and charges for unbundled loops will completely capture the forward-looking costs for providing loops free of load coils, excessive bridged tap and other devices that would impede the provision of DSL-based services.

We note that in their Petition for Reconsideration filed with the FCC, Rhythms and Covad stated:

> Yet competitive LECs will now be handicapped in making this argument before the state commissions by the FCC's statement that incumbent LECs must be permitted to recover conditioning costs as nonrecurring charges. The FCC has foreclosed state commissions from concluding that the TELRIC recurring monthly loop rate, which is based on the forward-looking network design that has no electronic impedances already compensates incumbent LECs fully for removal of such devices.

However, witness Murray testified in this proceeding that " . . . my clients were in error because if you look at the pricing rules, the rule reference specifically authorizes the recovery of even a nonrecurring cost through a recurring charge." The witness notes that her interpretation is an economic interpretation, not a legal interpretation.

Data ALECs witness Riolo also believes that the recurring rates proposed by BellSouth recover the costs of conditioning loops. He contends that ILECs have performed and continue to perform conditioning activities such as deloading loops routinely as part of maintaining their loop plant. He notes that ILECs typically reengineer older plant to eliminate DSL inhibitors such as load coils and bridged tap when growth requires an upgrade to existing plant in any specific area. Therefore, he argues that BellSouth's cost to condition its network would already be included in the ongoing expenses that it has incurred and charged to ratepayers for maintaining/improving the network for many years.

Furthermore, witness Riolo notes that BellSouth indicated that the expenses in its recurring costs include the costs of ongoing plant rearrangement and grooming. He offers BellSouth's response to discovery as support for his position. The response states:

> BellSouth follows the general principle that all rearrangements and changes of existing Outside Plant Facilities not retired are

> charged to the appropriate expense accounts for the type plant involved. This would include the rearrangement of pairs to facilitate repairs, freeing up pairs required to accommodate service order activity, and general routine maintenance and grooming of existing cable facilities. Rearrangement activities of an expense nature would also include work to completely rehabilitate a cable in connection with placement of new metallic or fiber cable.

Therefore, according to the witness, conditioning appears to already be included in the recurring unbundled loop costs reported by BellSouth.

When witness Riolo was asked if he believes, as a general premise, that BellSouth should be able to recover the cost it incurs in providing UNEs to ALECS, he responded: " . . .to the extent that costs associated are efficient and forward-looking and things of that nature, certainly there is an entitlement to some compensation. I am not purporting to be a cost witness." Additionally, when asked if the reason he believes that it is not reasonable to pay BellSouth to remove load coils on loops less than 18 Kft. is because of his belief that it is contrary to some policy, code, or guide, he agreed.

Not only do the Data ALECs present economic arguments why they believe they should not pay for loop modification, they also present arguments based on engineering standards. According to witness Riolo, he believes load coils are not needed and are harmful to loops under 18,000 feet. The witness asserts that " . . . decades-old industry engineering standards have called for the removal of the very type of impediments that the ILEC's proposed xDSL loop 'conditioning' costs address." He argues that with current loop standards such as the Carrier Service Area (CSA) guidelines that carriers began to implement in the early 1980s, outside plant engineering evolved in a manner that makes bridged tap and load coils obsolete. He believes that conditioning is part and parcel of delivering a loop built to current standards that is under 18,000 feet.

Further, witness Riolo argues that the presence of load coils on facilities less than 18,000 feet in length generally indicates either that the plant in question was once used to serve customers further from the central office and had been rearranged, or that the facilities in question are very old and were designed to engineering standards that have not been used in decades. He contends that because the continued presence of load coils does nothing other than inhibit data services on those facilities, the load coils in question should have been removed as a part of regular maintenance.

When asked if he believes that it has been long enough to expect that the ILEC's outside plant should conform to CSA guidelines, the witness replied in the affirmative, and added:

> It has been 20 years since the industry adopted those guidelines for non-loaded outside plant. Twenty years exceeds the service lives established by most commissions for outside plant categories of aerial, buried, and underground copper cables. Load coils on copper pairs should therefore be treated as a problem condition, and the ILECs should remove those load coils without charging ALECs.

Witness Riolo notes that BellSouth is currently using CSA guidelines and has been since 1982. As support, he again offered BellSouth's responses to certain interrogatories. These responses state:

> New outside plant loop facilities placed today are based primarily on digital loop carrier platforms and associated fiber and/or copper distribution facilities using Fiber/Carrier Serving Area (FSA/CSA) design concepts to provide both voice grade and digital services.
>
> . . . .
>
> Since the introduction of CSA design in 1982, BellSouth (formerly Southern Bell/South

> Central Bell) has used CSA design guidelines for new cable facilities where digital loop carrier is used for feeder facilities, although BellSouth does not employ these guidelines in every instance.
>
> . . . .
>
> BST has also assumed CSA design in its recurring unbundled loop cost study.

In addition, witness Riolo was asked if there is any requirement in the CSA guidelines that would obligate BellSouth to remove load coils from loops less than 18 Kft. on plant that is not new construction and that is not being rearranged or modified. He replied in the negative, and emphasized that:

> . . . while it wouldn't tell you to stop everything you are doing today and go out there and do something for that plant just for the sake of CSA guidelines, it does in fact tell you that when the opportunity exists to modify or rearrange that plant then you should do it in accordance with these guidelines and migrate the plant toward the CSA guidelines, not go in the opposite direction.

Therefore, it appears that in a situation that is not new construction and it is not a rearrangement or modification of existing facilities, the CSA guidelines would have presented no obligation to do work in any instance where it was not planned for some other reason. Data ALEC witness Murray agreed that the CSA guidelines reference the placement of new plant.

Witness Riolo was also asked to specifically identify in Hearing Exhibit 149 (Application of Resistance Design to Subscriber Loop Plant Guidelines - March 1965) anything that would obligate BellSouth to take affirmative steps to deload a loop as part of a routine maintenance or repair visit. He responded that there is not a specific line item in the practice that directs BellSouth to do that in those terms. Further, it was clarified that the Application of Resistance Design to Subscriber Loop Plant

Guidelines - March 1965 does not address loops under 18 Kft., but rather addresses those over 18 Kft..

When asked if the other standards and practices in Hearing Exhibits 148, 150, and 151 contain any particular provision that would obligate BellSouth as part of routine maintenance and repair to remove load coils from a loaded loop less than 18 Kft., the witness responded:

> I would like to say yes from the point of view that some of the additional guidelines get more specific than the one we have been looking at from 1965 and speak to the term that loops less than 18 Kft. should be nonloaded. So in that regard, they are giving you a guideline that says thou shalt not have loads less than 18 kilofeet.

Like witness Riolo, FCCA witness McPeak believes that load coils on loops less than 18,000 feet are not needed for voice service; therefore, he believes that to charge the ALEC to remove the load coil is not proper. When asked if he would agree that prior to digital loop carrier technology, it was common practice to load all copper loop facilities in BellSouth's network for voice grade transmission, the witness did not agree.

As for Sprint, witness Sichter contends that if you build an efficient forward-looking network, you would not have load coils in that network; therefore, the ILEC should not be compensated for removal of something that should not have been there in the first place. He believes that this concept recognizes that in building an efficient network you incur higher loop costs so you do not have to put load coils in there. Witness Sichter notes: " . . . we recognize the FCC rules do not read quite that way and that they permit recovery of the nonrecurring costs of load coil removal." Therefore, unlike Data ALEC witness Murray, Sprint witness Sichter believes that the FCC's rules as they exist today provide that an ILEC is entitled to recover a reasonable cost for removing load coils and bridged tap as part of the loop conditioning process even though load coils and bridged tap may not be part of a forward-looking network. Sprint has, however, requested reconsideration of that particular part of the FCC rules, but that request has not been acted upon as of the date of our decision in this proceeding.

BellSouth maintains that its proposed loop conditioning charges are based on current real world networks that include copper facilities as a part of its network composition. These charges assume that copper facilities will have the required load coils on loops beyond 18 Kft. to support POTS services; and, they may have load coils on loops less than 18 Kft. to support PBX and other like services.

BellSouth witness Caldwell agrees with the ALEC witnesses that a forward-looking network being designed today would not include load coils. She notes that load coils are not included in BellSouth's forward-looking loop recurring cost study. With regard to witness Murray's comment that "the incumbent's recurring costs and charges for unbundled loops will completely capture the forward-looking costs for providing loops free of load coils, excessive bridged tap and other devices," witness Caldwell asserts that disagrees. She argues that the loop portion of BellSouth's cost study provides costs for loops free of load coils and bridged tap, but does not include the costs for removing them. She also notes:

> . . . the nonrecurring costs BellSouth incurs to provision an unbundled loop for an ALEC are incremental to BellSouth's capitalized costs associated with installing the facilities in the first place. The nonrecurring costs reflect the activities required to activate the circuit, such that it is working for the ALEC and only once BellSouth receives a service request from the ALEC. Examples of nonrecurring activities include running the jumpers at the cross-box, making the physical connection at the Network Interface Device ("NID"), and testing the circuit to ensure that it meets the transmission requirements set for the specific loop ordered. None of the costs of these activities are included in BellSouth's recurring costs and therefore, there is no double recovery of costs.

Similarly, BellSouth witness Varner asserts that:

> . . . Ms. Murray incorrectly assumes that the same network components are reflected in both the recurring and the nonrecurring prices. Recurring and nonrecurring costs for services are costed differently because they use network components in different degrees or use different components altogether. Recurring prices recover one set of costs, e.g. depreciation, cost of money and maintenance. Nonrecurring prices recover a different set of costs. For example, the cost of the technician installing the circuit for used [sic] by the ALEC is recovered through a nonrecurring price. Again, this nonrecurring cost is fully incurred when the service is installed, and must be recovered regardless of how long the customer uses the service.

Additionally, witness Caldwell asserts that Data ALECs witness Riolo's contention that loop conditioning costs are included in BellSouth's maintenance costs is false. The witness contends that BellSouth is not aggressively removing load coils as part of any rehabilitation initiative. She notes that the load coils that are currently on loops less than 18 Kft. have been placed for a specific purpose and unless specific trouble occurs in the cable, they are not removed. In addition, she argues that it is the ALEC's service request that causes BellSouth to incur the cost to remove load coils or bridged tap; thus, witness Caldwell believes that BellSouth is justified in charging the ALEC for the activity.

BellSouth witness Varner believes that the FCC recognized that load coils, bridged taps, and the like, are often present on loops, and that the ILEC incurs costs in removing them. He notes that witness Murray's position on charging for loop conditioning does not comport with Covad and Rhythm's Petition for Reconsideration of the FCC's UNE Remand Order. Witness Varner believes that Covad and Rhythms recognize that BellSouth is currently allowed to recover its costs for line conditioning. He states: "Obviously, if they didn't believe this was the case, then they would not have been compelled to petition the FCC for reconsideration of the UNE Remand Order."

Unlike witnesses Riolo, McPeak, and McMahon, BellSouth witness Greer believes that load coils are useful on loops under 18 Kft.. He notes:

> The presence of load coils on loops as short as 15 Kft. reduces the attenuation loss to some degree but more importantly improves the attenuation distortion. It is for this reason that in metropolitan areas many loops as short as 12 Kft. are loaded in order to improve the transmission characteristics for Centrex lines and for PBX trunks.

In fact, when asked if BellSouth proactively loaded its plant even though load coils were not necessary for regular POTS service, he replied in the affirmative, and explained that:

> This was done in the '70s, when the network's sole purpose was to provide excellent voice grade service, and there were enough of those circuits seen forecasted at that time to dictate loading your plant.

Regarding engineering standards, witness Greer noted that BellSouth employs CSA guidelines whenever possible and feasible. He contends:

> Outside plant guidelines have never told you not to load loops less than 18 kilofeet, until in 19 -- early '80s, when the RRD came out and it recommended - - it was a recommendation that said not to load loops under 18 kilofeet. Before then it was an economical decision whether or not you loaded it or didn't.

In addition, BellSouth witness Latham acknowledged that BellSouth follows the RRD, RD, and CSA standards. He notes that for the CSA standards it is his understanding that copper loops should be unloaded. For the RRD and RD, when those loops are deployed, they should not be deployed with load coils. Furthermore, he believes that the standards deal with when the loop plant is deployed, so while the standard does not call for load coils, there are certain situations such as PBX trunks and other services that did at least in the past require that load coils be put on those loops.

Decision

Upon consideration, we are persuaded that BellSouth should be allowed to charge a rate for loop modification on loops over 18,000 feet. This is supported by the statements of BellSouth witnesses Varner and Caldwell, and also Sprint witness Sichter. However, loop conditioning for short loops, element A.17.1, shall be eliminated. Based on the record, this does not appear to be consistent with a forward-looking cost methodology.

Further, with regard to the disagreement between BellSouth and the Data ALECs on the definition of the appropriate nonrecurring activities, we are not persuaded by the Data ALECs' argument that BellSouth's recurring loop rates fully compensate it for loop modification. We are not persuaded by witness Murray's argument that BellSouth's nonrecurring costs are included in its recurring charges. Rather, there is more record support for BellSouth witnesses Caldwell and Varner that when an ALEC requests service, there are specific activities that occur that may not occur otherwise and that require some activity on the part of BellSouth. These activities should be costed and priced separately from recurring costs and prices. Further, we agree with AT&T/WorldCom witness King that non-recurring activities are those that benefit only the specific ALEC.

In addition, it does not appear that BellSouth violated engineering standards as they existed at the time it was proactively loading plant. Both of the Data ALECs witnesses Murray and Riolo agree that the CSA guideline apply to newly constructed plant or plant rearrangements. Witness Riolo acknowledged that there is not a specific CSA guideline that requires BellSouth to remove load coils from loops less than 18 Kft.. Nevertheless, for loops shorter than 18 Kft., loop conditioning does not appear to be consistent with a forward-looking cost methodology.

Therefore, upon consideration, we shall set rates for the loop modification elements, with the exception of A.17.1. However, as noted above, there are many different inputs which must be reviewed prior to calculating an appropriate rate. Therefore, we shall continue our analysis by examining each proposed ULM element as set forth in the subsequent subsections of this Order.

C. A.17.2 Unbundled Loop Modification-Load Coil/Equipment Removal - Long - First and Additional

Although the Data ALECs and FCCA believe a rate of zero is most appropriate, they did propose a rate and provided testimony regarding inputs. The rate proposed by the Data ALECs and FCCA ALECs is $8.32. AT&T/WorldCom also believe a rate of zero is most appropriate; while they provided some limited testimony on this issue, they did not propose an alternate rate. Sprint too provided testimony on the inputs, although they did not propose a rate.

BellSouth's proposed rate to condition long loops is $710.71 (first) and $23.77 (additional), as set forth in witness Varner's exhibit. However, in its Brief, BellSouth noted that it had adopted a new rate structure for the ULM Load Coil Equipment Removal-Long. According to information in the Brief, this new structure reflects an average approach assuming that two long loops will be conditioned per job, which would eliminate the high charge for the first load coil and a much lower charge for subsequent load coils embodied in BellSouth's earlier rate structure. With this change, the NRC for this element would be reduced from $710.71 (first) and $23.77 (additional) to a single NRC of $341.63. (BellSouth BR 83) According to the Brief, the new rate structure is outlined in a November 14, 2000, letter from BellSouth. However, the information in the letter and the brief were submitted after the hearing had concluded; therefore, it is not part of the record.

1. Number of Pairs to be Conditioned

There is disagreement among the parties as to how many loops over 18 Kft. should be conditioned at one time. One of the few things that the parties do seem to agree on is that load coils are needed on loops over 18 Kft. in order to provide voice grade service, explained by witness McMahon and set forth in Hearing Exhibit 61.

According to BellSouth, load coils are required to provide voice services on copper loops longer than 18 Kft.. Therefore, BellSouth will only unload the number of pairs that are requested by the ALEC. They contend that this will allow other service providers to still offer voice services on the remaining pairs. According to BellSouth witness Caldwell, to minimize the quantity of voice grade (VG) circuits that will be unavailable for transmission of VG level service, BellSouth practices assume only one circuit will be conditioned initially. BellSouth witness Latham notes that since load coils are required to be on copper loops greater than 18 Kft. in order to provide normal POTS service, it makes the most sense to remove these items only from the specific pairs requested by the ALEC. He argues that to do otherwise could jeopardize an end user's ability to get phone service in a timely and cost-efficient manner.

Data ALECs witness Riolo believes that conditioning should be done, on average, 50 pairs at a time for both long and short loops. He argues:

> . . . For loops over 18,000 feet, it still makes no sense from an engineering perspective to "condition" one line at a time – particularly given the substantial predicted demand for xDSL services over the next few years. An efficiently managed outside plant operation will always maintain some level of available spare. An ILEC should "pre-condition" a reasonable projection of total spare plant to meet anticipated demand for xDSL-based services every time it dispatches a technician and splices are being opened. Therefore, on average, a 25-pair binder group should be unloaded even for loops longer than 18,000 feet. Combining the over- and under-18,000 feet estimates, 50 pairs per load coil removal dispatch across all loop lengths is a reasonable average.

Witness Riolo further argues that it is a standard efficient engineering practice to deload and unbridge more than one loop at a time. In addition, he notes that the standard practice in the industry is to prevent multiple re-entries into outside plant splices because multiple re-entries can cause serious deterioration in the wire insulation that will cause telephone wires to short out. Witness Riolo contends:

> . . . engineers have been instructed to engineer copper plant in terms of binder groups of either 25 pairs or groups of 50 pairs. (A "binder group" is designated as such because, inside a copper cable sheath, groups of pairs are segregated into manageable groups of pairs by binding such a group of either 25 pairs or 50 pairs with a thin color-coded ribbon wound around that group of pairs.) Standard engineering practice is to attempt to maintain "binder group integrity," that is, to splice and otherwise treat all of the pair [sic] in a given binder group as a unit.

Therefore, witness Riolo recommends that conditioning be done, on average, 50 pairs at a time. As additional support for his recommendation, he notes that it does not make sense from an engineering perspective to dispatch a technician to remove anything less than all of the coils currently deployed.

The Coalition witness McPeak provided an analysis in which he made certain assumptions regarding BellSouth's cable size and fill factors. Witness McPeak assumes that the average BellSouth cable contains 600 copper pairs with a fill factor of 58%, which means that of the 600 loops, 58% or 347 currently are being used by BellSouth to provide voice service. He also notes that the fill factor was determined by using a weighted average of BellSouth's own estimated fill factors and based on witness McPeak's experience that generally 60% of a network is made up of distribution and 40% of feeder.

Witness McPeak then assumed that BellSouth would set aside a certain amount of pairs for the future provision of services. To estimate the number of lines that should be reserved for future voice demand, witness McPeak relied on population growth data from the U.S. Census Bureau, Population Division. He notes that based on the most recent data, Florida's population is growing at an annual rate of 1.4%. The witness then applied a 5.6% population growth rate over a 4-year time horizon and assumed a 99% penetration rate for telephone subscribership in order to calculate the number of lines that should be reserved to accommodate new voice service demand. Based on these numbers, 19 pairs would need to be reserved for future voice applications, according to the witness.

Witness McPeak further assumes that one-half of all new customers will add a second line; therefore, in order to calculate the number of lines to be set aside for future voice demand over the next 4 years, 99% of new residents are assumed to require new voice service, and one-half of those new customers will require 2 lines. Based on these numbers, witness McPeak estimated that 29 lines will need to be set aside. Then applying the fill factor of 58%, 253 of the 600 pairs per cable are spare. The witness then subtracted the 29 lines that BellSouth would set aside for future customers to arrive at 224 loops. Witness McPeak asserts that although 224 pairs under 17,500 feet may be available for conditioning at an existing location, he has presumed only that BellSouth will condition 25 pairs at a time.

Witness McPeak argues that there are many reasons for taking advantage of the efficiencies associated with conditioning multiple pairs. He believes that the time estimates proposed by BellSouth will be lowered when conditioning a minimum of 25 loops for each dispatch. In addition, he notes that the tools technicians use to splice connections are designed to condition multiple pairs. These tools generally are either a Lucent 710 25-pair splice connector or 3M MS^2 25-pair splice connector. He argues that with the advent of such tools and other similar process enhancements, single pair splicing has become an outdated practice in the telecommunications industry.

Witness McPeak believes another reason for conditioning multiple pairs at a time is that multiple re-entries to splice closures in order to condition loops can cause serious degradation of the wire insulation and can cause failure of the wire. In other words, he believes that accessing the same network components over and over again has the effect of wearing them out. He argues that common sense dictates that it would be more efficient and would cause less wear and tear if access occurred as infrequently as possible. He believes this can be accomplished by conditioning multiple loops at a time. Witness McPeak notes that the cable containing the pairs generally are divided up into twenty-five pair binder groups and in most cases, the twenty-five pair binder groups are spliced using splicing connectors that actually connect twenty-five pair at one time. He believes that this represents another reason why he chose 25 pair as his base number.

Based on his analysis, witness McPeak estimates that for loops over 17,500 feet, 75 loops are available for conditioning per each location visited by a BellSouth technician. Although he estimates that 75 loops are available for conditioning, he recommends that loops over 17,500 feet be conditioned 25 pairs at a time. He notes, "As my analysis indicates, BellSouth can condition well over 25 loops without disturbing existing customer service and while still maintaining reserve loops for future voice service demand."

Sprint witness McMahon appears to agree with BellSouth's one pair assumption. He notes that for load coil removal on loops over 18 Kft., the costs should be determined on a per location basis, dependent upon the type of outside plant facilities. Since load coils are required to provide standard voice-grade service to customer locations beyond 18 Kft., Sprint's position is that load coils ought to be left in place on loops longer than 18 Kft..

As for whether it is efficient to unload multiple pairs at one time when working on loops over 18 Kft., Sprint indicates:

> No. . . . Load coils are necessary on all copper loops that exceed 18 kf in order to provide Plain Old Telephone Service (POTS). . . . for loops exceeding 18 kf in length, there are simply too many distribution cable sheaths and the plain uncertainty as to which specific locations/addresses CLECs may sell xDSL services to accommodate any proposal that ILECs pre-condition loops over 18 Kft. in bulk.

Decision

Upon consideration, we disagree with the proposals of Data ALEC witness Riolo and Coalition witness McPeak because they appear to be extreme and unsupported. Witness Riolo argues that it makes no sense to condition loops over 18 Kft. one at a time "given the substantial predicted demand for xDSL services over the next few years." However, witness Riolo does not provide any facts to support his substantial demand assumptions. While xDSL line deployment is projected to increase[6], we question the witness's assumption because some current DSL technologies generally cannot be provisioned on loops greater than 18 Kft.. In Order No. FCC 99-355, the FCC noted that:

> Provision of xDSL service is subject to a variety of important technical constraints. One is the length of the subscriber loop: ADSL, the most widely deployed xDSL-based service, generally requires loops less than 18,000 feet using current technology.

CC Docket No 98-147 Deployment of Wireline Services Offering Advanced Telecommunications Capability, ¶ 8 at footnote 9.

In addition, according to BellSouth witness Milner, HDSL typically cannot be more than 12,000 feet long on 24 gauge copper wire and if 26 gauge copper wire is used, the limit is 9,000 feet. Because many of the DSL technologies cannot generally be provisioned on loops greater than 18 Kft., we find that the record reflects that it is not necessary to condition these loops in mass quantities.

As noted in BellSouth's post-hearing brief, BellSouth adopted a new rate structure for the ULM Load Coil Equipment Removal-Long. This new structure reflects an average approach assuming that two long loops will be conditioned per job, which would eliminate the first and additional cost embodied in BellSouth's earlier rate

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[6] Projections indicate that xDSL line deployment levels will increase from 5,103,000 lines by end of 2001 to 7,655,000 lines by the end of 2002. Note that these numbers combine ILEC and ALEC deployed lines, but exclude HDSL lines. <u>See</u> FCC Order 99-355, p. 8 at footnote 8.

structure. We find that the inputs used in a cost study must be based on reasonable assumptions, and that this is a reasonable assumption. Further, as noted by BellSouth witness Latham, engineers in the field often determine how many loops may be conditioned at a certain location. There will likely be times when BellSouth finds it necessary or reasonable to condition more than one pair on loops over 18 Kft. Therefore, BellSouth's cost study shall be modified to reflect that, on average, 2 pairs will be conditioned on loops over 18 Kft. for load coil removal, element A.17.2. Furthermore, the first and additional rate structure shall be eliminated.

2. Load Points

In its study, BellSouth has assumed that an average of 3.5 load coils are present on copper loops greater than 18 Kft.. The weighted average is based on the following input:

BASIS FOR BELLSOUTH'S AVERAGE LOAD POINT ASSUMPTION		
Description	**%**	**No. Load Coals x %**
% of loops with 3 load coils	60	1.8
% of loops with 4 load coils	30	1.2
% of loops with 5 load coils	10	0.5
Weighted Average (Sum of above)		3.5

(Source: Hearing Exhibit 61)

No other party specifically commented on this assumption.

Decision

Since no other party commented on this assumption, based on the evidence in the record, we shall assume 3.5 load coils are present, on average, on loops over 18 Kft..

3. Percentage of Load Coils - Underground, Aerial, or Buried

In its cost study, BellSouth has assumed that on average 90% of the time, load coils will be removed from the underground plant and 10% of the time load coils will be either in the aerial or buried plant.

According to BellSouth witness Greer, the assumption that load coil removal involves 90% underground plant and 10% aerial/buried plant distribution is based on the fact that, in metropolitan wire centers, the plant is predominantly built underground in the area close to the central office. He notes that the vast majority of BellSouth's central offices that serve metropolitan areas have underground structures for the placement of large underground cables and associated load coils. Smaller, rural central offices use aerial or buried facilities directly from the central office, according to the witness. He contends:

> . . . competition for DSL services is developing first in metropolitan areas, most of the work involved with conditioning loops for xDSL will be in metropolitan settings and will involve predominantly underground facilities. Certainly that has been BellSouth's experience to date. In those instances where there are only two load coils, which is ninety percent (90%) of the time, both load coils will fall within 9 Kft. of the central office and will, generally, be placed in underground facilities. Even if there is a third load coil located within 15 Kft. of the central office, this load coil will likely be placed, as well, in underground facilities in metropolitan settings.

BellSouth has, however, noted that, "This is a verbal input from a Network Subject Matter Expert. No documents or other supporting items are available."

Data ALEC witness Riolo assumes that the first two load coil locations involve underground cable at manhole locations 100 percent of the time. Like witness Greer, he supports his assumption based simply on experience. Witness Riolo explains:

> Generally it has been my experience in the industry that in more urban environments, certainly, the cable from the office as it emanates out into the field would be out of sight, would be usually in a conduit manhole

> environment and hence underground. . . . I think it would be a very conservative estimate . . . to say that the first 9,000 feet of cable coming from an office would typically be in an underground environment.

Witness Riolo believes his estimates are conservative; he notes that in looking at ARMIS data, which is data that is reported by BellSouth to the FCC, only 11.5 percent of BellSouth's plant is underground. Thus, the witness believes that BellSouth has a relatively smaller amount of underground plant, and that the assumption that two of the load points would occur underground is broad and conservative.

The Coalition witness McPeak disagrees with BellSouth's assumption regarding the location of load coils. He contends:

> Yes, I have an opinion on that based on the fact that loop conditioning doesn't only take place in metropolitan areas for xDSL services. When we are looking at loop conditioning, we have to take into consideration that this will be taking place in rural areas and suburban areas where actually xDSL was designed to accommodate customers.

He notes that if 90% of all conditioning takes place in underground facilities, that assumes that most loops are contained in underground facilities nearly 18,000 feet from the wire center. He believes this is a drastic overstatement of the presence of underground facilities within the network. He asserts that, typically, as a cable extends from the wire center, it transitions from underground plant to aerial plant and then to buried plant. Furthermore, the witness believes that BellSouth's cost model seems to contradict its assumption that 90% of conditioning occurs in underground facilities because it inexplicably assumes that bridged tap removal will occur equally in underground, aerial, and buried facilities.

In his analysis, witness McPeak made an overall assumption that load coils would be found in aerial, buried, and underground facilities each 33 percent of the time. He did not make any assumption as to where one would find each individual load coil, such as at the first load point or second load point.

Sprint witness McMahon also disagrees with BellSouth's assumptions. He believes that BellSouth's costs are not based upon realistic underground, buried, and aerial plant mix factors. He notes that Sprint researched its outside plant records in Florida and found that the first load point is within underground plant 59.2% of the time. The second load point was found to be in underground plant 51.6% of the time. He argues that these percentages do not support BellSouth's 90% underground assumption utilized in the BellSouth cost model.

Witness McMahon notes that the cost associated with accessing cable pairs is significantly higher when technicians need to obtain access in underground OSP facilities versus aerial/buried OSP environments. He notes that BellSouth makes no acknowledgment of plant mix differences between load points #1 and #2. He believes that load point #2 will be found in aerial and buried plant more often than load point #1. Witness McPeak also contends that conditioning becomes less expensive as the network moves from underground to aerial/buried facilities.

Decision

Upon consideration, it does not appear to us that BellSouth's assumptions regarding this input are supported by the evidence it has provided in this proceeding. To begin with, BellSouth witness Greer contends that the basis for BellSouth's 90% underground assumption is that in metropolitan areas the plant is predominantly underground near the central office, and the witness notes that BellSouth's experience to date has been that competition for DSL services develops first in metropolitan areas. Therefore, he argues that the work involved in conditioning loops for xDSL will be in metropolitan settings and will involve predominantly underground facilities. In addition, BellSouth noted that its 90% assumption is " . . . based on estimates of BellSouth subject matter experts." It is not clear to us whether the SME's estimates are also based upon "BellSouth's experience to date," as alluded to by witness Greer or if they are based on some other information. It is troubling that given the opportunity to provide support for its own study input, BellSouth did not provide any factual information.[7]

As indicated by Sprint witness McMahon, costs associated with accessing cable in the underground environment are greater than accessing cable in the buried or aerial environment. This is evident in BellSouth's own cost study. For example, BellSouth's total outside plant work time for load coil removal on short underground loops is 51.03 minutes per pair. However, it assumes only 4.41 minutes per pair to remove load coils in buried/aerial plant.

Furthermore, witness McMahon asserts that BellSouth does not acknowledge plant mix differences between load points. There may, however, be differences in the plant mix depending upon how far a load coil is from the central office. Based on the data BellSouth provided regarding its plant mix (56.3998% buried; 27.0688% aerial; 16.5314% underground), we find that it is unreasonable to assume that, on average, 90% of the time 2.1 load coils will be underground in BellSouth's territory.

The only empirical data was that provided by Sprint. Sprint's data reveals that in its Florida territory, the first load point is underground 59.2% of the time and the second load point is underground 51.6% of the time. In contrast, BellSouth is assuming that 90% of the time 2.1 load coils will be in underground plant. Although BellSouth and Sprint serve different territories, Sprint's statistics regarding its load points are telling. Nevertheless, because BellSouth's territory is more densely populated, it is likely that BellSouth would have more underground plant than Sprint. Thus, we cannot merely apply Sprint's data. Accordingly, because we find no supporting testimony for BellSouth's 90% assumption, and the only empirical data is that from another ILEC's serving territory, we find it reasonable to assume that, on average, for BellSouth, 2.1 load coils will be underground 75% of the time. Because this finding approximates the mid-point between the empirical data provided by Sprint and BellSouth's proposals, it

[7] We note that the record reflects that BellSouth was asked to provide information to support this input on two separate occasions. See Hearing Exhibit 61.

is reasonable given the additional supporting information that BellSouth serves a more densely populated territory.

4. Work Activities and Work Times

BellSouth assumes that for long loops it deloads one pair at a time. Using this assumption, it claims 9 minutes as the work time applicable. The inputs into BellSouth's nonrecurring work times are provided by its SMEs, as explained by witness Caldwell. The tables below illustrate BellSouth's proposed tasks and task times for long loops:

OSPC - LOAD COIL LONG UNDERGROUND APPLICATION-FIRST & ADDITIONAL			
Step	**Description**	**Task (First) (min.)**	**Task (Addtl) (min.)**
1	OSPC sets up manholes	120.00	
2	OSPC opens/closes splices	60.00	
3	OSPC deloads 1 pair	9.00	9.00
Total Work time-ULM-LC-Long-Underground		**595.35**	**28.35**

First - 189 min. x 3.5 load coils removed x 90% probability underground/1 pair = 595.35
Additional - 9 min. X 3.5 load coils removed x 90% probability underground/1 pair = 28.35
(Source: Hearing Exhibit 95)

OSPC - LOAD COIL LONG BURIED/AERIAL APPLICATION			
Step	**Description**	**Task (min.)**	**Task (Addtl) (min.)**
1	OSPC set up	60.00	
2	OSPC opens/closes splices	60.00	
3	OSPC deloads 1 pair	9.00	9.00
Total Work time-ULM-LC-Long-Buried/Aerial		**45.15**	**3.15**

First - 129 min. x 3.5 load coils removed x 10% probability buried or aerial/1 pair = 45.15
Additional - 9 min. X 3.5 load coils removed x 10% probability underground/1 pair = 3.15
(Source: Hearing Exhibit 95)

Data ALECs witness Riolo believes that if we decide to permit BellSouth to impose conditioning charges, then such charges should be based on engineering practices generally employed in the telecommunications industry and on reasonably efficient task time estimates. He recommends that we use the following work steps and time estimates to determine the costs involved in removing load coils from underground, aerial, and buried locations:

UNDERGROUND CABLE LOAD COIL REMOVAL IN A MANHOLE

	Description	Task min.
1	Travel time to underground splice location.	20
2	Set up work area protection and underground work site.	5
3	Pump and ventilate manhole.	15
4	Buffer cable/Rerack cable/set up splice.	5
5	Open splice case.	5
6	Identify pairs to be deloaded for 1st 25-pair binder group.	5
7	Bridge 25-pair bndr. grp. for service continuity if necessary.	5
8	Remove/sever connection from main cable to load 'in'/'out taps.	3
9	Rejoin / splice 25-pair binder group through main.	5
10	Remove bridging modules from Step 7.	2
11	Identify pairs to be deloaded for 2nd 25-pair binder group.	5
12	Bridge 25-pair bndr. grp. for service continuity if necessary.	5
13	Remove/sever connection from main cable to load 'in'/'out' taps.	3
14	Rejoin/splice 25-pair binder group through main cable.	5
15	Remove bridging modules from Step 12.	2
16	Clean, reseal, and close splice case.	10
17	Rack cables, pressure test cables in manhole.	10
18	Close manhole, stow tools, break down work area protection.	10
	Total Minutes	120
	Total Hours	2.00
	No. Technicians	2
	Total Timesheet Hours	4.00
	No. Locations	2
	Total Hours	8
	Pairs deloaded	50
	Minutes per pair	9.6 min

AERIAL CABLE LOAD COIL REMOVAL AT A POLE (50% OCCURRENCE)

	Description	Task min.
1	Travel time to aerial splice location from underground splice location.	10
2	Set up work area protection.	5
3	Set up ladder or bucket truck.	10
4	Open splice case.	5

AERIAL CABLE LOAD COIL REMOVAL AT A POLE (50% OCCURRENCE)

	Description	Task min.
5	Identify PIC pairs to be deloaded for 1st 25-pair binder group.	2
6	Bridge 25-pair binder group for service continuity if necessary.	5
7	Remove/sever connection from main cable to load 'in'/'out taps.	3
8	Rejoin/splice 25-pair binder group through main cable.	5
9	Remove bridging modules from Step 6.	2
10	Identify pairs to be deloaded for 2nd 25-pair binder group.	2
11	Bridge 25-pair binder group for service continuity if necessary.	5
12	Remove/sever connection from main cable to load 'in'/'out taps.	3
13	Rejoin/splice 25-pair binder group through main cable.	5
14	Remove bridging modules from Step 11.	2
15	Clean, reseal, and close splice case.	10
16	Secure splice case to strand and clean up work area.	10
17	Close aerial site, stow tools, break down work area protection.	10
	Total Minutes	94
	Total Hours	1.57
	No. Technicians	1
	Total Timesheet Hours	1.57
	No. Locations	0.5
	Total Hours	0.78
	Pairs deloaded	50
	Minutes per pair	0.94 min.

BURIED CABLE LOAD COIL REMOVAL AT A PEDESTAL (50% OCCURRENCE)

	Description	Task min.
1	Travel time to buried splice location from underground splice location.	10
2	Set up traffic cone at rear bumper of truck.	1
3	Walk to site & open splice pedestal.	2
5	Identify PIC pairs to be deloaded for 1st 25-pair binder group.	2
6	Bridge 25-pair binder group for service continuity if necessary.	5
7	Remove/sever connection from main cable to load 'in'/'out taps.	3
8	Rejoin/splice 25-pair binder group through main cable.	5
9	Remove bridging modules from Step 6.	2
10	Identify pairs to be deloaded for 2nd 25-pair binder group.	2
11	Bridge 25-pair binder group for service continuity if necessary.	5
12	Remove / sever connection from main cable to load 'in' & 'out taps.	3
13	Rejoin / splice 25-pair binder group through main cable.	5
14	Remove bridging modules from Step 11.	2
16	Secure splice within buried pedestal and clean up work area.	3
17	Close down buried site, stow tools and traffic cone.	5

BURIED CABLE LOAD COIL REMOVAL AT A PEDESTAL (50% OCCURRENCE)		
	Description	Task min.
	Total Minutes	55
	Total Hours	0.92
	No. Technicians	1
	Total Timesheet Hours	0.92
	No. Locations	0.5
	Total Hours	0.46
	Pairs deloaded	50
	Minutes per pair	0.55 min.

Witness Riolo's proposal assumes the following: 1) 50 pairs will be conditioned, 2) there are 3 load points on a short loop, and 3) the first 2 load points will be underground and the third load point will be buried 50% of the time and aerial 50% of the time.

Witness Riolo's recommendations are for conditioning loops both over and under 18 Kft.. His recommended tasks and task times are based on:

> . . . personal experience in having performed the functions and supervising the functions. In running an operation as district plant manager in charge of construction and maintenance, I have had a variety of experiences throughout my extensive career. And, again, having personal experience with it and supervising those who have done it, this is my expert opinion.

The Coalition witness McPeak believes that BellSouth has overstated the times involved in conditioning pairs, leading to over-inflated rates for conditioning. Further, he contends that BellSouth provided no support in its testimony to justify the time intervals it has proposed.

Witness McPeak provided a table comparing BellSouth's activity times to what he believes are the appropriate activity times. There are, however, problems with the comparison table presented by witness McPeak. To begin with, the witness does not provide the source from which he obtains BellSouth's activity time proposals.

Second, prior to the table, the witness provides a description of each conditioning function category and the amount of time BellSouth has included in its study. The witness lists 3 separate loop conditioning elements (A.17.1, A.17.2, and A.17.3); because the table is not labeled, it is not clear whether witness McPeak's proposed activity times are applicable to all three elements listed or if it is just for element A.17.1. Finally, witness McPeak's table compared BellSouth's proposed times based on its May 1, 2000 filing, not its revised filing of August 16, 2000. Witness McPeak did file supplemental testimony addressing BellSouth's revised filing, but did not revise his table. In his supplemental testimony, the witness acknowledged that BellSouth made changes in its cost model, but he did not consider those changes in his analysis to calculate rates. Nevertheless, the table below provides a comparison of witness McPeak's recommended activity times and BellSouth's most recently proposed activity times.

COMPARISON OF BELLSOUTH'S PROPOSED ACTIVITY TIMES & WITNESS MCPEAK'S PROPOSED ACTIVITY TIMES		
Function	**BellSouth's Proposal**	**Coalition's Proposal**
Service Inquiry	7.5 minutes	15 minutes
Service Inquiry	7.5 minutes	15 minutes
Engineering	3.75 hours	30 minutes
Engineering	16.7 minutes	30 minutes
Engineering	50.1 minutes	30 minutes
Connect & Turn-Up & Test	9.24 hours	1.5 hours
Connect & Turn-Up	0 minutes	42 minutes
Travel	30 minutes	15 minutes

Witness McPeak provided explanations to support his recommended activity times, but the assumptions were not based upon BellSouth's most recent study, nor is it clear to which loop conditioning elements they apply. As such, we do not find they are supported by the record. We note, however, that the witness's recommendations are based on his experience in actually performing the loop conditioning activities he has addressed.

BellSouth witness Greer believes witness McPeak's assumptions are "unrealistic." Specifically, he notes:

> As noted by Mr. Riolo, to condition a loop, a BellSouth technician must travel to the work location, set up work area protection, pump and ventilate the manhole, buffer the cable and set up the splice, open the splice case, identify the pairs, perform the necessary operations to condition the loop, close the case, rack the cables, pressure test the cables, and close down the work area. When two or more locations are involved, these steps are repeated. To think that all of this work can be accomplished in the short period of time proposed by Mr. McPeak is unrealistic.

At hearing BellSouth witness Greer was asked to comment and compare BellSouth's videotape demonstration with Data ALECs witness Riolo's testimony that sets forth his proposed tasks and task times for load coil removal in a manhole. The results of this comparison were captured in Hearing Exhibit 118, which is set forth below.

COMPARISON OF DATA ALECS WITNESS RIOLO'S PROPOSAL WITH BELLSOUTH'S VIDEOTAPE

UNDERGROUND CABLE LOAD COILS REMOVAL IN A MANHOLE

Step	Description	Task min.	Tape Time[1]
1	Travel time to underground splice location.	20	N/A
2	Set up work area protection and underground work site.	5	4
3	Pump and ventilate manhole.	15	103
4	Buffer cable/Rerack cable/set up splice.	5	7
5	Open splice case.	5	4
6	Identify pairs to be deloaded for 1st 25-pair binder group.	5	3
7	Bridge 25-pair binder group for service continuity (If necessary).	5	N/A
8	Remove/sever connection from main cable to load 'in' & 'out' taps.	3	12
9	Rejoin/splice 25-pair binder group through main cable.	5	
10	Remove bridging modules from Step 7.	2	N/A
11	Identify pairs to be deloaded for 2nd 25-pair binder group.	5	N/A
12	Bridge 25-pair binder group for service continuity (if	5	N/A

	necessary).		
13	Remove/sever connection from main cable to load 'in' & 'out' taps.	3	N/A
14	Rejoin/splice 25-pair binder group through main cable.	5	N/A
15	Remove bridging modules from Step 12.	2	N/A
16	Clean, reseal, and close splice case.	10	11
17	Rack cables, pressure test cables in manhole.	10	9
18	Close down manhole, stow tools, break down work area protection.	10	19
	Total Minutes	120	
	Total Hours	2.00	
	No. Technicians	2	
	Total Timesheet Hours	4.00	
	No. Locations	2	
	Total Hours	8	
	Pairs Deloaded	50	
	Minutes Per Pair	9.6 min	

Similar Activities	W/O Pumping
Riolo 73	-15 = 58
Tape 172	-103= 69

(Source: Hearing Exhibit 118)

At hearing BellSouth witness Greer acknowledged that witness Riolo "did an excellent job of listing out the tasks, and his assumptions on time were reasonable, yes." At his deposition, however, witness Greer indicated that he did disagree with with witness Riolo's assumptions as follows:

> One is very straightforward, and that is you can tell from the steps that he enumerated that he is talking about PIC cable, a connectorized cable that is more commonly in our buried and aerial plant. In our underground plant, where we would be unloading like this, BellSouth has predominantly pulp cable, and a pulp cable is not as easy as some other testimony has stated to identify the pair. It isn't color coded.

Witness Greer explains that it is not as easy to identify the pairs with pulp cable; therefore, he notes that it takes time to locate each and every pair. Witness Greer does not believe witness Riolo allows time for that process. He contends that witness Riolo is making the assumption that you can simply identify the pair which needs to be conditioned based upon the color-code of the pair and know that you are there. When asked if he agrees that you would expect the times for working with PIC cable to be less, witness Greer indicated that he did not agree. He explains:

> As I stated earlier, you still have to identify the pairs to go through it. Now, PIC is less fragile, and you can handle it easier, but you haven't -- and identifying it does have color-coded, but you still have to spend the time to go through pair by pair, so depending upon how much less, whatever less means.

The loop conditioning video tape presented by BellSouth showed technicians unloading 25 pairs of pulp cable. Witness Greer was asked how much additional time he believed it would take to unload 50 pairs in the splice shown in BellSouth's video. He believes it would be the same amount of time as that taken by the technician to identify the other count and go about performing the same operation.

With regard to witness Riolo's task time assumptions, witness Greer was asked if he realized that witness Riolo's chart does include times for a second binder group, and he responded affirmatively. Witness Greer acknowledged that most of the tasks listed by witness Riolo are not affected by the number of pairs that are unloaded. He also agreed that the task times for such tasks as travel time, setting up, pumping, opening the splice case, closing and resealing the splice case, putting the cables back, and closing down the manhole, are totally unaffected by doing 10, 25, or 50 pairs.

Witness Riolo was asked if, in his opinion, there were any tasks performed in BellSouth's video that were unnecessary, he conceded, "Certainly what comes to mind were not things that were not necessary as much as there were things that perhaps were not efficient."

Decision

The activities and work time assumptions proposed by the parties appear to be estimates based on personal experience and input from other sources, such as SMEs, as indicated by witnesses Caldwell and McPeak. While we agree with Sprint witness McMahon that an ALEC should not pay for BellSouth's inefficiencies, we disagree with witness McMahon's recommendation that BellSouth's costs for work activities performed by BellSouth's employees should be developed using contractor rates, as opposed to the actual rates BellSouth pays its employees. In his testimony, witness McMahon provided specific information as to what Sprint pays splicing contractors; however, no such information was provided for BellSouth. While it is possible that BellSouth could negotiate something equal to or better than Sprint's contracted rate for the splicing activities, there is no record support for such an assumption.

As for witness McPeak's testimony, we find that it would be inappropriate to accept his suggested inputs, because it is not clear to which loop conditioning elements they apply.

In the following table, we compare the remaining two proposals, that of the Data ALECs and BellSouth. This table provides only a general comparison, because the proposals are not directly comparable due to varying levels of detail provided.

SUMMARY OF BELLSOUTH'S & DATA ALECS' ASSUMPTIONS FOR CONDITIONING LOOPS IN UNDERGROUND PLANT		
	BellSouth	**Data ALECs**
Total Time in Minutes	270	200*
Number of Load Points	2.1	2
Total Pairs Conditioned	10	50
Plant Mix Assumption	2.1 load coils underground 90% of the time	2 load coils underground 100% of the time
Minutes per pair	51.03	8.00

*In his proposal, witness Riolo allows 20 minutes for travel. The total time shown in the table does not include this travel time.

(Source: Hearing Exhibit 95)

SUMMARY OF BELLSOUTH'S & DATA ALECS' ASSUMPTIONS FOR CONDITIONING LOOPS UNDER 18 Kft. IN BURIED/AERIAL PLANT		
	BellSouth*	**DATA ALECS****
Total Time in Minutes	210	69.5***
Number of Load Points	2.1	1
Total Pairs Conditioned	10	50
Plant Mix Assumption	2.1 load coils buried/ aerial 10% of the time	.5 load coils buried .5 load coils aerial
Minutes per pair	4.41	1.39

* BellSouth's proposed conditioning activities and work times for aerial/buried plant are combined.
**Unlike BellSouth's proposal, Data ALEC witness Riolo proposed separate activities and work times for buried and aerial plant; for comparison purposes, witness Riolo's proposed aerial and buried times are averaged.
***In his proposal, witness Riolo allows 10 minutes for travel. The total time shown in the table does not include this travel time.
(Source: Hearing Exhibit 95)

It appears to us that the differences between these two proposals are caused by the various assumptions that are applied to the work times, especially the number of pairs conditioned at once. For example, if one were to take BellSouth's proposed work times for underground conditioning and assumed that 50 pairs were conditioned, instead of 10, the per pair time would be 10.206 minutes, instead of 51.03 minutes. As noted by the various witnesses, most of the loop conditioning activities are not affected by the number of pairs that are unloaded. For example, whether conditioning 2 pairs or 50 pairs, the time to pump the manhole would not be affected. However, the number of pairs unloaded significantly impacts the minutes per pair.

If similar assumptions are applied, the parties' proposed work times for loop conditioning on loops are not that disparate. Because a true comparison cannot be done, we are unable to determine with any certainty where all differences may lie. Nevertheless, it appears that the proposals are reasonably similar when extremes are eliminated and comparable assumptions are applied. Thus, we find it is reasonable to simply average the times proposed by BellSouth with those proposed by the Data ALECs. Therefore, the approved inputs for connect and test are as follows: 235 minutes for underground conditioning and 140 minutes for conditioning aerial/buried plant.

E. A.17.3 Unbundled Loop Modification-Bridged Tap Removal

Bridged tap is the result of an OSP deployment strategy which allows for greater utilization of the loop facilities and enhanced network flexibility by having the same cable pair appear at more than one service address, as indicated by BellSouth's witness Greer and the Coalition's witness McPeak. Witness Riolo contends that bridged tap exists where one single dial tone can appear at more than one cable pair location. According to witness Riolo, bridged tap is somewhat like a fork in the loop. One fork continues necessarily to the customer premise to complete the circuit. The second fork extends some distance into the field, but never terminates at a customer premises. Like load coils, bridged tap is an issue because it degrades the quality of the signal, as explained by witnesses McPeak and McMahon.

As with load coils, the Data ALECs believe that a rate of zero is most appropriate for bridged tap removal. However, they propose a rate of $0.89 per loop for bridged tap removal if we find conditioning charges are appropriate. Sprint did not propose a rate for bridged tap removal; however, Sprint witness McMahon believes that the costs for removal of bridged tap should be determined on a per location basis, dependent upon the type of OSP facilities. According to BellSouth's cost study, the ULM associated with the removal of bridged tap (ULM-BT) is intended for any length of loop. Its proposed rate is $65.44, as set forth in Hearing Exhibit 92. In general, we note, there was less testimony presented on ULM-BT than for load coil removal.

1. Number of Pairs Unbridged at a Time

In its study, BellSouth assumes that an average of three bridged taps will be removed per loop from 10 loops at a time. Unlike load coil removal, witness Latham explains, the work involved in removing bridged tap is not dependent on loop length.

BellSouth provided little testimony, however, to support these assumptions.

As with load coil removal, Data ALEC witness Riolo believes removing bridged tap from 50 pairs at a time is a reasonable average. He contends that:

> . . . loops under 18,000 feet that contain bridged tap are, by definition, relatively short. As a result, the cables over which these loops are provisioned would generally be larger-size cables. It is therefore reasonable to unbridge a minimum of 50 "working" loops in each cable at a branch splice, in each direction.

Witness Riolo believes that the benefits of unbridging multiple working pairs that have unnecessary bridged tap are manifold. These benefits identified by the witness are summarized below.

- First, the requested "conditioning" for the service order is accomplished.
- Second, 100 pairs at the branch splice location are unbridged (a procedure that improves the existing service without disrupting it), and transitions the network towards present-day engineering standards.
- Third, transmission of voice-grade service on these working circuits is improved because the insertion loss, caused by the bridged tap, is removed.
- Fourth, the unbridged working circuits provide a base of preconditioned pairs that could be utilized for future services that are incompatible with excessive bridged tap.
- Fifth, the unbridged working services now have less exposure to maintenance problems, which will result in reduced customer trouble reports.

- Sixth, "conditioning" working service precludes the need to re-enter a working splice on numerous occasions to "condition" one pair at a time, which potentially causes customer outages.

- Seventh, unbridging working service does not require the amount of engineering study that would be involved if every spare pair were studied, grouped, and allocated to a specific branch cable. Because the actual "wire work" is a relatively minor portion of the cost of the job, this methodology is cost efficient.

For longer bridged tapped loops, witness Riolo believes that a cost analysis based on older plant design must recognize that, as cable sheaths traverse the route from the central office, the cable size tends to diminish. He notes that:

> Because engineering guidelines do not permit bridged tap between load coil sections, bridged taps should only be located in the customer end section of cable plant, i.e., within 3 to 12 Kft. of the customer location. Even for these longer, loaded loops, the ILECs could still achieve benefits similar to those described for non-loaded loops by unbridging multiple pairs; however, the number of working lines to be unbridged at a branch splice location would likely be smaller, e.g., 25 working pairs per cable (a total of 50 pairs), to account for the diminished size of the cables.

Moreover, witness Riolo contends that unbridging multiple pairs at a time substantially reduces the cost on a per unit basis. He believes that the benefit to the ILECs is that the ALEC order would trigger an unbridging opportunity to clean up its outside plant – something he believes they should have been doing proactively since SAC design in 1972, but perhaps had no opportunity to do so because the particular bridged tap splice involved had no activity in the last 28 years.

As with other conditioning activities, the Coalition witness McPeak notes that he has conservatively assumed BellSouth will condition 25 pair at a time for both loops over and under 17,500 feet. However, he did not specifically address this assumption as it related to bridged tap.

Sprint witness McMahon believes that for all BT removals, the costs should be determined on a per location basis. Sprint notes that since BT removal was not an issue prior to the introduction of xDSL, there was no need for detailed practices and that today, Sprint removes BTs on a case-by-case basis, as demonstrated in Hearing Exhibit 76.

Decision

As with the assumptions for load coil removal, there seem to be extreme proposals with regard to how many loops should be unbridged at one time. However, there is significantly less testimony to support the varying proposals.

Data ALEC witness Riolo advocates unbridging the most pairs, a minimum of 50 "working" loops at once. He argues that this will provide several benefits to the ILEC, as well as the ALEC. Finally, witness Riolo contends that unbridging multiple pairs at a time substantially reduces the cost on a per unit basis.

In sharp contrast to witness Riolo's proposal, BellSouth assumes 10 pairs will be unbridged at one time; however, it also provided insufficient evidentiary support for its assumption. When asked if bridged tap can be removed from more than 10 pairs at one time, BellSouth's witness Greer indicated that it can be, but that it will affect the company's outside plant flexibility. Based on the response of witness Greer, it appears that BellSouth assumed 10 pairs will be unbridged at once in order to maintain outside plant flexibility.

Finally, Sprint believes that the costs for bridged tap should be determined on a per location basis and notes that it removes BTs on a case-by-case basis, according to witness McMahon. While there is merit with the ICB pricing recommended by Sprint, we note that many of the intervenors in this proceeding have made it clear that they wish to have firm rates in place for UNEs.

We emphasize that we find none of the parties' proposals are well supported; however, since ICB pricing is not being proposed, a reasonable input must be established for the cost study. There was testimony regarding the fact that bridged tap allows network flexibility from Coalition witness McPeak, BellSouth witness Greer, and Sprint's witness McMahon. Thus, it appears that unbridging an excessive amount of pairs may reduce or hinder this flexibility. Nevertheless, as we have already noted, the number of pairs conditioned represents an average; thus, on balance, we find it is reasonable to require that 50 pairs be unbridged at one time. This will still allow BellSouth to maintain flexibility in its network, as witness Greer indicated was necessary, while providing a reasonable number of pairs that will be unbridged and ready to support DSL services.

2. Plant Mix and Number of Bridged Taps per Loop

Because there is limited testimony on plant mix and the number of bridged taps per loop, we have combined our analysis on these topics. In its study, BellSouth assumes that there will be three bridged taps per loop and that one of the three bridged tap locations will reside in underground facilities and the remaining two will either be in aerial or buried plant[8].

Sprint witness McMahon disagrees with BellSouth's assumption that 33% of bridged taps, one out of three, would need to be removed in manholes. He believes that most bridged taps occur in the distribution plant where there is primarily aerial and buried cable and very little underground cable. He notes that cable pairs are very rarely bridged in the feeder plant where most underground cable occurs, precisely to avoid the high cost of re-entering those manhole splices. He argues that virtually all bridged tap removal could be done in aerial or buried cable, at far less cost. However, in the few instances in which cable pairs are bridged in a manhole splice, the witness contends that it is very likely that the pair could be trimmed at the point at which it

[8] In its study the plant mix input for bridged tap is not done on a percentage basis. It reflects that one bridged tap will occur in underground and two will occur in buried or aerial plant.

leaves the conduit system and becomes aerial or buried for distribution. Witness McMahon believes this would be far less costly than opening a splice in a manhole.

Witness Greer disagrees with witness McMahon's assertion that virtually all bridged tap removal would be done in aerial or buried cable. He notes that BellSouth's rationale recognizes that competition for xDSL services in its region has developed first in metropolitan areas where the use of underground facilities is the norm rather than the exception. This is the same rationale BellSouth witness Greer used to support the assumption that load coil removal involves 90% underground plant and 10% aerial/buried plant.

Data ALECs witness Riolo believes that bridged tap will occur 50% of the time in aerial cable and 50% of the time in buried cable, with only one bridged tap occurring per loop. Witness Riolo argues that bridged tap should not exist in underground feeder cable close to the central office.

Decision

Because the ULM-BT element is intended for any length of loop, the evidence suggests that it is likely that, on average, a loop may have three bridged taps. As noted by the Coalition witness McPeak, the three pair assumption accounts for the fact that more or less than three bridged taps could have to be removed from a given loop.

With regard to the location of these loops, be it underground, aerial, or buried, the evidence reflects that bridged taps will be found in distribution plant where there is primarily aerial and buried cable and very little underground cable. Therefore, BellSouth's cost study inputs shall be modified to reflect that on average .5 bridged taps will be in underground plant and that 2.5 bridged taps will be found in aerial or buried.

3. Work Activities and Work Times

BellSouth proposed the following work times and work activities.

BELLSOUTH'S PROPOSED WORK TIMES & ACTIVITIES FOR ULM-BT		
Description	**Work Activities**	**Work Time (Min.)**
Service Inquiry	CRSG/Acct Team receives Service Inquiry (SI) from CLEC; forwards to OSPE for handling. Once OSPE responds with Estimated Completion Date (END), CRSG follows up w/OSPE until job is completed. Upon completion of job, CRSG notifies CLEC that loop is conditioned and sends SI to LCSC for processing.	0.75
Service Inquiry	LCSC receives SI, validates for accuracy and processes order.	0.75
Engineering	OSPE receives SI from CRSG, verifies bridged tap locations in plats. (Engineering)	22.50
Engineering	OSPE codes, assigns job number and returns SI to CRSG (Clerical)	1.67
Engineering	AFIG receives job from OSPE and posts records	5.01
Connect & Test (Underground)	OSP Construction removes bridged tap. (Setup - 2 hrs; open/close splice 1 hr.; remove bridged tap - .75 hr.)	22.50
Connect & Test (Buried/Aerial)	OSP Construction removes bridged taps (2). (Setup - 1 hr; open/close splice - 1 hr.; remove bridged tap - .75 hr.)	33.00
Travel	OSP Construction travels to bridged tap sites.	3.0

(Source: Hearing Exhibit 95)

As is the case with other ULM elements, the record contains very little testimony specifically addressing the work times for service inquiry, travel, or engineering for loop modification. We note that many of the intervenors addressed these items under other issues. Therefore, in this section of our Order, we address the specific activities and work times for unloading the pairs.

BellSouth's activities and work times for removing bridged tap are found in its cost study, specifically in file FL-ULM.xls. As previously discussed, BellSouth's SMEs provided input into the nonrecurring cost development. They provide the process flow, the work centers involved, any probabilities that may be required, and the time required by work center. According to BellSouth, the SMEs' work experience and expertise qualify them to provide the data used in BellSouth's cost study filing in this proceeding.

In its study, BellSouth did not specifically itemize each physical activity required to remove bridged tap. For example, BellSouth claims it takes 120 minutes for Outside Plant Construction (OSPC) to set up a manhole; however, the study does not detail what tasks are included in the 120 minutes. The tables below contain BellSouth's proposed activities and work times for loop modification in underground plant and aerial/buried plant. The study includes the following assumptions: 1) 10 pairs will be unbridged, 2) there are 3 bridged taps per loop, and 3) 1 bridged tap will be underground while 2 will be in buried/aerial plant.

BELLSOUTH'S OSPC- BRIDGED TAP - UNDERGROUND APPLICATION		
Step	**Description**	**Task(min.)**
1	OSPC sets up manholes	120.00
2	OSPC opens/closes splices	60.00
3	OSPC removes bridged tap	45.00
Total WorkTime-ULM-BT-Underground		**22.50**

225 min. x 1 underground bridged tap/10 pairs = 22.50 minutes
(Source:Hearing Exhibit 95)

BELLSOUTH'S OSPC - BRIDGED TAP REMOVAL-BURIED/AERIAL APPLICATION		
Step	**Description**	**Task (min.)**
1	OSPC set up	60.00
2	OSPC opens/closes splices	60.00
3	OSPC removes bridged tap	45.00
Total WorkTime-ULM-BT-Buried/Aerial		**33.00**

165 min. x 2 buried or aerial bridged taps/10 pairs = 33.00
(Source:Hearing Exhibit 95)

Sprint witness McMahon believes that BellSouth has utilized inflated work times in its non-recurring cost model for bridged tap removal. He states:

> Again, we will ignore, for the moment, the cost differences that involve set-up time and opening and closing the splice enclosure, and focus on the specific work function of

> removing bridged tap. BST allots 45 minutes for their technicians to remove bridged tap (snip two wires). This equates to roughly $4.50 per pair as the BST model assumes 10 are removed at the same time. For this same work function, Sprint pays contractors an average of 45 cents per pair in underground plant and 39 cents per pair in aerial and buried plant[9].

Sprint witness McMahon notes that when "removing" bridged tap no plant is actually removed. He explains:

> . . . the two wires of the cable pair are simply cut off and capped. In splices in larger cables, this may require removing a connector that splices twenty—five pairs at a time, pulling out the bridged pair and replacing the connector.

Witness McMahon states that it is Sprint's position that excessive bridged tap can be removed the majority of the time at the customer's serving terminal, where the customer's drop wire connects to the distribution cable. He believes that cutting off the pair at the serving terminal at the same time that the xDSL service is installed would bring many loops into compliance at very little incremental cost. Cutting off the pair at the serving terminal is a common practice, according to the witness. That is, the technician could remove the bridged tap while doing the connection of the xDSL loop to the customer's drop. This would eliminate a separate trip, separate set-up time and separate tear-down time. The only additional time would be the few minutes that it would take to cut the wires or remove them from the connector, witness McMahon explains.

BellSouth witness Greer disagrees with Sprint regarding cutting off the pair at the serving terminal. Witness Greer argues that cutting off the cable pair at the serving terminal at the same

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[9] We note that it appears that there is some discrepancy in witness McMahon's statement. According to our calculations, if one divides the 45 minutes BellSouth allots for its technicians to remove bridged tap by its 10 pair assumption, that equates to 4.5 minutes per pair, not $4.50 per pair.

time xDSL service is installed is not a common practice to BellSouth. He notes this is because it results in the destruction of the continuity of the cable pairs in the network beyond that point. The witness contends that this results in the extended part of the cable being unusable unless, at some time in the future, work is done to reattach the section. If cable pairs were cut off at a given service terminal, witness Greer believes that the overall capability of the network would be impaired, records would no longer be accurate, and additional dispatch costs would be incurred to re-establish cable continuity associated with subsequent service order activity. Further, witness Greer believes that cutting the pair off beyond the serving terminal is not always necessary to qualify a circuit for xDSL service.

Data ALECs witness Riolo believes that excessive bridged tap exists on a loop only if ILECs in Florida ignored industry standards and neglected outside plant maintenance. In those instances, he believes the ILECs should bear the entire cost of removing such bridged tap. Witness Riolo argues that while common in the days of party line service, bridged taps should have been engineered out of the network since 1972.

Witness Riolo notes that CSA guidelines permit bridged tap use, but only up to a level that generally does not interfere with xDSL-that is, 2,500 feet total and 2,000 feet per individual bridged tap. He contends:

> . . . the ILECs would not need to remove bridged tap from plant designed to meet CSA guidelines because the CSA design limits bridged tap to a level that would not interfere with xDSL. Therefore, bridged tap removal is not required for loops that comply with the CSA standards regarding bridged tap. . . . All of the ILECs' plant should now conform with these twenty-year-old industry standards for outside plant construction and maintenance. Excessive bridged tap exists on a loop only if ILECs in Florida ignored industry standards and neglected outside plant maintenance. In those instances, ILECs should

bear the entire cost of removing such bridged tap.

Witness Riolo argues that if we elect to permit BellSouth to impose charges for bridged tap removal, he recommends that such charges be based on reasonably efficient practices generally employed in the telecommunications industry. The witness again notes his belief that the ILECS should have eliminated bridged taps almost 30 years ago, except for limited end-section bridged taps that could be removed in the service terminal at the time of an installation visit. In addition, he argues, bridged tap should not exist in underground feeder cable close to the central office. Therefore, he assumes that a single case of bridged tap, if it occurs, would occur 50 percent of the time at an aerial location, and 50 percent of the time at a buried location. Accordingly, witness Riolo advocates that we use the following work steps and time estimates to estimate the costs involved:

AERIAL CABLE BRIDGED TAP REMOVAL AT A POLE (50% occurrence)		
	Description	Task min.
1	Travel time to aerial splice location.	20
2	Set up work area protection.	5
3	Set up ladder or bucket truck.	10
4	Open splice case.	5
5	ID PIC pairs for brdg. tap removal for 1st 25-pair binder group.	2
6	Remove bridging modules or cut & clear pairs for 1st 25-pair group.	2
7	ID PIC pairs for brdg. tap removal for 2nd 25-pair binder group.	2
8	Remove bridging modules or cut & clear pairs for 2nd 25-pair group.	2
9	Clean, reseal, and close splice case.	10
10	Secure splice case to strand and clean up work area.	10
11	Close down aerial site, stow tools, break down work area protection.	10
	Total Minutes	78
	Total Hours	1.30
	No. Technicians	1
	Total Timesheet Hours	1.30
	No. Locations	0.5
	Total Hours	0.65
	Pairs Unbridged	50
	Minutes per pair	0.78 min

(Source: Witness Riolo's testimony)

BURIED CABLE BRIDGED TAP REMOVAL AT A PEDESTAL (50% occurrence)		
	Description	Task min.)
1	Travel time to buried splice location.	20
2	Set up traffic cone at rear bumper of truck.	1
3	Walk to site & open splice pedestal.	2
4	ID PIC pairs for brdg. tap removal for 1st 25-pair binder group.	2
5	Remove bridging modules or cut & clear pairs for 1st 25-pair group.	2
6	ID PIC pairs for brdg. tap removal for 2nd 25-pair binder group.	2
7	Remove bridging modules or cut & clear pairs for 2nd 25-pair group.	2
8	Secure splice within buried pedestal and clean up work area.	3
9	Close down buried site, stow tools and traffic cone.	5
	Total Minutes	39
	Total Hours	0.65
	No. Technicians	1
	Total Timesheet Hours	0.65
	No. Locations	0.5
	Total Hours	0.33
	Pairs Unbridged	50
	Minutes per pair	0.40 min.

(Source:Witness Riolo's testimony)

Decision

As with load coil removal, Data ALECs witness Riolo argues that ILECs should bear the entire cost of removing bridged tap when industry standards are ignored and outside plant maintenance is neglected. However, witness Riolo provided insufficient information demonstrating that BellSouth "violated industry standards" or that there is some standard that dictates how an ILEC must maintain its outside plant. Therefore, we are not convinced that BellSouth should bear the entire cost of bridged tap removal.

Sprint witness McMahon argues that BellSouth's work times are inflated and that Sprint pays its contractors significantly less to remove bridged taps. As was discussed earlier, we agree with Sprint witness McMahon that an ALEC should not pay for BellSouth's inefficiencies. However, we disagree that BellSouth's costs for work activities performed by BellSouth's employees should be developed using contractor rates, as opposed to the actual rates

BellSouth pays its employees. In his testimony witness McMahon provided specific information as to what Sprint pays its contractors to unbridge pairs; however, no such information was provided for BellSouth. Therefore, we do not find it reasonable to assume that BellSouth would pay a contractor the same rate to unbridge its pairs, especially since, as addressed below, BellSouth's witness Greer notes that Sprint's unbridging method is not commonly employed by BellSouth.

It appears that both witness McMahon and witness Riolo advocate that bridged taps can be removed simply by cutting off the pair at the serving terminal at the time of an installation visit. In fact, witness McMahon notes that cutting off the pair at the serving terminal is a common practice. However, BellSouth witness Greer disagrees and notes that this is not a common practice for BellSouth, because it results in the destruction of the continuity of the cable pairs in the network beyond that point. While witness Greer addressed why he disagrees with cutting off the pairs at the serving terminal, he did not specifically address if unbridging could or should be done in conjunction with an installation visit.

Upon consideration, it appears that it may be most efficient for BellSouth to remove bridged tap, when necessary, at the time of an installation visit, thereby eliminating the need for a separate service call. However, because no specific data was provided regarding this assumption, we are unable to determine how such an assumption should be reflected in the cost study. Furthermore, while cutting off a pair at the serving terminal may be a common practice for Sprint, we find no compelling evidence in the record that would support our imposing this practice upon BellSouth. Finally, unlike the work time proposal for load coil removal, the times proposed by BellSouth and the Data ALECs are extreme, even when similar assumptions are applied. Therefore, we do not find it appropriate to average the proposed work times for bridged tap removal. Accordingly, BellSouth's work times for bridged tap removal shall not be modified at this time.

F. <u>A.17.5 Unbundled Sub-loop Modification-2w/4w Copper Distribution Load Coil/equipment Removal and A.17.6 Unbundled Sub-loop Modification-2w/4w Copper Distribution Bridged Tap Removal</u>

As part of its August 16, 2000 cost study revisions, BellSouth introduced several new elements. As set forth in Hearing Exhibit 93, two of the new elements are: 1) Unbundled Sub-Loop Modification-2w/4w Copper Distribution Load Coil/Equipment Removal; and 2) Unbundled Sub-Loop Modification-2w/4w Copper Distribution Bridged Tap Removal Load Coil/Equipment Removal. These new elements were introduced approximately one month prior to the hearing, leaving little time for review of these elements in any great detail. Furthermore, BellSouth did not provide any documentation or information to support the assumptions for these new elements, nor did it provide a description of these new elements in its cost study narrative. Therefore, it is not completely clear from the record what these elements represent, why they were proposed, or why BellSouth considers its proposed rate reasonable.

According to BellSouth witness Milner, sub-loop distribution facilities are known as the "last mile" to a customer's premises. He explains that copper pairs of the loop feeder are individually cross-connected to pairs in smaller cables. These smaller cables disperse cable pairs and/or loop transmission channels from the loop feeder cables. Therefore, the record indicates that the newly introduced sub-loop modification elements are meant to apply to modifications that occur in the sub-loop distribution portion of the loop.

In its study, the following input assumptions were reflected for element A.17.5, Unbundled Sub-loop Modification-2w/4w Copper Distribution Load Coil/Equipment Removal:

- 1 pair would be deloaded at a time,
- 1.2 load points per pair,
- 10% of the time the load points will reside in underground plant; and

- 90% of the time the load points will reside in buried/aerial plant.

In addition, the following work times were assumed by BellSouth:

BELLSOUTH'S PROPOSED WORK TIMES FOR UNBUNDLED SUB-LOOP MODIFICATION 2w/4w COPPER DISTRIBUTION LOAD COIL/EQUIPMENT REMOVAL-FIRST/ADDITIONAL		
Description	**First Install (Minutes)**	**Additional Install (Minutes)**
Service Inquiry	7.52	0.00
Service Inquiry	7.52	0.00
Engineering	225.00	0.00
Engineering	16.70	0.00
Engineering	50.10	0.00
Connect & Test	162.00	10.80
Travel	30.00	0.00

(Source: Hearing Exhibit 95)

As we have noted, however, the record contains no documentation or testimony from BellSouth that supports the appropriateness of these assumptions.

In its study, the following input assumptions were reflected for element A.17.6 Unbundled Sub-loop Modification-2w/4w Copper Distribution Bridged Tap Removal:

- 3 bridged taps will be removed in total from the sub-loop,

- 1 bridged tap will be removed from underground plant; and

- 2 bridged taps will be removed from buried/aerial plant.

The following work times were also assumed:

BELLSOUTH'S PROPOSED WORK TIMES FOR UNBUNDLED SUB-LOOP MODIFICATION 2W/4W COPPER DISTRIBUTION BRIDGED TAP REMOVAL-FIRST/ADDITIONAL		
Description	**First install (Minutes)**	**Additional Install (Minutes)**
Service Inquiry	7.52	0.00
Service Inquiry	7.52	0.00
Engineering	225.00	0.00
Engineering	16.70	0.00
Engineering	50.10	0.00
Connect & Test	433.50	13.50
Travel	30.00	0.00

(Source: Hearing Exhibit 95)

In his supplemental rebuttal testimony Data ALEC witness Riolo commented on BellSouth's newly proposed elements. Witness Riolo stated that:

> . . . distribution plant, frequently referred to as "the last mile," is not likely to contain load coils. In fact, transmission design standards require that no load coils may exist in the last 3,000 feet closest to the customer's location, and that there may be between 3,000 feet and 12,000 feet of a copper loop between the last load coil and the customer's location. [See Bellcore Telecommunications Transmission Engineering, Volume 3, Networks and Services, 1990, at 106.] This situation exists, of course, unless an engineering design error has occurred. Furthermore, BST has inflated the costs for removing these elements by assuming that distribution "conditioning" jobs would be performed on only one pair at a time. As I explained in my July 31st testimony [at 81-90], it is a standard efficient engineering

> practice to deload and unbridge more than one loop at a time. Indeed, it is important to prevent multiple re-entries into outside plant splices because multiple re-entries can cause serious deterioration in the wire insulation that will cause telephone wires to break or short out. It is standard engineering practice to attempt to maintain "binder group integrity," that is, to splice and otherwise treat all of the pairs in a given binder group as a unit. Single pair splicing, i.e., splicing only one or a few of the pairs in a given binder group for some purpose, has been avoided for decades.

As with loop conditioning for loops under 18 Kft., witness Riolo believes that it is most appropriate to remove all load coils when a dispatch occurs. The witness contends that it is entirely irrelevant if those coils are on feeder or distribution plant. He again notes his belief that the existence of load coils degrades the speed of plain old analog modems.

Witness Riolo notes that copper cables closer to the central office normally consist of larger cable sizes; however, distribution cable is normally farther from the central office. He believes that while 100 to 300 pairs, or even more, could easily be conditioned at one time on a cable close to the central office, it might not be possible to condition that many pairs on smaller distribution cables farther from the central office. Hence, when the conditioning effort is limited to distribution, the total number of lines that could efficiently be conditioned at one time would be smaller than for loops looked at in total. That being said, he argues that it does not change the fact that it is clearly inefficient to condition only one pair at a time. As the witness previously argued, an engineer would endeavor to maintain binder group integrity wherever possible, "thereby supporting my opinion that costs should be based on no more than 1/25th of the cost of the dispatch and work to condition loops at one site."

Witness Riolo does not believe that the activities and work time assumptions, such as connect and test, that are the basis for BellSouth's proposed costs for these new distribution "conditioning" elements reflect efficient practices. He argues that BellSouth's proposed costs for the two new elements reflect the same inefficient tasks and work times that it has used in its other conditioning elements. The witness believes that if we permit BellSouth to impose charges for subloop conditioning then those charges should be based on practices generally employed in the telecommunications industry and on reasonably efficient task time estimates. The witness notes:

> As I explained in my previous testimony, usually only three load coils would appear on a loop at 6,000-foot intervals (for example, at 3,000 feet, 9,000 feet, and at 15,000 feet). Two of these would typically be in the underground portion of the loop. Typically that would leave one load coil in the aerial or buried portion of the loop. Even if the last load coil were to appear in the "last mile" distribution portion of the loop, BST has unaccountably assumed that on average 1.2 load coils will appear in that distribution portion. This is particularly odd given BST's assumption that a loop will contain 2.1 load coils on average. Thus, BST appears to be saying that more than half of the load coils on a loop occur in the distribution portion, which is clearly suspect.

Witness Riolo assumes that where loaded distribution cable is involved, only one load coil would appear in that distribution portion of a loaded loop, on average. Furthermore, he believes that it is unlikely that any of the distribution portion will be underground. He notes that the total actual sheath kilometers of cable as reported in the FCC's ARMIS database indicates only 11.5% underground for both feeder and distribution plant. The witness, however, used BellSouth's assumption that 10% of the distribution load coils would actually appear in underground facilities. Furthermore, he assumed that 45% of the time the load coils would be at an aerial location and 45% of the time the load coil would be at a buried location. Witness Riolo notes that he believes his plant mix assumptions are conservative. The witness recommends that we use the following work steps and conservative time estimates to develop the costs involved in removing an interfering load coil from a distribution sub-loop:

Underground Load Coil Removal Distribution in a Manhole (10% occurrence)		
	Description	Task min.
1	Travel time to underground splice location	20
2	Set up work area protection and underground work site	5
3	Pump and ventilate manhole	15
4	Buffer cable / Rerack cable / set up splice	5
5	Open splice case	5
6	Identify pairs to be deloaded	5
7	Bridge binder group for service continuity (if necessary)	5
8	Remove / sever connection from main cable to load "in" & "out" taps	3
9	Rejoin / splice pairs through main cable	5
10	Remove bridging modules from Step 7	2
11	Clean, reseal, and close splice case	10
12	Rack cables, pressure test cables in manhole	10
13	Close down manhole, stow tools, break down work area protection	10
	Total Minutes	100
	Total Hours	1.67
	No. Technicians	2
	Total Timesheet Hours	3.33
	No. Locations	0.10
	Total Hours	0.33
	Pairs deloaded	25
	Weighted Average Minutes per pair	0.80 min.

(Source: Witness Riolo's testimony)

AERIAL LOAD COIL REMOVAL FROM DISTRIBUTION AT A POLE (45% occurrence)		
	Description	Task (min.)
1	Travel time to aerial splice location from underground splice location	10
2	Set up work area protection	5
3	Set up ladder or bucket truck	10
4	Open splice case	5
5	Identify PIC pairs to be deloaded	2
6	Bridge binder group for service continuity (if necessary)	5
7	Remove / sever connection from main cable to load "in" & "out" taps	3
8	Rejoin / splice pairs through main cable	5

AERIAL LOAD COIL REMOVAL FROM DISTRIBUTION AT A POLE (45% occurrence)		
	Description	Task (min.)
9	Remove bridging modules from Step 6	2
10	Clean, reseal, and close splice case	10
11	Secure splice case to strand and clean up work area	10
12	Close down aerial site, stow tools, break down work area protection	10
	Total Minutes	77
	Total Hours	1.28
	No. Technicians	1
	Total Timesheet Hours	1.28
	No. Locations	0.45
	Total Hours	0.58
	Pairs deloaded	25
	Weighted Average Minutes per pair	1.39 min.

(Source: Witness Riolo's testimony)

BURIED LOAD COIL REMOVAL FROM DISTRIBUTION AT A PEDESTAL (45% occurrence)		
	Description	Task min.
1	Travel time to buried splice location from underground splice location	10
2	Set up traffic cone at rear bumper of truck	1
3	Walk to site & open splice pedestal	2
5	Identify PIC pairs to be deloaded	2
6	Bridge binder group for service continuity (if necessary)	5
7	Remove / sever connection from main cable to load 'in' & 'out taps	3
8	Rejoin / splice pairs through main cable	5
9	Remove bridging modules from Step 6	2
10	Secure splice within buried pedestal and clean up work area	3
11	Close down buried site, stow tools and traffic cone	5
	Total Minutes	38
	Total Hours	0.63
	No. Technicians	1
	Total Timesheet Hours	0.63
	No. Locations	0.45
	Total Hours	0.29
	Pairs deloaded	25
	Weighted Average Minutes per pair	0.68 min.

(Source: Witness Riolo's testimony)

Using the same criteria as stated earlier, witness Riolo assumes that a single case of bridged tap, if it occurs, would occur 50% of the time at an aerial location and 50% of the time at a buried location. He believes we can use the following work steps and conservative time estimates to estimate the costs involved in removing bridged tap from a distribution sub-loop:

AERIAL CABLE BRIDGED TAP REMOVAL FROM DISTRIBUTION AT A POLE (50%		
	Description	Task
		(min.
1	Travel time to aerial splice location	20
2	Set up work area protection	5
3	Set up ladder or bucket truck	10
4	Open splice case	5
5	Identify PIC pairs for bridged tap removal	2
6	Remove bridging modules or cut & clear pairs	2
7	Clean, reseal, and close splice case	10
8	Secure splice case to strand and clean up work area	10
9	Close down aerial site, stow tools, break down work area	10
	Total Minutes	74
	Total Hours	1.23
	No. Technicians	1
	Total Timesheet Hours	1.23
	No. Locations	0.5
	Total Hours	0.62
	Pairs Unbridged	25
	Weighted Average Minutes Per Pair	1.48

(Source: Witness Riolo's testimony)

BURIED BRIDGED TAP REMOVAL FROM DISTRIBUTION AT A PEDESTAL (45% occurrence)		
	Description	Task
		min.
1	Travel time to buried splice location	20
2	Set up traffic cone at rear bumper of truck	1
3	Walk to site & open splice pedestal	2
4	Identify PIC pairs for bridged tap removal	2
5	Remove bridging modules or cut & clear pairs	2
6	Secure splice within buried pedestal and clean up work area	3
7	Close down buried site, stow tools and traffic cone	5
	Total Minutes	35
	Total Hours	0.58
	No. Technicians	1

BURIED BRIDGED TAP REMOVAL FROM DISTRIBUTION AT A PEDESTAL (45% occurrence)		
	Description	Task
		min.
	Total Timesheet Hours	0.58
	No. Locations	0.5
	Total Hours	0.62
	Pairs Unbridged	25
	Weighted Average Minutes Per Pair	0.70

(Source: Witness Riolo's testimony)

Like the Data ALECs, Sprint's witness McMahon finds that BellSouth's NRCs for Unbundled Sub-Loop Modification use inflated work times and questionable work steps. He notes:

> BellSouth has NRCs for both load coil removal and bridged tap removal. In both those NRCs, BellSouth claims 3.75 hours of engineering time is necessary. Sprint believes that 3.75 hours of engineering time is clearly excessive. This is ten times the 0.375 hours BellSouth claims is necessary for short loop modifications for load coils and bridged tap. Sprint believes that engineering for loop and sub-loop modifications should be similar. Similarly, BellSouth claims 2.7 hours is necessary for connect and test for sub-loop load coil removal, but that 0.924 hours is necessary for loop load coil removal. Also, BellSouth claims 7.225 hours is necessary for connect and test for sub-loop bridged tap removal, but that 0.925 hours is necessary for loop bridged tap removal. Connect and test for loop and sub-loop modifications should also be similar or the same as for the entire loop.

BellSouth's activities and work time assumptions for subloop modification are similar to those proposed for deloading loops over 18 Kft.. BellSouth's connect and test work times are shown below.

OSPC - LOAD COIL SUB LOOP UNDERGROUND APPLICATION-FIRST & ADDITIONAL			
Step	Description	Task (First) (min.)	Task (Addtl) (min.)

1	OSPC sets up manholes	120.00	
2	OSPC opens/closes splices	60.00	
3	OSPC deloads 1 pair	9.00	9.00
Total Work time-ULM-LC-Subloop-Underground		**22.68**	**1.08**

First - 189 min. x 1.2 load coils removed x 10% probability underground/1 pair = 22.68

Additional - 9 min. X 1.2 load coils removed x 10% probability underground/1 pair = 1.08

(Source: Hearing Exhibit 95)

OSPC - LOAD COIL SUBLOOP BURIED/AERIAL APPLICATION FIRST & ADDITIONAL			
Step	**Description**	**Task (min.)**	**Task (Addtl) (min.)**
1	OSPC set up	60.00	
2	OSPC opens/closes splices	60.00	
3	OSPC deloads 1 pair	9.00	9.00
Total Work time-ULM-LC-Subloop - Buried/Aerial		**139.32**	**9.72**

First - 129 min. x 1.2 load coils removed x 90% probability buried or aerial/1 pair = 139.32

Additional - 9 min. X 1.2 load coils removed x 90% probability underground/1 pair = 9.72

(Source: Hearing Exhibit 95)

OSPC - BRIDGED TAP SUBLOOP UNDERGROUND APPLICATION FIRST & ADDITIONAL			
Step	**Description**	**Task (min.)**	**Task (Addtl) (min.)**
1	OSPC set up	120.00	
2	OSPC opens/closes splices	60.00	
3	OSPC removes bridged tap	4.50	4.50
Total Work time-ULM-BT Subloop-Underground		**184.50**	**4.50**

First - 184.5 min. x 1 bridged tap underground/1 pair = 184.5

Additional - 4.5 min. X 1 bridged tap/1 pair = 4.50

(Source: Hearing Exhibit 95)

OSPC - BRIDGED TAP SUBLOOP BURIED/AERIAL APPLICATION			
Step	**Description**	**Task (min.)**	**Task (Addtl) (min.)**
1	OSPC set up	60.00	
2	OSPC opens/closes splices	60.00	
3	OSPC deloads 1 pair	4.50	4.50
Total Work time-ULM-BT Subloop -		**249.00**	**9.00**

OSPC - BRIDGED TAP SUBLOOP BURIED/AERIAL APPLICATION			
Step	**Description**	**Task (min.)**	**Task (Addtl) (min.)**
Buried/Aerial			

First - 124.5 min. x 2 bridged tap aerial/buried/1 pair = 249.00
Additional - 4.5 min. X 2 bridged tap/1 pair = 9.00
(Source: Hearing Exhibit 95)

Decision

As noted above, BellSouth introduced these subloop modification elements in its revised study filed on August 16, 2000, approximately one month prior to the hearing. BellSouth did not provide any supporting testimony for these elements. The intervenors also provided little comment on portions of the study that introduced new elements. Hence, the record as it relates to elements A.17.5 and A.17.6 is minimal at best.

With the exception of plant mix and number of load points, BellSouth's subloop modification element inputs are identical to those proposed by BellSouth for loop modification on long loops. It is not clear to us why BellSouth assumed subloop modification would be similar to conditioning long loops as opposed to conditioning short loops, particularly since it appears that subloop distribution facilities tend to be shorter loops. Also, we do not know why BellSouth decided that these conditioning elements would have a first and additional rate structure.

Both Data ALEC witness Riolo and Sprint witness McMahon believe BellSouth's proposed rates for subloop modification are inappropriate. Specifically, in his testimony witness Riolo notes that BellSouth's proposed costs for the two new elements reflect the same inefficient tasks and work times that it has used in its other conditioning elements. Witness Riolo recommends that BellSouth modify 25 subloop pairs at once, because he believes that it is inefficient to condition only one pair at a time. As previously argued by the witness, he believes an engineer would endeavor to maintain binder group integrity wherever possible, "thereby supporting my opinion that costs should be based on no more than 1/25th of the cost of the dispatch and work to condition loops at one site." We agree that there is merit in maintaining binder group integrity and when reasonable more than one pair, on average, should be conditioned at a time. Unlike the testimony provided by BellSouth for its other loop conditioning elements, it did not provide any testimony regarding this issue that would indicate that other services (voice grade or special) would be harmed if multiple subloop pairs were conditioned at one time.

Upon consideration, we find that there are efficiencies associated with unloading, on average, 50 pairs at a time. This appears to be the most reasonable approach from an engineering perspective, because of the manner in which cables are grouped. Furthermore, this will reduce multiple re-entries into the cable splice, which could cause damage to the pairs contained in that splice. Therefore, we shall require that 50 pairs be conditioned at a time, on average, for elements A.17.5, and A.17.6, consistent with our decision regarding element A.17.3.

It appears that witness Riolo also disagrees with the number of load points and bridged taps assumed per subloop by BellSouth in its subloop modification study. BellSouth assumes 1.2 load points and 3 bridged taps per subloop location. Witness Riolo assumes on average only 1 load point and one bridged tap will be present per subloop pair. Regarding his load point assumption, witness Riolo notes that he finds it peculiar that BellSouth assumes that more than half of the load coils on a loop occur in the distribution portion. Witness Riolo did not specifically state why he has assumed only one bridged tap per subloop. BellSouth has provided data to support its load point assumptions for modifying loops over 18 Kft.; however, no such data was provided to support its subloop assumption, nor did it provide an explanation why three bridged taps would be present on the subloop. Nevertheless, it appears that the difference in the load point assumptions between BellSouth and the Data ALECs Riolo is not material. Furthermore, the evidence as it relates to this topic is sparse; therefore, based on the somewhat limited record, we find that the load point assumption shall remain at 1.2 load points per subloop.

In contrast, we emphasize that we do find that the difference in the bridged tap assumptions is more significant. As previously noted herein, we find that it is likely that on average, a loop may have three bridged taps. However, we do not believe that a subloop will also have three bridged taps on average. Therefore, we find it appropriate to reduce the number of bridged taps assumed to be in the subloop from 3 to 2. We note that although witness Riolo believes there is only 1 bridged tap in the subloop, he did not provide any testimony which supports this assumption. Thus, there is no evidence to support a further reduction in the number of bridged taps assumed.

With regard to the plant mix inputs for load coil removal in the subloop, witness Riolo used BellSouth's assumption that 10% of the distribution load coils would actually appear in underground facilities. Furthermore, he assumed that 90% of the time the load coils would be at an aerial location or buried location (45% aerial/45% buried). Witness Riolo believes his plant mix assumptions are conservative. As we have indicated herein, in the distribution plant there is primarily aerial and buried cable and very little underground cable. As such, we find that the load coil plant mix assumption (10% underground, 90% aerial/buried) is reasonable.

For bridged tap removal, BellSouth assumed that 1 bridged tap will be underground and 2 will be in buried or aerial plant. As with bridged tap removal for the entire loop, Data ALEC witness Riolo assumes that no bridged taps will be found in underground plant and that the one bridged tap he believes to be present will reside in aerial plant 50% of the time and buried plant 50% of the time. Again, we note our understanding that in the distribution plant, there is primarily aerial and buried cable and very little underground cable. Therefore, BellSouth's cost study inputs shall be modified to reflect that, on average, .5 bridged taps will be in underground plant and that 1.5 bridged taps will be found in aerial or buried.

Finally, with regard to the work time assumptions, Sprint witness McMahon argues that engineering, and connect and test for loop and subloop modifications should be similar or the same as for the entire loop. We agree. As noted above, BellSouth's proposed work times for subloop unbundling are the same as the work times for modifying loops over 18 Kft.. Like BellSouth, witness Riolo uses the same work times and work steps for unbundled subloops as for the entire loop. Thus, upon consideration, we find that the connect and test work times approved for element A.17.2 shall be applied here as well.

SUMMARY	
ISSUE	**DECISION**
A.17.2 ULM-LOAD COIL/EQUIPMENT REMOVAL - LONG	
Number of Pairs Conditioned	2 pairs
Number of Load Points	3.5
Plant Mix	75% underground; 25% buried/aerial
Work Times (Connect & Test)	235 min. underground conditioning 140 min. aerial/buried conditioning
A.17.3 ULM-BRIDGED TAP REMOVAL	
Number of Pairs Conditioned	50 pairs
Number of Bridged Taps	3
Plant Mix	.5 bridged taps underground 2.5 bridged taps buried/aerial
Work Times (Connect & Test)	225 min. underground conditioning 165 min. aerial/buried conditioning
A.17.5 UNBUNDLED SUBLOOP MODIFICATION-2W/4W COPPER DISTRIBUTION LOAD COIL/EQUIPMENT REMOVAL	
Number of Pairs Conditioned	50 pairs
Number of Load Points	1.2
Plant Mix	10% underground; 90% buried/aerial
Work Times (Connect & Test)	235 min. underground conditioning 140 min. aerial/buried conditioning
A.17.6 UNBUNDLED SUB-LOOP MODIFICATION-2W/4W COPPER DISTRIBUTION BRIDGED TAP REMOVAL	
Number of Pairs Conditioned	50 pairs

SUMMARY	
ISSUE	**DECISION**
A.17.2 ULM-LOAD COIL/EQUIPMENT REMOVAL - LONG	
Number of Bridged Taps	2
Plant Mix	.5 bridged taps underground 1.5 bridged taps buried/aerial
Work Times (Connect & Test)	225 min. underground conditioning 165 min. aerial/buried conditioning

G. J.3 Loop Make-up (LMU) Information

Although not originally identified as an issue in this proceeding, the rate for loop make-up (LMU) information as well as access to LMU information was addressed by the parties. LMU information or loop qualification information identifies the physical attributes of the loop plant, such as loop gauge and length, bridged taps, load coils, presence of DLC, and other equipment that is part of local loop facilities. The ALEC utilizes the LMU information to determine if the loop facilities will support the xDSL or other advanced service it intends to provide to its end user customers, as explained by witnesses Murray and Pate.

BellSouth proposes both a mechanized LMU element, and a manual LMU element with and without a Facility Reservation Number (FRN). As set forth in Hearing Exhibit 92, its proposed rates are:

- Mechanized Loop Make-Up - $.6888 per query
- Manual Loop Make-Up without FRN (NRC) - $132.82
- Manual Loop Make-Up with FRN (NRC) - $138.61

In its August 16, 2000, filing BellSouth revised its proposed rate for mechanized LMU from $1.08 per query to $.6888 per query. According to BellSouth witness Caldwell, the reduction was a result of lower than expected costs for implementing the mechanized process. Specifically, as noted by BellSouth, the changes which caused the reduction are:

> Corrected inclusion of only 1 year of annual cost associated with RTU rather than 3 years as appropriate, substantially reduces inputs for material prices for PCS, Data Communications Devices, Mid-range computers, and equipment installation; included new input for Data Communications Material expense, adjusted number of hardware units, eliminated Data Communications Maintenance and Ongoing Desktop Support were [sic] from the study, and substantially reduced Software and Mid-range computer hardware maintenance.

In order to provide mechanized loop make-up information, BellSouth is developing electronic access to its Loop Facility Assignment Control System (LFACS) as part of pre-ordering for a loop make-up data query. This access will be via the pre-ordering functionality of the Telecommunications Access Gateway (TAG) and Local Exchange Navigation System (LENS) electronic interfaces. Witness Pate indicates that a beta testing process for mechanized loop make-up began July 31, 2000 with selected ALECs and testing was expected to conclude mid-October or early November 2000.

The LMU information will be obtained from the LFACS database via BellSouth's existing electronic interfaces. According to witness Pate, the ALEC will be able to request LMU information by means of the following pre-ordering transactions:

1) Working facility by telephone number and address.
2) Working facility by circuit ID and address.
3) Spare facilities (up to 10 per request) at a given address - query only.
4) Spare facilities (up to 10 per request) at a given address - with pair reservation.

In describing BellSouth's mechanized loop make-up process, witness Pate also notes:

> Specifically, it will use the Local Exchange Navigation System, LENS, that we've discussed with this Commission before as well as TAG, Telecommunications Access Gateway.
>
> . . . .
>
> Using that -- either one of those interfaces from a pre-ordering mode, the ALEC can input and query LFACS for spare, as well as working facilities. If it's a working facility, they would obviously put the circuit identification or telephone number in, along with the address.
>
> If it's for spare facilities, they would just put the address in. They have the ability to query up to 10 spares. Of course, if it's a working facility, you just need query in that specific facility. And you have the ability to query for those spares to just get the information back or to get the information back as well as reserve that facility. Based upon that query, you will also input the type of loop for which you are inquiring.
>
> The four products that are defined right now is the ADSL, the HDSL, the unbundled copper loop short, and the unbundled copper loop long. Then, the query will come back and give you that information listed into detail. You'll always get something back.

Witness Pate also provided additional information regarding BellSouth's mechanized loop make-up process. To begin with, he noted that while core information is in LFACS for 100% of BellSouth's loops region-wide, only about 30% of its loops have the detailed loop make-up information necessary to qualify the loop. However, in metropolitan areas, witness Pate believes there is complete information on approximately 80% of the loops. If LFACs does not contain the complete information necessary to qualify a loop, then the ALEC must use the manual qualification process, according to the witness. The witness also clarified that the ALEC must decide up front if it will just do a query or if it will do a query and a reserve. If the ALEC chooses to reserve a loop, the loop is held for four days. Also, up-front, the ALEC must designate which one of the four loop types (ADSL, HDSL, UCL long or short) it wishes to query.

BellSouth's manual LMU process requires that the ALEC complete the "Customer Information" section of the Loop Make-Up Service Inquiry (SI) form indicating that it wants the loop make-up by telephone number or address. According to witness Pate, the ALEC then submits the Loop Make-Up SI form to the Complex Resale Services Group (CRSG). The CRSG forwards the SI form to BellSouth's Outside Plant Engineering Service Activation Center (SAC). The SAC verifies the availability of loop facilities. The SAC will supply a suitable copper pair and a DLC make-up for the requested address or requested telephone number. If either a copper pair, or DLC, but not both exists at that address/telephone number, the SAC will indicate in the "Comments Section" which is not available at the requested location.

We note that the issue of loop make-up was addressed by the FCC in its UNE Remand Order. Paragraphs 426 - 429 of the FCC's UNE Remand Order specifically address ALEC access to the incumbents' loop make-up information.

> . . . an incumbent LEC must provide the requesting carrier with nondiscriminatory access to the same detailed information about the loop that is available to the incumbent, so that the requesting carrier can make an independent judgement about whether the loop is capable of supporting the advanced services equipment the requesting carrier intends to install.

> . . . an incumbent must provide access to the underlying loop information and may not filter or digest such information to provide only that information that is useful in the provision of a particular type of xDSL that the incumbent chooses to offer.
>
> We disagree, however, with Covad's unqualified request that the Commission require incumbent LECs to catalogue, inventory, and make available to competitors loop qualification information through automated OSS even when it has no such information available to itself. If an incumbent LEC has not compiled such information for itself, we do not require the incumbent to conduct a plant inventory and construct a database on behalf of requesting carriers. We find, however, that an incumbent LEC that has manual access to this sort of information for itself, or any affiliate, must also provide access to it to a requesting competitor on a non-discriminatory basis. In addition, we expect that incumbent LECs will be updating their electronic database for their own xDSL deployment and, to the extent their employees have access to the information in an electronic format, that same format should be made available to new entrants via an electronic interface.

Order at ¶¶ 426-429.

Having considered the record of this proceeding, we find that we must address at least three issues related to BellSouth's loop make-up offerings. First, we must determine whether BellSouth is providing the ALECs with comparable access to loop make-up information as it provides to itself. Second, we must determine whether BellSouth's LMU offering comports with the FCC's UNE Remand Order. Third, we must determine what rates, if any, should apply when the ALEC accesses LMU information.

1. Comparable Access to Loop Make-up Information

As stated in the FCC's UNE Remand Order, the incumbent LEC is required to provide the ALEC with nondiscriminatory access to the same detailed information about the loop that is available to the incumbent, so that the requesting carrier can make an independent judgement about whether the loop is capable of supporting the advanced services equipment the requesting carrier intends to install. See UNE Remand Order at ¶¶ 426-429. We note that there was little testimony specifically addressing whether or not the access BellSouth is providing is comparable.

In order to determine if BellSouth is providing ALECs comparable access to LMU information, one must first look at how BellSouth's own personnel access LMU information. BellSouth has explained that:

> BellSouth's Outside Plant Engineering (OSPE) group in Florida currently access the Loop Facility Assignment System (LFACs) to determine if an unbundled loop is qualified for DSL. If the loop make-up information does not appear in LFACS, the OSPE group in Florida may access Map Viewer to compile the loop make-up information.

According to BellSouth's witness Pate, LFACS is available electronically to BellSouth's personnel in outside plant engineering. He notes that they have access via terminals that would be directed to LFACS, because they are the individuals that are either inputting data into LFACS or getting information out of LFACS to do their daily job. Map Viewer is also with the OSP engineering group. It is software that has access to the BellSouth corporate facilities database. Witness Pate clarified that the corporate facilities database is where BellSouth's plats reside. It appears, therefore, that BellSouth's personnel access LMU information via the LFACs database and in some cases Map Viewer[10].

Witness Pate also addressed nondiscriminatory access. He explains that he understands nondiscriminatory access to be access that gives the ALEC information in substantially the same time and manner as BellSouth provides to itself. He contends that BellSouth must provide access to the underlying information in its database, but not necessarily direct access to the database. He does not believe that if BellSouth has electronic access to a database, that it requires the ALEC also get electronic access to the database. Furthermore, witness Pate notes that he does not believe cost is a factor in determining if access is discriminatory. He believes the pertinent factors are time and manner, not costs. He clarifies that,

> From a price standpoint, when I say substantially the same time and manner, the price would probably - - the process itself would be so similar I don't think the price would be an issue.

Finally, witness Pate was asked if he believes that under the FCC orders, BellSouth is required to provide ALECs electronic access to loop make-up. Witness Pate replied that he does not believe electronic access is required. When asked why BellSouth is providing electronic access, he explained that "it's a good business decision."

Data ALECs witness Murray provided testimony as it relates to the rates for both BellSouth's manual and mechanized LMU offerings. However, with regard to access, she only addressed BellSouth's manual process, noting " . . . it does not reflect the efficient, forward-looking method that BellSouth itself is deploying for access to loop makeup information."

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[10] According to witness Pate Map Viewer is not a database, but rather a software application, as set forth in Hearing Exhibit 103. It provides certain BellSouth employees with access to BellSouth's electronically stored plats records. Map Viewer accesses plats to compile a loop make-up report. However, the plat records accessed through Map Viewer contain significantly more information than loop make-up.

When asked to comment on witness Murray's assertion, BellSouth's witness Caldwell stated:

> First of all, you need to remember that you have two different elements; you have one that is mechanized, and you have one that is manual. So, the CLEC can use whichever they prefer to use. So, you need the manual activity in case someone doesn't want to put in the systems to get into LFACS. They want to call BellSouth and say go into your systems and pull me the information and let me know if that loop is qualified. So, it's for those that you really need that particular service. And then, a comment on her last part is that BellSouth itself is deploying for access to loop makeup information, BellSouth still uses a combination of both going to LFACS and pulling information, and then we also go to the plats and pull information also. So, I feel it's, it's equal in that standpoint.

Decision

As addressed above, BellSouth offers both manual and mechanized access to LMU information. If the ALEC chose the manual process, it would complete the appropriate form indicating it wants the LMU by telephone number or address. BellSouth's personnel would access the appropriate databases and would then provide that ALEC with information regarding a suitable copper pair.

If the ALEC chooses the mechanized LMU process, it will query BellSouth's LFACS database. If LFACS does not contain the information necessary to qualify the loop, the ALEC could then use BellSouth's manual loop make-up process. If the ALEC must revert to the manual process because LFACS is not populated with the necessary information, it appears that BellSouth's personnel would access Map Viewer in order to provide the requested information. Witness Pate acknowledges that the BellSouth person or workgroup doing that manual loop make-up in Florida would do it using Map

Viewer.

Based on the limited evidence regarding this issue, it appears that BellSouth and the ALECs have comparable access to LMU information. Both the ALECs and BellSouth can access the LFACS database. If the information in that database is deficient, then both must resort to alternative means.

2. Provision of LMU Information in Conformance with with the FCC's UNE Remand Order

While the ALECs did not provide a great deal of testimony on this matter, much ground was covered with BellSouth witness Pate during cross-examination. As discussed previously in this Order, it appears that ALECs would like to purchase a plain copper loop to provide DSL service. BellSouth's current mechanized LMU process will only allow the ALECs to query and reserve four loop types (HDSL, ADSL, or UCL (long or short)); therefore, it appears that the ALECs are concerned that they cannot presently use a mechanized LMU process to query and reserve SL-1 loops, according to witness Pate.

With regard to the information that BellSouth must provide to the ALECs, the FCC noted in its UNE Remand Order that it must be the same detailed information about the loop that is available to the ILEC, so that the requesting carrier can make an independent judgement about whether the loop is capable of supporting the advanced services equipment the requesting carrier intends to install. The FCC also noted that the ILEC cannot filter such information to provide only information that is useful in the provision of a particular type of xDSL that the incumbent chooses to offer. FCC 99-238 at ¶ 428.

According to witness Pate, the way the current mechanized LMU system is designed, it will only provide information on four types of loops, ADSL, HDSL, UCL long or short, and the ALEC may only reserve one of these four types. In describing the mechanized LMU offering the witness explained that:

> It's a drop-down window there that you

> actually use in a point and click windows-type technology. You click on that drop-down window and you designate which one of the four it is.
>
> Now, there's been a future release that will be built in here where you don't have to make that designation. But for the current design, to get it out there, trying to be as most [sic] expeditious as we can, that's the way we we've laid it out.

The witness notes that there is a designator in LFACS that is referred to as an Outside Plant Equivalency Code, which indicates what different loop facilities are available based on their technical characteristics.

At hearing, witness Pate was asked whether a loop can be reserved as an SL-1 if an ALEC finds it is an acceptable loop through BellSouth's mechanized LMU process, and the loop also happens to meet the technical standards for an SL-1 loop. Witness Pate replied "no," and explained:

> We discussed this in the deposition that you did. And since that night, I went back to take a look at that, because I wasn't able to answer your question. I told you what I thought, so now let me tell you what I know. And with respect to that is you cannot. That system currently with its current design is for those four product offerings we just mentioned; the ADSL, the HDSL, the unbundled copper loop short and long. That reservation number they get that's referred to as an FRN, we've introduced a new acronym, that facilities reservation number that they get back will then be needed to place that order that would have to be for that ADSL, HDSL for unbundled copper loop. Right now it's not designed for you to use that facility to then

place an order for an SL1 loop.

Witness Pate went on to note that the mechanized LMU process is not currently designed for the SL-1; however, there is another phase that may be implemented late first quarter of 2001 to early second quarter, that will give the ALECs a POTS facility type query.

Witness Pate believes that an ALEC could still use the mechanized loop make-up process to query 10 loops to see if there are adequate facilities at a particular address and then could turn around and order the SL-1. However, the witness agreed that if the ALEC did the query and did not reserve a loop, it would not be assured of getting that particular loop at the time it orders the loop.

Witness Pate noted that he is not familiar with the cost difference between the SL-1 loop and the ADSL loop, but agreed, subject to check, that the SL-1 loop has a NRC of $83 and the ADSL loop has a NRC of $258. When asked, hypothetically, which loops he would prefer to order as a DSL provider, he responded, "Well, I don't think I can put myself in that position, because there's too many unknowns there. I would want to make sure I order the loop that's going to give the service to my customer."

With regard to restricting the ordering of SL-1 from the mechanized loop make-up process, witness Pate was asked if that restriction is in place because of something from a technological standpoint in the system or whether that is the result of a decision BellSouth has made. The witness acknowledged that it was a BellSouth decision. The witness contends that:

> Frankly, as we started to meet with the ALEC community, we were able to get that in place. And after having some industry forum meetings and understanding some other issues such that, as Ms. Boone has described, and maybe they want to buy another loop, and maybe they want to even then go ahead and condition that loop, because what we did is we put in the technical

> parameters to say this qualifies for this, and so you don't have to condition that. So, it's just a decision from a design standpoint.

Furthermore, witness Pate explains that the mechanized query being beta tested does not allow the ALEC to get the loop make-up information electronically, specifically, with intent to order an SL-1. However, the LMU can be done manually. The witness agreed that from a technological standpoint, there is nothing preventing BellSouth from allowing the ALEC to use the SL-1 loop for any purpose they see fit.

Witness Pate was also asked what value the mechanized loop make-up process could have for the ALEC if the ALEC can not use the mechanized loop make-up functionality to order the type of loop it wants. Witness Pate replied:

> . . . you still have the ability to query and get just the information back as to what type of loops are out there. But as we've already discussed in today's design from an SL1, you cannot use that information to specifically reserve a loop. If you see that [sic] no value, that's your decision. I still would think that that would give you some value to see the type of loops that are available.

Witness Pate was also questioned, although to a lesser extent, about BellSouth's manual process. The witness was asked to elaborate on his testimony, which indicated that BellSouth's Facility Assignment Center (FAC) will supply a suitable pair to the ALEC in response to the manual LMU process. Specifically, witness Pate was asked what is meant by a "suitable pair." He replied:

> Based on what you're ordering, what I mean -- I actually took this out of some procedures. Based on what you're ordering your loop, if it's suitable, it means whatever it is based on that system inquiry. We're saying this one is suitable, it meets it.

The witness was asked to clarify what pre-screening is going on by BellSouth in the manual process of finding the ALEC a suitable pair, because it was unclear to some parties who would be making the determination as to what was "suitable." Witness Pate responded by stating that "I can understand your question, and I have to go back and pull the procedures, which are out there on the website." He continued his response and noted that:

> It may be that the service inquiry itself has to -- you have that designation also with the ADSL, HDSL, based on the same product definitions, and you have unbundled copper loop short and long. So we're saying based on that, we would give you the suitable copper pair that would meet that criteria.

Decision

The record reflects that BellSouth has developed an approach for both mechanized and manual LMU information which pre-screens the loops and categorizes them based on BellSouth's product descriptions. Because of this pre-screening approach, it is not clear whether the LMU information provided by BellSouth comports with the FCC's UNE Remand Order.

The FCC's Order notes at Paragraph 427 that BellSouth must provide to the ALECs the same detailed information about the loop that is available to it, so that the requesting carrier can make an independent judgement about whether the loop is capable of supporting the advanced services equipment the requesting carrier intends to install. Furthermore, the Order states that the ILEC cannot filter such information to provide only information that is useful in the provision of a particular type of xDSL that the incumbent chooses to offer.

Data ALEC witness Murray believes that the clear purpose of the FCC's requirements regarding access to loop make-up information is to compel ILECs to produce the information that will allow competitors to make their own determination about the suitability of loops for the technologies that the competitors intend to deploy. She believes that her clients need access to information about the loop, so that they can apply their best business judgement about what type and speed of service a customer may be able to obtain. She argues that, if the FCC intended for the incumbents to make the determination on behalf of entrants, there would be no reason to require the incumbents to provide competitors with the information that "back office" personnel use to perform loop qualification analysis. Thus, it appears that BellSouth's pre-screening approach may preclude the ALECs from making an independent judgement regarding the loop they want to purchase for a particular xDSL offering.

On the other hand, it appears as if the ALECs would like unfettered access in order to self-qualify loops, and then be able to order those loops at the lowest rate possible. It is not clear in the Remand Order whether the FCC's intent was to allow ALECs to query all loop facilities in general or just facilities that are intended for provisioning xDSL services. Moreover, it appears that as a practical matter, the ILEC may need to designate what its loops are for two reasons. First, if the ALEC identified a suitable loop, the ALEC would not know the rate it would be expected to pay for that loop unless otherwise identified. Second, while the ALECs argue that a "loop is a loop," some loops do have specific technical characteristics and guarantees associated with them; therefore, from a pricing perspective the "loop is a loop" theory would appear inequitable.

Because the FCC's Remand Order is silent regarding some of the specific details on how the ILEC should afford the ALEC access to its LMU information and because no party in this proceeding specifically recommended an alternative to BellSouth's process, we find that the information BellSouth is providing to ALECs to qualify loops shall be considered appropriate for the present.

We anticipate that BellSouth's next phase of LMU should lessen the concerns of the ALECs regarding qualifying and reserving basic loops. Therefore, the next phase of BellSouth's mechanized LMU process should be implemented no later than June 1, 2001, and BellSouth shall report to this Commission specifically what enhancements have been made and describe in detail the capabilities of the revised LMU system. If after this second phase is implemented the ALECs believe that BellSouth is not complying with the FCC's UNE Remand order, they may notify us of any perceived deficiencies.

3. Rate Applicable to Access to LMU Information

As noted above, BellSouth has proposed rates for both mechanized and manual LMU elements.

a. Mechanized LMU

According to Data ALEC witness Murray, BellSouth's proposed charge for mechanized loop make-up is both inappropriate and excessive. She believes that we should disallow this charge in its entirety. The witness argues that the investment BellSouth seeks to recover is for an OSS electronic interface. She notes that in Order No. PSC-96-1579-FOF-TP, we determined that incumbents should bear their own cost of developing and implementing such OSS interfaces. Specifically, she points to page 87 of Order No. PSC-96-1579-FOF-TP, where we stated:

> While the costs of implementing these electronic interfaces have not been completely identified, BellSouth did provide some cost estimates and some initial costs of developing such systems. Based on the evidence, we find that these operations support systems are necessary for competition in the local market to be successful. We believe that both the new entrants and the incumbent LECs will benefit from having efficient operational support systems. Thus, all parties shall be responsible for the costs to develop and implement such systems. We note that this is the stance the FCC has recently taken with cost recovery for number portability. However, where a carrier negotiates for the development of a system or process that is

> exclusively for that carrier, we do not believe all carriers should be responsible for the recovery of those costs.
>
> Based on the foregoing, each party shall bear its own cost of developing and implementing electronic interface systems, because those systems will benefit all carriers. If a system or process is developed exclusively for a certain carrier, however, those costs shall be recovered from the carrier who is requesting the customized system.

Order No. PSC-96-1579-FOF-TP at p. 87.

While witness Murray believes that BellSouth may have incurred some costs associated with access to its OSS for purposes of making loop make-up information available, she does not agree that the costs, even the revised costs, put forward by BellSouth witness Caldwell are accurate. She contends that, "It is my understanding that access to OSS costs as opposed to the costs of the actual inquiry are not the subject of this phase of this proceeding."

Witness Murray also argues that the testimony of BellSouth witness Caldwell confirmed that virtually all of the costs in the BellSouth study were for things other than the processor time. In reviewing the BellSouth cost study witness Murray believes that the costs are for access to the OSS. The witness argues that the stipulation in this proceeding calls for those costs to be considered in a different proceeding, if at all, and the only costs that she believes are relevant to this proceeding are so de minimis as to not justify a charge at all[11]. She reiterates that

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[11] With regard to costs for OSS, the stipulation filed in Docket 990649-TP on 12/7/99 specifically stated: "Costing and pricing for access to operations support systems will be dealt with in a separate proceeding. This does not preclude consideration in the cost studies filed in this proceeding of costs such as service order processing and service inquiry costs." We approved the stipulation by Order No. PSC-99-2467-PCO-TP, issued 12/17/99.

> . . . in my view this would be consistent with the Commission's prior position that parties should bear -- competitors, including the incumbent, should each bear their own costs in a competitively neutral manner of building the interfaces. Anything but the building [sic] the interface cost here is so de minimis as not to justify a charge.

In addition to the OSS argument, Data ALEC witness Murray contends that BellSouth has failed to provide any information or explanation for any of the costs included in the investment BellSouth seeks to recover through its per-use charge for access to loop make-up. In witness Murray's testimony, she provides several examples of what she believes are inflated investments in computer equipment and expenses that BellSouth's original cost study included for mechanized loop make-up. In response to discovery, the Data ALECs further note that BellSouth's August 16, 2000, revised cost study has served to support witness Murray's contention that BellSouth's original estimates of the computer investment needed to make mechanized loop make-up possible were vastly inflated. They state:

> For example, BST's revised estimate for computer investment is now only about 10% of its former estimate. . . . We believe that such acknowledged errors justify extreme skepticism regarding BST's cost claims.

Data ALEC witness Murray provided other examples of what she believes are BellSouth's inflated investment costs for computers, etc.; however, these examples contain proprietary data, and thus, are protected in accordance with Section 364.183, Florida Statutes.

According to BellSouth witness Varner, Data ALECs witness Murray's proposal that loop make-up information should be provided free is ludicrous. He argues that the price for providing loop make-up information to ALECs should include all the costs required to make this data available in an electronic medium. He contends that there is no rational reason for BellSouth to "eat all of those development costs and charge only for the ongoing data processing costs" as witness Murray proposes.

BellSouth witness Caldwell asked if the cost of interfaces to access loop make-up information were included in BellSouth's filing. She indicated that the mechanized version would be identified as J.3.1. Addressing why particular OSS were treated differently than other OSS interfaces whose costs were not included, she replied, "Because we were looking at something that was entirely new . . . out of the 319 order." When asked to address our prior ruling that OSS development costs will be considered in some future proceeding and are not something that's properly included in the cost study in this docket, witness Caldwell notes that "In relationship to the OSS electronic interfaces they had made that decision, but this was a new element that they had never addressed before." Witness Caldwell acknowledged that the costs that are included in the per dip charge are predominantly the cost of the software and computers to get from the OSS electronic interfaces to LFACS.

Witness Caldwell was also asked to address the fact that in her direct testimony she notes that BellSouth did not include in this filing the cost of the OSS interfaces that have been developed to allow competitors to access BellSouth's provisioning systems. Witness Caldwell agreed that she was addressing OSS electronic interfaces for ordering ALEC services and that she did not include any costs for the electronic interfaces for preordering either. She was then asked if a loop make-up inquiry was a preordering function. She replied that she did not view it as such, because an ALEC may actually get the loop make-up information and never place an order. Witness Caldwell acknowledges that the reason BellSouth's cost study did not include costs for preordering OSS or ordering OSS is because we have decided the developmental costs are going to be deferred and considered in a future proceeding after the OSS testing is finished. She notes:

> . . . In particular, as a result of some of the arbitrations for the -- what I've called the OSS electronic interfaces, which are our systems that we built specifically for processing the service orders and access to

> our preordering systems. So, yes, those are the items.

She also acknowledges a cost of essentially 69 cents per transaction for electronic access to loop make-up information is derived by the cost study. She notes that:

> This system actually was developed well after the Commission had looked at the OSS EIs, or I'm sorry, the operational support systems electronic interfaces, so it was a new one. So I filed it in this cost study.
>
> . . . .
>
> [T]his is not the cost for any changes to the OSS, the electronic interfaces. This is the cost to allow our systems new hardware, new software that we would have had to place for purely allowing the mechanized access to our loop facility assignment system.

Finally, the witness did not agree that in order to be consistent with our prior decisions regarding the costs for OSS development and interfaces being considered in future proceedings, the electronic access to loop make-up information should also be considered in the future proceeding. The witness explained that:

> . . . I really didn't look at it that way because this is actually providing access to a system that's used by our engineering department to get physical information about our facilities. And I looked at the other OSS electronic interfaces as access to the operational systems that are for really ordering and provisioning up front. So I saw it as a difference was why I included it in the cost study.

Both BellSouth witnesses Caldwell and Pate were questioned regarding the cost study BellSouth filed for its mechanized LMU element. According to witness Caldwell, the cost associated with the mechanized loop make-up reflects the investment-related costs for the newly installed computer servers and data communications equipment. Also, she noted that the vendor-installed prices and installation costs for the incremental investments are identified along with their associated hardware maintenance expenses. The witness explains that this cost also includes software expenses for system development, contractor expenses for the development, enhancement and implementation for the computer applications, and ongoing computer application support.

Witness Caldwell was also asked to explain what costs where included in BellSouth's mechanized LMU cost study[12]. She notes that it includes the investments and expenses that BellSouth is going to incur to put in computers and hardware, and all the programming necessary to get the ability to access LFACS. According to the witness, the source of this information is mainly BellSouth's contract with Telcordia, as set forth in Hearing Exhibit 81.

At his deposition, BellSouth witness Pate was asked to review BellSouth's LMU Database Cost Study. Specifically, witness Pate was asked to review and comment on page 10 of the study, which contains proprietary information. Witness Pate was asked if all the expenditures listed on that page are to build the LMU database. Witness Pate replied that that was his understanding, but that he did not know for sure. When asked why such an amount of software is needed to provide ALEC access to LMU, he replied:

> Well, this total solution that I'm aware of from where I work in the organization-I'm going to refer to it as Telcordia solution Telcordia is the primary vendor here. . . . But it's a solution for providing not just loop makeup but for the xDSL, ADSL, and unbundled copper loop ordering that we

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[12] The BellSouth cost study for mechanized LMU contains proprietary information; therefore, specific numbers were not discussed at the hearing or during the deposition of the BellSouth witnesses.

> referred to. And it's primarily dealing with setting up a new gateway that these orders will come through to BellSouth, all the associated then [sic] software to have that gateway in place, receive that order and then have that order processed, of which one of those functionalities also is loop makeup query to LFACS. That builds that in. This is primarily software based solution. Obviously, there's some hardware servers and stuff that would go with it. You're going to see primarily software type expenditures as well as then ongoing maintenance on it.

When asked why the ALECs are unable to get what the BellSouth personnel have, and whether all the expenditures listed in the cost study are necessary, witness Pate replied:

> We obviously feel it's necessary to build the best system to give you what you need, which is the loop makeup information, so you can qualify the loop. And this solution is what we've taken to provide you that electronically, which from my viewpoint goes beyond our requirements of the UNE remand orders.
>
> . . . .
>
> When I say Telcordia solution all together, I'm not sure if that's how it's built in any of these numbers. It's also that part of the solution built with the ordering of those services.

When referred in the LMU cost study to those lines that address mid-range computers, Telcordia PCS for SAIC testers, data communications equipment and installation, and EDS initial installment, witness Pate indicated he did not know the specifics of these items. He was then asked if he knew whether there was anyone testifying in this proceeding who could provide the details of what this system does. He replied that he did not know.

At the hearing, BellSouth witness Pate was again asked to review BellSouth's mechanized LMU database cost study. He was asked if he was familiar with any of the equipment and software included in the study. He was not. He was then asked if the cost for the equipment, software, and contracts on pages 7-10 of the study are primarily for the development of access to BellSouth's OSS. He replied that, "It is primarily for the development of access to the OSS and also development for the different functionalities needed for the loop make up and such."

Asked whether he knew what the Telcordia PCS for SAIC testers do and what it does for the loop qualification database, he replied:

> No, not specifically. I know that the SIAC [sic] testers, that's a vendor that we have, we employ, so they need PCS to actually work on this and do some testing, but that's my, Ron Pate's, high-level description. I know no more details than that.

He was then asked about the midrange computers and the data communications equipment and installation; he again replied that he did not know specifically what they did because he was not involved with any of the details. He was asked additional questions about the study and basically answered each time that he did not know details of the study.

Witness Pate was finally asked whether he was BellSouth's cost study expert. He acknowledged that he was not, and that BellSouth's cost study expert is witness Caldwell.

Decision

As with many of the issues in this proceeding, we must decide what rate if any is appropriate for this element. Data ALEC witness Murray believes that the rate should be zero because: 1) she believes that the investment BellSouth seeks to recover is for an OSS electronic interface and OSS costs are not part of this proceeding; and 2) she believes that BellSouth has failed to provide any information or explanation for any of the costs included in the investment BellSouth seeks to recover through its per-use charge for access to loop make-up. BellSouth's witnesses, however, believe that its proposed rate of $.6888 per query is appropriate because: 1) there is no rational reason for BellSouth to "eat all of those development costs and charge only for the ongoing data processing costs" as witness Murray proposes; and 2) this was a new element that we had never addressed before.

Upon consideration, we agree with Data ALEC witness Murray that BellSouth has failed to provide an appropriate explanation regarding the component costs in its mechanized loop make-up study. We emphasize that BellSouth's cost witness was questioned regarding the study, but was unable to recall what many of the acronyms in the study meant. BellSouth also reduced its proposed rate with its August 16, 2000, revised filing. The reason the rate was reduced was "a result of lower than expected costs for implementing the mechanized process," according to witness Caldwell. The record indicates, however, that most of the costs came from BellSouth's contracts with Anderson Consulting and Telcordia. It is unclear whether that contract was amended between the time the original study was filed and the filing of the revised study.

Furthermore, the record supports that most of the costs for mechanized LMU are largely OSS related; however, BellSouth witness Caldwell was correct in noting that this is a new offering mandated by the FCC not previously reviewed by this Commission. Thus, while mechanized LMU offering is required by the FCC, the costs to develop this offering are OSS related.

Although the costs associated with the mechanized LMU process are OSS related and we previously determined that OSS cost recovery would be addressed in the future, we find that it is appropriate for BellSouth to levy a charge at this time. However, the rate for mechanized LMU information shall be interim until we address the OSS cost recovery matters. Further, BellSouth shall be required to track the revenues generated by this charge.

b. Manual LMU

BellSouth offers manual LMU information with and without facility reservation. BellSouth's proposed rate for manual LMU without facility reservation is $132.82[13]. BellSouth's proposed rate for manual LMU with facility reservation is $138.61; this element was introduced as a new offering with BellSouth's August 16, 2000, model revisions.

According to BellSouth's model documentation, the cost studies supporting the manual LMU are nonrecurring in nature. The costs are based on specific work activities required to provide a LMU response in a manual environment. There was very little testimony regarding the appropriate rate for the manual LMU process.

Data ALEC witness Murray believes that we should reject BellSouth's manual loop qualification charge, because it does not reflect the efficient, forward-looking method that BellSouth itself is deploying for access to loop make-up information.

Sprint witness McMahon believes there are two reasons that BellSouth's charge for manual loop make-up without facility reservation is about five times greater than it should be. He contends that while BellSouth's time for the service inquiry function is 107 minutes, Sprint's time is only 24 minutes for the same functions. He also emphasizes that BellSouth's time for the engineering function is 77 minutes, as compared to Sprint's 35 minutes for the same function.

The activities and activity times from the study are reproduced in the following table.

[13] In its original cost study filing, BellSouth proposed rate for this element was $189.37. According to BellSouth this rate was reduced due to a reduction in OSPE work time and updates in CRSG and LCSC work times. See Hearing Exhibit 72.

BELLSOUTH'S PROPOSED TIMES FOR MANUAL LMU			
Activity	**Description***	**Time (Min.) W/O FRN**	**Time (Min.) W/FRN**
Service Inquiry	CRSG receives SI from CLEC, screens document; prepares/ sends transmittal to OSPE; logs SI into tracking system, completes notice to CLEC with information	61.80	61.80
Service Inquiry	LCSC receives SI and issues service order for billing	45.00	45.00
Engineering	OSPE- sorts, logs, assigns SI to engineer	52.00	52.00
Engineering	OSPE-looks up records-manual or mechanized; prepares loop make-up; transmits to CRSG	25.00	35.00

*The descriptions were obtained from BellSouth's original filing; the revised filing does not provide such descriptions. Because Manual LMU w/ FRN was added with its revised filing there is no description of what transpires in the 10 minutes in which BellSouth's personnel reserve the facility (i.e., w/ FRN). (Source: Hearing Exhibit 95.)

Decision

Upon consideration, we find that the 25 minutes allowed for BellSouth's engineering personnel to look up records, prepare loop make-up, and transmit to CRSG is inflated. BellSouth witness Pate acknowledged that accessing information in LFACS or Map Viewer is not particularly time consuming. In addition, witness Pate noted that once a query response is received from Map Viewer, the information can be printed out. The information shows a breakdown by segment of the loop's make-up.

Based on the statements of witness Pate, it appears that obtaining the LMU information should only require minutes. While the record is silent regarding what BellSouth's personnel must do to prepare the LMU information, it seems reasonable, based on the record, to conclude that the preparation may be nothing more than printing the appropriate information from the appropriate database. There is no evidence to the contrary. Finally, the record reflects that transmitting the information to the CRSG cannot take more than a few minutes. The word "transmit" itself implies some type of electronic process.

Therefore, we find that BellSouth's engineering time of 25 minutes for manual LMU without FRN shall be reduced to 15 minutes. This represents an average that takes into consideration that, at times, BellSouth's personnel may need to access both LFACS and Map Viewer to provide the ALEC complete information.

For the manual LMU process with FRN, BellSouth allocates an additional 10 minutes for its personnel to complete reservation of the facility; therefore, a total of 35 minutes is included for looking up the records, preparing the loop make-up information, transmitting to the CRSG, and reserving the facility. The manual LMU process with FRN was introduced as part of BellSouth's revised filing approximately one month prior to the hearing. Based upon the limited evidence addressing this issue, we find that 10 minutes is reasonable. Therefore, the appropriate time for looking up the records, preparing the loop make-up information, transmitting to the CRSG, and reserving the facility is 25 minutes.

XIV. RATES FOR COMBINATIONS

A. "UNE platform" and "extended links"

This issue addresses only the appropriate rates for UNE combinations. Herein, we do not address under what circumstances combinations must be offered. Accordingly, this issue does not address "currently combined" versus "ordinarily combined."

The parties presented very little testimony on this issue. The only party to propose rates, other than BellSouth, was AT&T/WorldCom. A rate comparison for the combination elements can be found in Appendix A, beginning with element number P.1.[14]

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[14] Although listed and identified as separate elements in its Cost Study Documentation (EXH 95, Section 6, p. 100)and its Nonrecurring Element Summary Report (EXH 93, p. 21) BellSouth did not separately identify in Exhibit 92 (its rate proposal)the NRCs which make up certain "new" combinations. These elements are identified as A.17.4, .5, .7, .8, .10, .11, .12, and .17.

In its cost study BellSouth provides an element description for the combinations based on what elements make up the combination. We note that in addition to those combined elements listed in Issues 12(a) and (b), BellSouth has proposed rates for other combined elements (specifically element numbers P.23-26, P.52, and P.58). BellSouth states it has added rates for these combinations so that it can meet its obligation to provide combinations to ALECs where such combinations currently exist and are providing service to a particular customer at a particular location. BellSouth's element descriptions are summarized below.

SUMMARY OF BELLSOUTH'S ELEMENT DESCRIPTION FOR COMBINATIONS	
ELEMENT NUMBER	**ELEMENT DESCRIPTION**
P.1 P.1.1 P.1.2 P.1.3 P.1.11 P.1.13 P.1.17	This unbundled combination includes a 2-wire voice grade (VG) SL1 loop (P.1.1) connected to a dedicated 2-wire line side port (P.1.2). The port does not include Centrex functionality or features; they must be purchased separately. The 2-Wire VG Loop/Line Port Combination - nonrecurring costs - Switch-as-is element (P.1.3) reflects the cost associated with the work activities required to convert the end user's existing line to the CLEC. The Centrex Common Block - Nonrecurring costs element (P.1.11) reflects the cost associated with the work activities required to convert the end user's existing Centrex common block to the CLEC. The 2-wire VG Loop/Line Port Combination (PBX) - Nonrecurring costs - Switch-as-is (P.1.13) reflects the cost associated with the work activities required to convert the end user's existing PBX trunk to the CLEC. The PBX Subsequent Activity - Change/Rearrange Multiline Hunt Group element (P.1.17) reflects the cost associated with the work activities required to make changes to an existing multiline hunt group arrangement. (EXH 95, Section 6, p. 90)
P.3 P.3.2 P.3.3 P.3.7	This unbundled combination includes a 2-wire analog VG SL2 loop connected to a dedicated 2-wire trunk port (P.3.2). The 2-Wire VG Loop/2-Wire DID Trunk Port Combination-Nonrecurring costs-Switch-as-is element (P.3.3) reflects the cost associated with the work activities required to convert the end users's existing 2-Wire DID trunk to the CLEC. The 2-Wire DID Subsequent Activity element reflects the cost associated with adding a trunk to an existing 2-Wire DID trunk group.

SUMMARY OF BELLSOUTH'S ELEMENT DESCRIPTION FOR COMBINATIONS	
ELEMENT NUMBER	**ELEMENT DESCRIPTION**
P.4 P.4.1 P.4.2 P.4.3	This unbundled combination includes a 2-wire ISDN Digital Grade Loop (P.4.1) connected to a dedicated 2-wire ISDN line side port (P.4.2). The loops served on copper extend from a main distributing frame connection; whereas, those loops served on digital loop carrier reflect an integrated switch termination. The port is a dedicated switch termination, which provides the switch connection for Basic Rate (2B+D) ISDN telephone lines.
P.5 P.5.3 P.5.5 P.5.6 P.5.7 P.5.8	This unbundled combination includes a 4-wire DS1 digital loop connected to a 4-wire ISDN DS1 digital trunk port. The 4-Wire DS1 Digital Loop/4-Wire ISDN Digital Trunk Port Combination - Nonrecurring costs - Switch as-is element (P.5.3) reflects the cost associated with the work activities required to convert the end user's existing 4-Wire ISDN line to the CLEC. The 4-Wire DS1 Digital Loop/4-Wire ISDN Digital Trunk Port Combination - Subsequent Channel Activation element (P.5.5) reflects the cost associated with activating a B channel on an existing 4-Wire ISDN line. The 4-Wire DS1 Digital Loop/4-Wire ISDN Digital Trunk Port Combination - Subsequent Inward/2-Way Telephone Numbers element (P.5.6) reflects the cost associated with adding/changing inward/2-way telephone numbers on an existing 4-Wire ISDN line. The 4-Wire DS1 Digital Loop/4-Wire ISDN Digital Trunk Port Combination - Subsequent Outward Telephone Numbers element (P.5.7) reflects the cost associated with adding/changing outward telephone numbers on an existing 4-Wire ISDN line. The 4-Wire DS1 Digital Loop/4-Wire ISDN Digital Trunk Port Combination - Subsequent Inward Telephone Numbers element (P.5.8) reflects the cost associated with adding/changing inward telephone numbers on an existing 4-Wire ISDN line.
P.6-8 P.11 P.13 P.23-26 P.51-58	These elements represent point-to-point arrangements consisting of three possible UNE components: a) interoffice transport, b) local loop, and c)channelization. The recurring costs of these combinations are developed by summing the costs for each of the individual UNE elements present in the combination.

SUMMARY OF BELLSOUTH'S ELEMENT DESCRIPTION FOR COMBINATIONS	
ELEMENT NUMBER	**ELEMENT DESCRIPTION**
P.15 P.15.3 P.15.5	This unbundled combination includes a 4-wire DS1 digital loop connected to a DDITS trunk port. The 4-Wire DS1 Digital Loop/DDITS Trunk Port Combination - Nonrecurring costs - Switch as-is element (P.15.3) reflects the cost associated with the work activities required to convert the end user's existing DDITS line to the CLEC. The 4-Wire DS1 Digital Loop/DDITS Trunk Port Combination - Nonrecurring costs - Subsequent Channel Activation element (P.15.5) reflects the cost associated with the work activities required to activate a channel on an existing DDITS line.
P.16	This unbundled combination includes a 2-wire voice grade SL1 loop connected to a dedicated 2-wire line side port via an interoffice transport facility. The interoffice facility serves to effectively extend the end user's loop, allowing it to terminate in a central office beyond the end user's serving central office.
P.17 P.17.1 P.17.4 P.17.5 P.17.7 P.17.8 P.17.10 P.17.11 P.17.12 P.17.16 P.17.17	These elements represent the Nonrecurring costs associated with "Switching-As-Is" (P.17.1) an existing loop and interoffice combination or provisioning 'new' combinations (P.17.2 through P.17.17). The cost elements represent the individual activities required to provision the point-to-point arrangement and are grouped by functionality. SMEs familiar with the activities identified the amount of time required to perform the applicable task. Since some work groups are involved in all aspects of combination provisioning, the Interoffice Nonrecurring cost elements (P.17.4; .5; and .17) incorporate the shared function work times and include the work times for provisioning a channelization system. When calculating Nonrecurring cost for combinations an Interoffice element with the appropriate multiplexing components needs to be included. Loop-only work functions were identified as separate nonrecurring elements (P.17.10;.11;.12). Feature activation also is developed as a separate Nonrecurring cost element (P.17.16) and is applicable when a multiplexing function is required. The Nonrecurring cost elements are grouped based on associated transmission speed, for example, VG, DS1, DS3 or STS-1.

SUMMARY OF BELLSOUTH'S ELEMENT DESCRIPTION FOR COMBINATIONS	
ELEMENT NUMBER	**ELEMENT DESCRIPTION**
P.50 P.50.1 P.50.4 P.50.5	This unbundled combination includes a 4-wire DS1 digital loop connected to a D4 channel bank that can be used to terminate lines and trunks onto the central office switch. The 4-Wire DS1 Digital Loop/Channelization Port Combination - Nonrecurring costs - Switch as-is element (P.50.1) reflects the cost associated with the work activities required to convert the end user's existing DS1 digital loop and channel bank to the CLEC. The 4-Wire DS1 Digital Loop/ Channelization Port Combination - Subsequent Activity - Add Lines element (P.50.4) reflects the cost associated with the work activities required to activate a line in an existing D4 channel bank. The 4-Wire DS1 Digital Loop/Channelization Port Combination - Subsequent Activity - Add Trunks element (P.50.5) reflects the cost associated with the work activities required to activate a trunk in an existing D4 channel bank.

(Source: Hearing Exhibit 95)

According to BellSouth witness Caldwell, BellSouth developed recurring costs for the platform combinations consisting of a 2-wire voice grade loop with 2-wire voice grade port and 2-wire ISDN port. She notes that the recurring costs for other platform combinations (e.g., 4-wire DS1 digital loop with 4-wire ISDN trunk port, 4-wire DS1 loop with DDITS port, or a 2-wire loop/2-wire voice grade transport/2-wire port combination) can be determined by adding the individual UNE recurring costs. BellSouth also developed costs for the "extended link" combinations. Those combinations include: 2-wire voice grade loop with dedicated DS1 interoffice transport, 2-wire ISDN loop with DS1 interoffice transport, 4-wire DS1 digital loop with dedicated STS-1 interoffice transport, and 2-wire voice grade loop with dedicated DS1 interoffice transport with 3/1 mux.

BellSouth witness Varner notes that BellSouth has only proposed prices for new combinations of those UNEs that are necessary to enable BellSouth to receive the exemption from providing local switching as a UNE. Specifically, witness Varner states:

> BellSouth proposed rates for providing new Enhanced Extended Link (EEL) combinations where BellSouth avails itself of the exemption from providing unbundled local switching to customers with four or more lines in density zone 1 in the top 50 metropolitan statistical areas (MSAs). The specific MSAs in Florida where BellSouth will offer new EEL combinations are Miami, Orlando, and Fort Lauderdale. Areas served by BellSouth in density zone 1 in the top 50 MSAs are the only locations where BellSouth is required to combine UNEs at cost based prices. As such, the proposed prices for providing new EEL combinations equal economic cost.

The FCC's UNE Remand Order makes clear that:

> . . . exempting incumbent LECs from unbundling local circuit switching in certain circumstances in the top 50 MSAs is reasonable because nearly all of the top 50 MSAs contain a significant number of competitive switches.

FCC 99-238 at ¶ 281.

In addition, the FCC stated:

> Our conclusion that competitors are not impaired in certain circumstances without access to unbundled switching in density zone 1 in the top 50 MSAs also is predicated upon the availability of the enhanced extended link (EEL). . . . the EEL allows requesting carriers to serve a customer by extending a customer's loop from the end office serving that customer to a different end office in which the competitor is already collocated. The EEL therefore allows requesting carriers

> to aggregate loops at fewer collocation locations and increase their efficiencies . . . .

Id. at ¶ 288.

B. Extended Links

According to BellSouth witness Caldwell, the cost methodology for combinations does not differ from the cost methodology used for UNEs since they both will be used to support rates for items offered to competitors. She notes that in developing its recurring costs for the loop component of combinations, BellSouth uses two scenarios: the BST2000 and the Combo scenario.

Witness Caldwell explains that with the BST2000 scenario all UNE loops (other than those combined with a port in the Combo scenario) served via a fiber feeder-based DLC system must operate on a non-integrated basis since they are not terminated directly into BellSouth's switch. As explained in greater detail in Section IX. (A) of this Order, this is accomplished in the BSTLM by setting all of the switched services to "non-switched" so the model will build the network such that these loops terminate in a central office terminal.

The Combo scenario is used only for the 2-wire analog voice grade and 2-wire ISDN loops used in combination with a port. Since these combination loop/port offerings can be served via integrated DLC, this scenario sets all switched services back from the "non-switched" setting used in BST2000 to the "switched" setting. Thus, the combined recurring price for a loop/port combination is lower than the sum of the parts if purchased separately.

With regard to nonrecurring costs, BellSouth explains that there are two types of combination UNEs.

> The first type is the "Switched-As-Is" nonrecurring costs. These nonrecurring costs reflect the conversion of a currently existing

> combination to UNE pricing. This basically involves a billing change and thus has substantially shorter work times than the work times required to provide individual UNEs or to combine two UNEs as a new installation. The "switched-as-is" nonrecurring costs are related to Cost Element No. P.17.1. These costs apply to any "Switched-as-is" (existing) combination that does not have a port included in the combo.
>
> The second type is the New Combination nonrecurring costs. These nonrecurring costs reflect the cost of provisioning two or more UNEs as a combination UNE. . . . These costs apply to any "NEW" combination that does not have a port included in the combo.

BellSouth notes that the Loop/Port Combinations contained in its filing are also "Switched-As-Is." Therefore, the cost study assumes both elements are already connected and functional. The recurring costs for loop/port combinations are adjusted for the duplication of main distributing frame (MDF) cost components. Both the stand alone loop and the stand alone port contain the cost of certain MDF components because these UNEs are separately terminated onto the MDF. However, when the loop and the port are combined, they are terminated together, eliminating the duplication of some MDF components. Also, the costs of some loop/port combinations are based on a mixture of digital and analog access lines while the standalone loop costs are based on access lines that use analog facilities only.

Both AT&T/WorldCom and Sprint witnesses presented limited testimony regarding BellSouth's proposed rates for combinations, focusing primarily on the inputs used to develop the nonrecurring rates. We will address AT&T/WorldCom testimony on this issue first.

AT&T/WorldCom witness King presented an exhibit that contains modified versions of BellSouth's nonrecurring cost spreadsheets.

As discussed previously discussed herein with regard to required activities, witness King's modifications include:

- Eliminating costs that have no justification in a forward-looking network architecture and efficient provisioning process. Witness King believes workgroups such as the LCSC and the UNEC/ACAC are intermediary work groups not intended for efficient operations.

- Adjusting work times for certain work group activities. Most of these changes entail consistent application of work times between individual UNE studies covering similar work routines.

- Assuming BellSouth's affected work centers will be manually involved 10% of the time if an electronic mechanized order were to "fall-out" of the provisioning process. Witness King notes that BellSouth has assumed 100% manual work by a host of work centers.

- Making adjustment for activities associated with manual assistance due to errors in the network management systems and databases (Operational Support Systems). Witness King believes that most, if not all fallout from the OSS is a result of mismatching data from one system to the other and that maintaining the accuracy of these databases is a function of normal day to day maintenance and is recovered through recurring costs.

Witness King explains his specific modifications to BellSouth's nonrecurring costs for combinations as follows:

> . . . these are essentially the P.1 elements, which are your various combinations. It is also where they perform your switch as is. These are your switch as is NRCs. And, again,

> a general assumption that you will find from me in this kind of activity is these are essentially translations in the switch to show that this is a CLEC UNE versus a BellSouth UNE.
>
> And under ideal conditions, ideal competitive conditions, AT&T and other ALECs would have direct access to OSSs. We would be able to provide an electronic order exactly the way BellSouth would and send those translations to the switch just as BellSouth does today or if they were able to partition so that we would have the capability. But this is a situation where I'm paying BellSouth to do something that I believe we can do. It is something that I can provide a clean order on and it can be provisioned efficiently.

In particular for Centrex common block, witness King notes,

> The reason why it is all zeros there is because all they show is the LCSC work group. And as I mentioned earlier, I already have a work group doing the same thing that that work group is doing, and that is creating the order that would go into the provisioning process. So it is a zero.

When witness King was asked if the same assumption applied to any other BellSouth elements, he noted that, "Anytime you see the LCSC and CPG, I am going to zero those out."

BellSouth witness Caldwell asserts that she believes witness King's assumptions are incorrect. Specifically, she states:

> . . . Mr. King assumes that we are in a perfectly mechanized world in which everything is mechanized and it requires no human activity. And so, therefore, as you can see,

in all of the numbers, he's basically, taken the work time to zero. . . . the reason that you have additional times for the LCSC is because you're beginning now to start dealing with more complex services. You have -- in this particular activity, you're actually looking at getting the customer information so you set up a Centrex common block. So, they're ordering multiple lines and multiple ports on a switch and you have the common block. So, it's is the information necessary for that to do the switching. . . . his assumption on page 9, where he says, "The UNE center and the ACAC and the LCSC are intermediary work groups not utilized in BST's own processing." Well, that's not true. I mean, the UNE center is set up to handle CLEC orders. Well, it is only for CLEC, so a BellSouth order would not process through that center for its own customer, but it's going to process through the business service center. So, there is a similar center. And the ACAC is . . . I think, it's the Access Carrier Advocacy Center. And it's for the simple purpose of dealing with the interexchange carriers, and it's set up for the same purpose. So, we do use those in processing our orders. It's just that it's not the same name, okay? On page 12, his assumption at the bottom, he says, "Engineering is recovered through recurring charge," that's not true. What you're dealing with here is the cost associated with a service order. I'm not going out there and installing plant. I'm going out there and putting a loop to work; or in this particular case, it's a combination, but it deals with a complicated combination of the DID. . . . those type engineering costs are not included in the recurring. This is over and above the recurring cost.

Like AT&T/WorldCom witness King, Sprint witness McMahon does not believe that BellSouth's nonrecurring costs for combinations are reasonable[15]. For example, he notes that an ALEC wishing to order a new, 2-wire voice-grade loop with 1/0 multiplexing and DS1 transport would pay much higher nonrecurring costs in BellSouth's territory than what Sprint considers to be reasonable. He explains that, "In the case of BST, one would pay $633.30. This includes the inflation of work times by an additional 5.2403 hours over what BST allocates for the individual UNEs."

According to witness McMahon, Sprint sees no reason why it should cost more to provision a combination of these network elements when the individual elements could be ordered separately at a lesser total nonrecurring cost. He argues that BellSouth is apparently relying on the concept that it will take extra time to coordinate such orders. He notes that Sprint's experience does not support that concept.

BellSouth witness Caldwell responds to witness McMahon's comments as follows:

> Mr. McMahon failed to realize that BellSouth's Voice Grade Local Loop for COMBINATIONS (Element P.17.10) is valid for all voice grade loops; i.e., it reflects an average provisioning time for the various types of 2-wire and 4-wire loops. Thus, a comparison between an average rate for a combination and a single rate for a specific element is not a valid comparison.

Furthermore, witness Caldwell argues that the notion that nonrecurring costs for EELs exceed the sum of the individual components is not universally true. For example, she notes that for a 4-wire voice grade loop with DS1 IOF, the sum of the UNEs is $710.23 and the cost of the combination is $673.99. Similarly, for

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[15] Although Sprint provided some testimony on this issue, in its Post Hearing Brief, it notes "No position" for either Issues 12(a) or 12(b).

a DS3 Loop with DS3 IOF, the sum of the UNEs is $1,515.97, and the nonrecurring cost of the combination is $1,050.83.

Decision

Recurring Rates for Combinations

We endorse BellSouth's modeling approach for calculating the recurring rates for UNE combinations. After review of the hearing and deposition transcripts, and discovery responses, we are unable to find any compelling evidence which supports calculating RCs for combinations differently. We believe that it is appropriate to acknowledge the benefits of integrated DLC in calculating the price for certain loop/port combinations. Accordingly, we support using the BST2000 and the Combos scenarios to calculate the recurring rates for combinations and order that these scenarios be used in conjunction with our findings of changes in all applicable prior issues.

Nonrecurring Rates for Combinations

As noted above, testimony on this issue was limited. We believe specific testimony was sparse because the parties presented their arguments regarding all nonrecurring costs in other issues. After reviewing the limited record here, we do not find any new information that would lead us to conclude something other than what has been ordered for nonrecurring costs.

In addition, Sprint witness McMahon notes that an ALEC wishing to order a new, 2-wire voice-grade loop with 1/0 multiplexing and DS1 transport would pay much higher nonrecurring costs in BellSouth's territory than what Sprint considers to be reasonable because of what he believes are BellSouth's inflated work time. Again, we have already addressed BellSouth's work times. Thus, the nonrecurring costs for combinations shall be modified to reflect our decisions with regard to work times/required activities, as set forth in Section X.(D) of this Order.

XV. EFFECTIVE DATE OF RATES

Now we turn to the timing of the effectiveness of the recurring and non-recurring rates and charges. BellSouth witness Varner stated that the recurring and non-recurring rates and charges established here will take effect after we issue an effective order and when existing interconnection agreements are properly amended to incorporate the ordered rates. The rates BellSouth charges ALECs for UNEs and interconnection service are governed by an approved interconnection agreement.

FCTA witness Barta testified that the ILECs should be provided reasonable time to conform their billing and any other administrative systems to incorporate the deaveraged network unbundling requirements ordered by us. Witness Barta testified that it would be reasonable for the rates to become effective 30 to 90 days after we issue an order, unless the carriers can show that they cannot comply within the specified time.

AT&T witness King argued that the recurring and non-recurring rates and charges should take effect immediately after we approve and order them. He stated that at such time ILEC/ALEC interconnection agreements should be amended to include the ordered rates and charges. Sprint witness Sichter recommended that the ILECs be required to file UNE rates that conform to our order 60 days after it is issued. Those rates would become effective on the date they are filed.

In rebuttal to witness Barta, witness Varner suggested that BellSouth will require some time to conform its billing and administrative systems to implement UNE rates. He did not believe a specific time frame is appropriate to govern when the rates should become effective. He stated that the rates and charges should become effective when existing interconnection agreements are properly amended to incorporate the ordered rates, whether that is 30 days, 60 days, or whenever.

Decision

BellSouth's UNE rates, as established herein, may be incorporated as amendments to existing interconnection agreements. Therefore, upon consideration, we find that it is appropriate for the rates to become effective when the interconnection agreements are amended to reflect the approved UNE rates and the amended agreement is approved by us. For new interconnection agreements, the rates shall become effective when we approve the agreement. Pursuant to Section 252(e)(4) of the Telecommunications Act of 1996, should we fail to act to approve or reject the agreement adopted by negotiation within 90 days after submission by the parties, the agreement is deemed approved.

Based on the foregoing, it is therefore

ORDERED by the Florida Public Commission that the findings set forth herein regarding the appropriate methodology, assumptions, and inputs for establishing rates for unbundled network elements for BellSouth Telecommunications, Inc., are herein approved. It is further

ORDERED that the identified elements and subloop elements shall be unbundled for purposes of establishing prices as set forth in the body of this Order. It is further

ORDERED that access to subloop elements shall be provided as set forth in the body of this Order. It is further

ORDERED that inclusion of non-recurring rates in recurring rates should be considered where the resulting level of non-recurring charges would constitute a barrier to entry. It is further

ORDERED that xDSL-capable loops are defined as set forth in the body of this Order, and a cost study addressing such loops may make distinctions based upon loop length. It is further

ORDERED that the rates set forth in Appendix A, which is attached and incorporated in this Order, are hereby approved. It is further

ORDERED that the approved rates shall become effective when existing interconnection agreements are amended to incorporate the approved rates, and those agreements become effective. It is further

ORDERED that BellSouth Telecommunications, Inc., shall refile within 120 days of the issuance of this Order revisions to its cost study addressing xDSL-capable loops, network interface devices, and cable engineering and installation placements, as set forth in the body of this Order. It is further

ORDERED that the parties to this proceedings shall refile within 120 days of the issuance of this Order proposals addressing network reliability and security concerns as they pertain to access to subloop elements, as set forth in the body of this Order

By ORDER of the Florida Public Service Commission this 25th Day of May, 2001.

Blanca S. Bayó

BLANCA S. BAYÓ, Director
Division of Records and Reporting

(S E A L)

BK/WDK/MAH/NSD

NOTICE OF FURTHER PROCEEDINGS OR JUDICIAL REVIEW

The Florida Public Service Commission is required by Section 120.569(1), Florida Statutes, to notify parties of any administrative hearing or judicial review of Commission orders that is available under Sections 120.57 or 120.68, Florida Statutes, as well as the procedures and time limits that apply. This notice should not be construed to mean all requests for an administrative hearing or judicial review will be granted or result in the relief sought.

Any party adversely affected by the Commission's final action in this matter may request: 1) reconsideration of the decision by filing a motion for reconsideration with the Director, Division of Records and Reporting, 2540 Shumard Oak Boulevard, Tallahassee, Florida 32399-0850, within fifteen (15) days of the issuance of this order in the form prescribed by Rule 25-22.060, Florida Administrative Code; or 2) judicial review by the Florida Supreme Court in the case of an electric, gas or telephone utility or the First District Court of Appeal in the case of a water and/or wastewater utility by filing a notice of appeal with the Director, Division of Records and reporting and filing a copy of the notice of appeal and the filing fee with the appropriate court. This filing must be completed within thirty (30) days after the issuance of this order, pursuant to Rule 9.110, Florida Rules of Appellate Procedure. The notice of appeal must be in the form specified in Rule 9.900(a), Florida Rules of Appellate Procedure.

APPENDIX A

RATE COMPARISON

For comparative purposes, some of the columns of rates in the following table combine rates that were presented separately by the parties. Any comparison to the source documents should be made with that in mind.

The column titled "Nonrecurring Including First" contains the nonrecurring charge for the first unit purchased where a rate is also shown in the column titled "Nonrecurring Additional." If no rate is shown in the "Nonrecurring Additional" column, the rate for all units is that shown under "Nonrecurring Including First," regardless of quantity.

Where a cell is blank, no rate has been set. Where a rate of $0 is shown, that is the party's proposed rate.

Source of Rates

BELLSOUTH--EXH 92, Corrected Revised Exhibit AJV-1, September 5, 2000.

AT&T/WORLDCOM--Post-hearing brief of FCCA, Broadslate, Cleartel, FCTA, Florida Digital, Intermedia, WorldCom, and Z-tel.

BLUESTAR/COVAD/RHYTHMS--EXH 141, Exhibit TLM-2.

COMMISSION--Fallout from commission inputs into BellSouth's proprietary cost model.

APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
.0	UNBUNDLED LOCAL LOOP											
.1	2-WIRE ANALOG VOICE GRADE LOOP											
.1.1	2-Wire Analog Voice Grade Loop - Service Level 1				$6.76	$10.91	$7.13	$5.33	$5.33			
	Zone 1	$16.71	$83.20	$35.12	$4.43					$11.74	$44.68	$20.5
	Zone 2	$20.12	$83.20	$35.12	$6.38					$16.26	$44.68	$20.5
	Zone 3	$25.56	$83.20	$35.12	$8.42					$30.75	$44.68	$20.5
	Zone 4				$12.75							
	Zone 5				$18.50							
	Zone 6				$28.93							
.1.1	2-Wire Analog Voice Grade Loop - Service Level 1 - Disconnect Only		$55.97	$10.35		$5.97	$3.26	$4.67	$4.67		$23.10	$5.9
.1.2	2-Wire Analog Voice Grade Loop - Service Level 2				$8.00	$12.89	$8.21					
	Zone 1	$18.48	$218.96	$136.44	$5.25					$13.43	$122.38	$74.3
	Zone 2	$22.43	$218.96	$136.44	$7.55					$18.60	$122.38	$74.3
	Zone 3	$27.87	$218.96	$136.44	$9.96					$35.18	$122.38	$74.3
	Zone 4				$15.08							
	Zone 5				$21.89							
	Zone 6				$34.24							
.1.2	2-Wire Analog Voice Grade Loop - Service Level 2 - Disconnect Only		$113.41	$20.58		$5.97	$3.26				$57.28	$10.8
.2	SUB-LOOP											
.2.1	Sub-Loop Feeder Per 2-Wire Analog Voice Grade Loop				$4.69	$40.41	$17.88					
	Zone 1	$10.75	$193.62	$113.00	$3.08					$7.60	$83.62	$46.2
	Zone 2	$11.57	$193.62	$113.00	$4.43					$10.53	$83.62	$46.2
	Zone 3	$13.51	$193.62	$113.00	$5.84					$19.92	$83.62	$46.2
	Zone 4				$8.84							
	Zone 5				$12.83							
	Zone 6				$20.07							

APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
.2.1	Sub-Loop Feeder Per 2-Wire Analog Voice Grade Loop - Disconnect Only		$116.59	$26.70		$34.91	$8.86				$45.57	$10.1
.2.2	Sub-Loop Distribution Per 2-Wire Analog Voice Grade Loop				$1.98	$25.03	$4.84					
	Zone 1	$9.36	$139.20	$61.94	$1.30					$6.90	$54.26	$19.6
	Zone 2	$12.49	$139.20	$61.94	$1.87					$9.56	$54.26	$19.6
	Zone 3	$16.13	$139.20	$61.94	$2.47					$18.08	$54.26	$19.6
	Zone 4				$3.73							
	Zone 5				$5.42							
	Zone 6				$8.47							
.2.2	Sub-Loop Distribution Per 2-Wire Analog Voice Grade Loop - Disconnect Only		$98.49	$13.08		$13.07	$0.00				$37.03	$4.1
.2.11	Sub-Loop Distribution Per 4-Wire Analog Voice Grade Loop				$4.24	$34.72	$14.53					
	Zone 1	$10.12	$165.68	$88.42	$2.78					$7.35	$62.05	$27.4
	Zone 2	$18.29	$165.68	$88.42	$4.00					$10.18	$62.05	$27.4
	Zone 3	$26.09	$165.68	$88.42	$5.28					$19.25	$62.05	$27.4
	Zone 4				$7.99							
	Zone 5				$11.60							
	Zone 6				$18.15							
.2.11	Sub-Loop Distribution Per 4-Wire Analog Voice Grade Loop - Disconnect Only		$104.31	$17.15		$33.35	$9.53				$37.98	$5.0
.2.13	Network Interface Device Cross Connect		$11.78	$11.78		$9.47	$9.47				$7.12	$7.1
.2.14	2-Wire Intrabuilding Network Cable (INC)	$3.87	$113.62	$36.36	$0.84	$1.98	$0.56			$3.33	$46.74	$12.1
.2.14	2-Wire Intrabuilding Network Cable (INC) - Disconnect Only		$98.49	$13.08		$0.00	$0.00				$37.03	$4.1
.2.15	4-Wire Intrabuilding Network Cable (INC)	$7.32	$126.10	$48.84	$1.22	$1.98	$0.56			$6.32	$50.41	$15.7

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APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
.2.15	4-Wire Intrabuilding Network Cable (INC) - Disconnect Only		$104.31	$17.15		$0.00	$0.00				$37.98	$5.0
.2.17	Sub-Loop - Per Cross Box Location - CLEC Feeder Facility Set-Up		$711.78			$0.00					$467.08	
.2.18	Sub-Loop - Per Cross Box Location - Per 25 Pair Panel Set-Up		$45.28			$0.00					$11.27	
.2.19	Sub-Loop - Per Building Equipment Room - CLEC Feeder Facility Set-Up		$333.44			$0.00					$152.58	
.2.20	Sub-Loop - Per Building Equipment Room - Per 25 Pair Panel Set-Up		$109.85			$0.00					$43.54	
.2.21	Sub-Loop - Per Cross Box Location - CLEC Distribution Facility Set-Up		$711.78			$0.00					$467.08	
.2.24	Sub-Loop - Per 4-Wire Analog Voice Grade Loop / Feeder Only				$11.66	$49.61	$24.62					
	Zone 1	$23.35	$222.74	$140.22	$7.65					$16.05	$96.40	$58.1
	Zone 2	$27.94	$222.74	$140.22	$11.00					$22.23	$96.40	$58.1
	Zone 3	$40.51	$222.74	$140.22	$14.52					$42.06	$96.40	$58.1
	Zone 4				$21.99							
	Zone 5				$31.91							
	Zone 6				$49.90							
.2.24	Sub-Loop - Per 4-Wire Analog Voice Grade Loop / Feeder Only - Disconnect Only		$127.64	$32.91		$41.66	$15.07				$48.55	$11.3
.2.25	Sub-Loop - Per 2-Wire ISDN Digital Grade Loop / Feeder Only				$7.26	$44.04	$19.17					
	Zone 1	$22.39	$219.94	$137.43	$4.76					$16.18	$98.91	$60.1
	Zone 2	$25.85	$219.94	$137.43	$6.85					$22.41	$98.91	$60.1
	Zone 3	$26.12	$219.94	$137.43	$9.04					$42.39	$98.91	$60.1

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APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
	Zone 4				$13.69							
	Zone 5				$19.87							
	Zone 6				$31.07							
.2.25	Sub-Loop - Per 2-Wire ISDN Digital Grade Loop / Feeder Only - Disconnect Only		$118.79	$25.97		$34.60	$8.69				$46.95	$9.7

APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
A.2.29	Sub-Loop - Per 4-Wire 56 or 64 Kbps Digital Grade Loop / Feeder Only				$12.50	$49.61	$24.62					
	Zone 1	$24.89	$211.32	$128.81	$8.20					$17.52	$90.72	$52.4
	Zone 2	$28.83	$211.32	$128.81	$11.80					$24.28	$90.72	$52.4
	Zone 3	$29.16	$211.32	$128.81	$15.57					$45.92	$90.72	$52.4
	Zone 4				$23.57							
	Zone 5				$34.21							
	Zone 6				$53.50							
A.2.29	Sub-Loop - Per 4-Wire 56 or 64 Kbps Digital Grade Loop / Feeder Only - Disconnect Only		$127.64	$32.91		$41.66	$15.07				$48.55	$11.3
A.2.30	Sub-Loop - Per 2-Wire Copper Loop Short / Feeder Only				$4.16	$49.64	$23.41					
	Zone 1	$11.01	$175.18	$92.66	$2.73					$6.65	$76.87	$38.0
	Zone 2	$9.78	$175.18	$92.66	$3.93					$9.22	$76.87	$38.0
	Zone 3	$7.83	$175.18	$92.66	$5.18					$17.44	$76.87	$38.0
	Zone 4				$7.84							
	Zone 5				$11.38							
	Zone 6				$17.80							
A.2.30	Sub-Loop - Per 2-Wire Copper Loop Short / Feeder Only - Disconnect Only		$113.67	$20.84		$38.45	$11.06				$45.64	$8.4
A.2.32	Sub-Loop - Per 4-Wire Copper Loop Short / Feeder Only				$9.22	$55.86	$29.63					
	Zone 1	$20.59	$209.61	$127.09	$6.05					$12.76	$89.85	$51.5
	Zone 2	$21.48	$209.61	$127.09	$8.70					$17.67	$89.85	$51.5
	Zone 3	$17.70	$209.61	$127.09	$11.48					$33.43	$89.85	$51.5
	Zone 4				$17.39							
	Zone 5				$25.23							
	Zone 6				$39.46							

APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
.2.32	Sub-Loop - Per 4-Wire Copper Loop Short / Feeder Only - Disconnect Only		$119.80	$25.07		$46.58	$18.35				$46.59	$9.3

APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
.2.40	Sub-Loop - Per 2-Wire Copper Loop Short / Distribution Only				$3.37	$31.49	$11.30					
	Zone 1	$7.91	$139.20	$61.94	$2.21					$5.66	$54.26	$19.6
	Zone 2	$10.37	$139.20	$61.94	$3.18					$7.83	$54.26	$19.6
	Zone 3	$12.76	$139.20	$61.94	$4.20					$14.82	$54.26	$19.6
	Zone 4				$6.35							
	Zone 5				$9.22							
	Zone 6				$14.42							
.2.40	Sub-Loop - Per 2-Wire Copper Loop Short / Distribution Only - Disconnect Only		$98.49	$13.08		$28.94	$5.60				$37.03	$4.1
.2.42	Sub-Loop - Per 4-Wire Copper Loop Short / Distribution Only				$3.73	$34.72	$14.53					
	Zone 1	$7.11	$165.68	$88.42	$2.45					$4.72	$62.05	$27.4
	Zone 2	$11.26	$165.68	$88.42	$3.52					$6.53	$62.05	$27.4
	Zone 3	$16.92	$165.68	$88.42	$4.65					$12.36	$62.05	$27.4
	Zone 4				$7.03							
	Zone 5				$10.21							
	Zone 6				$15.96							
.2.42	Sub-Loop - Per 4-Wire Copper Loop Short / Distribution Only - Disconnect Only		$104.31	$17.15		$33.35	$9.53				$37.98	$5.0
.2.44	Network Interface Device (NID) - 2 line		$94.50	$57.22		$61.12	$46.81				$63.72	$40.9
.2.45	Network Interface Device (NID) - 6 line		$136.75	$99.47		$103.47	$89.16				$105.96	$83.1
.3	**LOOP CHANNELIZATION AND CO INTERFACE (INSIDE CO)**											
.3.12	Unbundled Loop Concentration - System A (TR008)	$470.73	$651.05		$160.50	$0.00	$0.00			$461.86	$324.01	

APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
.3.13	Unbundled Loop Concentration - System B (TR008)	$55.96	$271.27		$41.48	$0.00	$0.00			$54.91	$135.00	
.3.14	Unbundled Loop Concentration - System A (TR303)	$510.37	$651.05		$189.87	$0.00	$0.00			$500.74	$324.01	
.3.15	Unbundled Loop Concentration - System B (TR303)	$94.30	$271.27		$69.90	$0.00	$0.00			$92.53	$135.00	
.3.16	Unbundled Loop Concentration - DS1 Line Interface Card	$5.28	$126.61	$92.17	$3.91	$19.56	$15.22			$5.18	$64.65	$46.4
.3.16	Unbundled Loop Concentration - DS1 Line Interface Card - Disconnect Only		$31.11	$8.71		$4.32	$4.32				$16.67	$4.3
.3.17	Unbundled Loop Concentration - POTS Card	$2.10	$21.07	$20.96	$1.55	$17.32	$13.59			$2.06	$14.96	$14.8
.3.17	Unbundled Loop Concentration - POTS Card - Disconnect Only		$9.99	$9.93		$4.32	$4.32				$6.11	$6.0
.3.18	Unbundled Loop Concentration - ISDN (Brite Card)	$8.38	$21.07	$20.96	$6.21	$17.32	$13.59			$8.22	$14.96	$14.8
.3.18	Unbundled Loop Concentration - ISDN (Brite Card) - Disconnect Only		$9.99	$9.93		$4.32	$4.32				$6.11	$6.0
.3.19	Unbundled Loop Concentration - SPOTS Card	$12.46	$21.07	$20.96	$9.24	$17.32	$13.59			$12.22	$14.96	$14.8
.3.19	Unbundled Loop Concentration - SPOTS Card - Disconnect Only		$9.99	$9.93		$4.32	$4.32				$6.11	$6.0
.3.20	Unbundled Loop Concentration - Specials Card	$7.43	$21.07	$20.96	$5.51	$17.32	$13.59			$7.29	$14.96	$14.8
.3.20	Unbundled Loop Concentration - Specials Card - Disconnect Only		$9.99	$9.93		$4.32	$4.32				$6.11	$6.0

APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
.3.21	Unbundled Loop Concentration - TEST CIRCUIT Card	$36.31	$21.07	$20.96	$26.92	$17.32	$13.59			$35.63	$14.96	$14.8
.3.21	Unbundled Loop Concentration - TEST CIRCUIT Card - Disconnect Only		$9.99	$9.93		$4.32	$4.32				$6.11	$6.0
.3.22	Unbundled Loop Concentration - Digital 19, 56, 64 Kbps Data	$11.01	$21.07	$20.96	$8.16	$17.32	$13.59			$10.80	$14.96	$14.8
.3.22	Unbundled Loop Concentration - Digital 19, 56, 64 Kbps Data - Disconnect Only		$9.99	$9.93		$4.32	$4.32				$6.11	$6.0

APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
.4	4-WIRE ANALOG VOICE GRADE LOOP											
.4.1	4-Wire Analog Voice Grade Loop				$15.03	$17.45	$9.81					
	Zone 1	$30.20	$271.60	$189.08	$9.86					$21.23	$151.34	$103.8
	Zone 2	$43.01	$271.60	$189.08	$14.18					$29.41	$151.34	$103.8
	Zone 3	$64.20	$271.60	$189.08	$18.72					$55.63	$151.34	$103.8
	Zone 4				$28.34							
	Zone 5				$41.13							
	Zone 6				$64.33							
.4.1	4-Wire Analog Voice Grade Loop - Disconnect Only		$122.15	$27.42		$4.07	$2.71				$60.47	$14.0
.5	2-WIRE ISDN DIGITAL GRADE LOOP											
.5.1	2-Wire ISDN Digital Grade Loop				$9.61	$12.42	$7.87	$12.83	$12.83			
	Zone 1	$28.33	$238.33	$155.81	$6.30					$20.44	$133.15	$85.1
	Zone 2	$34.45	$238.33	$155.81	$9.07					$28.31	$133.15	$85.1
	Zone 3	$35.62	$238.33	$155.81	$11.97					$53.56	$133.15	$85.1
	Zone 4				$18.12							
	Zone 5				$26.30							
	Zone 6				$41.13							
.5.1	2-Wire ISDN Digital Grade Loop - Disconnect Only		$111.10	$18.28		$5.66	$3.09	$4.75	$4.75		$56.10	$9.6
.5.6	Universal Digital Channel				$9.61	$12.42	$7.87					
	Zone 1	$28.33	$238.33	$155.81						$20.44	$133.15	$85.1
	Zone 2	$34.45	$238.33	$155.81						$28.31	$133.15	$85.1
	Zone 3	$35.62	$238.33	$155.81						$53.56	$133.15	$85.1
	Zone 4											
	Zone 5											
	Zone 6											
.5.6	Universal Digital Channel - Disconnect Only		$111.10	$18.28		$5.66	$3.09				$56.10	$9.6

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APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
.6	**2-WIRE ASYMMETRICAL DIGITAL SUBSCRIBER LINE (ADSL) COMPATIBLE LOOP**											
.6.1	2-Wire ADSL Compatible Loop (Non-recurring w/LMU)				$6.90							
	Zone 1	$17.56			$4.53					$11.52		
	Zone 2	$18.81			$6.51					$15.96		
	Zone 3	$19.21			$8.59					$30.19		
	Zone 4				$13.01							
	Zone 5				$18.88							
	Zone 6				$29.53							
.6.1wLMU	2-Wire ADSL Digital Subscriber Line Compatible Loop (Non-recurring with LMU)		$391.71	$253.12		$20.73	$12.03				$134.80	$93.6
.6.1wL	2-Wire ADSL Digital Subscriber Line Compatible Loop (Non-recurring with LMU) - Disc. Only		$154.23	$35.23		$5.97	$3.25				$67.66	$14.0
.6.1woL	2-Wire ADSL Digital Subscriber Line Compatible Loop (Non-recurring without LMU)		$258.86	$175.48		$19.14	$11.72				$112.55	$64.1
.6.1woL	2-Wire ADSL Digital Subscriber Line Compatible Loop (Non-recurring without LMU) - Disc. Only		$108.29	$15.46		$5.97	$3.25				$54.67	$8.2
.7	**2-WIRE HIGH BIT RATE DIGITAL SUBSCRIBER LINE (HDSL) COMPATIBLE LOOP**											
.7.1	2-Wire HDSL Compatible Loop				$5.73							
	Zone 1	$13.84			$3.76					$9.12		
	Zone 2	$14.57			$5.41					$12.63		
	Zone 3	$15.14			$7.14					$23.90		
	Zone 4				$10.80							
	Zone 5				$15.68							

009636

APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
	Zone 6				$24.52							
.7.1wL	2-Wire HDSL Compatible Loop (Nonrecurring with LMU)		$409.03	$270.44		$20.73	$12.03				$143.43	$102.2
.7.1wL	2-Wire HDSL Compatible Loop (Nonrecurring with LMU) - Disc. Only		$154.23	$35.23		$5.97	$3.25				$67.66	$14.0
.7.1woL	2-Wire HDSL Compatible Loop (Nonrecurring without LMU)		$276.19	$192.81		$19.14	$11.72				$121.17	$72.7
.7.1woL	2-Wire HDSL Compatible Loop (Nonrecurring without LMU) - Disc. Only		$108.29	$15.46		$5.97	$3.25				$54.67	$8.2
.8	**4-WIRE HIGH BIT RATE DIGITAL SUBSCRIBER LINE (HDSL) COMPATIBLE LOOP**											
.8.1	4-Wire HDSL Compatible Loop				$10.03							
	Zone 1	$22.35			$6.58					$14.24		
	Zone 2	$22.79			$9.47					$19.72		
	Zone 3	$24.85			$12.49					$37.31		
	Zone 4				$18.91							
	Zone 5				$27.45							
	Zone 6				$42.93							
.8.1wL	4-Wire HDSL Compatible Loop (Nonrecurring with LMU)		$466.24	$299.61		$20.73	$12.03				$174.28	$125.3
.8.1wL	4-Wire HDSL Compatible Loop (Nonrecurring with LMU) - Disc. Only		$161.19	$26.10		$6.09	$3.32				$69.56	$11.3
.8.1woL	4-Wire HDSL Compatible Loop (Nonrecurring without LMU)		$333.40	$250.01		$19.14	$11.72				$152.02	$104.1
.8.1woL	4-Wire HDSL Compatible Loop (Nonrecurring without LMU) - Disc. Only		$114.30	$19.58		$6.09	$3.32				$56.57	$10.1

009637

APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
.9	4-WIRE DS1 DIGITAL LOOP											
.9.1	4-Wire DS1 Digital Loop				$34.68	$30.32	$23.36					
	Zone 1	$92.48	$505.12	$315.18	$22.75					$69.22	$282.15	$163.5
	Zone 2	$119.68	$505.12	$315.18	$32.73					$95.89	$282.15	$163.5
	Zone 3	$194.70	$505.12	$315.18	$43.19					$181.38	$282.15	$163.5
	Zone 4				$65.39							
	Zone 5				$94.90							
	Zone 6				$148.43							
.9.1	4-Wire DS1 Digital Loop - Disconnect Only		$82.85	$21.69		$17.63	$13.31				$47.40	$10.2
.9.2	Sub-Loop Feeder Per 4-Wire DS1 Digital Loop				$12.98	$45.28	$21.38					
	Zone 1	$56.00	$211.55	$129.04	$8.51					$43.64	$120.61	$7,034.0
	Zone 2	$80.13	$211.55	$129.04	$12.25					$60.45	$120.61	$70.3
	Zone 3	$156.12	$211.55	$129.04	$16.17					$114.36	$120.61	$70.3
	Zone 4				$24.48							
	Zone 5				$35.52							
	Zone 6				$55.55							
.9.2	Sub-Loop Feeder Per 4-Wire DS1 Digital Loop - Disconnect Only		$127.78	$33.06		$38.33	$12.85				$65.07	$16.2
.10	4-WIRE 19, 56 OR 64 KBPS DIGITAL GRADE LOOP											
.10.1	4-Wire 19, 56 or 64 Kbps Digital Grade Loop				$16.74	$17.45	$9.81					
	Zone 1	$33.90	$260.18	$177.66	$10.98					$24.48	$145.66	$98.1
	Zone 2	$44.72	$260.18	$177.66	$15.80					$33.91	$145.66	$98.1
	Zone 3	$50.85	$260.18	$177.66	$20.85					$64.14	$145.66	$98.1
	Zone 4				$31.56							
	Zone 5				$45.81							
	Zone 6				$61.16							
.10.1	4-Wire 19, 56 or 64 Kbps Digital Grade Loop - Disconnect Only		$122.15	$27.42		$4.07	$2.71				$60.47	$14.0

009638

APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
.12	CONCENTRATION PER SYSTEM PER FEATURE ACTIVATED (OUTSIDE CENTRAL OFFICE)											
.12.1	Unbundled Loop Concentration - System A (TR008)	$477.76	$408.22	$222.37	$206.79	$3.66	$3.66			$448.00	$201.54	$109.0
.12.1	Unbundled Loop Concentration - System A (TR008) - Disconnect Only		$236.02	$74.84		$0.00	$0.00				$100.77	$31.3
.12.2	Unbundled Loop Concentration - System B (TR008)	$85.12	$408.22	$222.37	$44.41	$3.66	$3.66			$78.02	$201.54	$109.0
.12.2	Unbundled Loop Concentration - System B (TR008) - Disconnect Only		$236.02	$78.84		$0.00	$0.00				$100.77	$31.3
.12.3	Unbundled Loop Concentration - System A (TR303)	$512.86	$408.22	$222.37	$232.17	$3.66	$3.66			$481.07	$201.54	$109.0
.12.3	Unbundled Loop Concentration - System A (TR303) - Disconnect Only		$236.02	$74.84		$0.00	$0.00				$100.77	$31.3
.12.4	Unbundled Loop Concentration - System B (TR303)	$120.21	$408.22	$222.37	$69.80	$3.66	$3.66			$111.09	$201.54	$109.0
.12.4	Unbundled Loop Concentration - System B (TR303) - Disconnect Only		$236.02	$74.84		$0.00	$0.00				$100.77	$31.3
.12.5	Unbundled Sub-loop Concentration - USLC Feeder Interface				$12.23	$45.28	$21.38					
	Zone 1	$56.65	$211.55	$129.04						$42.81	$120.61	$70.3
	Zone 2	$65.68	$211.55	$129.04						$59.30	$120.61	$70.3
	Zone 3	$107.08	$211.55	$129.04						$112.17	$120.61	$70.3
.12.5	Unbundled Sub-loop Concentration - USLC Feeder Interface - Disconnect Only		$127.78	$33.06		$38.33	$12.85				$65.07	$16.2
.12.6	Unbundled Loop Concentration - POTS Card	$2.12	$21.07	$20.96	$1.53	$17.32	$13.59			$2.00	$14.96	$14.8

009639

APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
.12.6	Unbundled Loop Concentration - POTS Card - Disconnect Only		$9.99	$9.93		$4.32	$4.32				$6.11	$6.0
.12.7	Unbundled Loop Concentration - ISDN (Brite Card)	$8.48	$21.07	$20.96	$6.14	$17.32	$13.59			$7.99	$14.96	$14.8
.12.7	Unbundled Loop Concentration - ISDN (Brite Card) - Disconnect Only		$9.99	$9.93		$4.32	$4.32				$6.11	$6.0
.12.8	Unbundled Loop Concentration - SPOTS Card	$12.61	$21.07	$20.96	$9.12	$17.32	$13.59			$11.88	$14.96	$14.8
.12.8	Unbundled Loop Concentration - SPOTS Card - Disconnect Only		$9.99	$9.93		$4.32	$4.32				$6.11	$6.0
.12.9	Unbundled Loop Concentration - Specials Card	$7.52	$21.07	$20.96	$5.44	$17.32	$13.59			$7.09	$14.96	$14.8
.12.9	Unbundled Loop Concentration - Specials Card - Disconnect Only		$9.99	$9.93		$4.32	$4.32				$6.11	$6.0
.12.10	Unbundled Loop Concentration - TEST CIRCUIT Card	$36.76	$21.07	$20.96	$26.59	$17.32	$13.59			$34.64	$14.96	$14.8
.12.10	Unbundled Loop Concentration - TEST CIRCUIT Card - Disconnect Only		$9.99	$9.93		$4.32	$4.32				$6.11	$6.0
.12.11	Unbundled Loop Concentration - Digital 19, 56, 64 Kbps Data	$11.14	$21.07	$20.96	$8.06	$17.32	$13.59			$10.50	$14.96	$14.8
.12.11	Unbundled Loop Concentration - Digital 19, 56, 64 Kbps Data - Disconnect Only		$9.99	$9.93		$4.32	$4.32				$6.11	$6.0
.13	**2-WIRE COPPER LOOP**											
.13.1	2-Wire Copper Loop - short				$6.90							
	Zone 1	$17.56			$4.53					$11.52		
	Zone 2	$18.81			$6.51					$15.96		

009640

APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
	Zone 3	$19.21			$8.59					$30.19		
	Zone 4				$13.01							
	Zone 5				$18.88							
	Zone 6				$29.53							
.13.1wL	2-Wire Copper Loop - short (Nonrecurring with LMU)		$389.84	$251.26		$20.73	$12.03				$133.88	$92.7
.13.1wL	2-Wire Copper Loop - short (Nonrecurring with LMU) - Disc. Only		$154.23	$35.23		$5.97	$3.25				$67.66	$14.0
.13.1woL	2-Wire Copper Loop - short (Nonrecurring without LMU)		$257.00	$173.62		$19.14	$11.72				$111.62	$63.1
.13.1woL	2-Wire Copper Loop - short (Nonrecurring without LMU) - Disc. Only		$108.29	$15.46		$5.97	$3.25				$54.67	$8.2
.13.7	2-Wire Copper Loop - long				$8.51							
	Zone 1	$48.79			$5.58					$33.57		
	Zone 2	$58.13			$8.03					$46.50		
	Zone 3	$71.17			$10.60					$87.96		
	Zone 4				$16.05							
	Zone 5				$23.29							
	Zone 6				$36.42							
.13.7wL	2-Wire Copper Loop - long (Nonrecurring with LMU)		$331.86	$193.27		$20.73	$12.03				$133.88	$92.7
.13.7wL	2-Wire Copper Loop - long (Nonrecurring with LMU) - Disc. Only		$154.23	$35.23		$5.97	$3.25				$67.66	$14.0
.13.7woL	2-Wire Copper Loop - long (Nonrecurring without LMU)		$199.01	$115.63		$19.14	$11.72				$111.62	$63.1
.13.7woL	2-Wire Copper Loop - long (Nonrecurring without LMU) - Disc. Only		$108.29	$15.46		$5.97	$3.25				$54.67	$8.2
.14	**4-WIRE COPPER LOOP**											
.14.1	4-Wire Copper Loop - short				$12.14							
	Zone 1	$25.56			$7.96					$16.18		
	Zone 2	$30.53			$11.46					$22.41		

009641

APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
	Zone 3	$32.24			$15.12					$42.39		
	Zone 4				$22.89							
	Zone 5				$33.22							
	Zone 6				$51.96							
.14.1wL	4-Wire Copper Loop - short (Nonrecurring with LMU)		$438.27	$299.68		$20.73	$12.03				$160.36	$119.6
.14.1wL	4-Wire Copper Loop - short (Nonrecurring with LMU) - Disc. Only		$161.19	$39.76		$6.09	$3.32				$69.56	$15.9
.14.1woL	4-Wire Copper Loop - short (Nonrecurring without LMU)		$305.43	$222.05		$19.14	$11.72				$138.10	$90.1
.14.1woL	4-Wire Copper Loop - short (Nonrecurring without LMU) - Disc. Only		$114.30	$19.58		$6.09	$3.32				$56.57	$10.1
.14.7	4-Wire Copper Loop - long				$15.12							
	Zone 1	$82.70			$9.92					$57.88		
	Zone 2	$119.02			$14.27					$80.18		
	Zone 3	$147.54			$18.83					$151.67		
	Zone 4				$28.51							
	Zone 5				$41.38							
	Zone 6				$64.71							
.14.7wL	4-Wire Copper Loop - long (Nonrecurring with LMU)		$380.29	$241.70		$20.73	$12.03				$160.36	$119.6
.14.7wL	4-Wire Copper Loop - long (Nonrecurring with LMU) - Disc. Only		$161.19	$39.76		$6.09	$3.32				$69.56	$15.9
.14.7woL	4-Wire Copper Loop - long (Nonrecurring without LMU)		$247.44	$164.06		$19.14	$11.72				$138.10	$90.1
.14.7woL	4-Wire Copper Loop - long (Nonrecurring without LMU) - Disc. Only		$114.30	$19.58		$6.09	$3.32				$56.57	$10.1
.15	**UNBUNDLED NETWORK TERMINATING WIRE (NTW)**											
.15.1	Unbundled Network Terminating Wire (NTW) per Pair	$0.4555	$65.35		$0.1747	$0.43				$0.3682	$21.85	

009642

APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
.16	HIGH CAPACITY UNBUNDLED LOCAL LOOP											
.16.1	High Capacity Unbundled Local Loop - DS3 - Facility Termination	$404.58	$903.37	$528.05	$245.44	$48.97	$37.60			$387.10	$501.59	$309.2
.16.1	High Capacity Unbundled Local Loop - DS3 - Facility Termination - Disconnect Only		$221.46	$154.90		$18.04	$9.63				$125.43	$87.3
.16.2	High Capacity Unbundled Local Loop - DS3 - Per Mile	$11.77			$4.09					$10.06		
.16.4	High Capacity Unbundled Local Loop - OC3 - Facility Termination	$646.60	$966.45	$408.85	$423.64	$33.63	$29.52			$619.03	$505.87	$239.1
.16.4	High Capacity Unbundled Local Loop - OC3 - Facility Termination - Disconnect Only		$111.56	$108.34		$4.96	$4.96				$64.94	$63.6
.16.5	High Capacity Unbundled Local Loop - OC3 - Per Mile	$8.93			$3.10					$7.63		
.16.7	High Capacity Unbundled Local Loop - OC12 - Facility Termination	$2,053.06	$1,183.46	$408.85	$1,328.00	$33.63	$29.52			$1,966.00	$613.87	$239.13
.16.7	High Capacity Unbundled Local Loop - OC12 - Facility Termination - Disconnect Only		$111.56	$108.34		$4.96	$4.96				$64.94	$63.6
.16.8	High Capacity Unbundled Local Loop - OC12 - Per Mile	$10.99			$3.82					$9.39		
.16.10	High Capacity Unbundled Local Loop - OC48 - Facility Termination	$1,685.97	$1,183.46	$408.85	$1,011.00	$33.63	$29.52			$1,586.00	$613.87	$239.1
.16.10	High Capacity Unbundled Local Loop - OC48 - Facility Termination - Disconnect Only		$111.56	$108.34		$4.96	$4.96				$64.94	$63.6

APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
.16.11	High Capacity Unbundled Local Loop - OC48 - Per Mile	$36.04			$12.53					$30.81		
.16.13	High Capacity Unbundled Local Loop - OC48 - Interface OC12 on OC48	$587.71	$543.72	$312.05	$424.75	$23.92	$19.82			$553.81	$393.70	$190.9
.16.13	High Capacity Unbundled Local Loop - OC48 - Interface OC12 on OC48 - Disconnect Only		$111.56	$108.34		$4.96	$4.96				$64.94	$63.6
.16.15	High Capacity Unbundled Local Loop - STS-1 - Facility Termination	$446.09	$903.37	$528.05	$278.90	$48.97	$37.60			$426.68	$501.59	$309.2
.16.15	High Capacity Unbundled Local Loop - STS-1 - Facility Termination - Disconnect Only		$221.46	$154.90		$18.04	$9.63				$125.43	$87.3
.16.16	High Capacity Unbundled Local Loop - STS-1 - Per Mile	$11.77			$4.09					$10.06		

APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
.17	LOOP CONDITIONING											
.17.1	Unbundled Loop Modification - Load Coil / Equipment Removal - short[31]		$65.40			$0.00	$0.00	$0.00	$0.00		$0.00	
.17.2	Unbundled Loop Modification - Load Coil / Equipment Removal - long - First and Additional[31]		$710.71	$23.77		$0.00	$0.00	$0.00	$0.00		$309.32	
.17.3	Unbundled Loop Modification - Bridged Tap Removal[32]		$65.44			$0.00	$0.00	$0.00	$0.00		$9.48	
.17.4	Unbundled Loop Modification - Additive[32]					$0.00	$0.00	$0.00	$0.00		$0.00	
.17.5	Unbundled Sub-Loop Mod. - 2W/4W Copper Distribution Load Coil/Equip. Removal First/Add'l		$357.81	$8.15		$0.00	$0.00				$9.11	
.17.6	Unbundled Sub-Loop Modification - 2W/4W Copper Distrib. Bridged Tap Removal First/Add'l		$562.71	$10.19		$0.00	$0.00				$14.05	

[31] If the Commission allows conditioning charges, Blue Star et al. propose $8.32 per loop for load coil removal.

[32] If the Commission allows conditioning charges, Blue Star et al. propose $0.89 per loop for bridged tap removal.

APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
.18	MULTIPLEXERS											
.18.1	Channelization - Channel System DS1 to DS0	$153.60	$182.14	$125.18	$39.76	$19.15	$15.22			$151.74	$91.44	$64.5
.18.1	Channelization - Channel System DS1 to DS0 - Disconnect Only		$19.52	$18.14		$4.32	$4.32				$10.00	$9.4
.18.2	Interface Unit - Interface DS1 to DS0 - OCU-DP Card	$2.20	$13.16	$9.43	$1.06	$13.19	$9.45			$2.16	$9.08	$6.3
.18.3	Interface Unit - Interface DS1 to DS0 - BRITE Card	$3.83	$13.16	$9.43	$2.27	$13.19	$9.45			$3.76	$9.08	$6.3
.18.4	Interface Unit - Interface DS1 to DS0 - Voice Grade Card	$1.45	$13.16	$9.43	$0.4970	$13.19	$9.45			$1.42	$9.08	$6.3
.18.5	Channelization - Channel System DS3 to DS1	$220.97	$356.40	$188.00	$83.57	$19.15	$15.22			$218.70	$179.66	$106.9
.18.5	Channelization - Channel System DS3 to DS1 - Disconnect Only		$61.64	$58.98		$4.32	$4.32				$36.37	$35.2
.18.6	Interface Unit - Interface DS3 to DS1	$14.40	$13.16	$9.43	$5.78	$11.41	$7.67			$14.24	$9.08	$6.3
.19	LOOP TESTING BEYOND VOICE GRADE											
.19.1	Loop Testing Beyond VG - Basic per 1/2 hour		$122.47	$58.83		$0.00	$0.00				$76.79	$32.9
.19.2	Loop Testing Beyond VG - Overtime per 1/2 hour		$160.22	$77.19		$0.00	$0.00				$100.37	$43.2
.19.3	Loop Testing Beyond VG - Premium per 1/2 hour		$197.97	$95.56		$0.00	$0.00				$123.94	$53.5
.0	UNBUNDLED LOCAL EXCHANGE PORTS AND FEATURES											
.1	EXCHANGE PORTS											
.1.1	Exchange Ports - 2-Wire Analog Line Port (Res., Bus., Centrex, Coin)	$1.62	$4.76	$4.54	$0.6283	$4.68	$4.55			$1.34	$3.37	$3.2

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APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
B.1.1	Exchange Ports - 2-Wire Analog Line Port (Res., Bus., Centrex, Coin) - Disconnect Only		$2.76	$2.59		$2.67	$2.59				$1.69	$1.6
B.1.2	Exchange Ports - 4-Wire Analog Voice Grade Port	$8.74	$4.76	$4.54	$5.91	$4.68	$4.55			$8.33	$3.37	$3.2
B.1.2	Exchange Ports - 4-Wire Analog Voice Grade Port - Disconnect Only		$2.82	$2.64		$2.73	$2.65				$1.69	$1.62
B.1.3	Exchange Ports - 2-Wire DID Port	$9.38	$248.44	$37.49	$3.48	$21.60	$7.87			$8.81	$70.69	$14.2
B.1.3	Exchange Ports - 2-Wire DID Port - Disconnect Only		$113.28	$7.12		$19.62	$4.55				$37.81	$3.8
B.1.4	Exchange Ports - DDITS Port	$63.31	$413.93	$191.44	$22.96	$24.15	$10.11			$52.73	$136.24	$70.1
B.1.4	Exchange Ports - DDITS Port - Disconnect Only		$137.29	$4.65		$18.87	$4.42				$44.00	$2.8
B.1.5	Exchange Ports - 2-Wire ISDN Port	$10.20	$155.34	$106.00	$3.42	$22.67	$22.67			$8.46	$42.22	$45.6
B.1.5	Exchange Ports - 2-Wire ISDN Port - Disconnect Only		$93.37	$20.98		$13.14	$13.14				$24.91	$10.7
B.1.6	Exchange Ports - 4-Wire ISDN DS1 Port	$95.39	$417.51	$203.18	$34.85	$23.63	$12.25			$79.35	$157.42	$85.8
B.1.6	Exchange Ports - 4-Wire ISDN DS1 Port - Disconnect Only		$149.75	$37.93		$19.61	$4.45				$44.89	$16.4
B.1.7	Exchange Ports - 2-Wire Analog Line Port (PBX)	$1.62	$62.56	$29.70	$0.6283	$19.03	$7.63			$1.34	$35.22	$16.3
B.1.7	Exchange Ports - 2-Wire Analog Line Port (PBX) - Disconnect Only		$26.37	$1.69		$0.0704	$0.0847				$11.14	0.648
B.4	FEATURES											
B.4.10	Centrex Functionality[33]	$0.8903			$0.00					$0.00		

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[33] Per BellSouth letter of 9/6/2000, cost element B.4.10 should be deleted from the BST Cost Calculator. However, BellSouth did not delete the rate from corrected revised exhibit AJV-1, dated 9/5/2000.

APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
.4.13	Features per port	$3.40			$0.86					$2.17		

APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
.0	UNBUNDLED SWITCHING AND LOCAL INTERCONNECTION											
.1	END OFFICE SWITCHING											
.1.1	End Office Switching Function, Per MOU	$0.0008846			$0.0003828					$0.0007341		
.1.2	End Office Trunk Port - Shared, Per MOU	$0.0001893			$0.0000696					$0.0001571		
.2	TANDEM SWITCHING											
.2.1	Tandem Switching Function Per MOU	$0.0001522			$0.0001040					$0.0001263		
.2.2	Tandem Trunk Port - Shared, Per MOU	$0.0002713			$0.0000998					$0.0002252		
.0	UNBUNDLED TRANSPORT AND LOCAL INTEROFFICE TRANSPORT											
.1	COMMON TRANSPORT											
.1.1	Common Transport - Per Mile, Per MOU	$0.0000039			$0.0000027					$0.0000034		
.1.2	Common Transport - Facilities Termination Per MOU	$0.0004579			$0.0002785					$0.0004493		
.2	INTEROFFICE TRANSPORT - DEDICATED - VOICE GRADE											
.2.1	Interoffice Transport - Dedicated - 2-Wire Voice Grade - Per Mile	$0.0098			$0.0034					$0.0084		
.2.2	Interoffice Transport - Dedicated - 2- Wire Voice Grade - Facility Termination	$26.52	$81.09	$54.83	$14.05	$15.02	$10.46			$26.02	$42.69	$28.6
.2.2	Interoffice Transport - Dedicated - 2- Wire Voice Grade - Facility Termination - Disconnect Only		$31.01	$12.78		$9.51	$5.19				$16.51	$6.3

APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
.3	**INTEROFFICE TRANSPORT - DEDICATED - DS0 - 56/64 KBPS**											
.3.1	Interoffice Transport - Dedicated - DS0 - Per Mile	$0.0098			$0.0034					$0.0084		
.3.2	Interoffice Transport - Dedicated - DS0 - Facility Termination	$19.31	$81.11	$54.83	$8.71	$18.00	$13.45			$18.95	$42.69	$28.6
.3.2	Interoffice Transport - Dedicated - DS0 - Facility Termination - Disconnect Only		$31.01	$12.78		$12.97	$8.65				$16.51	$6.3
.4	**INTEROFFICE TRANSPORT - DEDICATED - DS1**											
.4.1	Interoffice Transport - Dedicated - DS1 - Per Mile	$0.2000			$0.0695					$0.1710		
.4.2	Interoffice Transport - Dedicated - DS1 - Facility Termination	$92.62	$178.59	$163.66	$56.34	$19.08	$15.22			$90.87	$95.16	$88.7
.4.2	Interoffice Transport - Dedicated - DS1 - Facility Termination - Disconnect Only		$30.30	$26.76		$12.97	$8.65				$16.74	$14.8
.5	**LOCAL CHANNEL - DEDICATED**											
.5.1	Local Channel - Dedicated - 2-Wire Voice Grade				$32.58	$27.83	$14.50					
	Zone 1	$29.33	$386.34	$66.36						$21.04	$239.67	$42.3
	Zone 2	$35.02	$386.34	$66.36						$29.15	$239.67	$42.3
	Zone 3		$386.34	$66.36						$55.14	$239.67	$42.3
.5.1	Local Channel - Dedicated - 2-Wire Voice Grade - Disconnect Only		$67.91	$5.92		$10.41	$5.94				$33.93	$3.6
.5.2	Local Channel - Dedicated - 4-Wire Voice Grade				$32.58	$30.81	$17.49					
	Zone 1	$30.50	$387.21	$67.22						$21.91	$240.30	$42.9
	Zone 2	$36.18	$387.21	$67.22						$30.35	$240.30	$42.9

APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
	Zone 3		$387.21	$67.22						$57.40	$240.30	$42.9
.5.2	Local Channel - Dedicated - 4-Wire Voice Grade - Disconnect Only		$68.78	$6.79		$11.28	$6.81				$34.47	$4.1
.5.7	Local Channel - Dedicated - DS3 - Per Mile	$9.16			$3.18					$7.83		
.5.8	Local Channel - Dedicated - DS3 - Facility Termination	$556.27	$903.37	$528.05	$315.40	$45.74	$37.60			$554.83	$501.59	$309.2
.5.8	Local Channel - Dedicated - DS3 - Facility Termination - Disconnect Only		$221.46	$154.90		$14.30	$9.63				$125.43	$87.3
.5.10	Local Channel - Dedicated - OC3 - Per Mile	$7.69			$2.67					$6.58		
.5.11	Local Channel - Dedicated - OC3 - Facility Termination	$933.43	$966.45	$408.85	$560.55	$33.63	$29.52			$931.25	$505.87	$239.1
.5.11	Local Channel - Dedicated - OC3 - Facility Termination - Disconnect Only		$111.56	$108.34		$4.96	$4.96				$64.94	$63.6
.5.13	Local Channel - Dedicated - OC12 - Per Mile	$10.99			$3.82					$9.39		
.5.14	Local Channel - Dedicated - OC12 - Facility Termination	$2,733.10	$1,183.46	$408.85	$1,554.00	$33.63	$29.52			$2,727.00	$613.87	$239.1
.5.14	Local Channel - Dedicated - OC12 - Facility Termination - Disconnect Only		$111.56	$108.34		$4.96	$4.96				$64.94	$63.6
.5.16	Local Channel - Dedicated - OC48 - Per Mile	$36.04			$12.53					$30.81		
.5.17	Local Channel - Dedicated - OC48 - Facility Termination	$1,929.99	$1,183.46	$408.85	$1,018.00	$33.63	$29.52			$1,888.00	$613.87	$239.1
.5.17	Local Channel - Dedicated - OC48 - Facility Termination - Disconnect Only		$111.56	$108.34		$4.96	$4.41				$64.94	$63.6
.5.19	Local Channel - Dedicated - OC48 - Interface OC12 on OC48	$581.95	$543.72	$312.05	$428.93	$0.00	$0.00			$570.98	$393.70	$190.9
.5.19	Local Channel - Dedicated - OC48 - Interface OC12 on OC48 - Disconnect Only		$111.56	$108.34		$0.00	$0.00				$64.94	$63.6

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APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
.5.21	Local Channel - Dedicated - STS-1 - Facility Termination	$565.48	$903.37	$528.05	$329.55	$45.74	$37.60			$563.73	$501.59	$309.2
.5.21	Local Channel - Dedicated - STS-1 - Facility Termination - Disconnect Only		$221.46	$154.90		$14.30	$9.63				$125.43	$87.3
.5.23	Local Channel - Dedicated - STS-1 -Per Mile	$9.16			$3.18					$7.83		
.5.24	Local Channel - Dedicated - DS1				$34.81	$41.26	$21.59					
	Zone 1	$45.53	$355.08	$307.54						$34.49	$195.33	$165.4
	Zone 2	$58.19	$355.08	$307.54						$47.78	$195.33	$165.4
	Zone 3	$108.24	$355.08	$307.54						$90.38	$195.33	$165.4
.5.24	Local Channel - Dedicated - DS1 - Disconnect Only		$41.13	$28.28		$13.31	$13.31				$21.90	$15.2
.6	**INTEROFFICE TRANSPORT - DEDICATED - DS3**											
.6.1	Interoffice Transport - Dedicated - DS3 - Per Mile	$4.17			$1.45					$3.57		
.6.2	Interoffice Transport - Dedicated - DS3 - Facility Termination	$1,121.93	$557.69	$325.61	$617.37	$18.35	$13.85			$1,101.00	$302.43	$197.7
.6.2	Interoffice Transport - Dedicated - DS3 - Facility Termination - Disconnect Only		$111.56	$108.34		$13.61	$9.29				$64.94	$63.6
.7	**INTEROFFICE TRANSPORT - DEDICATED - OC3**											
.7.1	Interoffice Transport - Dedicated - OC3 - Per Mile	$8.24			$2.86					$7.04		
.7.2	Interoffice Transport - Dedicated - OC3 - Facility Termination	$3,020.08	$869.65	$312.05	$1,759.00	$18.35	$13.85			$2,963.00	$457.69	$190.9

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APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
.7.2	Interoffice Transport - Dedicated - OC3 - Facility Termination - Disconnect Only		$111.56	$108.34		$13.61	$9.29				$64.94	$63.6
.8	**INTEROFFICE TRANSPORT - DEDICATED - OC12**											
.8.1	Interoffice Transport - Dedicated - OC12 - Per Mile	$26.45			$9.19					$22.61		
.8.2	Interoffice Transport - Dedicated - OC12 - Facility Termination	$11,599.14	$1,086.66	$312.05	$6,705.00	$18.35	$13.85			$11,380.00	$565.69	$190.9
.8.2	Interoffice Transport - Dedicated - OC12 - Facility Termination - Disconnect Only		$111.56	$108.34		$13.61	$9.29				$64.94	$63.6
.9	**INTEROFFICE TRANSPORT - DEDICATED - OC48**											
.9.1	Interoffice Transport - Dedicated - OC48 - Per Mile	$34.07			$11.84					$29.13		
.9.2	Interoffice Transport - Dedicated - OC48 - Facility Termination	$12,460.76	$1,086.66	$312.05	$7,412.00	$25.39	$7.84			$12,226.00	$565.69	$190.9
.9.2	Interoffice Transport - Dedicated - OC48 - Facility Termination - Disconnect Only		$111.56	$108.34		$17.91	$4.95				$64.94	$63.6
.9.4	Interoffice Transport - Dedicated - OC48 - Interface OC12 on OC48	$1,199.42	$543.72	$312.05	$867.17	$0.00	$0.00			$1,177.00	$305.34	$190.9
.9.4	Interoffice Transport - Dedicated - OC48 - Interface OC12 on OC48 - Disconnect Only		$111.56	$108.34		$0.00	$0.00				$64.94	$63.6
.10	**INTEROFFICE TRANSPORT - DEDICATED - STS-1**											

APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
.10.1	Interoffice Transport - Dedicated - STS-1 - Per Mile	$4.17			$1.45					$3.57		
.10.2	Interoffice Transport - Dedicated - STS-1 - Facility Termination	$1,105.98	$557.69	$325.61	$591.23	$18.35	$13.85			$1,085.00	$302.43	$197.7
.10.2	Interoffice Transport - Dedicated - STS-1 - Facility Termination - Disconnect Only		$111.56	$108.34		$13.61	$9.29				$64.94	$63.6
.12	**INTEROFFICE TRANSPORT - DEDICATED - 4-WIRE VOICE GRADE**											
.12.1	Interoffice Transport - Dedicated - 4-Wire Voice Grade - Per Mile	$0.0098			$0.0034					$0.0084		
.12.2	Interoffice Transport - Dedicated - 4-Wire Voice Grade - Facility Termination	$23.64	$81.09	$54.83	$11.92	$81.29	$54.97			$23.20	$42.69	$28.6
.12.2	Interoffice Transport - Dedicated - 4-Wire Voice Grade - Facility Termination - Disconnect Only		$31.01	$12.78		$31.09	$12.81				$16.51	$6.3
.0	**SIGNALING NETWORK, DATA BASES, & SERVICE MANAGEMENT SYSTEMS**											
.1	**800 ACCESS TEN DIGIT SCREENING**											
.1.1	800 Access Ten Digit Screening, Per Call	$0.0006531			$0.0005928					$0.0006165		
.1.2	800 Access Ten Digit Screening, Reservation Charge Per 800 Number Reserved		$5.16	$0.88		$0.52	$0.10				$3.74	$0.6

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APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
.1.3	800 Access Ten Digit Screening, Per 800 No. Established W/O POTS Translations		$11.88	$1.61		$1.18	$0.16				$7.92	$1.0
.1.3	800 Access Ten Digit Screening, Per 800 No. Established W/O POTS Translations - Disc. Only		$9.14	$1.08		$0.92	$0.11				$5.20	$0.6
.1.4	800 Access Ten Digit Screening, Per 800 No. Established With POTS Translations		$11.88	$1.61		$1.19	$0.16				$7.92	$1.0
.1.4	800 Access Ten Digit Screening, Per 800 No. Established With POTS Translations - Disc. Only		$9.14	$1.08		$0.92	$0.11				$5.20	$0.6
.1.5	800 Access Ten Digit Screening, Customized Area of Service Per 800 Number		$5.16	$2.58		$0.52	$0.26				$3.74	$1.8
.1.6	800 Access Ten Digit Screening, Multiple InterLATA CXR Routing Per CXR Requested Per 800 No.		$6.04	$3.46		$0.61	$0.35				$4.37	$2.5
.1.7	800 Access Ten Digit Screening, Change Charge Per Request		$6.04	$0.88		$0.61	$0.09				$4.37	$0.6
.1.8	800 Access Ten Digit Screening, Call Handling and Destination Features		$5.16			$0.52					$3.74	
.1.9	800 Access Ten Digit Screening, w/ 8FL No. Delivery	$0.0006531			$0.0005928					$0.0006165		
.1.10	800 Access Ten Digit Screening, w/ POTS No. Delivery	$0.0006531			$0.0005928					$0.0006165		
.2	**LINE INFORMATION DATA BASE ACCESS (LIDB)**											
.2.1	LIDB Common Transport Per Query	$0.0000234			$0.0000167					$0.0000195		

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APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
.2.2	LIDB Validation Per Query	$0.0137460			$0.0135438					$0.0132254		
.2.3	LIDB Originating Point Code Establishment or Change		$68.66			$6.88					$49.71	
.2.3	LIDB Originating Point Code Establishment or Change - Disconnect Only		$84.19			$8.44					$49.71	
.3	**CCS7 SIGNALING TRANSPORT**											
.3.1	CCS7 Signaling Connection, Per 56Kbps Facility	$18.78	$71.08		$8.28	$17.87				$18.39	$39.28	
.3.1	CCS7 Signaling Connection, Per 56Kbps Facility - Disconnect Only		$32.88			$14.31					$16.51	
.3.2	CCS7 Signaling Termination, Per STP Port	$154.51			$115.66					$129.77		
.3.3	CCS7 Signaling Usage, Per Call Setup Message	$0.0000166			$0.0000134					$0.0000148		
.3.4	CCS7 Signaling Usage, Per TCAP Message	$0.0000666			$0.0000537					$0.0000592		
.3.7	CCS7 Signaling Connection, Per link (A link)	$18.78			$8.28					$18.39		
.3.8	CCS7 Signaling Connection, Per link (B link) (also known as D link)	$18.78			$8.28					$18.39		
.3.9	CCS7 Signaling Usage, Per ISUP Message	$0.0000166			$0.0000134					$0.0000148		
.3.10	CCS7 Signaling Usage Surrogate, per link	$761.79			$614.01					$676.89		
.3.11	CCS7 Signaling Point Code, Establishment or Change, per STP affected		$58.04			$5.59					$41.50	
.3.11	CCS7 Signaling Point Code, Establishment or Change, per STP affected - Disconnect Only		$71.16			$6.85					$41.50	

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APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
.4	**BELLSOUTH CALLING NAME (CNAM) DATABASE (DB) SERVICE**											
.4.1	CNAM for DB Owners - Service Establishment, Manual		$45.92			$46.03					$22.85	
.4.1	CNAM for DB Owners - Service Establishment, Manual - Disconnect Only		$42.22			$42.33					$17.14	
.4.2	CNAM for Non DB Owners - Service Establishment, Manual		$45.92			$46.03					$22.85	
.4.2	CNAM for Non DB Owners - Service Establishment, Manual - Disconnect Only		$42.22			$42.33					$17.14	
.4.3	CNAM for DB Owners Service Provisioning with Point Code Establishment		$1,982.41	$1,466.16		$812.50	$429.54				$1,435.00	$1,061.0
.4.3	CNAM for DB Owners Service Provisioning with Point Code Establishment - Disconnect Only		$538.03	$395.61		$285.54	$142.77				$317.70	$233.6
.4.4	CNAM for Non DB Owners Service Provisioning with Point Code Establishment		$684.89	$490.44		$605.49	$414.01				$492.73	$355.0
.4.4	CNAM for Non DB Owners Service Provisioning with Point Code Establishment - Disc. Only		$550.69	$395.61		$298.22	$142.77				$322.83	$233.6
.4.5	CNAM for DB and Non DB Owners, Per Query	$0.0010353			$0.0009911					$0.0010161		
.5	**BELLSOUTH ACCESS TO E911 SERVICE**											
.5.1	BellSouth E911 Access - Local Channel - Dedicated - 2-wire Voice Grade (Same as D.5.1)											
	Zone 1	$29.33	$386.34	$66.36						$21.04	$239.67	$42.3
	Zone 2	$35.02	$386.34	$66.36						$29.15	$239.67	$42.3

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APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
	Zone 3		$386.34	$66.36						$55.14	$239.67	$42.3
	BellSouth E911 Access - Local Channel - Dedicated - 2-wire Voice Grade (Same as D.5.1) - Disc. Only		$67.91	$5.92							$33.93	$3.6
.5.2	BellSouth E911 Access - Interoffice Transport - Dedicated - 2-wire Voice Grade Per Mile (Same as D.2.1)	$0.0098								$0.0084		
.5.3	BellSouth E911 Access - Interoffice Transport - Dedicated 2-wire Voice Grade Per Fac. Term (same as D.2.2)	$26.52	$81.09	$54.83						$26.02	$42.69	$28.6
.5.3	BellSouth E911 Access - Interoffice Transport - Dedicated 2-wire Voice Grade Per Fac. Term- Disc. Only (same as D.2.2)		$31.01	$12.78							$16.51	$6.3
.5.4	BellSouth E911 Access - Local Channel - Dedicated - DS1 (Same as D.5.24)											
	Zone 1	$45.53	$355.08	$307.54						$34.49	$195.33	$165.4
	Zone 2	$58.19	$355.08	$307.54						$47.78	$195.33	$165.4
	Zone 3	$108.24	$355.08	$307.54						$90.38	$195.33	$165.4
.5.4	BellSouth E911 Access - Local Channel - Dedicated - DS1 (Same as D.5.24) - Disconnect Only		$41.13	$28.28							$21.90	$15.2
.5.5	BellSouth E911 Access - Interoffice Transport - Dedicated - DS1 Per Mile (Same as D.4.1)	$0.2000								$0.1710		
.5.(	BellSouth E911 Access - Interoffice Transport - Dedicated - DS1 Per Facility Termination (Same as D.4.2)	$92.62	$178.59	$163.66						$90.87	$95.16	$88.7

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APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
	BellSouth E911 Access - Interoffice Transport - Dedicated - DS1 Per Facility Termination - Disc. Only (same as D.4.2)		$30.30	$26.76							$16.74	$14.8
.6	LNP QUERY SERVICE											
.6.1	LNP Cost Per query	$0.0008720			$0.0008266					$0.000842		
.6.2	LNP Service Establishment Manual		$25.04			$25.11					$12.46	
.6.2	LNP Service Establishment Manual - Disconnect Only		$23.03			$23.09					$9.35	
.6.3	LNP Service Provisioning with Point Code Establishment		$1,187.38	$606.60		$1,190.00	$608.08				$591.01	$301.9
.6.3	LNP Service Provisioning with Point Code Establishment - Disconnect Only		$538.03	$395.61		$539.35	$396.58				$218.42	$160.6
.0	SELECTIVE ROUTING											
.9	SELECTIVE ROUTING (INTERIM SOLUTION LINE CLASS CODES)											
.9.1	Selective Routing Per Unique Line Class Code Per Request Per Switch		$169.46			$16.99					$84.33	
.9.1	Selective Routing Per Unique Line Class Code Per Request Per Switch - Disconnect Only		$28.23			$0.00					$11.46	

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APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
.11	**SELECTIVE CARRIER ROUTING (AIN SOLUTION)**											
.11.1	Service Establishment per CLEC		$202,270.80			$202,766.00					$191,575.00	
.11.1	Service Establishment per CLEC - Disconnect Only		$17,188.36			$17,230.00					$6,974.00	
.11.2	Service Establishment per End Office		$341.01			$341.84					$168.89	
.11.2	Service Establishment per End Office - Disconnect Only		$3.39			$3.40					$0.63	
.11.4	Query Cost	$0.0034057			$0.0027922					$0.0030998		
.0	**INTERIM SERVICE PROVIDER NUMBER PORTABILITY**											
.1	**INTERIM SERVICE PROVIDER NUMBER PORTABILITY - RCF**											
.1.1	Service Provider Number Portability - RCF, Per Number Ported	$2.37	$0.5163		$1.74	$0.5175				$1.97	0.3738	
.1.1	Service Provider Number Portability - RCF, Per Number Ported - Disconnect Only		$0.0560			$0.0561					0.0374	
.1.2	Service Provider Number Portability - RCF, Per Additional Path	$0.8288			$0.6082					0.6878		
.2	**SERVICE PROVIDER NUMBER PORTABILITY - DID**											
.2.1	Service Provider Number Portability - DID, Per Number Ported, Residence		$0.8621			$0.8643					0.6242	
.2.1	Service Provider Number Portability - DID, Per Number Ported, Residence - Disconnect Only		$0.9349			$0.9372					0.6242	

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APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
.2.2	Service Provider Number Portability - DID, Per Number Ported, Business		$0.8621			$0.8643					0.6242	
.2.2	Service Provider Number Portability - DID, Per Number Ported, Business - Disconnect Only		$0.9349			$0.9372					0.6242	
.2.4	Service Provider Number Portability - DID, Per Trunk Termination, Initial	$63.31	$390.60		$45.87	$391.56				$52.73	$145.42	
.2.4	Service Provider Number Portability - DID, Per Trunk Termination, Initial - Disconnect Only		$57.57			$57.71					$29.51	
.2.5	Service Provider Number Portability - DID, Per Trunk Termination, Subsequent	$63.31	$141.73		$45.87	$142.08				$52.73	$72.65	
.2.5	Service Provider Number Portability - DID, Per Trunk Termination, Subsequent - Disconnect Only		$57.57			$57.71					$29.51	
.4	**SERVICE PROVIDER NUMBER PORTABILITY RIPH**											
.4.1	Service Provider Number Portability - RIPH, Functionality, Per Central office		$164.15			$164.55					$81.56	
.4.1	Service Provider Number Portability - RIPH, Functionality, Per Central office - Disconnect Only		$4.99			$5.01					$2.29	
.4.2	Service Provider Number Portability - RIPH, Functionality, Per Rearrangement		$39.64			$39.73					$18.11	
.4.3	Service Provider Number Portability - RI-PH, Per Number Ported	$2.11	$0.3922		$1.55	$0.3931				$1.75	0.1952	

APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
.4.3	Service Provider Number Portability - RI-PH, Per Number Ported - Disconnect Only		$0.0425			$0.0426					0.0195	

APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
.0	OTHER											
.1	DARK FIBER											
.1.2	Dark Fiber, Per Four Fiber Strands, Per Route Mile or Fraction Thereof - Local Channel/Loop	$58.35	$1,278.62	275.82	$17.41	$96.52	$23.00			$54.11	$677.37	$174.7
.1.2	Dark Fiber, Per 4 Fiber Strands, Per Route Mile or Fraction Thereof - Local Chan/Loop - Disc. Only		$587.64	$366.34		$84.58	$12.75				$277.72	$179.4
.1.3	Dark Fiber, Per Four Fiber Strands, Per Route Mile or Fraction Thereof - Interoffice	$28.82	$1,278.62	275.82	$9.68	$89.43	$23.00			$25.14	$677.37	$174.7
.1.3	Dark Fiber, Per Four Fiber Strands, Per Route Mile or Fraction Thereof - Interoffice - Disc. Only		$587.64	$366.34		$76.39	$12.75				$277.72	$179.4
.3	LOOP MAKE-UP[34]											
.3.1	Mechanized Loop Make-up	$0.6888			$0.6592			$0.00	$0.00	$0.6757		
.3.3	Manual Loop Make-up w/o Facility Reservation Number		$132.82			$0.00		$20.00	$20.00		$43.10	
.3.4	Manual Loop Make-up w/ Facility Reservation Number		$138.61			$0.00		$20.00	$20.00		$45.72	
.5	ACCESS TO THE DCS											
.5.1	Customer Reconfiguration Establishment		$2.95			$2.96					$1.47	
.5.1	Customer Reconfiguration Establishment - Disconnect Only		$3.41			$3.42					$1.47	

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[34] Blue Star et al. recommend that no manual charges should apply, unless the competitor *chooses* not to do its own loop qualification.

APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
.5.2	DS1 DCS Termination with DS0 Switching	$28.51	$51.10	$39.33	$24.44	$51.23	$39.42			$28.81	$29.65	$21.2
.5.2	DS1 DCS Termination with DS0 Switching - Disconnect Only		$30.82	$24.79		$30.90	$24.85				$15.29	$11.5
.5.3	DS1 DCS Termination with DS1 Switching	$12.14	$36.94	$25.16	$10.10	$37.03	$25.22			$12.19	$22.60	$14.2
.5.3	DS1 DCS Termination with DS1 Switching - Disconnect Only		$22.63	$16.60		$22.69	$16.64				$11.77	$7.9
.5.4	DS3 DCS Termination with DS1 Switching	$153.17	$51.10	$39.33	$123.73	$51.23	$39.42			$154.91	$29.65	$21.2
.5.4	DS3 DCS Termination with DS1 Switching - Disconnect Only		$30.82	$24.79		$30.90	$24.85				$15.29	$11.5
.0	**ADVANCED INTELLIGENT NETWORK (AIN) SERVICES**											
.1	**BELLSOUTH AIN SMS ACCESS SERVICE**											
.1.1	AIN SMS Access Service - Service Establishment, Per State, Initial Setup		$78.90			$79.10					$39.27	
.1.1	AIN SMS Access Service - Service Establishment, Per State, Initial Setup - Disconnect Only		$81.39			$81.59					$33.04	
.1.2	AIN SMS Access Service - Port Connection - Dial/Shared Access		$15.66			$15.69					$7.79	
.1.2	AIN SMS Access Service - Port Connection - Dial/Shared Access - Disconnect Only		$18.18			$18.22					$7.38	
.1.3	AIN SMS Access Service - Port Connection - ISDN Access		$15.66			$15.69					$7.79	

APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
.1.3	AIN SMS Access Service - Port Connection - ISDN Access - Disconnect Only		$18.18			$18.22					$7.38	
.1.4	AIN SMS Access Service - User Identification Codes - Per User ID Code		$70.03			$70.20					$34.85	
.1.4	AIN SMS Access Service - User Identification Codes - Per User ID Code - Disconnect Only		$54.13			$54.26					$21.97	
.1.5	AIN SMS Access Service - Security Card, Per User ID Code, Initial or Replacement		$83.79			$84.00					$73.76	
.1.5	AIN SMS Access Service - Security Card, Per User ID Code, Initial or Replacement - Disc. Only		$23.42			$23.48					$9.51	
.1.6	AIN SMS Access Service - Storage, Per Unit (100 Kilobytes)	$0.0030			$0.0027					$0.0029		
.1.7	AIN SMS Access Service - Session, Per Minute	$0.8102			$0.7430					$0.7985		
.1.8	AIN SMS Access Service - Company Performed Session, Per Minute	$0.8348			$0.8368					$0.4155		
.2	**BELLSOUTH AIN TOOLKIT SERVICE**											
.2.1	AIN Toolkit Service - Service Establishment Charge, Per State, Initial Setup		$78.90			$79.10					$39.27	
.2.1	AIN Toolkit Service - Service Establishment Charge, Per State, Initial Setup - Disconnect Only		$81.39			$81.59					$33.04	
.2.2	AIN Toolkit Service - Training Session, Per Customer		$8,407.34			$8,428.00					$8,406.00	

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APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
.2.3	AIN Toolkit Service - Trigger Access Charge, Per Trigger, Per DN, Term. Attempt		$15.66			$15.69					$7.79	
.2.3	AIN Toolkit Service - Trigger Access Charge, Per Trigger, Per DN, Term. Attempt - Disc. Only		$18.17			$18.22					$7.38	
.2.4	AIN Toolkit Service - Trigger Access Charge, Per Trigger, Per DN, Off-Hook Delay		$15.66			$15.69					$7.79	
.2.4	AIN Toolkit Service - Trigger Access Charge, Per Trigger, Per DN, Off-Hook Delay - Disc. Only		$18.17			$18.22					$7.38	
.2.5	AIN Toolkit Service - Trigger Access Charge, Per Trigger, Per DN, Off-Hook Immediate		$15.66			$15.69					$7.79	
.2.5	AIN Toolkit Svc - Trigger Access Charge, Per Trigger, Per DN, Off-Hook Immediate - Disc. Only		$18.17			$18.22					$7.38	
.2.6	AIN Toolkit Service - Trigger Access Charge, Per Trigger, Per DN, 10-Digit PODP		$68.95			$69.12					$34.32	
.2.6	AIN Toolkit Service - Trigger Access Charge, Per Trigger, Per DN, 10-Digit PODP - Disc. Only		$28.72			$28.79					$11.66	
.2.7	AIN Toolkit Service - Trigger Access Charge, Per Trigger, Per DN, CDP		$68.95			$69.12					$34.32	
.2.7	AIN Toolkit Service - Trigger Access Charge, Per Trigger, Per DN, CDP - Disconnect Only		$28.72			$28.79					$11.66	

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APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
.2.8	AIN Toolkit Service - Trigger Access Charge, Per Trigger, Per DN, Feature Code		$68.95			$69.12					$34.32	
.2.8	AIN Toolkit Service - Trigger Access Charge, Per Trigger, Per DN, Feature Code - Disconnect Only		$28.72			$28.79					$11.66	
.2.9	AIN Toolkit Service - Query Charge, Per Query	$0.0549426			$0.0517506					$0.0509436		
.2.10	AIN Toolkit Service - Type 1 Node Charge, Per AIN Toolkit Subscription, Per Node, Per Query	$0.0067157			$0.0059618					$0.0062787		
.2.11	AIN Toolkit Service - SCP Storage Charge, Per SMS Access Account, Per 100 Kilobytes	$0.07			$0.05					$0.06		
.2.12	AIN Toolkit Service - Monthly report - Per AIN Toolkit Service Subscription	$12.23	$15.66		$11.91	$15.69				$8.00	$7.79	
.2.12	AIN Toolkit Service - Monthly report - Per AIN Toolkit Service Subscription - Disconnect Only		$11.01			$11.03					$4.47	
.2.13	AIN Toolkit Service - Special Study - Per AIN Toolkit Service Subscription	$3.89	$17.32		$3.54	$17.37				$3.85	$8.62	
.2.14	AIN Toolkit Service - Call Event Report - Per AIN Toolkit Service Subscription	$8.48	$15.66		$8.49	$15.69				$4.28	$7.79	
.2.14	AIN Toolkit Service - Call Event Report - Per AIN Toolkit Service Subscription - Disconnect Only		$11.01			$11.03					$4.47	

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APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
.2.15	AIN Toolkit Service - Call Event Special Study - Per AIN Toolkit Service Subscription	$0.13	$17.32		$0.12	$17.37				$0.13	$8.62	
.0	**ACCESS DAILY USAGE FILE (ADUF)**											
.1	**ACCESS DAILY USAGE FILE (ADUF)**											
.1.1	ADUF, Message Processing, per message	$0.014367			$0.014330					$0.013928		
.1.3	ADUF, Data Transmission (CONNECT:DIRECT), per message	$0.00012975			$0.0001299					$0.00012927		
.0	**DAILY USAGE FILES**											
.1	**ENHANCED OPTIONAL DAILY USAGE FILE**											
.1.1	Enhanced Optional Daily usage File: Message Processing, Per Message	$0.228759			$0.228088					$0.222451		
.2	**OPTIONAL DAILY USAGE FILE**											
.2.1	Optional Daily Usage File: Recording, per Message	$0.0000082			$0.0000060					$0.0000068		
.2.2	Optional Daily Usage File: Message Processing, Per Message	$0.006814			$0.006820					$0.006614		
.2.3	Optional Daily Usage File: Message Processing, Per Magnetic Tape Provisioned	$48.78			$48.90					$48.77		
.2.4	Optional Daily Usage File: Data Transmission (CONNECT:DIRECT), Per Message	$0.00010812			$0.00010749					$0.00010772		
.0	**NONRECURRING COSTS**											
.1	**SERVICE ORDER**											

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APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
.1.1	Electronic Service Order, per local service request		$2.75			$0.00					$1.37	
.1.1	Electronic Service Order, per local service request - Disconnect Only		$0.42			$0.00					$0.18	
.1.2	Manual Service Order, per local service request		$21.56			$0.00					$10.73	
.1.2	Manual Service Order, per local service request - Disconnect Only		$3.84			$0.00					$1.65	
.1.5	Order Coordination		$16.31			$1.63					$8.12	
.1.6	Order Coordination for Specified Conversion Time		$36.18			$1.36					$20.75	
.0	**UNBUNDLED LOOP COMBINATIONS**											
.1	**2-WIRE VOICE GRADE LOOP WITH 2-WIRE LINE PORT (RES, BUS, COIN, PBX)**											
.1.1	2-Wire Voice Grade Loop				$6.68							
	Zone 1	$16.25			$4.38					$11.89		
	Zone 2	$19.86			$6.30					$16.03		
	Zone 3	$25.60			$8.32					$29.33		
	Zone 4				$12.60							
	Zone 5				$18.28							
	Zone 6				$28.59							

APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
.1	**2-WIRE VOICE GRADE LOOP WITH 2-WIRE LINE PORT (CENTREX)**											
.1.1	2-Wire Voice Grade Loop				$6.68							
	Zone 1	17.14			$4.38					$11.89		
	Zone 2	20.75			$6.30					$16.03		
	Zone 3	26.49			$8.32					$29.33		
	Zone 4				$12.60							
	Zone 5				$18.28							
	Zone 6				$28.59							
.1.1	2-W VG Loop with 2-W Line Port (RES, BUS, Coin) - Nonrecurring costs - switch-as-is		$0.1964	$0.1964		$0.1969	$0.1969				$0.0920	$0.092
.1.1	2-W VG Loop with 2-W Line Port (PBX) - Nonrecurring costs - switch-as-is		$15.82	$3.80		$0.4691	$0.2558				$7.62	$1.7
.1.1	2-W VG Loop with 2-W Line Port (Centrex) - Nonrecurring costs - switch-as-is		$85.47	$33.37		$0.0000	$0.0000				$4.75	$7.5
.1.11	Centrex Common Block - Nonrecurring costs - switch-as-is					$0.0000	$0.0000				$4.66	$7.5
.1.2	Exchange Port - 2-Wire Line Port				$0.5656					$1.12		
.1.17	PBX Subsequent Activity - Change/Rearrange Multiline Hunt Group		$14.64			$0.3405					$7.09	
.3	**2-WIRE VOICE GRADE LOOP WITH 2-WIRE DID TRUNK PORT**											
	Zone 1	$27.84								$22.22		
	Zone 2	$31.79								$27.39		
	Zone 3	$37.23								$43.97		
.3.2	Exchange Ports - 2-Wire DID Port for Combinations				$4.36					$8.79		

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APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
.3.3	2-Wire Voice Grade Loop / 2-Wire DID Trunk Port Combination - Nonrecurring Costs - Switch-as-is		$14.62	$3.73		$0.3434	$0.1870				$7.08	$1.6
.3.7	2-Wire DID Subsequent Activity - Add Trunks, Per Trunk		$53.57			$20.40					$29.08	
.4	**2-WIRE ISDN DIGITAL GRADE LOOP WITH 2-WIRE ISDN DIGITAL LINE SIDE PORT**											
.4.1	2-Wire ISDN Digital Grade Loop				$8.29							
	Zone 1	$30.99			$5.44					$23.22		
	Zone 2	$36.41			$7.82					$29.44		
	Zone 3	$39.30			$10.32					$49.38		
	Zone 4				$15.63							
	Zone 5				$22.69							
	Zone 6				$35.48							
.4.2	Exchange Port - 2-Wire ISDN Line Side Port				$3.15					$7.07		
.4.3	2-Wire ISDN Digital Grade Loop / 2-Wire ISDN Line Side Port Comb. - Nonrec. Costs - Switch-as-is		$86.79	$54.04		$0.3477	$0.3477				$27.61	$15.3
.5	**4-WIRE DS1 DIGITAL LOOP WITH 4-WIRE ISDN DS1 DIGITAL TRUNK PORT**											
	Zone 1	$187.87								$148.57		
	Zone 2	$215.07								$175.24		
	Zone 3	$290.08								$260.73		
.5.3	4-Wire DS1 Digital Loop / 4-Wire ISDN DS1 Digital Trunk Port Comb. - Nonrec. Costs - Switch-as-is		$247.97	$157.17		$17.51	$17.51				$61.25	$55.3

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APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
.5.5	4-Wire DS1 Dig. Loop/4-Wire ISDN DS1 Dig. Trunk Port Comb - Subseq. Chan. Activation - Per Chan.		$29.06			$0.9455					$13.96	
.5.6	4-Wire DS1 Dig. Loop / 4-Wire ISDN DS1 Dig. Trunk Port Comb - Subseq. Inw./2-Way Telephone #s		$0.9804			$0.0708					$0.4879	
.5.7	4-Wire DS1 Dig. Loop / 4-Wire ISDN DS1 Dig. Trunk Port Comb - Subseq. Outw. Telephone #s		$23.02			$1.15					$11.46	
.5.8	4-Wire DS1 Dig. Loop / 4-Wire ISDN DS1 Dig. Trunk Port Comb - Subseq. Inw. Telephone #s		$46.05			$2.31					$22.92	
.6	**2-WIRE VOICE GRADE EXTENDED LOOP WITH DEDICATED DS1 INTEROFFICE TRANSPORT**											
.6-1	First 2W VG in DS1											
	Zone 1	$266.14								$257.46		
	Zone 2	$270.09								$262.63		
	Zone 3	$275.53								$279.21		
	P.17.1 Nonrecurring Cost for Extended Loop or Local Channel and Interoffice Combination Switch-As-Is		$11.19	$11.19							$8.10	$8.1
	P.17.1 Nonrec. Cost for Extd. Loop or Local Channel and Interoffice Combination Switch-As-Is - Disc Only		$12.93	$12.93							$8.10	$8.1
	Nonrecurring Cost - 2-wire VG Extended Loop with Dedicated DS1 Interoffice Transport - NEW		$625.63	$342.38							$330.00	$182.6

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APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
	Nonrec. Cost - 2-wire VG Extended Loop with Dedicated DS1 Interoffice Transport - NEW - Disc. Only		$150.32	$45.80							$85.75	$23.0
.6-2	D.4.1 Interoffice Transport - Dedicated - DS1 - Per Mile	$0.2000										
.6-3	Additional 2W VG in same DS1											
	Zone 1	$19.93								$14.85		
	Zone 2	$23.87								$20.02		
	Zone 3	$29.32								$36.60		
	P.17.16 Nonrecurring Cost - New Feature Activation for Combination Use Only		$12.16	$8.77							$6.05	$4.3
.7	**4-WIRE VOICE GRADE EXTENDED WITH DEDICATED DS1 INTEROFFICE TRANSPORT**											
.7-1	First 4W VG in DS1											
	Zone 1	$277.86								$265.26		
	Zone 2	$290.67								$273.44		
	Zone 3	$311.86								$299.66		
	P.17.1 Nonrecurring Cost for Extended Loop or Local Channel and Interoffice Combination Switch-As-Is		$11.19	$11.19							$8.10	$8.1
	P.17.1 Nonrec. Cost for Extd. Loop or Local Channel and Interoffice Combination Switch-As-Is-Disc. Only		$12.93	$12.93							$8.10	$8.1
	Nonrecurring Cost - 4-wire VG Extended Loop with Dedicated DS1 Interoffice Transport - NEW		$625.63	$342.38							$330.00	$182.6

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APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
	Nonrecurring Cost - 4-wire VG Extended Loop with Dedicated DS1 Interoffice Transport - NEW -Disc. Only		$150.32	$45.80							$85.75	$23.0
.7-2	D.4.1 Interoffice Transport - Dedicated - DS1 - Per Mile	$0.2000								$0.1710		

APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
.7-3	Additional 4W VG in same DS1											
	Zone 1	$31.65								$22.65		
	Zone 2	$44.45								$30.83		
	Zone 3	$65.64								$57.05		
	P.17.16 Nonrecurring Cost - New Feature activation for Combination Use Only		$12.16	$8.77							$6.05	$4.3
.8	4-WIRE 56 OR 64 KBPS EXTD. DIGITAL LOOP WITH DEDICATED DS1 INTEROFFICE TRANSPORT											
.8-1	First 4W 56/64 in DS1											
	Zone 1	$282.32								$269.25		
	Zone 2	$293.13								$278.68		
	Zone 3	$299.27								$308.91		
	P.17.1 Nonrecurring Cost for Extended Loop or Local Channel and Interoffice Combination Switch-As-Is		$11.19	$11.19							$8.10	$8.1
	P.17.1 Nonrec. Cost for Extd. Loop or Local Channel and Interoffice Combination Switch-As-Is- Disc. Only		$12.93	$12.93							$8.10	$8.1
	Nonrec. Cost - 4-wire 56 or 64 Kbps Extended Loop with Dedicated DS1 Interoffice Transport - NEW		$625.63	$342.38							$330.00	$182.6
	Nonrec. Cost - 4-wire 56 or 64 Kbps Extd Loop with Ded. DS1 Interoffice Transport - NEW - Disc Only		$150.32	$45.80							$85.75	$23.0
.8-2	D.4.1 Interoffice Transport - Dedicated - DS1 - Per Mile	$0.2000								$0.1710		
.8-3	Additional 4W 56/64 in same DS1											
	Zone 1	$36.10								$26.64		
	Zone 2	$46.92								$36.07		

APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
	Zone 3	$53.05								$66.30		
	P.17.16 Nonrecurring Cost - New Feature activation for Combination Use Only		$12.16	$8.77							$6.05	$4.3
.11	**4-WIRE DS1 DIGITAL EXTENDED LOOP WITH DEDICATED DS1 INTEROFFICE TRANSPORT**											
.11-1	Fixed											
	Zone 1	$185.10								$160.09		
	Zone 2	$212.30								$186.76		
	Zone 3	$287.31								$272.25		
	P.17.1 Nonrecurring Cost for Extended Loop or Local Channel and Interoffice Combination Switch-As-Is		$11.19	$11.19							$8.10	$8.1
	P.17.1 Nonrec. Cost for Extd. Loop or Local Channel and Interoffice Combination Switch-As-Is- Disc. Only		$12.93	$12.93							$8.10	$8.1
	Nonrec. Cost - 4-Wire DS1 Digital Extended Loop with Dedicated DS1 Interoffice Transport - NEW		$644.46	$421.86							$353.62	$220.0
	Nonrec. Cost - 4-wire DS1 Digital Extd. Loop with Ded. DS1 Interoffice Transp. - NEW - Disc. Only		$154.33	$57.41							$87.50	$29.2
.11-2	D.4.1 Interoffice Transport - Dedicated - DS1 - Per Mile	$0.2000								$0.1710		
.13	**4-WIRE DS1 DIGITAL EXTENDED LOOP WITH DEDICATED DS3 INTEROFFICE TRANSPORT**											
.13-1	First DS1 in DS3											
	Zone 1	$1,449.79								$1,403.16		
	Zone 2	$1,476.98								$1,429.83		

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APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
	Zone 3	$1,552.00								$1,515.32		
	P.17.1 Nonrecurring Cost for Extended Loop or Local Channel and Interoffice Combination Switch-As-Is		$11.19	$11.19							$8.10	$8.1
	P.17.1 Nonrec. Cost for Extd. Loop or Local Channel and Interoffice Combination Switch-As-Is- Disc. Only		$12.93	$12.93							$8.10	$8.1
	Nonrec. Cost - 4-wire DS1 Digital Extd. Loop with Ded. DS3 Interoffice Transport- New		$1,192.63	$565.26							$595.00	$289.6
	Nonrec. Cost - 4-wire DS1 Digital Extd. Loop with Ded. DS3 Interoffice Transport- New - Disc. Only		$166.14	$69.04							$92.14	$33.8
.13-2	D.6.1 Interoffice Transport - Dedicated - DS3 - Per Mile	$4.17								3.57		
.13-3	Additional DS1 in same DS3											
	Zone 1	$106.89								$83.46		
	Zone 2	$134.08								$110.13		
	Zone 3	$209.10								$195.62		
	P.17.16 Nonrecurring Cost - New Feature Activation for Combination Use Only		$12.16	$8.77							$6.05	$4.3
.15	**4-WIRE DS1 DIGITAL LOOP WITH DDITS PORT**											
	4-Wire DS1 Digital Loop with DDITS Port - switch-as-is											
	Zone 1	$155.79								$121.95		
	Zone 2	$182.98								$148.62		
	Zone 3	$258.00								$234.11		

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APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
.15.3	4-wire DS1 Digital Loop / DDITS Trunk Port Combination - Nonrecurring Costs - Switch-as-is		$268.82	$134.07		$4.96	$2.56				$71.29	$42.1
.15.5	4-Wire DS1 Dig. Loop / DDITS Trunk Port Comb. -Subsequent Channel Activation - Per Channel		$28.96			$1.28					$14.14	
.16	**2-WIRE LOOP/ 2 WIRE VOICE GRADE IO TRANSPORT/ 2 WIRE PORT**											
.16-1	Fixed - Switch-as-is											
	Zone 1	$46.62								$40.79		
	Zone 2	$50.57								$45.96		
	Zone 3	$56.01								$62.54		
.16.2	D.2.1 Interoffice Transport - Dedicated - 2 W VG per mile	$0.0098								$0.0084		
.16.3	2W VG Loop / 2W VG IO Transport / 2W Port Combination - Nonrecurring Costs - Switch-as-is		$16.97	$3.73		$0.4691	$0.1870				$8.14	$1.6
.17	**Nonrecurring Cost for Extended Loop or Local Channel and Interoffice Combination**											
.17.1	Nonrecurring Cost for Extended Loop or Local Channel and Interoffice Combination Switch -As-Is		$11.19	$11.19		$10.46	$6.73				$8.10	$8.1
.17	Nonrec. Cost for Extended Loop or Local Channel and Interoffice Comb. Switch -As-Is - Disc. Only		$12.93	$12.93		$9.51	$5.19				$8.10	$8.1
.17	Nonrecurring Cost - New DS1 Interoffice Facility for Combination Use Only					$19.09	$15.22				$157.30	$110.4

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APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
.17.4	Nonrecurring Cost - New DS1 Interoffice Facility for Combination Use Only - Disconnect Only					$12.97	$8.65				$41.12	$16.1
.17.5	Nonrecurring Cost - New DS1 Interoffice Facility w/ 1/0 MUXing for Combination Use Only					$22.95	$19.15				$208.93	$123.7
.17.5	Nonrec. Cost - New DS1 Interoffice Facility w/ 1/0 MUXing for Comb. Use Only - Disc. Only					$17.29	$12.97				$42.47	$17.3
.17.7	Nonrecurring Cost - New DS3 or STS-1 Interoffice Facility for Combination Use Only					$23.36	$19.43				$288.50	$124.6
.17.7	Nonrec. Cost - New DS3 or STS-1 Interoffice Facility for Combination Use Only - Disconnect Only					$12.97	$8.65				$34.80	$16.9
.17.8	Nonrecurring Cost - New DS3 or STS-1 w/ 3/1 MUXing Interoffice Facility for Combination Use Only					$27.64	$23.90				$392.63	$175.5
.17.8	Nonrec. Cost - New DS3 or STS-1 w/ 3/1 MUXing Interoffice Fac. for Comb. Use Only - Disc. Only					$17.29	$12.97				$45.76	$20.8
.17.10	Nonrecurring Cost - New VG Local Loop for Combination Use Only					$8.11	$4.04				$115.02	$54.5
.17.10	Nonrecurring Cost - New VG Local Loop for Combination Use Only - Disconnect Only					$4.67	$0.9355				$43.28	$5.6
.17.11	Nonrecurring Cost - New DS1 Local Loop for Combination Use Only					$8.62	$4.04				$196.32	$109.6
.17.11	Nonrecurring Cost - New DS1 Local Loop for Combination Use Only - Disconnect Only					$4.67	$0.9355				$46.38	$13.0

009679

APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
.17.12	Nonrecurring Cost - New DS3 or STS-1 Local Loop for Combination Use Only					$8.08	$4.04				$220.36	$139.5
.17.12	Nonrecurring Cost - New DS3 or STS-1 Local Loop for Combination Use Only - Disconnect Only					$4.67	$0.9355				$60.49	$23.6
.17.16	Nonrecurring Cost - New Feature Activation for Combination Use Only					$0.1976	$0.1976				$6.05	$4.3
.17.17	Nonrecurring Cost - New DS0 IOF for Combination Use Only					$14.42	$10.62				$85.38	$47.4
.17.17	Nonrecurring Cost - New DS0 IOF for Combination Use Only - Disconnect Only					$9.51	$5.19				$40.82	$16.2
.23	**2-WIRE VOICE GRADE EXTENDED LOOP/2 WIRE VOICE GRADE INTEROFFICE TRANSPORT**											
.23-1	Fixed											
	Zone 1	$45.00								$39.45		
	Zone 2	$48.95								$44.62		
	Zone 3	$54.39								$61.20		
	P.17.1 Nonrec. Cost for Extd. Loop or Local Channel and Interoffice Comb. - Switch-As-Is		$11.19	$11.19							$8.10	$8.1
	P.17.1 Nonrec. Cost for Extd. Loop or Local Channel and Interoffice Comb. - Switch-As-Is - Disc. Only		$12.93	$12.93							$8.10	$8.1
	Nonrec. Cost - 2-wire VG Extended Loop with 2-wire VG Interoffice Transport - NEW		$343.67	$178.91							$200.40	$102.0

009680

APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
	Nonrec. Cost - 2-wire VG Extd. Loop with 2-wire VG Interoffice Transport - NEW - Disc. Only		$146.42	$43.08							$84.10	$21.9
.23-2	D.2.1 Interoffice Transport - Dedicate - 2-Wire Voice Grade - Per Mile	$0.0098								$0.0084		

APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
.24	**4-WIRE VOICE GRADE EXTENDED LOOP/ 4-WIRE VOICE GRADE INTEROFFICE TRANSPORT**											
.24-1	Fixed											
	Zone 1	$53.85								$44.43		
	Zone 2	$66.65								$52.61		
	Zone 3	$87.84								$78.83		
	P.17.1 Nonrec. Cost for Extd. Loop or Local Channel and Interoffice Comb. - Switch-As-Is		$11.19	$11.19							$8.10	$8.1
	P.17.1 Nonrec. Cost for Extd. Loop or Local Channel and Interoffice Comb. - Switch-As-Is - Disc. Only		$12.93	$12.93							$8.10	$8.1
	Nonrec. Cost - 4-wire VG Extended Loop with 4-wire VG Interoffice Transport - NEW		$343.67	$178.91							$200.40	$102.0
	Nonrec. Cost - 4-wire VG Extd. Loop with 4-wire VG Interoffice Transport - NEW - Disc. Only		$146.42	$43.08							$84.10	$21.9
.24-2	D.12.1 Interoffice Transport - Dedicated - 4-Wire Voice Grade - Per Mile	$0.0098								$0.0084		
.25	**DS3 DIGITAL EXTENDED LOOP WITH DEDICATED STS1 INTEROFFICE TRANSPORT**											
.25-1	Fixed	$1,526.51								$1,488.10		
	P.17.1 Nonrec. Cost for Extd. Loop or Local Channel and Interoffice Comb. - Switch-As-Is		$11.19	$11.19							$8.10	$8.1

009682

APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
	P.17.1 Nonrec. Cost for Extd. Loop or Local Channel and Interoffice Comb. - Switch-As-Is - Disc. Only		$12.93	$12.93							$8.10	$8.1
	Nonrec. Cost - DS3 Digital Extd. Loop with Ded. DS3 Interoffice Transport - NEW		$999.53	$508.21							$508.86	$264.1
	Nonrec. Cost - DS3 Digital Extd. Loop with Ded. DS3 Interoffice Transport - NEW - Disc. Only		$176.22	$83.03							$95.29	$40.6
.25-2	D.6.1 Interoffice Transport - Dedicated - DS3 - Per Mile	$4.17								$3.57		
.25-3	A.16.2 High Capacity Unbundled Local Loop - DS3 - Per Mile	$11.77								$10.06		
.26	**STS1 DIGITAL EXTENDED LOOP WITH DEDICATED STS1 INTEROFFICE TRANSPORT**											
.26-1	Fixed	$1,552.07								$1,511.68		
	P.17.1 Nonrec. Cost for Extd. Loop or Local Channel and Interoffice Comb. - Switch-As-Is		$11.19	$11.19							$8.10	$8.1
	P.17.1 Nonrec. Cost for Extd. Loop or Local Channel and Interoffice Comb. - Switch-As-Is - Disc. Only		$12.93	$12.93							$8.10	$8.1
	Nonrec. Cost - STS1 Digital Extd. Loop with Ded. STS1 Interoffice Transport - NEW		$999.53	$508.21							$508.86	$264.1

009683

APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
	Nonrec. Cost - STS1 Digital Extd. Loop with Ded. STS1 Interoffice Transport - NEW - Disc. Only		$176,22	$83.03							$95.29	$40.6
.26-2	D.10.1 Interoffice Transport - Dedicated - STS-1 - Per Mile	$4.17								$3.57		
.26-3	Per Mile - Loop											
	A.16.16 High Capacity Unbundled Local Loop - STS-1 - Per Mile	$11.77								$10.06		
.50	**4-WIRE DS1 LOOP WITH CHANNELIZATION WITH PORT**											
.50.VG1	First Voice Grade in DS1 - Switch-as-is											
	Zone 1	$218.41	$310.80	$16.72						$192.53		
	Zone 2	$245.61	$310.80	$16.72						$219.19		
	Zone 3	$320.62	$310.80	$16.72						$304.69		
.50.VG2	Additional Voice Grade in same DS1	$2.29								$2.00		
.50 DID1	First 2-Wire DID in DS1 -Switch-as-is											
	Zone 1	$226.18	$310.80	$16.72						$200.00		
	Zone 2	$253.37	$310.80	$16.72						$226.66		
	Zone 3	$328.39	$310.80	$16.72						$312.16		
50DID2	Additional 2-Wire DID in same DS1	$10.05								$9.47		
50ISDN-1	First ISDN in DS1 - Switch-as-is											
	Zone 1	$229.38	$310.80	$16.72						$201.99		

APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
	Zone 2	$256.57	$310.80	$16.72						$228.66		
	Zone 3	$331.59	$310.80	$16.72						$314.15		
P50ISDN2	Additional ISDN in same DS1	$13.25								$11.46		
.50.1	4-Wire DS1 Loop/Channelization Port Combination - Nonrecurring Costs - Switch-as-is					$2.74	$0.1376				$72.61	$3.8
.50.4	4-Wire DS1 Loop/Channelization Port Combination - Subsequent Activity - Add Lines - Per Line		$109.12			$18.91					$56.95	
.50.5	4-Wire DS1 Loop/Channelization Port Combination - Subsequent Activity - Add Trunks - Per Trunk		$154.10			$21.58					$78.32	
.51	**2-WIRE ISDN EXTENDED LOOP WITH DS1 INTEROFFICE TRANSPORT**											
.51-1	First 2-Wire ISDN in DS1											
	Zone 1	$278.38								$266.81		
	Zone 2	$284.50								$274.68		
	Zone 3	$285.67								$299.93		
	P.17.1 Nonrec. Cost for Extd. Loop or Local Channel and Interoffice Comb. - Switch-as-is		$11.19	$11.19							$8.10	$8.1
	P.17.1 Nonrec. Cost for Extd. Loop or Local Channel and Interoffice Comb. - Switch-as-is -Disc. Only		$12.93	$12.93							$8.10	$8.1

APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD/RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
	Nonrec. Cost - 2-Wire ISDN Extd. Loop with DS1 Interoffice Transport - NEW		$625.63	$342.38							$330.00	$182.6
	Nonrec. Cost - 2-Wire ISDN Extd. Loop with DS1 Interoffice Transport - NEW - Disc. Only		$150.32	$45.80							$85.75	$23.0
.51-2	D.4.1 Interoffice Transport - Dedicated - DS1 - Per Mile	$0.2000								$0.1710		
.51-3	Additional 2-Wire ISDN in same DS1											
	Zone 1	$32.16								$24.20		
	Zone 2	$38.29								$32.07		
	Zone 3	$39.46								$57.32		
	P.17.16 Nonrec. Cost - New Feature Activation for Combination Use Only		$12.16	$8.77							$6.05	$4.3
.52	**4-WIRE DS1 DIGITAL EXTENDED LOOP WITH DEDICATED STS-1 INTEROFFICE TRANSPORT**											
.52-1	First in DS1 in STS1											
	Zone 1	$1,443.84								$1,387.16		
	Zone 2	$1,461.03								$1,413.83		
	Zone 3	$1,536.05								$1,499.32		
	P.17.1 Nonrec. Cost for Extd. Loop or Local Channel and Interoffice Comb. - Switch-as-is		$11.19	$11.19							$8.10	$8.1
	P.17.1 Nonrec. Cost for Extd. Loop or Local Channel and Interoffice Comb. - Switch-as-is -Disc. Only		$12.93	$12.93							$8.10	$8.1

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APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
	Nonrec. Cost - 4-Wire DS1 Digital Extd. Loop with Ded. STS-1 Interoffice Transport - NEW		$1,192.63	$565.27							$490.87	$238.6
	Nonrec. Cost - 4-Wire DS1 Digital Extd. Loop with Ded. STS-1 Interoffice Transport - NEW - Disc. Only		$166.15	$69.04							$81.18	$29.9
.52-2	D.10.1 Interoffice Transport- Dedicated - STS-1 - Per Mile	$4.17								$3.57		
.52-3	Additional DS1 in same STS1											
	Zone 1	$106.89								$83.46		
	Zone 2	$134.08								$110.13		
	Zone 3	$209.10								$195.62		
	P.17.16 Nonrec. Cost - New Feature Activation for Combination Use Only		$12.16	$8.77							$6.05	$4.3
.53	**2-WIRE VOICE GRADE EXTD LOOP WITH DED DS1 INTEROFFICE TRANSPORT W/ 3/1 MUX**											
.53-1	First 2-Wire VG in First DS1 in DS3											
	Zone 1	$501.52								$490.40		
	Zone 2	$505.46								$495.57		
	Zone 3	$510.90								$512.15		
	P.17.1 Nonrec. Cost for Extd. Loop of Local Channel and Interoffice Combination - Switch-as-is		$11.19	$11.19							$8.10	$8.1

009687

APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD/RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
	P.17.1 Nonrec. Cost for Extd. Loop of Local Channel and Interoffice Comb. - Switch-as-is- Disc. Only		$12.93	$12.93							$8.10	$8.1
	Nonrec. Cost - 2-Wire VG Extd. Loop with Ded. DS1 Interoffice Transport with 3/1 Mux- NEW		$625.63	$342.38							$330.00	$182.6
	Nonrec. Cost - 2-Wire VG Extd. Loop with Ded. DS1 Interoffice Trans. with 3/1 Mux- NEW-Disc Only		$150.32	$45.80							$85.75	$23.0
.53-2	D.4.1 Interoffice Transport - Dedicated - DS1 - Per Mile	$0.2000								$0.1710		
.53-3	Additional 2-Wire VG in same DS1											
	Zone 1	$19.93								$14.85		
	Zone 2	$23.87								$20.02		
	Zone 3	$29.32								$36.60		
	P.17.16 Nonrec. Cost - New Feature Activation for Combination Use Only		$12.16	$8.77							$6.05	$4.3
.53-4	Additional DS1 in same DS3	$260.62								$256.85		
	P.17.16 Nonrec. Cost - New Feature Activation for Combination Use Only		$12.16	$8.77							$6.05	$4.3
.54	**4-WIRE VOICE GRADE EXTENDED LOOP WITH DS1 INTEROFFICE TRANSPORT W/ 3/1 MUX**											
.54-1	First 4-Wire VG in First DS1 in DS3											

009688

APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
	Zone 1	$513.24								$498.20		
	Zone 2	$526.04								$506.38		
	Zone 3	$547.23								$532.60		
	P.17.1 Nonrec. Cost for Extd. Loop of Local Channel and Interoffice Combination - Switch-as-is		$11.19	$11.19							$8.10	$8.1
	P.17.1 Nonrec. Cost for Extd. Loop of Local Channel and Interoffice Comb. - Switch-as-is- Disc. Only		$12.93	$12.93							$8.10	$8.1
	Nonrec. Cost - 4-Wire VG Extd. Loop with Ded. DS1 Interoffice Trans. with 3/1 Mux - NEW		$625.63	$342.38							$330.00	$182.6
	Nonrec. Cost - 4-Wire VG Extd. Loop with Ded. DS1 Interoffice Trans. with 3/1 Mux - NEW - Disc Only		$150.32	$45.80							$85.75	$23.0
.54-2	D.4.1 Interoffice Transport - Dedicated - DS1 - Per Mile	$0.2000								$0.1710		
.54-3	Additional 4-Wire VG in same DS1											
	Zone 1	$31.65								$22.65		
	Zone 2	$44.45								$30.83		
	Zone 3	$65.64								$57.05		
	P.17.16 Nonrec. Cost - New Feature Activation for Combination Use Only		$12.16	$8.77							$6.05	$4.3
.54-4	Additional DS1 in same DS3	$260.62								$256.85		

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APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
	P.17.16 Nonrec. Cost - New Feature Activation for Combination Use Only		$12.16	$8.77							$6.05	$4.3
.55	**4-WIRE 56 OR 64 KBPS EXTD DIGITAL LOOP WITH DED. DS1 INTEROFFICE TRANS. W/ 3/1 MUX**											
.55-1	First 4-Wire in First DS1 in DS3											
	Zone 1	$517.69								$502.19		
	Zone 2	$528.51								$511.62		
	Zone 3	$534.64								$541.82		
	P.17.1 Nonrec. Cost for Extd. Loop or Local Channel and Interoffice Comb. - Switch-as-is		$11.19	$11.19							$8.10	$8.1
	P.17.1 Nonrec. Cost for Extd. Loop or Local Channel and Interoffice Comb. - Switch-as-is -Disc. Only		$12.93	$12.93							$8.10	$8.1
	Nonrec. Cost- 4-Wire 56 or 64 Kbps Extd Loop w/Ded. DS1 Trans. w/ 3/1 Mux- NEW		$625.63	$342.38							$330.00	$182.6
	Nonrec. Cost- 4-Wire 56 or 64 Kbps Extd Loop w/Ded. DS1 Trans. w/ 3/1 Mux- NEW - Disc. Only		$150.32	$45.80							$85.75	$23.0
.55-2	D.4.1 Interoffice Transport - Dedicated - DS1 - Per Mile	$0.2000								$0.1710		
.55-3	Additional 4-Wire in same DS1											
	Zone 1	$36.10								$26.64		

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APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD/RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
	Zone 2	$46.92								$36.07		
	Zone 3	$53.05								$66.30		
	P.17.16 Nonrec. Cost - New Feature Activation for Combination Use Only		$12.16	$8.77							$6.05	$4.3
.55-4	Additional DS1 in same DS3	$260.62								$256.85		
	P.17.16 Nonrec. Cost - New Feature Activation for Combination Use Only		$12.16	$8.77							$6.05	$4.3

APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
.56	2-WIRE ISDN EXTENDED LOOP WITH DS1 INTEROFFICE TRANSPORT W/ 3/1MUX											
.56-1	First 2-Wire in First DS3											
	Zone 1	$513.75								$499.75		
	Zone 2	$519.88								$507.62		
	Zone 3	$521.05								$532.87		
	P.17.1 Nonrec. Cost for Extd. Loop or Local Channel and Interoffice Comb. - Switch-as-is		$11.19	$11.19							$8.10	$8.1
	P.17.1 Nonrec. Cost for Extd. Loop or Local Channel and Interoffice Comb. - Switch-as-is -Disc. Only		$12.93	$12.93							$8.10	$8.1
	Nonrec. Cost - 2-Wire ISDN Extd Loop with Ded. DS1 Interoffice Transport with 3/1 Mux - NEW		$625.63	$342.38							$330.00	$182.6
	Nonrec. Cost - 2-Wire ISDN Extd Loop w/ Ded. DS1 Interoffice Trans. w/ 3/1 Mux - NEW - Disc. Only		$150.32	$45.80							$85.75	$23.0
.56-2	D.4.1 Interoffice Transport - Dedicated - DS1 - Per Mile	$0.2000								$0.1710		
.56-3	Additional 2-Wire in same DS1											
	Zone 1	$32.16								$24.20		
	Zone 2	$38.29								$32.07		
	Zone 3	$39.46								$57.32		
	P.17.16 Nonrec. Cost - New Feature Activation for Combination Use Only		$12.16	$8.77							$6.05	$4.3

009692

APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
.56-4	Additional DS1 in same DS3	$260.62								$256.85		
	P.17.16 Nonrec. Cost - New Feature Activation for Combination Use Only		$12.16	$8.77							$6.05	$4.3
.57	**4-WIRE DS1 DIGITAL EXTD LOOP WITH DED. DS1 INTEROFFICE TRANSPORT W/ 3/1/ MUX**											
.57-1	First 4-Wire DS1 in DS3											
	Zone 1	$420.48								$393.03		
	Zone 2	$447.67								$419.70		
	Zone 3	$522.69								$505.19		
	P.17.1 Nonrec. Cost for Extd. Loop or Local Channel and Interoffice Comb. - Switch-as-is		$11.19	$11.19							$8.10	$8.1
	P.17.1 Nonrec. Cost for Extd. Loop or Local Channel and Interoffice Comb. - Switch-as-is - Disc. Only		$12.93	12.93							$8.10	$8.1
	Nonrec. Cost - 4-Wire DS1 Digital Extd. Loop with Ded. DS1 Interoffice Transport with 3/1 Mux - NEW		$625.63	$342.38							$330.00	$182.6
	Nonrec. Cost- 4-Wire DS1 Dig Extd. Loop with Ded DS1 Interoffice Trans. w/ 3/1 Mux-NEW -Disc Only		$150.32	$45.80							$85.75	$23.0
.57-2	D.4.1 Interoffice Transport - Dedicated - DS1 - Per Mile	$0.2000								$0.1710		
.57-3	Additional 4-Wire DS1 in same DS3											
	Zone 1	$199.51								$174.33		

009693

APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD/RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
	Zone 2	$226.70								$201.00		
	Zone 3	$301.72								$286.49		
	P.17.16 Nonrec. Cost - New Feature Activation for Combination Use Only		$12.16	$8.77							$6.05	$4.3
.58	4-WIRE 56 OR 64 KBPS DIGITAL EXTENDED LOOP WITH DS0 INTEROFFICE TRANSPORT											
.58-1	Fixed											
	Zone 1	$53.21								$43.43		
	Zone 2	$64.03								$52.86		
	Zone 3	$70.17								$83.09		
	P.17.1 Nonrec. Cost for Extd. Loop or Local Channel and Interoffice Comb. - Switch-as-is		$11.19	$11.19							$8.10	$8.1
	P.17.1 Nonrec. Cost for Extd. Loop or Local Channel and Interoffice Comb. - Switch-as-is -Disc. Only		$12.93	$12.93							$8.10	$8.1
	Nonrec. Cost- 4-Wire 56 or 64 Kbps Dig. Extd Loop w/ Ded DS0 Interoffice Transport - NEW		$343.67	$178.91							$200.40	$102.0
	Nonrec. Cost- 4-Wire 56 or 64 Kbps Dig. Extd Loop w/ Ded DS0 Interoffice Trans - NEW- Disc. Only		$146.42	$43.08							$84.10	$21.9
.58-2	D.3.1 Interoffice Transport - Dedicate -DS0 - Per Mile	$0.0098								$0.0084		

009694

APPENDIX A - RATE COMPARISON INCLUDING COMMISSION-APPROVED FINAL RATES

ELEMENT NUMBER & DESCRIPTION		BELLSOUTH PROPOSED RATES			AT&T/WORLDCOM PROPOSED RATES			BLUESTAR/COVAD /RHYTHMS PROPOSED RATES		COMMISSION-APPROVED RATES		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	NON-REC. FIRST	NON-REC. ADD'L	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
.0	D4 CHANNEL BANKS											
.1	D4 CHANNEL BANKS CENTRAL OFFICE											
.1.1	D4 Channel Bank Inside CO - System				$39.76							
.1.3	Unbundled Loop Concentration - ISDN (Brite Card)				$2.27							
.1.4	Unbundled Loop Concentration - POTS Card				$0.4970							

APPENDIX B

Zone 1

BCRTFLBT	FTLDFLSG	KYWSFLMA	MIAMFLFL	MIAMFLWM
BCRTFLMA	FTLDFLSU	MIAMFLAE	MIAMFLGR	MNDRFLAV
CCBHFLMA	HLWDFLHA	MIAMFLAL	MIAMFLIC	NDADFLAC
DYBHFLFN	HLWDFLMA	MIAMFLAP	MIAMFLKE	NDADFLOL
FTLDFLCR	JCVLFLCL	MIAMFLBA	MIAMFLME	NKLRFLMA
FTLDFLCY	JCVLFLIA	MIAMFLBC	MIAMFLNM	ORLDFLMA
FTLDFLMR	JCVLFLJT	MIAMFLBR	MIAMFLPB	WPBHFLAN
FTLDFLOA	JCVLFLSM	MIAMFLDB	MIAMFLPL	

Zone 2

BCRTFLSA	FTLDFLPL	JCVLFLSJ	ORLDFLAP	PRRNFLMA
BLGLFLMA	FTLDFLWN	JCVLFLWC	ORLDFLCL	PTSLFLMA
BYBHFLMA	FTPRFLMA	JPTRFLMA	ORLDFLPC	PTSLFLSO
CNTMFLLE	GLBRFLMC	KYLRFLLS	ORLDFLPH	SBSTFLMA
COCOFLMA	GSVLFLMA	KYLRFLMA	ORLDFLSA	SNFRFLMA
COCOFLME	GSVLFLNW	LKMRFLMA	ORPKFLMA	STAGFLBS
DBRYFLDL	HBSDFLMA	LYHNFLOH	ORPKFLRW	STAGFLMA
DBRYFLMA	HLWDFLPE	MIAMFLCA	OVIDFLCA	STAGFLSH
DELDFLMA	HLWDFLWH	MIAMFLHL	PAHKFLMA	STRTFLMA
DLBHFLKP	HMSTFLAF	MIAMFLNS	PCBHFLNT	TTVLFLMA
DLBHFLMA	HMSTFLHM	MIAMFLOL	PLCSFLMA	VRBHFLBE
DLSPFLMA	HTISFLMA	MIAMFLRR	PMBHFLCS	VRBHFLMA
DRBHFLMA	ISLMFLMA	MIAMFLSH	PMBHFLFE	WPBHFLGA
DYBHFLMA	JCBHFLAB	MIAMFLSO	PMBHFLMA	WPBHFLGR
DYBHFLOB	JCBHFLMA	MIAMFLWD	PMBHFLTA	WPBHFLHH
DYBHFLOS	JCBHFLSP	MICCFLBB	PNCYFLCA	WPBHFLLE
DYBHFLPO	JCVLFLAR	MLBRFLMA	PNCYFLMA	WPBHFLRB
EGLLFLBG	JCVLFLBW	MNDRFLLO	PNSCFLBL	WPBHFLRP
EGLLFLIH	JCVLFLFC	MNDRFLLW	PNSCFLFP	WWSPFLHI
FLBHFLMA	JCVLFLLF	MRTHFLVE	PNSCFLHC	WWSPFLSH
FRBHFLFP	JCVLFLNO	NDADFLBR	PNSCFLPB	
FTLDFLAP	JCVLFLOW	NDADFLGG	PNSCFLWA	
FTLDFLJA	JCVLFLRV	NSBHFLMA	PNVDFLMA	

Zone 3

ARCHFLMA	CSCYFLBA	HMSTFLEA	MXVLFLMA	SGKYFLMA
BGPIFLMA	DNLNFLWM	HWTHFLMA	NWBYFLMA	STAGFLWG
BKVLFLJF	EORNFLMA	JAY-FLMA	OKHLFLMA	SYHSFLCC
BLDWFLMA	FTGRFLMA	KYHGFLMA	OLTWFLLN	TRENFLMA
BNNLFLMA	GCSPFLCN	LKCYFLMA	PACEFLPV	VERNFLMA
BRSNFLMA	GCVLFLMA	MCNPFLMA	PLTKFLMA	WELKFLMA
CDKYFLMA	GENVFLMA	MDBGFLPM	PMPKFLMA	YNFNFLMA
CFLDFLMA	HAVNFLMA	MLTNFLRA	PRSNFLFD	YNTWFLMA
CHPLFLJA	HLNVFLMA	MNSNFLMA	SBSTFLFE	YULEFLMA

B

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF FLORIDA
TALLAHASSEE DIVISION

MCI WORLDCOM COMMUNICATIONS, INC., A Delaware corporation; and MCIMETRO ACCESS TRANSMISSION SERVICES LLC, a Delaware corporation, Plaintiffs, v. BELLSOUTH TELECOMMUNICATIONS INC., a Georgia corporation; the FLORIDA PUBLIC SERVICE COMMISSION; E. LEON JACOBS, JR., in his official capacity as Chairman of the Florida Public Service Commission; and J. TERRY DEASON, LILA A. JABER, BRAULIO L. BAEZ and MICHAEL A. PALECKI, in their official capacities as Commissioners of the Florida Public Service Commission, Defendants.	Civil Action No. ______________

COMPLAINT
FOR DECLARATORY AND EQUITABLE RELIEF

EXHIBITS

009698

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Investigation into pricing of unbundled network elements.	DOCKET NO. 990649-TP ORDER NO. PSC-01-2051-FOF-TP ISSUED: October 18, 2001

The following Commissioners participated in the disposition of this matter:

E. LEON JACOBS, JR., Chairman
J. TERRY DEASON
LILA A. JABER

ORDER ON MOTIONS FOR RECONSIDERATION AND MOTION TO CONFORM ANALYSIS

BY THE COMMISSION:

I. CASE BACKGROUND

On December 10, 1998, the Florida Competitive Carriers Association (FCCA), the Telecommunications Resellers, Inc. (TRA), AT&T Communications of the Southern States, Inc. (AT&T), MCIMetro Access Transmission Services, LLC and WorldCom Technologies, Inc. (WorldCom), the Competitive Telecommunications Association (Comptel), MGC Communications, Inc. (MGC), Intermedia Communications Inc. (Intermedia), Supra Telecommunications and Information Systems (Supra), Florida Digital Network, Inc. (Florida Digital Network), and Northpoint Communications, Inc. (Northpoint) (collectively, "Competitive Carriers") filed their Petition of Competitive Carriers for Commission Action to Support Local Competition in BellSouth's Service Territory. Among other matters, the Competitive Carriers' Petition asked that we set deaveraged unbundled network element (UNE) rates. The petition was addressed in Docket No. 981834-TP.

On May 26, 1999, we issued Order No. PSC-99-1078-PCO-TP, granting in part and denying in part the Competitive Carriers' petition. Specifically, we granted the request to open a generic UNE pricing docket for the three major incumbent local exchange providers, BellSouth Telecommunications, Inc. (BellSouth), Sprint-Florida, Incorporated (Sprint), and GTE Florida Incorporated

(GTEFL). Accordingly, this docket was opened to address the deaveraged pricing of UNEs, as well as the pricing of UNE combinations and nonrecurring charges. An administrative hearing was held on July 17, 2000, on the Part One issues identified in Order No. PSC-00-2015-PCO-TP, issued June 8, 2000. Part Two issues, also identified in Order No. PSC-00-2015-PCO-TP, were heard in an administrative hearing on September 19-22, 2000.

On May 25, 2001, we issued our Final Order on Rates for Unbundled Network Elements Provided by BellSouth. Within the Order, we addressed the appropriate methodology, assumptions, and inputs for establishing rates for unbundled network elements for BellSouth Telecommunications. We ordered that the identified elements and subloop elements be unbundled for the purpose of setting prices, and that access to those subloop elements shall be provided. We also determined that the inclusion of non-recurring costs in recurring rates should be considered where the resulting level of non-recurring charges would constitute a barrier to entry. In addition, we defined xDSL-capable loops, and found that a cost study addressing such loops may make distinctions based upon loop length. We then set forth the UNE rates, and held that they shall become effective when existing interconnection agreements are amended to incorporate the approved rates, and those agreements become effective. Furthermore, we ordered BellSouth to refile, within 120 days of the issuance of the Order, revisions to its cost study addressing xDSL-capable loops, network interface devices, and cable engineering and installation. The parties to the proceeding were also ordered to refile within 120 days of the issuance of the Order, proposals addressing network reliability and security concerns as they pertain to access to subloop elements.

On June 11, 2001, BellSouth filed its Motion for Reconsideration, requesting that we reconsider our decision in six respects. Specifically, BellSouth argues that we should reconsider our decisions regarding: (1) BellSouth's inflation adjustment; (2) the proposed hybrid copper/fiber xDSL-capable loop; (3) the provision of a "guaranteed" copper SL-1 loop; (4) the recovery of loop conditioning costs on loops less than 18,000 feet in length; (5) network interface device (NID) costs; and (6) Service Advocacy Center time discrepancies. Also on June 11, 2001, MCI WorldCom, AT&T, Covad, and Z-Tel (Movants) filed a Motion for Reconsideration and Clarification of certain decisions in the Order. They assert that the use of three cost scenarios violates the FCC's TELRIC rules. They also seek clarification of the relationship between costing for UNEs and USF purposes. The Movants also asked us to reconsider our positions on shared cost allocation and drop routing. On June 18, 2001, BellSouth timely filed its Memorandum in Opposition to the Movant's Motion for Reconsideration and Clarification, disputing their assertions. On June 25, 2001, AT&T, MCI WorldCom, Covad, and Rhythms Links Inc. (ALECs) timely submitted their Response in Opposition to BellSouth's Motion for Reconsideration, responding to only four of the six items for which BellSouth requested consideration. Sprint also filed a Response to BellSouth's Motion for Reconsideration that same day. Sprint responds only to BellSouth's Motion as it pertains to the adjustment to the inflation factor.

On June 26, 2001, BellSouth filed a Motion to Conform Staff Analysis and Cost Model Run to Order No. PSC-01-1181-FOF-TP. In its motion, BellSouth asserts that there are several inconsistencies between the Commission staff's cost model run and our order, particularly relating to Shared and Common Cost factors, the elimination of inflation in the context of Plant Specific factors, the economic life of analog switching, and the proposed lives for Submarine Fiber Cable. No responses to this Motion were filed.

II. JURISDICTION

Due to the everchanging state of the law in this area, the applicable law and jurisdiction for this docket has been a moving target. Further action may be needed at a future date with regard to BellSouth's UNE rates. Nevertheless, this Commission has jurisdiction to act in this proceeding pursuant to Section 251 and 252 of the Telecommunications Act of 1996 and Sections 364.161 and 364.162, Florida Statutes.

III. BellSouth's Motion for Reconsideration

The standard of review for a motion for reconsideration is whether the motion identifies a point of fact or law which was overlooked or which we failed to consider in rendering our Order. See Stewart Bonded Warehouse, Inc. v. Bevis, 294 So. 2d 315 (Fla. 1974); Diamond Cab Co. v. King, 146 So. 2d 889 (Fla. 1962); and

Pingree v. Quaintance, 394 So. 2d 161 (Fla. 1st DCA 1981). In a motion for reconsideration, it is not appropriate to reargue matters that have already been considered. Sherwood v. State, 111 So. 2d 96 (Fla. 3rd DCA 1959); citing State ex. rel. Jaytex Realty Co. v. Green, 105 So. 2d 817 (Fla. 1st DCA 1958). Furthermore, a motion for reconsideration should not be granted "based upon an arbitrary feeling that a mistake may have been made, but should be based upon specific factual matters set forth in the record and susceptible to review." Stewart Bonded Warehouse, Inc. v. Bevis, 294 So. 2d 315, 317 (Fla. 1974).

A. Inflation Factors

BellSouth argues that we considered evidence in the record that was clearly erroneous in rendering its decision, particularly the testimony of Sprint witness Dickerson. BellSouth further contends that there is no (accurate) evidence in the record to support our decision on this point.

BellSouth contends that witness Dickerson totally misunderstands BellSouth's use of inflation factors. Where witness Dickerson claims that the same methodology that is used to develop the Plant-Specific expense factor is also used in the application of inflation to investment, BellSouth views these as two entirely different exercises. BellSouth explains that the Plant-Specific factor is a ratio of expenses to investment. The company contends that the investment also reflects growth in demand, inflation, and productivity, but the relationship between the expenses and investment is consistent over the three-year measuring period. BellSouth also points out that the Plant-Specific factor in developed based upon investments that reflect the existing network, not the least-cost, forward-looking network considered in the cost study.

BellSouth further contends that witness Dickerson mislabeled the Growth Rate as the Inflation Adjustment Factor, and incorrectly asserted that BellSouth applies growth in access lines to its inflation calculation. While noting that this apparent misinterpretation has already been recognized, BellSouth states that our Order is also incorrect in that it also identified a slight mismatch between inflation-adjusted material costs and the demand levels utilized in BellSouth's cost study. It also re-asserts its argument that material and labor rates will be increasing over a three-year time period, and so inflation is also appropriate for the development of levelized labor rates.

In response, the ALECs argue that BellSouth has failed to identify a mistake of fact or law in our decision. They refer to the Final Order, which states in part:

> [W]e shall approve the loading factors proposed by BellSouth, with the exception of its proposed inflation factors. Regarding the inflation factors, we are persuaded that the application of inflation results in an inappropriate mismatch of as much as 18 months between the inflation-adjusted material costs and the demand levels utilized in BellSouth's cost study. Thus, in [an] effort to reduce or eliminate this mismatch, the proposed inflation factors are rejected.

UNE Final Order at 306. In ordering BellSouth to refile its cost studies within 120 days, they contend that we did give BellSouth an opportunity to address the perceived mismatch, stating: 'to the extent BellSouth can come forward with information in its refiling indicating an appropriate inflation adjustment that eliminates the growth mismatch we will consider that information at that time." Id. at 307. The ALECs point out that BellSouth repeatedly refers to evidence in the record upon which the Commission based its decision. By raising this issue on reconsideration, the ALECs contend that BellSouth merely reargues matters that we considered and rejected.

Further, the ALECs contend that the proposed inflation factor was properly rejected. They argue that BellSouth is asking the Commission to accept an inflation factor which, by its own admission, is not TELRIC based, and thus violates the Act. They argue that our rejection is, therefore, consistent with the Act.

Sprint contends that BellSouth's motion in its entirety should be rejected, because we neither overlooked nor failed to consider certain evidence applicable to the issues put forth in its motion. Sprint asserts that BellSouth is not only rearguing issues, but attempting to bring up new arguments on the pretext of responding to our offer to entertain new inflation adjustments that eliminate the mismatch, in its 120 day filing. Sprint claims that the arguments that BellSouth puts forth do not eliminate a mismatch. Rather, Sprint contends, BellSouth is singular in its failure to grasp the testimony of Mr. Dickerson. Sprint argues that our Order evidences a clear understanding of Mr. Dickerson's concerns, where it states:

> Witness Dickerson argues that increases in future equipment costs very well may be accompanied by equipment capacity changes and enhanced capabilities including the ability to self provision or self diagnose problems that would reduce labor costs.

UNE Final Order, at 301. Sprint believes that BellSouth's Motion is the best evidence in support of the position that we made the correct decision in this area, wherein BellSouth states:

> What is most important to recognize is that the BSTLM sizes, builds and costs a network to serve a given demand (in this case 1999 demand), and then divides that total network cost by the same demand used to size the network in order to develop the per unit cost.

Motion, at 6-7. Sprint views this as clearly conceding the reality that the network investment calculated in BellSouth's model is based on 1999 customer demand with no adjustment for access line growth for the years 2000-2002. What BellSouth continues to confuse, says Sprint, is that its TPI equipment material price increases could somehow account for the increased access line growth reflected in the expense numerator of its unit cost calculation.

DECISION

Upon consideration, we find that BellSouth has identified a mistake of fact or law in our decision on this point. Based on further scrutiny of the existing record, we have determined that what previously appeared to be a mismatch is not. Our staff erred in its analysis of the testimony and as such, its statements to us at Agenda and in their recommendation that a mismatch exists were incorrect. In fact, the record reflects that the total demand for loops that was used to size the overall network is identical to the demand which is used as the denominator to yield the loop unit cost; thus, there is no mismatch. As such, we hereby reconsider our decision to reject BellSouth's proposed inflation factor, because it was based upon a misinterpretation and misrepresentation of the facts presented. We find that it is important for us to reconsider our decision regarding the inflation factor at this time, rather than as a part of the 120-day filing, due to the significant impact that the inflation factor has on costs.

B. Hybrid Copper/Fiber Loops

BellSouth also argues that we should, at a minimum, clarify our requirement that: "Furthermore, because we believe that BellSouth is obligated, if technically feasible, to provide hybrid copper/fiber xDSL-capable loops to Data ALECs, BellSouth shall be required to submit a cost study for hybrid copper/fiber xDSL-capable loops within 120 days from the issuance of this Order for further consideration by this Commission." Order at p. 65. BellSouth contends that the phrase "hybrid copper/fiber xDSL-capable loops" is vague; therefore, it is uncertain what it must do in order to comply with our directive. BellSouth adds that if we are requiring it to enable the provision of xDSL services over fiber/DLC loops, under the company's current architecture, it is technically unable to do so.

BellSouth emphasizes that, as set forth in our Order, it appears that ALEC witness Riolo agreed that BellSouth is currently unable to provision xDSL over fiber/DLC loops, as indicated by the witness's acknowledgment that BellSouth is currently testing DLC systems. BellSouth adds that even witness Dickerson noted that these "technological developments are underway. . . ." See Order at p. 69. Therefore, BellSouth argues that it should not be required to provide cost studies on an "as yet undetermined architecture." Motion at p. 10. BellSouth further argues that even we noted in our Order that there was insufficient evidence in the record about the specific components of these loops, which BellSouth now contends is due to the fact that the architecture for such loops has not yet been deployed. We note that this is extra-record evidence.

In addition, BellSouth argues that we should not impose requirements regarding a DLC system that are incompatible with

BellSouth's current network. BellSouth contends that security risks would result, particularly regarding the collocation at a remote terminal issue. BellSouth explains, however, that there are still ways that ALECs can have access to the high frequency portions of the loop without imposing burdensome requirements on the ILEC, such as by collocating a DSLAM at a remote terminal to provide ADSL service.

BellSouth further contends that the Order could be read to require BellSouth to provide unbundled packet switching. The company argues that this would be additional sub-loop unbundling beyond that which is required by the FCC. BellSouth argues that it currently provides unbundled loops consistent with the FCC's Third Report and Order, and that while FCC Rule 51.317 allows state commissions to require additional unbundling under certain circumstances, those circumstances have not been met here. Specifically, BellSouth contends that there is no evidence that the additional sub-loop elements are "necessary" or that ALECs will not be able to compete without them. BellSouth emphasizes that the FCC in its Third Report and Order extensively analyzed packet switching and other equipment used to provide advanced services, and determined that such equipment was generally unnecessary and need not be unbundled, except when the ILEC refused collocation at the remote terminal. BellSouth adds that the FCC further determined that competing carriers would not be impaired if these sub-loop elements were not unbundled.

Finally, BellSouth contends that in prior arbitrations, we have declined to impose such unbundling, except as provided for under FCC Rule 51.319. For these reasons, BellSouth argues that we should reconsider our decision.

The ALECs contend that BellSouth has failed to identify a mistake of fact or law in our decision. They contend that BellSouth is simply trying to maintain its "stranglehold" on the market for high speed DSL services. As for BellSouth's arguments: 1) that forward-looking DLC units that support xDSL services do not yet exist; and 2) that its reliance on fiber in its network and its ability to severely limit competition for xDSL customers served through fiber-fed loops does not support the ALECs claims that a hybrid fiber/copper loop is necessary for competition, the ALECs contend that these have already been addressed, and rejected, by this Commission. In fact, the ALECs contend that the evidence in the record shows that BellSouth is in the process of deploying Next Generation Digital Loop Carrier units. The ALECs emphasize that BellSouth's witness Milner stated that the expected deployment would be mid-2001.

In addition, the ALECs contend that other ILECs are deploying next generation technology, and other state commissions have recognized that the ILECs must offer competitors access to fiber-fed DSL loops at unbundled network element rates. As such, the ALECs contend that this Commission correctly concluded that we should investigate the impact of BellSouth's ability to provide DSL over fiber-fed DLC units and should set rates, terms and conditions for such.

The ALECs further contend that the evidence demonstrates that fiber-fed loops are necessary for competition and that competition will, in fact, be impaired without it. The ALECs emphasize that the FCC has already made clear that BellSouth must provide line sharing over an entire loop even when the loop is fiber--without requiring the ALEC to place a DSLAM or splitter in the remote terminal. Thus, the ALECs believe the FCC has recognized that the ALECS need flexibility in their ability to provision DSL services.

The ALECs maintain that the evidence also is clear that BellSouth has deployed almost a 40% fiber network. Without access to DLC units, competitors will not be able to provide xDSL services over this fiber in an efficient, cost-effective manner. They also contend that in a forward-looking network, BellSouth will achieve DSLAM functionality at the remote terminal through line cards placed in the DLC. The ALECs believe that a collocation option that allows competitors to have BellSouth place line cards on their behalf, as well as allowing competitors to place their own, is necessary to comply with the UNE Remand Order, which states that "a requesting carrier [should be allowed] to collocate its DSLAM in the incumbent's remote terminal, on the same terms and conditions that apply to its own DSLAM." See FCC Third Report and Order, FCC 96-98, released November 5, 1999. The ALECs contend that this option is not only critical to ensure that Florida consumers receive the benefits of a competitive market, it is also consistent with the FCC's decision. Thus, they contend that we should reject BellSouth's Motion on this point.

DECISION

On this point, we find that BellSouth has failed to identify a mistake of fact or law in our decision. In addition, BellSouth's assertions that it is currently unable to provide this technology, but that it offers other reasonable alternatives, appear to constitute extra-record evidence that is inappropriate for consideration within the context of a Motion for Reconsideration. The ALECs' responsive assertions that other ILECs are currently deploying next generation technology and that other states have recognized that ILECs must offer ALECs fiber-fed DSL loops at UNE rates also appears to be extra-record information that should similarly be disregarded in the rendering a decision on BellSouth's motion.

Furthermore, we clearly stated that there was insufficient record evidence regarding the specific components of such loops. Therefore, we only set rates for all-copper xDSL-capable loops and required BellSouth to file a cost study for hybrid copper/fiber xDSL-capable loops within 120 days of the issuance of its Order. Specifically, we found that

> Upon consideration, we find that the ALECs, rather than BellSouth, should determine and take the responsibility for the DSL service being provisioned. However, we also emphasize that there was some testimony in this record regarding DSL service being provisioned over a hybrid copper/fiber loop. The Data ALECs apparently view this technology as one worthy of an UNE status. Nevertheless, there is insufficient record evidence in this proceeding to set rates for a hybrid copper/fiber xDSL-capable loop. In particular, there is insufficient evidence regarding the specific components of these loops, such as line cards, vendors, and their associated prices. Therefore, the only rates for xDSL-capable loops that can be set in this proceeding are for all-copper xDSL-capable loops. As such, our approved recurring and nonrecurring rates for all-copper xDSL loops, reflecting the various adjustments approved herein, are set forth in Appendix A to this Order.

> Furthermore, because we believe that BellSouth is obligated, if technically feasible, to provide hybrid copper/fiber xDSL-capable loops to Data ALECs, BellSouth shall be required to submit a cost study for hybrid copper/fiber xDSL-capable loops within 120 days from the issuance of this Order for further consideration by this Commission.

Order No. PSC-01-1181-FOF-TP at p. 75.

While BellSouth appears to believe that we have already reached a conclusion that BellSouth must provision xDSL service over hybrid loops, we clearly stated in our Order that this obligation applies "if technically feasible." We have drawn no conclusions as to the feasibility of this proposal. In fact, we recognized that there was insufficient record evidence regarding even the components of such a loop. We did, however, find that there was enough evidence in the record to warrant further investigation of hybrid loops. BellSouth has not identified any mistake of fact or law in our decision on this point, and essentially appears to ask us to reach a conclusion in an area where we have already stated that there is insufficient evidence to do so. This does not meet the standard for a Motion for Reconsideration, and should, therefore, be denied.

However, we do agree with BellSouth that the reference to "hybrid copper/fiber xDSL-capable loops" could be considered somewhat ambiguous. It is within our discretion to clarify our Orders when necessary. Therefore, we hereby clarify our Order to reflect that hybrid copper/fiber xDSL-capable loops are those deployed over fiber/DLC loops.

C. <u>xDSL-CAPABLE LOOPS</u>

BellSouth also argues that we should reconsider our decision to require BellSouth to provision SL-1 loops and guarantee not to roll them to another facility or convert them to another technology. <u>See</u> Order at p. 67. BellSouth contends that we overlooked the fact that the ability to use the SL-1 loop to provide voice service using a variety of technologies is what keeps the price of an SL-1 lower, as compared to an xDSL-compatible loop. BellSouth notes that while we acknowledged the differences between

SL-1 loops and xDSL-compatible loops, the decision to require a guarantee not to roll it to another technology essentially ignores the differences between these two types of loops. Thus, BellSouth argues that our decision does not take into account the cost of this new requirement for a "guaranteed copper" SL-1 loop.

BellSouth adds that since our hearing in this matter, it has started offering ALECs a non-designed xDSL-compatible loop, which is a copper loop capable of carrying xDSL service but without the design features ALECs do not want. BellSouth believes that this new "no frills" loop should satisfy our concerns regarding this issue. Otherwise, because we did not consider the costs associated with guaranteeing no rollover for SL-1 loops, BellSouth asks for reconsideration on this point.

In their response, the ALECs contend that BellSouth's motion ignores the evidence in the record of this proceeding and attempts to introduce new evidence into the record. The ALECs emphasize that the parties at hearing agreed that xDSL service may be provisioned over SL-1 loops at the ALECs' discretion. They note that ALEC witness Riolo testified that facilities used to provide xDSL services are "identical or nearly identical to those used to provide voice-grade services." *Citing* TR at 2669. The ALECs contend that even BellSouth's own witnesses acknowledged this fact.

The ALECs also argue that BellSouth is now trying to claim that there is a "cost" associated with guaranteeing a copper loop will not be rolled to another technology, in spite of the lack of evidence in the record to support this contention. The ALECs contend that the record actually reflects that there is no or nominal cost associated with identifying and guaranteeing these loops.

Furthermore, the ALECs contend that while BellSouth acknowledges that ALECs can provide data services over an SL-1 loop, BellSouth is seeking to require ALECs to use a more expensive loop in order for BellSouth to guarantee that it will remain the type of loop the ALEC ordered. The ALECs assert that this is BellSouth's attempt to avoid providing access to loop makeup information during pre-ordering so that it can charge higher rates to ALECs contrary to the intent of the Act.

The ALECs explain that the reason BellSouth should be providing them with sufficient loop makeup information is so that they can make their own independent judgment about whether the loop they want can support the services they want to provide. In this way, the ALEC takes the risk upon itself voluntarily; however, this risk should not include the risk that the information upon which it based its original decision will change because the makeup of the loop itself is subject to change. The ALECs maintain that if they cannot rely upon the loop makeup information they get from BellSouth, then there is really no purpose in getting the information in the first place. The ALECs note that it is peculiar that BellSouth is able to provide accurate information and a guarantee for the more expensive loops. They emphasize that BellSouth should be required to do this for all loops it provides. The ALECs add that BellSouth's claim in its Motion that it now offers new UNEs that should satisfy the ALECs' concerns is extra-record information that we should not consider in rendering our decision on BellSouth's Motion.

DECISION

We find that BellSouth has failed to identify a mistake of fact or law in our decision on this point as well. BellSouth provided no evidence regarding costs associated with guaranteeing that a loop will not be converted from one technology to another. As such, BellSouth has not identified any mistake of fact or law in our decision or anything overlooked by us. Furthermore, BellSouth's contention that it now offers ALECs a non-designed xDSL-compatible loop is extra-record evidence that does not affect whether BellSouth has met the standard for reconsideration.

Nevertheless, we note that in addressing the issue of loop makeup information and converting loops to alternative technologies, we did not intend to preclude BellSouth from identifying any non-recurring costs associated with tagging an SL-1 loop. Rather, as specifically noted:

> . . . if you want a cost study from BellSouth after the fact, that's fine. I just don't think that the Commission has to tell BellSouth that they can petition the

> Commission to show that the cost associated with tagging would be burdensome.

Thus, we hereby clarify that BellSouth is not precluded from submitting support for such non-recurring costs as part of its 120-filing, or at some future date. We simply declined to specifically request that this information be a part of that filing or any other future filing.

D. LOOP CONDITIONING

BellSouth also argues that we should reconsider our decision rejecting rates for conditioning loops less than 18,000 feet. See Order at p. 394. BellSouth argues that while it is true that a forward-looking network designed today would not include load coils, the fact that they are on BellSouth's existing network means that BellSouth will incur a very "real and ongoing cost" every time it must meet an ALEC request to condition a loop. Furthermore, BellSouth contends that there was evidence in the record to support cost recovery for conditioning these short loops, as provided by witness Caldwell. BellSouth argues that in rejecting rates for short loops, the Commission erred in its interpretation of the TELRIC methodology.

BellSouth emphasizes that the FCC was clear in its Third Report and Order at Paragraph 193 that the ILEC should be able to charge for conditioning such loops. Thus, BellSouth contends that the FCC has determined that allowing cost recovery for conditioning on short loops is not contrary to TELRIC. As such, BellSouth seeks reconsideration of this point, because it believes it is entitled to cost recovery.

In response, the ALECs argue that we correctly rejected BellSouth's rate proposal for conditioning loops under 18,000 feet because it is inconsistent with a forward-looking network. The ALECs note that BellSouth even concedes that our decision is consistent with TELRIC principles. The ALECs argue that BellSouth is asking for recovery of embedded costs, which is exactly what TELRIC prohibits. They note that load coils were features that were installed over 20 years ago, and ". . . their presence in BellSouth's plant today results from BellSouth's failure to bring its outside plant up to modern specifications." Citing (Riolo TR

2730). The ALECs emphasize that this Commission is not alone among the states in rejecting rates for short loops.[1] Furthermore, the ALECs emphasize that the evidence shows that BellSouth does not charge a nonrecurring loop conditioning charge to its retail customers, even though ISDN, T-1, and DS-1 loops can only be provisioned without interference from features such as load coils. Thus, the ALECs contend that it is simply unfair for them to have to pay a nonrecurring charge when they are only seeking the same type of clean, copper loop. For these reasons, they ask the BellSouth's motion on this point be denied.

DECISION

Upon consideration, we find that BellSouth has not identified a mistake of fact or law in our decision on this point. As recognized in our Order at p. 459, "Nevertheless, for loops shorter than 18 Kft., loop conditioning does not appear to be consistent with a forward-looking cost methodology." We emphasize that there was extensive discussion regarding this issue at the April 18, 2001, Agenda Conference. As clearly stated in the Order, we made our decision to reject nonrecurring charges for load coil removal on short loops based upon a policy decision that a forward-looking network would not have load coils on short loops. BellSouth has not identified anything we overlooked, and in fact, acknowledges that short loops in a forward-looking network would not have load coils on them. As such, BellSouth's Motion on this point shall be denied.

E. NID COSTS

BellSouth argues that we erred in our decision at pages 192-193 of its Order addressing NIDs. There, BellSouth believes that an inconsistency exists in the treatment of exempt/miscellaneous

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[1] *Citing* Massachusetts Dept. of Telecommunications and Energy, Order - In re: Investigation as the propriety of rates and charges set forth in M.D.T.E. No. 17, Order in Docket D.T.E. 98-57-Phase III at 87, Sept. 28, 2000; Utah Public Service Commission Phase III Part C Report and order in Docket No. 94-999-01, June 2, 1999; Oregon Public Utility Commission Order No. 98-444 in Docket Nos. UT-138 and UT-139, entered Nov. 13, 1998.

material for the stand-alone NID and the exempt/miscellaneous material for the NID provisioned with a loop. BellSouth explains that because the NID coming from the BSTLM (NID with loop) includes exempt material, taxes, labor, etc., the BellSouth Cost Calculator does not need to apply In-Plant Factors to drop and NID investments. BellSouth further explains that this is done by assigning "sub-FRCs" to the drop and NID. These codes instruct the Cost Calculator not to apply In-Plant factors to those items. Thus, the company contends there is no double counting of In-Plant costs. Therefore, BellSouth believes we made a mistake of fact and should reconsider our ruling.

As for the stand-alone NID, BellSouth contends that it is a separate UNE offering designed for when the existing NID is not suitable for the ALEC's purposes. BellSouth explains that it charges a non-recurring charge for the installation of, the material for, and the cross connect to the stand-alone NID, where applicable. BellSouth emphasizes, however, that this is the same kind of NID placed with a loop. BellSouth notes that it did not include exempt material in its stand-alone NID costs, when it now believes it should have. Thus, BellSouth simply notes that it intends to do so in its 120-day filing.

The ALECs did not respond on this point.

DECISION

In our Order at page 226, we stated:

> Given these inconsistencies, we find that an adjustment must be made; however, it is not clear from this record what the correction should be. Therefore, we find that the appropriate assumptions and inputs for drops and NIDs are the material prices identified by BellSouth at this time. However, we order BellSouth to identify and explain all necessary revisions that should be made to NIDs (both in the BSTLM and in its standalone NID study) when BellSouth refiles the BSTLM and the BSCC within 120 days of the date of the order, as addressed in subsection O. If BellSouth believes revisions are necessary, BellSouth should, as appropriate, submit modified versions of the BSTLM and the BSCC. If

> BellSouth believes that no corrections are warranted, BellSouth shall provide a detailed explanation reconciling the apparent inconsistencies discussed above.

In its Motion, BellSouth is apparently asking us to do what we already stated that we will review as part of BellSouth's 120-day filing. As such, BellSouth's arguments are premature. Furthermore, BellSouth's Motion does not identify any mistake of fact or law in this Commission's decision. Therefore, the Motion on this point is rejected.

F. SAC TIME DISCREPANCIES

BellSouth contends that we also erred in our decision on the Service Advocacy Center (SAC) process. BellSouth explains that at page 305 of our Order, we determined that BellSouth's cost studies (FL-xDSL.xls) with loop make-up are incorrect, because BellSouth did not apply the 10% probability shown in Column I. BellSouth argues, however, that its cost studies are correct. It claims that if the work functions of the SAC included in the loop with loop make-up are compared with the stand-alone loop make-up cost study, it is evident that the exact same work times are used. BellSouth contends that the SAC process in the case of a loop with loop make-up is a manual process that occurs each time a loop make-up is requested; thus, it is not a function of "fall-out" and the 10% probability does not apply.

BellSouth further explains that the cost study for loop without a loop make-up implies the loop make-up has been secured either in a mechanized or manual stand-alone process or is not needed by the ALEC. In either case, BellSouth explains that it is possible that the engineering function would flow-through (90% of the time) or in 10% of the situations would fall-out and require manual handling. BellSouth argues that in such cases it is appropriate to reflect these probabilities, because in a fall-out situation, BellSouth would have to go through the same process necessary to complete a loop make-up. As such, BellSouth asks that we reconsider our decision on this point.

No responses to this point on reconsideration were filed.

DECISION

As explained on page 354 of the Order, we found unexplained SAC time discrepancies that appeared to be based on BellSouth's failure to apply the 10 percent probability that BellSouth had identified on page 14 of the spreadsheet Fl-xdsl.xls (Hearing Exhibit 95) as applicable to SAC work times. The error appeared to inflate work times for provisioning of ADSL by as much as 20 percent. Although BellSouth now contends that the 10 percent probability is not applicable because the SAC process in the case of a loop with loop make-up is a manual process that occurs each time a loop make-up is requested, there was no similar explanation in the spreadsheets that such was the case. Thus, this appears to be extra-record evidence that is not appropriate for consideration in addressing a Motion for Reconsideration. Furthermore, there was no explanation in the testimony regarding this discrepancy. There was testimony from BellSouth's witness Greer regarding SAC activities. However, witness Greer did state that, "Because the work funtions performed by SAC are highly mechanized for the most part, it is assumed that the manual efforts by the SAC will occur only 10% of the time." The witness did not explain that it did not apply to loops with loop makeup (LMU). See Order at p. 375. Furthermore, we noted that

> SAC times were included in Service Inquiry in the original study but were moved to Engineering in the revised study. This means that ADSL loops ordered both with and without loop makeup include SAC time under the new study. If SAC time were still included in Service Inquiry, as it was in the original study, then in the revised study, SAC time would have been included only for loops with loop makeup.

Order at p. 400. There was no evidence to the contrary.

Based on the foregoing, we find that BellSouth has failed to identify a mistake of fact or law in our decision. Instead, the company has identified only an apparent failure on its own part to fully explain in the record the applicability of the 10 percent probability. The evidence at hearing strongly suggested that an error did in fact occur within BellSouth's cost study and it is upon this that we based our decision. BellSouth is now simply trying to introduce new evidence into the record via its Motion for Reconsideration. This is improper; therefore, BellSouth's Motion on this point is denied.

IV. MCI, AT&T, Covad, and Z-Tel's Joint Motion for Reconsideration

As set forth in the prior Section of this Order, the standard of review for a motion for reconsideration is whether the motion identifies a point of fact or law which was overlooked or which we failed to consider in rendering our Order. See Stewart Bonded Warehouse, Inc. v. Bevis, 294 So. 2d 315 (Fla. 1974); Diamond Cab Co. v. King, 146 So. 2d 889 (Fla. 1962); and Pingree v. Quaintance, 394 So. 2d 161 (Fla. 1st DCA 1981). In a motion for reconsideration, it is not appropriate to reargue matters that have already been considered. Sherwood v. State, 111 So. 2d 96 (Fla. 3rd DCA 1959); citing State ex. rel. Jaytex Realty Co. v. Green, 105 So. 2d 817 (Fla. 1st DCA 1958). Furthermore, a motion for reconsideration should not be granted "based upon an arbitrary feeling that a mistake may have been made, but should be based upon specific factual matters set forth in the record and susceptible to review." Stewart Bonded Warehouse, Inc. v. Bevis, 294 So. 2d 315, 317 (Fla. 1974).

A. Use of Three Models

In their Motion, the Movants contend that the use of three scenarios by BellSouth violates FCC TELRIC rules. They note that BellSouth used the BST 2000 Scenario to determine the cost of stand-alone loops, the Combo Scenario to determine the costs of voice grade loops combined with a switch port, and the Copper Only Scenario to derive the cost of copper-based xDSL loops. The Movants emphasize that we recognized at page 154 of our Order, that a single unified network design is the best way to set rates. However, they contend that we then incorrectly determined that such a single unified network design "is not attainable based on this record." *Citing* Order at p. 154. In doing so, the Movants argue that we failed to consider that FCC Rule 51.505(b) requires the use of a single network design. Therefore, they argue that we should reconsider our decision and set all rates based upon the Combo Scenario. They note that while this scenario is not perfect, "it is the most appropriate single scenario that BellSouth offered." Motion at p. 2.

The Movants cite FCC Rule 51.505(b) as follows:

> (b) Total element long-run incremental cost. The total element long-run incremental cost of an element is the forward-looking cost over the long run of the total quantity of the facilities and functions that are directly attributable to, or reasonably identifiable as incremental to, such element, **calculated taking as a given the incumbent LEC's provision of other elements.**
>
> > (1) Efficient network configuration. The total element long-run incremental cost of an element should be measured based on the use of the most efficient telecommunications technology currently available and **the lowest cost network configuration,** given the existing location of the incumbent LEC's wire centers. (Emphasis Added by Movants)

The Movants contend that this rule requires rates to be set based on the "lowest cost network configuration," instead of on several different configurations. They further argue that the network must take into account the provision by the ILEC of other elements, which is necessary in order to capture economies of scale.

The Movants explain that BellSouth's use of three scenarios violates the FCC Rule in two ways. First, they contend that BellSouth's use of different engineering assumptions violates FCC Rule 51.505(b), because BellSouth did not use the lowest cost assumption across the board. They contend that the lowest cost network configuration for serving demand that includes stand-alone loops, loop/port combinations, and xDSL loops would be a network that includes a mix of IDLC, UDLC and all copper loops.

The Movants contend that BellSouth's use of three scenarios also violates the FCC Rule because doing so does not take into account the ILEC's provision of other elements, and thus, does not take into account economies of scale and scope. In order to properly account for this, the ALECs argue that BellSouth must use a single network that takes into account demand for loop/port combinations, stand-alone loops, and xDSL. The forecast should include demand for UNE loops and BellSouth's own retail demands. The mix of IDLC, UDLC, and copper loops in the single network would better include the efficiencies of scale and scope that the FCC Rule contemplated, according to the ALECs.

The Movants contend that BellSouth's use of three separate networks assumes that under one scenario, every customer will need a copper loop, in the second scenario, every customer will need an IDLC loop, and in the third scenario, every customer will need a UDLC loop. The Movants assert that these assumptions are flawed, because in a real network, certain customers will require one type of loop, while other will require another type. They contend that economies of scale and scope can only be properly accounted for by projecting demand for each type of facility in a single network.

Finally, the Movants argue that we should reconsider our decision to allow BellSouth's three-scenario approach in view of the parties' Stipulation approved by Order No. PSC-99-2467-PCO-TP, in which the parties agreed that BellSouth's cost study would comport with FCC Rules 51.501 and 51.511. They add that unless BellSouth files a proper cost study based upon a unified network that meets the demand for all UNEs and services on an integrated basis, we should set UNE rates based on the most appropriate of the three designs BellSouth did submit, which they argue is the Combo Scenario.

In response, BellSouth contends that the Movants have failed to identify a mistake of fact or law in our decision, and therefore, the Motion should be rejected on all points.

Specifically, BellSouth contends that the ALECs argued at hearing that the BSTLM should be constructed on a single network, as noted in our Order at page 121. BellSouth maintains that they are simply rearguing points already raised and considered by this Commission, and as such, the Motion should be denied.

Furthermore, BellSouth asserts that the ALECs, except for Covad, failed to even raise FCC Rule 51.505(b) in their briefs or testimony. BellSouth argues that it is inappropriate to raise new arguments on reconsideration.[2] Thus, BellSouth argues that the Movants' Motion on this point should be rejected for this reason as well.

BellSouth adds that even if the ALECs had properly raised the implications of FCC Rule 51.505(b) at hearing, we still properly considered all FCC rules in setting UNE rates. BellSouth notes that, in fact, we stated in our Order, as the Movants even acknowledge, that this Commission ". . . is bound by the FCC rules as they currently stand. . . ." See Order at pp. 26 and 34. BellSouth emphasizes that FCC Rule 51.505(b) is actually cited in our Order at least 3 times; thus, BellSouth contends that we must have considered it in reaching our decision.

Finally, BellSouth emphasizes that its modeling principle complies with FCC Rule 51.505(b). BellSouth argues that it considered the total quantity of facilities in each scenario--each scenario had the same line count. Thus, it maintains that the three scenarios met the FCC's criterion that "a reasonable projection of the sum of the total number of units" be considered. Furthermore, it contends that its approach is proper because it cannot project the ultimate use of any particular loop--a voice grade service today could be used for digital service tomorrow. Also, since BellSouth does not have the ALEC's marketing plans, it argues that it could not anticipate where ALEC customers will be or what they will buy.

As it stands, BellSouth argues that its three scenario approach does properly reflect economies of scale and scope. BellSouth maintains that the ALECs have not identified any mistake in our decision; thus, BellSouth asks that the Motion be denied on this point.

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[2] *Citing* Order No. PSC-96-1024-FOF-TP, issued August 7, 1996, in Docket No. 950984-TP; and Order No. PSC-96-0347-FOF-WS, issued March 11, 1996, in Docket No. 950495-WS.

DECISION

Upon consideration, we find that the Movants have not identified a mistake of fact or law in our decision on this point. While we referred to Rule 51.505(b) in our Order in explaining the background of this case and the current state of the law, there appear to be minimal (if any) references to this rule in the transcript. Nevertheless, we did address all of these same arguments at pages 140, 145, 154, and 155 of our Order. Therein, we determined that

> In its cost study filing BellSouth submitted three distinct BSTLM scenarios: Copper Only, used to derive the costs of copper-based xDSL-capable loops; Combos, used to determine the costs of 2-wire analog VG UNE loops and 2-wire ISDN UNE loops provisioned with a port; and BST2000, used to arrive at costs for all other loop types (other than those above DS1). In contrast, all other parties appear to agree that a single scenario, the Combos scenario, should be used for all loop types. In principle, it appears to us that a single unified network design is most appropriate. However, we believe this goal is not attainable based on this record.

Order at p. 154. We also noted that, "The only fundamental difference between the Copper Only run and the other scenarios is that the fiber/copper breakpoint was set at 1,000,000 feet, in order for the model always to deploy copper feeder and distribution cable." Order at p. 154. We also considered and concluded that:

> We agree with BellSouth that the record does not support that stand-alone DS0 level UNE loops can be handed off to an ALEC where integrated digital loop carrier (IDLC) is deployed. We note that BellSouth witness Milner testifies that it is not technically feasible to provide a stand-alone unbundled loop at less than a DS1 level; he states that even where the ILDC is GR-303 compliant, though it appears that a DS0 could be delivered, it would require an entire DS1 facility for transport. Accordingly, at this time we find that the record supports that the BST2000 is an appropriate basis for determining the costs of stand-alone UNE loop offerings,

> while the Combos run is appropriate only for certain integrated loop/port combinations.

Order at p. 155.

Furthermore, it is not clear that the use of three scenarios necessarily conflicts with Rule 51.505(b)(1). It does not appear to us that the rule requires unified scenarios, as long as the cost modeling is based upon the lowest cost configuration and takes into account the provision of other elements. Furthermore, as argued by BellSouth witness Caldwell, it appears that the use of a single, unified scenario ". . . would lead to under-recovery for BellSouth because not all uses of a loop are reflected in a single scenario." Order at p. 146. It does not appear the Rule 51.505(b) contemplates requiring the incumbent LEC to under-recover its costs. There was also testimony from BellSouth's witness Milner that "it is not technically feasible for BellSouth to provide a stand-alone unbundled loop using IDLC at less than a DS1 level; thus, it is necessary to model universal digital loop carrier (UDLC) to determine the cost of a single unbundled DS0 loop." Order at p. 147. It does not appear that Rule 51.505(b) requires modeling based upon a network configuration that is not technically feasible.

For all these reasons, the Movants' Motion for Reconsideration on this point is denied. The Movants have not identified a mistake of fact or law in our decision. Disagreement with our interpretation of the law does not equate to mistake in our decision.

B. <u>Clarification of Costing Relationship for UNEs and USF</u>

The Movants assert that while we accepted in this proceeding that a "bottoms-up" approach to developing installed costs is most appropriate, we rejected the proposal by WorldCom and AT&T to use the inputs from the USF docket. They note that we, instead, set UNE rates on "flawed" loading factors and then directed BellSouth to refile cost studies in 120 days that explicitly model all cable engineering and installation placements and associated structures. <u>See</u> Order at p. 306.

While the Movants do not seek reconsideration of this point, they do seek clarification of our rejection of the USF inputs, because it could be interpreted that we believe different cost methodologies are appropriate for USF and UNE costing purposes. As such, the Movants ask that we clarify our Order by adding the following statement:

> While we reject the use in this docket of inputs from our Universal Service Proceeding (Docket No. 980686-TP), we do not intend to imply that it is appropriate to use different network designs or underlying cost information for UNE costing and USF purposes. To the extent that company-specific data and network design information is developed for UNE costing purposes, such data would be appropriate for use in future USF proceedings.

In response, BellSouth argues that clarification is not proper unless our intent is not readily apparent from its Order.[3] Further, BellSouth contends that the requested clarification would improperly set Commission precedence for future USF proceedings. BellSouth argues that this is beyond the scope of the issue addressed at hearing. The company further states that if we established future USF rates, "it can, in that proceeding, determine if 'company-specific data and network design information' developed in the UNE costing purposes can be used." Response at p. 6. BellSouth argues that to make the requested clarification now would simply be premature.

DECISION

Upon consideration, we agree with BellSouth that this requested clarification is beyond the scope of the issues addressed in this proceeding, is premature, and is unnecessary. Our Order (and the proceeding as a whole) was clear that this proceeding was designed to address rates for UNEs for BellSouth, not to establish a costing methodology of more general applicability. Furthermore,

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[3]*Citing* Order No. PSC-01-1015-FOF-TP, issued April 24, 2001, in Docket No. 991854-TP.

the Movants have not identified a mistake of fact or law in our decision, only a vague concern that the decision could someday affect future USF proceedings. Therefore, the requested clarification is rejected.

C. Shared Cost Allocation

The Movants also ask that we reconsider our determination to adopt BellSouth's "per-DSO" allocation methodology, and our conclusion that there may be an "indirect causal relationship" between DSOs and fiber cable. In reaching this conclusion, the Movants argue that we overlooked the fact that, by definition, items which are truly shared costs have no causal linkage to any single service. They further contend that we did not consider that both the FCC's Orders and the Florida Statutes require pro-competitive allocations where feasible.

They further explain that the BSTLM requires the allocation of shared investments to individual services. They contend that since shared investments do not vary with the amount of any single service, any allocation is inherently arbitrary. They argue that BellSouth advocated allocating shared investments in loop plant based on DS0 equivalents, and under this methodology, a 2-wire facility used to provide T-1 service, which carries 24 channel equivalents, would be allocated 24 times as much shared cost as a 2-wire voice grade loop. On the other hand, WorldCom and AT&T advocated allocating shared investments based on the number of copper pair equivalents used to provide the service. They contend that this avoids the anti-competitive impact of placing high levels of shared costs on high-capacity services "whose demand is fairly elastic." Motion at p. 8.

The Movants contend that the FCC, in its First Report and Order at ¶696, as well as Section 364.01(4), Florida Statutes, require us to allocate costs in a manner that is conducive to competition. Therefore, the Movants ask usto reconsider our decision and to allocate shared costs on a per-pair basis, resetting all affected rates based on this corrected methodology.

BellSouth argues, however, that the Movants' argument is a new argument raised for the first time in their Motion for

Reconsideration. As such, BellSouth maintains that the Motion should be denied.

In addition, BellSouth contends that even if the Movants had properly raised this argument earlier in the proceeding, we properly considered all FCC rules in developing UNE rates in this proceeding. In fact, argues BellSouth, this Commission specifically weighed ". . . the potential competitive effect and based on the evidence in the record, found that 'allocating shared investments based on DSO equivalents is reasonable.'" *Citing* Order at p. 134. Therefore, BellSouth argues that the Movants have not identified a point of fact or law overlooked by us in rendering its decision.

DECISION

Upon consideration, we find that the Movants have failed to identify a mistake of fact or law in our decision on this point as well. As noted by BellSouth, we considered the competitive effect of allocating shared investments based on DSO equivalents and found that it was reasonable to do so. These arguments were specifically considered at pages 143, 148, 152, and 156 of our Order. Therein, we considered the evidence presented, including testimony regarding competitive impact presented by AT&T/WorldCom witnesses Donovan and Pitkin. We concluded that allocation based on DSOs was appropriate based on the record--to the full extent that evidence on this argument was presented. The Movants have not identified anything that we overlooked or failed to consider in rendering our decision on this issue, nor any mistake in that decision. Thus, they have not met the standard for a Motion for Reconsideration on this point.

D. Drop Routing

The Movants contend that we also improperly rejected their position that drops should be routed at an angle from lot corners in favor of BellSouth's methodology that uses longer, rectilinear drops. See Order at p. 158. We stated that there was no evidence to determine that a distribution terminal must be placed in the corner of a lot or why it should be, and as such, we agreed with BellSouth's approach. *Id.* In reaching this conclusion, the Movants contend that we failed to consider that BellSouth's approach is not the lowest cost network configuration and that an angular drop reduces the drop distance. They argue that we failed to consider the efficiencies of their approach, which is required by Rule 51.505(b). Therefore, they ask that we reconsider our decision and direct BellSouth to modify the BSTLM to require drop routing to be modeled from the corner of lots. They add that all affected rates should be reset based on this corrected drop length assumption.

In response, BellSouth argues that this is also a new argument raised by the Movants for the first time in their Motion for Reconsideration. BellSouth contends that the Movants did not even mention FCC Rule 51.505(b) prior to the filing of their Motion.

In addition, BellSouth maintains that even if this argument had been properly raised, it does not necessitate a different conclusion, because we properly considered all relevant FCC rules in rendering our decision on UNE rates. *Citing* Order at pgs. 26, 34). Furthermore, BellSouth contends that there is no evidence in the record that terminals placed in lot corners would be more efficient than that which was approved. As such, BellSouth asks that the Movant's Motion for Reconsideration be denied on this point as well.

DECISION

We thoroughly addressed the testimony presented regarding drop routing at pages 145, 150, 152, and 158 of its Order. There, we considered the Movants' argument that the terminals should be placed in the lot corners. We found that BellSouth's approach was reasonable, and that there was little to support the proposal that terminals must be located in the corner. Specifically, we addressed the issue as follows:

> AT&T/WorldCom witnesses Donovan/Pitkin recommended that the BSTLM be modified to allow for drop routing from the corner of a lot. BellSouth witness Stegeman testified that the model had been revised as requested, and in fact the August 16, 2000 filings submitted by BellSouth used the angled drop approach. Witness Stegeman noted that the amount of decrease in drop costs is not as great as asserted by the AT&T/WorldCom witnesses because the BSTLM

> does not place all distribution terminals at the corner of a lot. Witnesses Donovan/Pitkin assert that BellSouth incorrectly modified the BSTLM, because they believe that it should be assumed that drops are always placed at the lot corner.
>
> Other than the claim by the AT&T/WorldCom witnesses, there is no evidence to determine why a distribution terminal must be placed in the corner of a lot. Witnesses Donovan/Pitkin testify that BellSouth's implementation of angled drop routing results in a reduction of 15% in the average drop length. Absent any clear understanding of why a distribution terminal should be in a lot corner, we find that BellSouth's approach, which employs angled routing but implicitly assumes that some terminals are not in lot corners, is reasonable.

Order at p. 158. We fully considered the efficiencies of the Movants' argument that terminals should be located in the corner of lots--to the extent that evidence on this argument was presented. The Movants have not identified anything that we overlooked or failed to consider in rendering our decision on this issue, nor any mistake in that decision. As such, the Movants' Motion on this point is denied.

V. <u>BellSouth's Motion to Conform Staff Analysis and Cost Model Run to Order No. PSC-01-1181-FOF-TP</u>

In its Motion to Conform, BellSouth asks that we direct our staff to conform its analysis and cost model runs to the provisions of Order No. PSC-01-1181-FOF-TP. In reviewing the post-Order analysis and run, BellSouth contends that it has found deviations and inconsistencies from the decisions in our Order. BellSouth adds that it does not believe that these deviations are intentional, rather in implementing the changes to our staff's recommendation that were ordered by the Commission, BellSouth believes that certain errors appear to have been made.

Specifically, BellSouth contends that we only ordered an adjustment to the shared and common cost factors to reflect the removal of the impact of inflation. In the Staff Memorandum outlining the changes it made to reflect our decision, BellSouth believes there are changes made to shared and common costs that conflict with our decision because, as stated in the Staff Memorandum, "the changes made . . . flowed into the shared and common cost calculator, the values were overridden to reflect those initially filed by BellSouth." BellSouth explains that its Shared and Common Costs Model was designed to "flow-through" the cost of capital and depreciation inputs, but this Commission's decision specifically stated that the only adjustment would be to eliminate inflation. Thus, BellSouth believes that our staff's analysis overlooks our decision on cost of capital and depreciation when developing the shared and common cost factors. As such, BellSouth contends that Commission staff's analysis and run should be conformed to our order.

BellSouth also believes that our staff failed to eliminate the inflation factor from the shared and common factors by simply setting the factors to those filed by BellSouth. BellSouth explains that its factors took into account inflation; thus, to be consistent with our decision, the CC/BC ratios should be eliminated. BellSouth notes that our staff did this for the Plant Specific factors by setting the CC/BC ratios to 1. BellSouth believes that the ratios should be set to 1 for the Shared and Common Cost factors as well.

In addition, BellSouth believes that our staff's cost model run has changed the economic life for Analog Switching from 1.6 years to 7.5 years. BellSouth contends that this was not a change mandated by this Commission; thus, the economic life proposed by BellSouth should be included in the run.

Finally, BellSouth contends that there is an apparent error pertaining to Submarine Fiber Cable. While we expressly adopted BellSouth's proposed lives for the fiber cable accounts (See Order at p. 145), the chart on page 146 of the Order indicates that the approved life is 20 years, instead of the 15 proposed by BellSouth. The incorrect 20 year life was picked up in our staff's cost model run, the company contends, and should be corrected to conform with our approval of BellSouth's 15-year proposal.

No responses to BellSouth's Motion to Conform were filed.

DECISION

Upon consideration, we find that BellSouth's Motion to Conform is essentially an untimely Motion for Reconsideration, and as such, it shall be denied. Nevertheless, we also find that the Motion has identified two errors in our staff's Post-Order cost model runs that shall be corrected. Therefore, on our own Motion, we hereby recognize these errors and direct our staff to re-run the cost model incorporating each of these changes/errors identified by BellSouth.

Specifically, the shared and common cost factors shall be recalculated to reflect other decisions made by this Commission, as requested by BellSouth. Our staff had initially entered a fixed factor into the model in the apparent belief that such a rate reflected our decision on the shared and common cost factors. However, it is clear that the calculations performed by our staff did not accurately reflect our decision.

Second, the difference in the Analog Switching life noted by BellSouth was the result of a scrivener's error in our staff's recommendation. That error was incorporated into the model runs and shall also be corrected.

We disagree, however, with BellSouth on its final point. While BellSouth is correct that it proposed a 15-year life for Submarine Fiber Cable, and that our staff's recommendation contained an error in the depiction of BellSouth's position, the results of the model correctly reflect the 20-year life approved by this Commission; thus, there is no error to correct.

Attached and incorporated by reference into this Order is Appendix A, which contains the rates that result from our approved changes to the model as described herein. Appendix B contains the wire centers for each zone that correspond to the proposed rates.

It is therefore

ORDERED by the Florida Public Service Commission that BellSouth Telecommunications, Inc.'s Motion for Reconsideration of Order No. PSC-01-1181-FOF-TP is granted, in part, and denied, in part, as set forth in the body of this Order. It is further

ORDERED that BellSouth Telecommunications, Inc.'s Motion to Conform Staff Analysis and Cost Model Run to Order No. PSC-01-1181-FOF-TP is denied. It is further

ORDERED that, on our own motion, the cost model runs are conformed to Order No. PSC-01-1181-FOF-TP. It is further

ORDERED that the Motion for Reconsideration and Clarification filed by MCI WorldCom, Inc., AT&T Communications of the Southern States, Inc., DIECA Communications, Inc. d/b/a Covad Communications Company, and Z-Tel Communications, Inc. is denied. It is further

ORDERED that this Docket shall remain open to address BellSouth Telecommunications, Inc.'s 120-day filings and Phase III for Sprint Florida, Inc. and Verizon Florida Inc.

By ORDER of the Florida Public Service Commission this 18th Day of October, 2001.

BLANCA S. BAYÓ, Director
Division of the Commission Clerk
and Administrative Services

By: Kay Flynn
Kay Flynn, Chief
Bureau of Records and Hearing
Services

(S E A L)

BK

DISSENT

Chairman Jacobs

I respectfully dissent from the majority's decision regarding inflation factors. While our decision to reject BellSouth's proposed inflation factors in Order No. PSC-01-1181-FOF-TP may have been based upon the misrepresentation that a mismatch existed, I believe Sprint's witness Dickerson offered other evidence in the record supporting that decision. Sprint's witness Dickerson identified valid concerns regarding BellSouth's inflation factors, such that we should have proceeded with further consideration of this issue in the context of BellSouth's 120-day filing, as we originally contemplated.

NOTICE OF FURTHER PROCEEDINGS OR JUDICIAL REVIEW

The Florida Public Service Commission is required by Section 120.569(1), Florida Statutes, to notify parties of any administrative hearing or judicial review of Commission orders that is available under Sections 120.57 or 120.68, Florida Statutes, as well as the procedures and time limits that apply. This notice should not be construed to mean all requests for an administrative hearing or judicial review will be granted or result in the relief sought.

Any party adversely affected by the Commission's final action in this matter may request judicial review by the Florida Supreme Court in the case of an electric, gas or telephone utility or the First District Court of Appeal in the case of a water and/or wastewater utility by filing a notice of appeal with the Director, Division of the Commission Clerk and Administrative Services and filing a copy of the notice of appeal and the filing fee with the appropriate court. This filing must be completed within thirty (30) days after the issuance of this order, pursuant to Rule 9.110, Florida Rules of Appellate Procedure. The notice of appeal must be in the form specified in Rule 9.900(a), Florida Rules of Appellate Procedure.

APPENDIX A

The column titled "Nonrecurring Including First" contains the nonrecurring charge for the first unit purchased where a rate is also shown in the column titled "Nonrecurring Additional." If no rate is shown in the "Nonrecurring Additional" column, the rate for all units is that shown under "Nonrecurring Including First," regardless of quantity.

Where a cell is blank, no rate has been set. Where a rate of $0 is shown, that is the rate.

Source of Rates

The rates are a fallout from our inputs into BellSouth's proprietary cost model.

APPENDIX A

ELEMENT NUMBER & DESCRIPTION		Former Approved Rates (Order No. PSC-01-1181-FOF-TP)			APPROVED, AS MODIFIED HEREIN		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
A.0	**UNBUNDLED LOCAL LOOP**						
A.1	**2-WIRE ANALOG VOICE GRADE LOOP**						
A.1.1	2-Wire Analog Voice Grade Loop - Service Level 1						
	Zone 1	$11.74	$44.68	$20.57	$12.79	$49.57	$22.83
	Zone 2	$16.26	$44.68	$20.57	$17.27	$49.57	$22.83
	Zone 3	$30.75	$44.68	$20.57	$33.36	$49.57	$22.83
	Zone 4						
	Zone 5						
	Zone 6						
A.1.1	2-Wire Analog Voice Grade Loop - Service Level 1 - Disconnect Only		$23.10	$5.92		$25.62	$6.57
A.1.2	2-Wire Analog Voice Grade Loop - Service Level 2						
	Zone 1	$13.43	$122.38	$74.35	$14.50	$135.75	$82.47
	Zone 2	$18.60	$122.38	$74.35	$19.57	$135.75	$82.47
	Zone 3	$35.18	$122.38	$74.35	$37.82	$135.75	$82.47
	Zone 4						
	Zone 5						
	Zone 6						
A.1.2	2-Wire Analog Voice Grade Loop - Service Level 2 - Disconnect Only		$57.28	$10.83		$63.53	$12.01
A.2	**SUB-LOOP**						
A.2.1	Sub-Loop Feeder Per 2-Wire Analog Voice Grade Loop						
	Zone 1	$7.60	$83.62	$46.20	$8.05	$92.75	$51.24
	Zone 2	$10.53	$83.62	$46.20	$10.87	$92.75	$51.24
	Zone 3	$19.92	$83.62	$46.20	$21.00	$92.75	$51.24
	Zone 4						
	Zone 5						
	Zone 6						

APPENDIX A

ELEMENT NUMBER & DESCRIPTION		Former Approved Rates (Order No. PSC-01-1181-FOF-TP)			APPROVED, AS MODIFIED HEREIN		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
A.2.1	Sub-Loop Feeder Per 2-Wire Analog Voice Grade Loop - Disconnect Only		$45.57	$10.19		$58.45	$13.07
A.2.2	Sub-Loop Distribution Per 2-Wire Analog Voice Grade Loop						
	Zone 1						
	Zone 2	$6.90	$54.26	$19.64	$7.61	$60.19	$21.78
	Zone 3	$9.56	$54.26	$19.64	$10.27	$60.19	$21.78
	Zone 4	$18.08	$54.26	$19.64	$19.85	$60.19	$21.78
	Zone 5						
	Zone 6						
A.2.2	Sub-Loop Distribution Per 2-Wire Analog Voice Grade Loop - Disconnect Only		$37.03	$4.10		$47.50	$5.26
A.2.11	Sub-Loop Distribution Per 4-Wire Analog Voice Grade Loop						
	Zone 1						
	Zone 2	$7.35	$62.05	$27.42	$8.12	$68.83	$30.42
	Zone 3	$10.18	$62.05	$27.42	$10.96	$68.83	$30.42
	Zone 4	$19.25	$62.05	$27.42	$21.18	$68.83	$30.42
	Zone 5						
	Zone 6						
A.2.11	Sub-Loop Distribution Per 4-Wire Analog Voice Grade Loop - Disconnect Only		$37.98	$5.05		$49.71	$6.60
A.2.13	Network Interface Device Cross Connect		$7.12	$7.12		$7.63	$7.63
A.2.14	2-Wire Intrabuilding Network Cable (INC)	$3.33	$46.74	$12.11	$3.50	$51.84	$13.44
A.2.14	2-Wire Intrabuilding Network Cable (INC) - Disconnect Only		$37.03	$4.10		$47.50	$5.26
A.2.15	4-Wire Intrabuilding Network Cable (INC)	$6.32	$50.41	$15.78	6.68	$55.91	$17.51
A.2.15	4-Wire Intrabuilding Network Cable (INC) - Disconnect Only		$37.98	$5.05		$49.71	$6.60
A.2.17	Sub-Loop - Per Cross Box Location - CLEC Feeder Facility Set-Up		$467.08			$487.23	
A.2.18	Sub-Loop - Per Cross Box Location - Per 25 Pair Panel Set-Up		$11.27			$6.25	

APPENDIX A

ELEMENT NUMBER & DESCRIPTION		Former Approved Rates (Order No. PSC-01-1181-FOF-TP)			APPROVED, AS MODIFIED HEREIN		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
A.2.19	Sub-Loop - Per Building Equipment Room - CLEC Feeder Facility Set-Up		$152.58			$169.25	
A.2.20	Sub-Loop - Per Building Equipment Room - Per 25 Pair Panel Set-Up		$43.54			$38.65	
A.2.21	Sub-Loop - Per Cross Box Location - CLEC Distribution Facility Set-Up		$467.08			$487.23	
A.2.24	Sub-Loop - Per 4-Wire Analog Voice Grade Loop / Feeder Only						
	Zone 1	$16.05	$96.40	$58.12	$17.26	$106.92	$64.46
	Zone 2	$22.23	$96.40	$58.12	$23.29	$106.92	$64.46
	Zone 3	$42.06	$96.40	$58.12	$45.00	$106.92	$64.46
	Zone 4						
	Zone 5						
	Zone 6						
A.2.24	Sub-Loop - Per 4-Wire Analog Voice Grade Loop / Feeder Only - Disconnect Only		$48.55	$11.33		$63.54	$14.83
A.2.25	Sub-Loop - Per 2-Wire ISDN Digital Grade Loop / Feeder Only						
	Zone 1	$16.18	$98.91	$60.12	$17.04	$109.71	$66.68
	Zone 2	$22.41	$98.91	$60.12	$23.00	$109.71	$66.68
	Zone 3	$42.39	$98.91	$60.12	$44.43	$109.71	$66.68
	Zone 4						
	Zone 5						
	Zone 6						
A.2.25	Sub-Loop - Per 2-Wire ISDN Digital Grade Loop / Feeder Only - Disconnect Only		$46.95	$9.74		$60.21	12.49
A.2.29	Sub-Loop - Per 4-Wire 56 or 64 Kbps Digital Grade Loop / Feeder Only						
	Zone 1	$17.52	$90.72	$52.43	$18.68	$100.62	$58.16
	Zone 2	$24.28	$90.72	$52.43	$25.21	$100.62	$58.16
	Zone 3	$45.92	$90.72	$52.43	$48.71	$100.62	$58.16
	Zone 4						
	Zone 5						

APPENDIX A

ELEMENT NUMBER & DESCRIPTION		Former Approved Rates (Order No. PSC-01-1181-FOF-TP)			APPROVED, AS MODIFIED HEREIN		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
	Zone 6						
A.2.29	Sub-Loop - Per 4-Wire 56 or 64 Kbps Digital Grade Loop / Feeder Only - Disconnect Only		$48.55	$11.33		$63.54	$14.83
A.2.30	Sub-Loop - Per 2-Wire Copper Loop Short / Feeder Only						
	Zone 1						
	Zone 2	$6.65	$76.87	$38.08	$7.25	$85.27	$42.24
	Zone 3	$9.22	$76.87	$38.08	$9.79	$85.27	$42.24
	Zone 4	$17.44	$76.87	$38.08	$18.92	$85.27	$42.24
	Zone 5						
	Zone 6						
A.2.30	Sub-Loop - Per 2-Wire Copper Loop Short / Feeder Only - Disconnect Only		$45.64	$8.43		$58.54	$10.82
A.2.32	Sub-Loop - Per 4-Wire Copper Loop Short / Feeder Only						
	Zone 1						
	Zone 2	$12.76	$89.85	$51.57	$14.22	$99.66	$57.20
	Zone 3	$17.67	$89.85	$51.57	$19.20	$99.66	$57.20
	Zone 4	$33.43	$89.85	$51.57	$37.09	$99.66	$57.20
	Zone 5						
	Zone 6						
A.2.32	Sub-Loop - Per 4-Wire Copper Loop Short / Feeder Only - Disconnect Only		$46.59	$9.38		$60.98	$12.28

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		RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
A.2.40	Sub-Loop - Per 2-Wire Copper Loop Short / Distribution Only						
	Zone 1	$5.66	$54.26	$19.64	$6.25	$60.19	$21.78
	Zone 2	$7.83	$54.26	$19.64	$8.44	$60.19	$21.78
	Zone 3	$14.82	$54.26	$19.64	$16.30	$60.19	$21.78
	Zone 4						
	Zone 5						
	Zone 6						
A.2.40	Sub-Loop - Per 2-Wire Copper Loop Short / Distribution Only - Disconnect Only		$37.03	$4.10		$47.50	$5.26
A.2.42	Sub-Loop - Per 4-Wire Copper Loop Short / Distribution Only						
	Zone 1	$4.72	$62.05	$27.42	$5.20	$68.83	$30.42
	Zone 2	$6.53	$62.05	$27.42	$7.02	$68.83	$30.42
	Zone 3	$12.36	$62.05	$27.42	$13.55	$68.83	$30.42
	Zone 4						
	Zone 5						
	Zone 6						
A.2.42	Sub-Loop - Per 4-Wire Copper Loop Short / Distribution Only - Disconnect Only		$37.98	$5.05		$49.71	$6.60
A.2.44	Network Interface Device (NID) - 2 line		$63.72	$40.94		$68.08	$42.80
A.2.45	Network Interface Device (NID) - 6 line		$105.96	$83.17		$110.48	$85.20
A.3	**LOOP CHANNELIZATION AND CO INTERFACE (INSIDE CO)**						
A.3.12	Unbundled Loop Concentration - System A (TR008)	$461.86	$324.01		$449.49	$359.42	
A.3.13	Unbundled Loop Concentration - System B (TR008)	$54.91	$135.00		$53.44	$149.76	
A.3.14	Unbundled Loop Concentration - System A (TR303)	$500.74	$324.01		$487.33	$359.42	
A.3.15	Unbundled Loop Concentration - System B (TR303)	$92.53	$135.00		$90.05	$149.76	
A.3.16	Unbundled Loop Concentration - DS1 Line Interface Card	$5.18	$64.65	$46.45	$5.04	$71.70	$51.52
A.3.16	Unbundled Loop Concentration - DS1 Line Interface Card - Disconnect Only		$16.67	$4.35		$18.49	$4.82

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ELEMENT NUMBER & DESCRIPTION		Former Approved Rates (Order No. PSC-01-1181-FOF-TP)			APPROVED, AS MODIFIED HEREIN		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
A.3.17	Unbundled Loop Concentration - POTS Card	$2.06	$14.96	$14.88	$2.00	$16.59	$16.50
A.3.17	Unbundled Loop Concentration - POTS Card - Disconnect Only		$6.11	$6.07		$6.77	$6.73
A.3.18	Unbundled Loop Concentration - ISDN (Brite Card)	$8.22	$14.96	$14.88	$8.00	$16.59	$16.50
A.3.18	Unbundled Loop Concentration - ISDN (Brite Card) - Disconnect Only		$6.11	$6.07		$6.77	$6.73
A.3.19	Unbundled Loop Concentration - SPOTS Card	$12.22	$14.96	$14.88	$11.90	$16.59	$16.50
A.3.19	Unbundled Loop Concentration - SPOTS Card - Disconnect Only		$6.11	$6.07		$6.77	$6.73
A.3.20	Unbundled Loop Concentration - Specials Card	$7.29	$14.96	$14.88	$7.10	$16.59	$16.50
A.3.20	Unbundled Loop Concentration - Specials Card - Disconnect Only		$6.11	$6.07		$6.77	$6.73
A.3.21	Unbundled Loop Concentration - TEST CIRCUIT Card	$35.63	$14.96	$14.88	$34.68	$16.59	$16.50
A.3.21	Unbundled Loop Concentration - TEST CIRCUIT Card - Disconnect Only		$6.11	$6.07		$6.77	$6.73
A.3.22	Unbundled Loop Concentration - Digital 19, 56, 64 Kbps Data	$10.80	$14.96	$14.88	$10.51	$16.59	$16.50
A.3.22	Unbundled Loop Concentration - Digital 19, 56, 64 Kbps Data - Disconnect Only		$6.11	$6.07		$6.77	$6.73
A.4	**4-WIRE ANALOG VOICE GRADE LOOP**						
A.4.1	4-Wire Analog Voice Grade Loop						
	Zone 1	$21.23	$151.34	$103.82	$23.02	$167.86	$115.15
	Zone 2	$29.41	$151.34	$103.82	$31.07	$167.86	$115.15
	Zone 3	$55.63	$151.34	$103.82	$60.02	$167.86	$115.15
	Zone 4						
	Zone 5						
	Zone 6						
A.4.1	4-Wire Analog Voice Grade Loop - Disconnect Only		$60.47	$14.02		$67.08	$15.56

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ELEMENT NUMBER & DESCRIPTION		Former Approved Rates (Order No. PSC-01-1181-FOF-TP)			APPROVED, AS MODIFIED HEREIN		
		RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
A.5	**2-WIRE ISDN DIGITAL GRADE LOOP**						
A.5.1	2-Wire ISDN Digital Grade Loop						
	Zone 1	$20.44	$133.15	$85.12	$21.76	$147.69	$94.41
	Zone 2	$28.31	$133.15	$85.12	$29.38	$147.69	$94.41
	Zone 3	$53.56	$133.15	$85.12	$56.76	$147.69	$94.41
	Zone 4						
	Zone 5						
	Zone 6						
A.5.1	2-Wire ISDN Digital Grade Loop - Disconnect Only		$56.10	$9.65		$62.23	$10.71
A.5.6	Universal Digital Channel						
	Zone 1	$20.44	$133.15	$85.12	$21.76	$147.69	$94.41
	Zone 2	$28.31	$133.15	$85.12	$29.38	$147.69	$94.41
	Zone 3	$53.56	$133.15	$85.12	$56.76	$147.69	$94.41
	Zone 4						
	Zone 5						
	Zone 6						
A.5.6	Universal Digital Channel - Disconnect Only		$56.10	$9.65		$62.23	$10.71
A.6	**2-WIRE ASYMMETRICAL DIGITAL SUBSCRIBER LINE (ADSL) COMPATIBLE LOOP**						
A.6.1	2-Wire ADSL Compatible Loop (Non-recurring w/LMU)						
	Zone 1	$11.52			$12.65		
	Zone 2	$15.96			$17.08		
	Zone 3	$30.19			$33.00		
	Zone 4						
	Zone 5						
	Zone 6						
A.6.1wLMU	2-Wire ADSL Digital Subscriber Line Compatible Loop (Non-recurring with LMU)		$134.80	$93.62		$149.53	$103.85
A.6.1wL	2-Wire ADSL Digital Subscriber Line Compatible Loop (Non-recurring with LMU) - Disc. Only		$67.66	$14.09		$75.05	$15.63

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APPENDIX A

ELEMENT NUMBER & DESCRIPTION		Former Approved Rates (Order No. PSC-01-1181-FOF-TP) RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	APPROVED, AS MODIFIED HEREIN RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
A.6.1woL	2-Wire ADSL Digital Subscriber Line Compatible Loop (Non-recurring without LMU)		$112.55	$64.12		$124.83	$71.12
A.6.1woL	2-Wire ADSL Digital Subscriber Line Compatible Loop (Non-recurring without LMU) - Disc. Only		$54.67	$8.22		$60.64	$9.12
A.7	**2-WIRE HIGH BIT RATE DIGITAL SUBSCRIBER LINE (HDSL) COMPATIBLE LOOP**						
A.7.1	2-Wire HDSL Compatible Loop						
	Zone 1	$9.12			$9.97		
	Zone 2	$12.63			$13.46		
	Zone 3	$23.90			$26.00		
	Zone 4						
	Zone 5						
	Zone 6						
A.7.1wL	2-Wire HDSL Compatible Loop (Nonrecurring with LMU)		$143.43	$102.25		$159.09	$113.41
A.7.1wL	2-Wire HDSL Compatible Loop (Nonrecurring with LMU) - Disc. Only		$67.66	$14.09		$75.05	$15.63
A.7.1woL	2-Wire HDSL Compatible Loop (Nonrecurring without LMU)		$121.17	$72.75		$134.40	$80.69
A.7.1woL	2-Wire HDSL Compatible Loop (Nonrecurring without LMU) - Disc. Only		$54.67	$8.22		$60.64	$9.12

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		RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
A.8	**4-WIRE HIGH BIT RATE DIGITAL SUBSCRIBER LINE (HDSL) COMPATIBLE LOOP**						
A.8.1	4-Wire HDSL Compatible Loop						
	Zone 1	$14.24			$15.69		
	Zone 2	$19.72			$21.17		
	Zone 3	$37.31			$40.90		
	Zone 4						
	Zone 5						
	Zone 6						
A.8.1wL	4-Wire HDSL Compatible Loop (Nonrecurring with LMU)		$174.28	$125.30		$193.31	$138.98
A.8.1wL	4-Wire HDSL Compatible Loop (Nonrecurring with LMU) - Disc. Only		$69.56	$11.37		$77.15	$12.61
A.8.1woL	4-Wire HDSL Compatible Loop (Nonrecurring without LMU)		$152.02	$104.11		$168.62	$115.47
A.8.1woL	4-Wire HDSL Compatible Loop (Nonrecurring without LMU) - Disc. Only		$56.57	$10.12		$62.74	$11.22
A.9	**4-WIRE DS1 DIGITAL LOOP**	$69.22	$282.15	$163.51	$73.44	$313.75	$181.48
A.9.1	4-Wire DS1 Digital Loop	$95.89	$282.15	$163.51	$99.13	$313.75	$181.48
	Zone 1	$181.38	$282.15	$163.51	$191.51	$313.75	$181.48
	Zone 2						
	Zone 3						
	Zone 4						
	Zone 5						
	Zone 6						
A.9.1	4-Wire DS1 Digital Loop - Disconnect Only		$47.40	$10.22		$61.22	$13.53

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A.9.2	Sub-Loop Feeder Per 4-Wire DS1 Digital Loop						
	Zone 1	$43.64	$120.61	$7,034.00	$46.27	$133.77	$78.02
	Zone 2	$60.45	$120.61	$70.34	$62.45	$133.77	$78.02
	Zone 3	$114.36	$120.61	$70.34	$120.65	$133.77	$78.02
	Zone 4						
	Zone 5						
	Zone 6						
A.9.2	Sub-Loop Feeder Per 4-Wire DS1 Digital Loop - Disconnect Only		$65.07	$16.20		$85.16	$21.21
A.10	**4-WIRE 19, 56 OR 64 KBPS DIGITAL GRADE LOOP**						
A.10.1	4-Wire 19, 56 or 64 Kbps Digital Grade Loop						
	Zone 1	$24.48	$145.66	$98.14	$26.39	$161.56	$108.85
	Zone 2	$33.91	$145.66	$98.14	$35.62	$161.56	$108.85
	Zone 3	$64.14	$145.66	$98.14	$68.82	$161.56	$108.85
	Zone 4						
	Zone 5						
	Zone 6						
A.10.1	4-Wire 19, 56 or 64 Kbps Digital Grade Loop - Disconnect Only		$60.47	$14.02		$67.08	$15.56
A.12	**CONCENTRATION PER SYSTEM PER FEATURE ACTIVATED (OUTSIDE CENTRAL OFFICE)**						
A.12.1	Unbundled Loop Concentration - System A (TR008)	$448.00	$201.54	$109.03	$455.13	$223.53	$120.93
A.12.1	Unbundled Loop Concentration - System A (TR008) - Disconnect Only		$100.77	$31.39		$111.77	$34.81
A.12.2	Unbundled Loop Concentration - System B (TR008)	$78.02	$201.54	$109.03	$79.96	$223.53	$120.93
A.12.2	Unbundled Loop Concentration - System B (TR008) - Disconnect Only		$100.77	$31.39		$111.77	$34.81
A.12.3	Unbundled Loop Concentration - System A (TR303)	$481.07	$201.54	$109.03	$488.67	$223.53	$120.93
A.12.3	Unbundled Loop Concentration - System A (TR303) - Disconnect Only		$100.77	$31.39		$111.71	$34.81

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A.12.4	Unbundled Loop Concentration - System B (TR303)	$111.09	$201.54	$109.03	$113.49	$223.53	$120.93
A.12.4	Unbundled Loop Concentration - System B (TR303) - Disconnect Only		$100.77	$31.39		$111.77	$34.81
A.12.5	Unbundled Sub-loop Concentration - USLC Feeder Interface						
	Zone 1	$42.81	$120.61	$70.34	$45.17	$133.77	$78.02
	Zone 2	$59.30	$120.61	$70.34	$60.97	$133.77	$78.02
	Zone 3	$112.17	$120.61	$70.34	$117.79	$133.77	$78.02
A.12.5	Unbundled Sub-loop Concentration - USLC Feeder Interface - Disconnect Only		$65.07	$16.20		$85.16	$21.21
A.12.6	Unbundled Loop Concentration - POTS Card	$2.00	$14.96	$14.88	$2.03	$16.59	$16.50
A.12.6	Unbundled Loop Concentration - POTS Card - Disconnect Only		$6.11	$6.07		$6.77	$6.73
A.12.7	Unbundled Loop Concentration - ISDN (Brite Card)	$7.99	$14.96	$14.88	$8.11	$16.59	$16.50
A.12.7	Unbundled Loop Concentration - ISDN (Brite Card) - Disconnect Only		$6.11	$6.07		$6.77	$6.73
A.12.8	Unbundled Loop Concentration - SPOTS Card	$11.88	$14.96	$14.88	$12.05	$16.59	$16.50
A.12.8	Unbundled Loop Concentration - SPOTS Card - Disconnect Only		$6.11	$6.07		$6.77	$6.73
A.12.9	Unbundled Loop Concentration - Specials Card	$7.09	$14.96	$14.88	$35.12	$16.59	$16.50
A.12.9	Unbundled Loop Concentration - Specials Card - Disconnect Only		$6.11	$6.07		$6.77	$6.73
A.12.10	Unbundled Loop Concentration - TEST CIRCUIT Card	$34.64	$14.96	$14.88	$10.65	$16.59	$16.50
A.12.10	Unbundled Loop Concentration - TEST CIRCUIT Card - Disconnect Only		$6.11	$6.07		$6.77	$6.73
A.12.11	Unbundled Loop Concentration - Digital 19, 56, 64 Kbps Data	$10.50	$14.96	$14.88	$10.65	$16.59	$16.50
A.12.11	Unbundled Loop Concentration - Digital 19, 56, 64 Kbps Data - Disconnect Only		$6.11	$6.07		$6.77	$6.73

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A.13	**2-WIRE COPPER LOOP**						
A.13.1	2-Wire Copper Loop - short						
	Zone 1	$11.52			$12.65		
	Zone 2	$15.96			$17.08		
	Zone 3	$30.19			$33.00		
	Zone 4						
	Zone 5						
	Zone 6						
A.13.1wL	2-Wire Copper Loop - short (Nonrecurring with LMU)		$133.88	$92.70		$148.50	$102.82
A.13.1wL	2-Wire Copper Loop - short (Nonrecurring with LMU) - Disc. Only		$67.66	$14.09		$75.05	$15.63
A.13.1woL	2-Wire Copper Loop - short (Nonrecurring without LMU)		$111.62	$63.19		$123.81	$70.09
A.13.1woL	2-Wire Copper Loop - short (Nonrecurring without LMU) - Disc. Only		$54.67	$8.22		$60.64	$9.12
A.13.7	2-Wire Copper Loop - long						
	Zone 1	$33.57			$37.07		
	Zone 2	$46.50			$50.04		
	Zone 3	$87.96			$96.67		
	Zone 4						
	Zone 5						
	Zone 6						
A.13.7wL	2-Wire Copper Loop - long (Nonrecurring with LMU)		$133.88	$92.70		$148.50	$102.82
A.13.7wL	2-Wire Copper Loop - long (Nonrecurring with LMU) - Disc. Only		$67.66	$14.09		$75.05	$15.63
A.13.7woL	2-Wire Copper Loop - long (Nonrecurring without LMU)		$111.62	$63.19		$123.81	$70.09
A.13.7woL	2-Wire Copper Loop - long (Nonrecurring without LMU) - Disc. Only		$54.67	$8.22		$60.64	$9.12

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A.14	**4-WIRE COPPER LOOP**						
A.14.1	4-Wire Copper Loop - short						
	Zone 1	$16.18			$18.03		
	Zone 2	$22.41			$24.34		
	Zone 3	$42.39			$47.02		
	Zone 4						
	Zone 5						
	Zone 6						
A.14.1wL	4-Wire Copper Loop - short (Nonrecurring with LMU)		$160.36	$119.69		$177.87	$132.76
A.14.1wL	4-Wire Copper Loop - short (Nonrecurring with LMU) - Disc. Only		$69.56	$15.99		$77.15	$17.73
A.14.1woL	4-Wire Copper Loop - short (Nonrecurring without LMU)		$138.10	$90.19		$153.18	$100.03
A.14.1woL	4-Wire Copper Loop - short (Nonrecurring without LMU) - Disc. Only		$56.57	$10.12		$62.74	$11.22
A.14.7	4-Wire Copper Loop - long						
	Zone 1	$57.88			$64.52		
	Zone 2	$80.18			$87.09		
	Zone 3	$151.67			$168.25		
	Zone 4						
	Zone 5						
	Zone 6						
A.14.7wL	4-Wire Copper Loop - long (Nonrecurring with LMU)		$160.36	$119.69		$177.87	$132.76
A.14.7wL	4-Wire Copper Loop - long (Nonrecurring with LMU) - Disc. Only		$69.56	$15.99		$77.15	$17.73
A.14.7woL	4-Wire Copper Loop - long (Nonrecurring without LMU)		$138.10	$90.19		$153.18	$100.03
A.14.7woL	4-Wire Copper Loop - long (Nonrecurring without LMU) - Disc. Only		$56.57	$10.12		$62.74	$11.22

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A.15	**UNBUNDLED NETWORK TERMINATING WIRE (NTW)**						
A.15.1	Unbundled Network Terminating Wire (NTW) per Pair	$0.3682	$21.85		$0.2286	$18.02	
A.16	**HIGH CAPACITY UNBUNDLED LOCAL LOOP**						
A.16.1	High Capacity Unbundled Local Loop - DS3 - Facility Termination	$387.10	$501.59	$309.24	$386.88	$556.37	$343.01
A.16.1	High Capacity Unbundled Local Loop - DS3 - Facility Termination - Disconnect Only		$125.43	$87.30		$139.13	$96.84
A.16.2	High Capacity Unbundled Local Loop - DS3 - Per Mile	$10.06			$10.92		
A.16.4	High Capacity Unbundled Local Loop - OC3 - Facility Termination	$619.03	$505.87	$239.13	$618.65	$561.12	$265.23
A.16.4	High Capacity Unbundled Local Loop - OC3 - Facility Termination - Disconnect Only		$64.94	$63.61		$72.03	$70.56
A.16.5	High Capacity Unbundled Local Loop - OC3 - Per Mile	$7.63			$8.29		
A.16.7	High Capacity Unbundled Local Loop - OC12 - Facility Termination	$1,966.00	$613.87	$239.13	$1,965.00	$680.93	$265.23
A.16.7	High Capacity Unbundled Local Loop - OC12 - Facility Termination - Disconnect Only		$64.94	$63.61		$72.03	$70.56
A.16.8	High Capacity Unbundled Local Loop - OC12 - Per Mile	$9.39			$10.20		
A.16.10	High Capacity Unbundled Local Loop - OC48 - Facility Termination	$1,586.00	$613.87	$239.13	$1,610.00	$680.93	$265.23
A.16.10	High Capacity Unbundled Local Loop - OC48 - Facility Termination - Disconnect Only		$64.94	$63.61		$72.03	$70.56
A.16.11	High Capacity Unbundled Local Loop - OC48 - Per Mile	$30.81			$33.45		
A.16.13	High Capacity Unbundled Local Loop - OC48 - Interface OC12 on OC48	$553.81	$393.70	$190.95	$561.59	$436.71	$211.79
A.16.13	High Capacity Unbundled Local Loop - OC48 - Interface OC12 on OC48 - Disconnect Only		$64.94	$63.61		$72.03	$70.56
A.16.15	High Capacity Unbundled Local Loop - STS-1 - Facility Termination	$426.68	$501.59	$309.24	$426.60	$556.37	$343.01

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A.16.15	High Capacity Unbundled Local Loop - STS-1 - Facility Termination - Disconnect Only		$125.43	$87.30		$139.13	$96.84
A.16.16	High Capacity Unbundled Local Loop - STS-1 - Per Mile	$10.06			$10.92		
A.17	**LOOP CONDITIONING**						
A.17.1	Unbundled Loop Modification - Load Coil / Equipment Removal - short		$0.00			$0.00	
A.17.2	Unbundled Loop Modification - Load Coil / Equipment Removal - long - First and Additional		$309.32			$343.12	
A.17.3	Unbundled Loop Modification - Bridged Tap Removal'		$9.48			$10.52	
A.17.4	Unbundled Loop Modification - Additive		$0.00			$0.00	
A.17.5	Unbundled Sub-Loop Mod. - 2W/4W Copper Distribution Load Coil/Equip. Removal First/Add'l		$9.11			$10.11	
A.17.6	Unbundled Sub-Loop Modification - 2W/4W Copper Distrib. Bridged Tap Removal First/Add'l		$14.05			$15.58	
A.18	**MULTIPLEXERS**						
A.18.1	Channelization - Channel System DS1 to DS0	$151.74	$91.44	$64.57	$146.77	$101.42	$71.62
A.18.1	Channelization - Channel System DS1 to DS0 - Disconnect Only		$10.00	$9.46		$11.09	$10.49
A.18.2	Interface Unit - Interface DS1 to DS0 - OCU-DP Card	$2.16	$9.08	$6.38	$2.10	$10.07	$7.08
A.18.3	Interface Unit - Interface DS1 to DS0 - BRITE Card	$3.76	$9.08	$6.38	$3.66	$10.07	$7.08
A.18.4	Interface Unit - Interface DS1 to DS0 - Voice Grade Card	$1.42	$9.08	$6.38	$1.38	$10.07	$7.08
A.18.5	Channelization - Channel System DS3 to DS1	$218.70	$179.66	$106.96	$211.19	$199.28	$118.64

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A.18.5	Channelization - Channel System DS3 to DS1 - Disconnect Only		$36.37	$35.22		$40.34	$39.07
A.18.6	Interface Unit - Interface DS3 to DS1	$14.24	$9.08	$6.38	$13.76	$10.07	$7.08
A.19	**LOOP TESTING BEYOND VOICE GRADE**						
A.19.1	Loop Testing Beyond VG - Basic per 1/2 hour		$76.79	$32.99		$77.09	$33.12
A.19.2	Loop Testing Beyond VG - Overtime per 1/2 hour		$100.37	$43.26		$100.76	$43.43
A.19.3	Loop Testing Beyond VG - Premium per 1/2 hour		$123.94	$53.53		$124.43	$53.74
B.0	**UNBUNDLED LOCAL EXCHANGE PORTS AND FEATURES**						
B.1	**EXCHANGE PORTS**						
B.1.1	Exchange Ports - 2-Wire Analog Line Port (Res., Bus., Centrex, Coin)	$1.34	$3.37	$3.27	$1.40	$3.74	$3.63
B.1.1	Exchange Ports - 2-Wire Analog Line Port (Res., Bus., Centrex, Coin) - Disconnect Only		$1.69	$1.62		$1.88	$1.80
B.1.2	Exchange Ports - 4-Wire Analog Voice Grade Port	$8.33	$3.37	$3.27	$8.20	$3.74	$3.63
B.1.2	Exchange Ports - 4-Wire Analog Voice Grade Port - Disconnect Only		$1.69	$1.62		$1.88	$1.80
B.1.3	Exchange Ports - 2-Wire DID Port	$8.81	$70.69	$14.26	$8.73	$78.41	$15.82
B.1.3	Exchange Ports - 2-Wire DID Port - Disconnect Only		$37.81	$3.84		$41.94	$4.26
B.1.4	Exchange Ports - DDITS Port	$52.73	$136.24	$70.10	$54.95	$151.11	$77.75
B.1.4	Exchange Ports - DDITS Port - Disconnect Only		$44.00	$2.80		$48.81	$3.10
B.1.5	Exchange Ports - 2-Wire ISDN Port	$8.46	$42.22	$45.69	$8.83	$46.83	$50.68
B.1.5	Exchange Ports - 2-Wire ISDN Port - Disconnect Only		$24.91	$10.75		$27.64	$11.93
B.1.6	Exchange Ports - 4-Wire ISDN DS1 Port	$79.35	$157.42	$85.80	$82.74	$174.61	$95.17
B.1.6	Exchange Ports - 4-Wire ISDN DS1 Port - Disconnect Only		$44.89	$16.43		$49.80	$18.23
B.1.7	Exchange Ports - 2-Wire Analog Line Port (PBX)	$1.34	$35.22	$16.39	$1.40	$39.06	$18.18
B.1.7	Exchange Ports - 2-Wire Analog Line Port (PBX) - Disconnect Only		$11.14	0.6480		$12.35	$0.7187

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B.4	**FEATURES**						
B.4.10	Centrex Functionality	$0.00			$0.00		
B.4.13	Features per port	$2.17			$2.26		
C.0	**UNBUNDLED SWITCHING AND LOCAL INTERCONNECTION**						
C.1	**END OFFICE SWITCHING**						
C.1.1	End Office Switching Function, Per MOU	$0.0007341			$0.0007662		
C.1.2	End Office Trunk Port - Shared, Per MOU	$0.0001571			$0.0001640		
C.2	**TANDEM SWITCHING**						
C.2.1	Tandem Switching Function Per MOU	$0.0001263			$0.0001319		
C.2.2	Tandem Trunk Port - Shared, Per MOU	$0.0002252			$0.0002350		
D.0	**UNBUNDLED TRANSPORT AND LOCAL INTEROFFICE TRANSPORT**						
D.1	**COMMON TRANSPORT**						
D.1.1	Common Transport - Per Mile, Per MOU	$0.0000034			0.0000035		
D.1.2	Common Transport - Facilities Termination Per MOU	$0.0004493			0.0004372		
D.2	**INTEROFFICE TRANSPORT - DEDICATED - VOICE GRADE**						
D.2.1	Interoffice Transport - Dedicated - 2-Wire Voice Grade - Per Mile	$0.0084			$0.0091		
D.2.2	Interoffice Transport - Dedicated - 2-Wire Voice Grade - Facility Termination	$26.02	$42.69	$28.66	$25.32	$47.35	$31.78
D.2.2	Interoffice Transport - Dedicated - 2-Wire Voice Grade - Facility Termination - Disconnect Only		$16.51	$6.34		$18.31	$7.03

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D.3	**INTEROFFICE TRANSPORT - DEDICATED - DS0 - 56/64 KBPS**						
D.3.1	Interoffice Transport - Dedicated - DS0 - Per Mile	$0.0084			$0.0091		
D.3.2	Interoffice Transport - Dedicated - DS0 - Facility Termination	$18.95	$42.69	$28.66	$18.44	$47.35	$31.78
D.3.2	Interoffice Transport - Dedicated - DS0 - Facility Termination - Disconnect Only		$16.51	$6.34		$18.31	$7.03
D.4	**INTEROFFICE TRANSPORT - DEDICATED - DS1**						
D.4.1	Interoffice Transport - Dedicated - DS1 - Per Mile	$0.1710			$0.1856		
D.4.2	Interoffice Transport - Dedicated - DS1 - Facility Termination	$90.87	$95.16	$88.78	$88.44	$105.54	$98.47
D.4.2	Interoffice Transport - Dedicated - DS1 - Facility Termination - Disconnect Only		$16.74	$14.85		$21.47	$19.05
D.5	**LOCAL CHANNEL - DEDICATED**						
D.5.1	Local Channel - Dedicated - 2-Wire Voice Grade						
	Zone 1	$21.04	$239.67	$42.34	$21.94	$265.84	$46.97
	Zone 2	$29.15	$239.67	$42.34	$29.62	$265.84	$46.97
	Zone 3	$55.14	$239.67	$42.34	$57.22	$265.84	$46.97
D.5.1	Local Channel - Dedicated - 2-Wire Voice Grade - Disconnect Only		$33.93	$3.61		$37.63	$4.00
D.5.2	Local Channel - Dedicated - 4-Wire Voice Grade						
	Zone 1	$21.91	$240.30	$42.97	$22.81	$266.54	$47.67
	Zone 2	$30.35	$240.30	$42.97	$30.79	$266.54	$47.67
	Zone 3	$57.40	$240.30	$42.97	$59.48	$266.54	$47.67
D.5.2	Local Channel - Dedicated - 4-Wire Voice Grade - Disconnect Only		$34.47	$4.15		$44.22	$5.33
D.5.7	Local Channel - Dedicated - DS3 - Per Mile	$7.83			$8.50		

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D.5.8	Local Channel - Dedicated - DS3 - Facility Termination	$554.83	$501.59	$309.24	$531.91	$556.37	$343.01
D.5.8	Local Channel - Dedicated - DS3 - Facility Termination - Disconnect Only		$125.43	$87.30		$139.13	$96.84
D.5.10	Local Channel - Dedicated - OC3 - Per Mile	$6.58			$7.14		
D.5.11	Local Channel - Dedicated - OC3 - Facility Termination	$931.25	$505.87	$239.13	$892.72	$561.12	$265.23
D.5.11	Local Channel - Dedicated - OC3 - Facility Termination - Disconnect Only		$64.94	$63.61		$72.03	$70.56
D.5.13	Local Channel - Dedicated - OC12 - Per Mile	$9.39			$10.20		
D.5.14	Local Channel - Dedicated - OC12 - Facility Termination	$2,727.00	$613.87	$239.13	$2,614.00	$680.93	$265.23
D.5.14	Local Channel - Dedicated - OC12 - Facility Termination - Disconnect Only		$64.94	$63.61		$72.03	$70.56
D.5.16	Local Channel - Dedicated - OC48 - Per Mile	$30.81			$33.45		
D.5.17	Local Channel - Dedicated - OC48 - Facility Termination	$1,888.00	$613.87	$239.13	$1,842.00	$680.93	$265.23
D.5.17	Local Channel - Dedicated - OC48 - Facility Termination - Disconnect Only		$64.94	$63.61		$72.03	$70.56
D.5.19	Local Channel - Dedicated - OC48 - Interface OC12 on OC48	$570.98	$393.70	$190.95	$555.69	$436.71	$211.79
D.5.19	Local Channel - Dedicated - OC48 - Interface OC12 on OC48 - Disconnect Only		$64.94	$63.61		$72.03	$70.56
D.5.21	Local Channel - Dedicated - STS-1 - Facility Termination	$563.73	$501.59	$309.24	$540.69	$556.37	$343.01
D.5.21	Local Channel - Dedicated - STS-1 - Facility Termination - Disconnect Only		$125.43	$87.30		$139.13	$96.84
D.5.23	Local Channel - Dedicated - STS-1 - Per Mile	$7.83			$8.50		
D.5.24	Local Channel - Dedicated - DS1						
	Zone 1	$34.49	$195.33	$165.48	$35.28	$216.65	$183.54
	Zone 2	$47.78	$195.33	$165.48	$47.63	$216.65	$183.54
	Zone 3	$90.38	$195.33	$165.48	$92.01	$216.65	$183.54
D.5.24	Local Channel - Dedicated - DS1 - Disconnect Only		$21.90	$15.28		$24.30	$16.95

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D.6	**INTEROFFICE TRANSPORT - DEDICATED - DS3**						
D.6.1	Interoffice Transport - Dedicated - DS3 - Per Mile	$3.57			$3.87		
D.6.2	Interoffice Transport - Dedicated - DS3 - Facility Termination	$1,101.00	$302.43	$197.70	$1,071.00	$335.46	$219.28
D.6.2	Interoffice Transport - Dedicated - DS3 - Facility Termination - Disconnect Only		$64.94	$63.61		$72.03	$70.56
D.7	**INTEROFFICE TRANSPORT - DEDICATED - OC3**						
D.7.1	Interoffice Transport - Dedicated - OC3 - Per Mile	$7.04			$7.65		
D.7.2	Interoffice Transport - Dedicated - OC3 - Facility Termination	$2,963.00	$457.69	$190.95	$2,884.00	$507.68	$211.79
D.7.2	Interoffice Transport - Dedicated - OC3 - Facility Termination - Disconnect Only		$64.94	$63.61		$72.03	$70.56
D.8	**INTEROFFICE TRANSPORT - DEDICATED - OC12**						
D.8.1	Interoffice Transport - Dedicated - OC12 - Per Mile	$22.61			$24.55		
D.8.2	Interoffice Transport - Dedicated - OC12 - Facility Termination	$11,380.00	$565.69	$190.95	$11,076.00	$627.49	$211.79
D.8.2	Interoffice Transport - Dedicated - OC12 - Facility Termination - Disconnect Only		$64.94	$63.61		$72.03	$70.56
D.9	**INTEROFFICE TRANSPORT - DEDICATED - OC48**						
D.9.1	Interoffice Transport - Dedicated - OC48 - Per Mile	$29.13			$31.62		
D.9.2	Interoffice Transport - Dedicated - OC48 - Facility Termination	$12,226.00	$565.69	$190.95	$11,898.00	$627.49	$211.79
D.9.2	Interoffice Transport - Dedicated - OC48 - Facility Termination - Disconnect Only		$64.94	$63.61		$72.03	$70.56
D.9.4	Interoffice Transport - Dedicated - OC48 - Interface OC12 on OC48	$1,177.00	$305.34	$190.95	$1,145.00	$338.68	$211.79

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D.9.4	Interoffice Transport - Dedicated - OC48 - Interface OC12 on OC48 - Disconnect Only		$64.94	$63.61		$72.03	$70.56
D.10	**INTEROFFICE TRANSPORT - DEDICATED - STS-1**						
D.10.1	Interoffice Transport - Dedicated - STS-1 - Per Mile	$3.57			$3.87		
D.10.2	Interoffice Transport - Dedicated - STS-1 - Facility Termination	$1,085.00	$302.43	$197.70	$1,056.00	$335.46	$219.28
D.10.2	Interoffice Transport - Dedicated - STS-1 - Facility Termination - Disconnect Only		$64.94	$63.61		$72.03	$70.56
D.12	**INTEROFFICE TRANSPORT - DEDICATED - 4-WIRE VOICE GRADE**						
D.12.1	Interoffice Transport - Dedicated - 4-Wire Voice Grade - Per Mile	$0.0084			$0.0091		
D.12.2	Interoffice Transport - Dedicated - 4-Wire Voice Grade - Facility Termination	$23.20	$42.69	$28.66	$22.58	$47.35	$31.78
D.12.2	Interoffice Transport - Dedicated - 4-Wire Voice Grade - Facility Termination - Disconnect Only		$16.51	$6.34		$18.31	$7.03
E.0	**SIGNALING NETWORK, DATA BASES, & SERVICE MANAGEMENT SYSTEMS**						
E.1	**800 ACCESS TEN DIGIT SCREENING**						
E.1.1	800 Access Ten Digit Screening, Per Call	$0.0006165			$0.0006252		
E.1.2	800 Access Ten Digit Screening, Reservation Charge Per 800 Number Reserved		$3.74	$0.64		$4.15	$0.70
E.1.3	800 Access Ten Digit Screening, Per 800 No. Established W/O POTS Translations		$7.92	$1.06		$8.78	$1.18
E.1.3	800 Access Ten Digit Screening, Per 800 No. Established W/O POTS Translations - Disc. Only		$5.20	$0.64		$5.77	$0.70
E.1.4	800 Access Ten Digit Screening, Per 800 No. Established With POTS Translations		$7.92	$1.06		$8.78	$1.18
E.1.4	800 Access Ten Digit Screening, Per 800 No. Established With POTS Translations - Disc. Only		$5.20	$0.64		$5.77	$0.70

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E.1.5	800 Access Ten Digit Screening, Customized Area of Service Per 800 Number		$3.74	$1.87		$4.15	$2.07
E.1.6	800 Access Ten Digit Screening, Multiple InterLATA CXR Routing Per CXR Requested Per 800 No.		$4.37	$2.50		$4.85	$2.78
E.1.7	800 Access Ten Digit Screening, Change Charge Per Request		$4.37	$0.64		$4.85	$0.70
E.1.8	800 Access Ten Digit Screening, Call Handling and Destination Features		$3.74			$4.15	
E.1.9	800 Access Ten Digit Screening, w/ 8FL No. Delivery	$0.0006165			$0.0006252		
E.1.10	800 Access Ten Digit Screening, w/ POTS No. Delivery	$0.0006165			$0.0006252		
E.2	**LINE INFORMATION DATA BASE ACCESS (LIDB)**						
E.2.1	LIDB Common Transport Per Query	$0.0000195			$0.0000203		
E.2.2	LIDB Validation Per Query	$0.0132254			$0.0136959		
E.2.3	LIDB Originating Point Code Establishment or Change		$49.71			$55.13	
E.2.3	LIDB Originating Point Code Establishment or Change - Disconnect Only		$49.71			$55.13	
E.3	**CCS7 SIGNALING TRANSPORT**						
E.3.1	CCS7 Signaling Connection, Per 56Kbps Facility	$18.39	$39.28		$17.93	$43.57	
E.3.1	CCS7 Signaling Connection, Per 56Kbps Facility - Disconnect Only		$16.51			$18.31	
E.3.2	CCS7 Signaling Termination, Per STP Port	$129.77			$135.05		
E.3.3	CCS7 Signaling Usage, Per Call Setup Message	$0.0000148			$0.0000152		
E.3.4	CCS7 Signaling Usage, Per TCAP Message	$0.0000592			$0.0000607		
E.3.7	CCS7 Signaling Connection, Per link (A link)	$18.39			$17.93		
E.3.8	CCS7 Signaling Connection, Per link (B link) (also known as D link)	$18.39			$17.93		
E.3.9	CCS7 Signaling Usage, Per ISUP Message	$0.0000148			$0.0000152		
E.3.10	CCS7 Signaling Usage Surrogate, per link	$676.89			$694.32		

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E.3.11	CCS7 Signaling Point Code, Establishment or Change, per STP affected		$41.50			$46.03	
E.3.11	CCS7 Signaling Point Code, Establishment or Change, per STP affected - Disconnect Only		$41.50			$46.03	
E.4	**BELLSOUTH CALLING NAME (CNAM) DATABASE (DB) SERVICE**						
E.4.1	CNAM for DB Owners - Service Establishment, Manual		$22.85			$25.35	
E.4.1	CNAM for DB Owners - Service Establishment, Manual - Disconnect Only		$17.14			$19.01	
E.4.2	CNAM for Non DB Owners - Service Establishment, Manual		$22.85			$25.35	
E.4.2	CNAM for Non DB Owners - Service Establishment, Manual - Disconnect Only		$17.14			$19.01	
E.4.3	CNAM for DB Owners Service Provisioning with Point Code Establishment		$1,435.00	$1,061.00		$1,592.00	$1,177.00
E.4.3	CNAM for DB Owners Service Provisioning with Point Code Establishment - Disconnect Only		$317.70	$233.60		$352.36	$259.09
E.4.4	CNAM for Non DB Owners Service Provisioning with Point Code Establishment		$492.73	$355.07		$546.51	$393.82
E.4.4	CNAM for Non DB Owners Service Provisioning with Point Code Establishment - Disc. Only		$322.83	$233.60		$358.06	$259.09
E.4.5	CNAM for DB and Non DB Owners, Per Query	$0.0010161			$0.0010240		
E.5	**BELLSOUTH ACCESS TO E911 SERVICE**						
E.5.1	BellSouth E911 Access - Local Channel - Dedicated - 2-wire Voice Grade (Same as D.5.1)						
	Zone 1	$21.04	$239.67	$42.34	$21.94	$265.84	$46.97
	Zone 2	$29.15	$239.67	$42.34	$29.62	$265.84	$46.97
	Zone 3	$55.14	$239.67	$42.34	$57.22	$265.84	$46.97
	BellSouth E911 Access - Local Channel - Dedicated - 2-wire Voice Grade (Same as D.5.1) - Disc. Only		$33.93	$3.61		$37.63	$4.00

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E.5.2	BellSouth E911 Access - Interoffice Transport - Dedicated - 2-wire Voice Grade Per Mile (Same as D.2.1)	$0.0084			$0.0091		
E.5.3	BellSouth E911 Access - Interoffice Transport - Dedicated 2-wire Voice Grade Per Fac. Term (same as D.2.2)	$26.02	$42.69	$28.66	$25.32	$47.35	$31.78
E.5.3	BellSouth E911 Access - Interoffice Transport - Dedicated 2-wire Voice Grade Per Fac. Term-Disc. Only (same as D.2.2)		$16.51	$6.34		$18.31	$7.03
E.5.4	BellSouth E911 Access - Local Channel - Dedicated - DS1 (Same as D.5.24)						
	Zone 1	$34.49	$195.33	$165.48	$35.28	$216.65	$183.54
	Zone 2	$47.78	$195.33	$165.48	$47.63	$216.65	$183.54
	Zone 3	$90.38	$195.33	$165.48	$92.01	$216.65	$183.54
E.5.4	BellSouth E911 Access - Local Channel - Dedicated - DS1 (Same as D.5.24) - Disconnect Only		$21.90	$15.28			
E.5.5	BellSouth E911 Access - Interoffice Transport - Dedicated - DS1 Per Mile (Same as D.4.1)	$0.1710			$0.1856		
E.5.6	BellSouth E911 Access - Interoffice Transport - Dedicated - DS1 Per Facility Termination (Same as D.4.2)	$90.87	$95.16	$88.78	$88.44	$105.54	$98.47
	BellSouth E911 Access - Interoffice Transport - Dedicated - DS1 Per Facility Termination - Disc. Only (same as D.4.2)		$16.74	$14.85		$21.47	$19.05
E.6	LNP QUERY SERVICE						
E.6.1	LNP Cost Per query	$0.000842			$0.0008520		
E.6.2	LNP Service Establishment Manual		$12.46			$13.83	
E.6.2	LNP Service Establishment Manual - Disconnect Only		$9.35			$12.71	
E.6.3	LNP Service Provisioning with Point Code Establishment		$591.01	$301.93		$655.50	$334.88
E.6.3	LNP Service Provisioning with Point Code Establishment - Disconnect Only		$218.42	$160.60		$297.03	$218.40

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G.0	**SELECTIVE ROUTING**						
G.9	**SELECTIVE ROUTING (INTERIM SOLUTION LINE CLASS CODES)**						
G.9.1	Selective Routing Per Unique Line Class Code Per Request Per Switch		$84.33			$93.55	
G.9.1	Selective Routing Per Unique Line Class Code Per Request Per Switch - Disconnect Only		$11.46			$12.71	
G.11	**SELECTIVE CARRIER ROUTING (AIN SOLUTION)**						
G.11.1	Service Establishment per CLEC		$191,575.00			$193,444.00	
G.11.1	Service Establishment per CLEC - Disconnect Only		$6,974.00			$7,737.00	
G.11.2	Service Establishment per End Office		$168.89			$187.36	
G.11.2	Service Establishment per End Office - Disconnect Only		$0.63			$0.69	
G.11.4	Query Cost	$0.0030998			$0.0031868		
I.0	**INTERIM SERVICE PROVIDER NUMBER PORTABILITY**						
I.1	**INTERIM SERVICE PROVIDER NUMBER PORTABILITY - RCF**						
I.1.1	Service Provider Number Portability - RCF, Per Number Ported	$1.97	0.3738		$2.05	$0.4145	
I.1.1	Service Provider Number Portability - RCF, Per Number Ported - Disconnect Only		0.0374			$0.0415	
I.1.2	Service Provider Number Portability - RCF, Per Additional Path	0.6878			$0.7179		
I.2	**SERVICE PROVIDER NUMBER PORTABILITY - DID**						
I.2.1	Service Provider Number Portability - DID, Per Number Ported, Residence		0.6242			$0.6923	
I.2.1	Service Provider Number Portability - DID, Per Number Ported, Residence - Disconnect Only		0.6242			$0.6923	
I.2.2	Service Provider Number Portability - DID, Per Number Ported, Business		0.6242			$0.6923	

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I.2.2	Service Provider Number Portability - DID, Per Number Ported, Business - Disconnect Only		0.6242			$0.6923	
I.2.4	Service Provider Number Portability - DID, Per Trunk Termination, Initial	$52.73	$145.42		$54.95	$161.29	
I.2.4	Service Provider Number Portability - DID, Per Trunk Termination, Initial - Disconnect Only		$29.51			$32.73	
I.2.5	Service Provider Number Portability - DID, Per Trunk Termination, Subsequent	$52.73	$72.65		$54.95	$80.58	
I.2.5	Service Provider Number Portability - DID, Per Trunk Termination, Subsequent - Disconnect Only		$29.51			$32.73	
I.4	**SERVICE PROVIDER NUMBER PORTABILITY RIPH**						
I.4.1	Service Provider Number Portability - RIPH, Functionality, Per Central office		$81.56			$90.47	
I.4.1	Service Provider Number Portability - RIPH, Functionality, Per Central office - Disconnect Only		$2.29			$2.54	
I.4.2	Service Provider Number Portability - RIPH, Functionality, Per Rearrangement		$18.11			$20.08	
I.4.3	Service Provider Number Portability - RI-PH, Per Number Ported	$1.75	0.1952		$1.83	$0.2165	
I.4.3	Service Provider Number Portability - RI-PH, Per Number Ported - Disconnect Only		0.0195			$0.0216	
J.0	**OTHER**						
J.1	**DARK FIBER**						
J.1.2	Dark Fiber, Per Four Fiber Strands, Per Route Mile or Fraction Thereof - Local Channel/Loop	$54.11	$677.37	$174.79	$55.04	$751.34	$193.88
J.1.2	Dark Fiber, Per 4 Fiber Strands, Per Route Mile or Fraction Thereof - Local Chan/Loop - Disc. Only		$277.72	$179.41		$356.21	$230.11
J.1.3	Dark Fiber, Per Four Fiber Strands, Per Route Mile or Fraction Thereof - Interoffice	$25.14	$677.37	$174.79	$26.85	$751.34	$193.88

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J.1.3	Dark Fiber, Per Four Fiber Strands, Per Route Mile or Fraction Thereof - Interoffice - Disc. Only		$277.72	$179.41		$356.21	$230.11
J.3	**LOOP MAKE-UP**						
J.3.1	Mechanized Loop Make-up	$0.6757			$0.6784		
J.3.3	Manual Loop Make-up w/o Facility Reservation Number		$43.10			$52.17	
J.3.4	Manual Loop Make-up w/ Facility Reservation Number		$45.72			$55.07	
J.5	**ACCESS TO THE DCS**						
J.5.1	Customer Reconfiguration Establishment		$1.47			$1.63	
J.5.1	Customer Reconfiguration Establishment - Disconnect Only		$1.47			$1.63	
J.5.2	DS1 DCS Termination with DS0 Switching	$28.81	$29.65	$21.26	$27.39	$32.89	$23.58
J.5.2	DS1 DCS Termination with DS0 Switching - Disconnect Only		$15.29	$11.51		$16.96	$12.77
J.5.3	DS1 DCS Termination with DS1 Switching	$12.19	$22.60	$14.21	$11.70	$25.07	$15.76
J.5.3	DS1 DCS Termination with DS1 Switching - Disconnect Only		$11.77	$7.99		$13.05	$8.86
J.5.4	DS3 DCS Termination with DS1 Switching	$154.91	$29.65	$21.26	$146.81	$32.89	$23.58
J.5.4	DS3 DCS Termination with DS1 Switching - Disconnect Only		$15.29	$11.51		$16.96	$12.77
K.0	**ADVANCED INTELLIGENT NETWORK (AIN) SERVICES**						
K.1	**BELLSOUTH AIN SMS ACCESS SERVICE**						
K.1.1	AIN SMS Access Service - Service Establishment, Per State, Initial Setup		$39.27			$43.56	
K.1.1	AIN SMS Access Service - Service Establishment, Per State, Initial Setup - Disconnect Only		$33.04			$44.93	
K.1.2	AIN SMS Access Service - Port Connection - Dial/Shared Access		$7.79			$8.64	

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K.1.2	AIN SMS Access Service - Port Connection - Dial/Shared Access - Disconnect Only		$7.38			$10.03	
K.1.3	AIN SMS Access Service - Port Connection - ISDN Access		$7.79			$8.64	
K.1.3	AIN SMS Access Service - Port Connection - ISDN Access - Disconnect Only		$7.38			$10.03	
K.1.4	AIN SMS Access Service - User Identification Codes - Per User ID Code		$34.85			$38.66	
K.1.4	AIN SMS Access Service - User Identification Codes - Per User ID Code - Disconnect Only		$21.97			$29.88	
K.1.5	AIN SMS Access Service - Security Card, Per User ID Code, Initial or Replacement		$73.76			$75.10	
K.1.5	AIN SMS Access Service - Security Card, Per User ID Code, Initial or Replacement - Disc. Only		$9.51			$12.93	
K.1.6	AIN SMS Access Service - Storage, Per Unit (100 Kilobytes)	$0.0029			$0.0028		
K.1.7	AIN SMS Access Service - Session, Per Minute	$0.7985			$0.7809		
K.1.8	AIN SMS Access Service - Company Performed Session, Per Minute	$0.4155			$0.4609		
K.2	**BELLSOUTH AIN TOOLKIT SERVICE**						
K.2.1	AIN Toolkit Service - Service Establishment Charge, Per State, Initial Setup		$39.27			$43.56	
K.2.1	AIN Toolkit Service - Service Establishment Charge, Per State, Initial Setup - Disconnect Only		$33.04			$44.93	
K.2.2	AIN Toolkit Service - Training Session, Per Customer		$8,406.00			$8,439.00	
K.2.3	AIN Toolkit Service - Trigger Access Charge, Per Trigger, Per DN, Term. Attempt		$7.79			$8.64	
K.2.3	AIN Toolkit Service - Trigger Access Charge, Per Trigger, Per DN, Term. Attempt - Disc. Only		$7.38			$10.03	
K.2.4	AIN Toolkit Service - Trigger Access Charge, Per Trigger, Per DN, Off-Hook Delay		$7.79			$8.64	

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K.2.4	AIN Toolkit Service - Trigger Access Charge, Per Trigger, Per DN, Off-Hook Delay - Disc. Only		$7.38			$10.03	
K.2.5	AIN Toolkit Service - Trigger Access Charge, Per Trigger, Per DN, Off-Hook Immediate		$7.79			$8.64	
K.2.5	AIN Toolkit Svc - Trigger Access Charge, Per Trigger, Per DN, Off-Hook Immediate - Disc. Only		$7.38			$10.03	
K.2.6	AIN Toolkit Service - Trigger Access Charge, Per Trigger, Per DN, 10-Digit PODP		$34.32			$38.06	
K.2.6	AIN Toolkit Service - Trigger Access Charge, Per Trigger, Per DN, 10-Digit PODP - Disc. Only		$11.66			$15.86	
K.2.7	AIN Toolkit Service - Trigger Access Charge, Per Trigger, Per DN, CDP		$34.32			$38.06	
K.2.7	AIN Toolkit Service - Trigger Access Charge, Per Trigger, Per DN, CDP - Disconnect Only		$11.66			$15.86	
K.2.8	AIN Toolkit Service - Trigger Access Charge, Per Trigger, Per DN, Feature Code		$34.32			$38.06	
K.2.8	AIN Toolkit Service - Trigger Access Charge, Per Trigger, Per DN, Feature Code - Disconnect Only		$11.66			$15.86	
K.2.9	AIN Toolkit Service - Query Charge, Per Query	$0.0509436			$0.0535927		
K.2.10	AIN Toolkit Service - Type 1 Node Charge, Per AIN Toolkit Subscription, Per Node, Per Query	$0.0062787			$0.0063698		
K.2.11	AIN Toolkit Service - SCP Storage Charge, Per SMS Access Account, Per 100 Kilobytes	$0.06			$0.06		
K.2.12	AIN Toolkit Service - Monthly report - Per AIN Toolkit Service Subscription	$8.00	$7.79		$8.34	$8.64	
K.2.12	AIN Toolkit Service - Monthly report - Per AIN Toolkit Service Subscription - Disconnect Only		$4.47			$6.08	
K.2.13	AIN Toolkit Service - Special Study - Per AIN Toolkit Service Subscription	$3.85	$8.62		$3.73	$9.56	
K.2.14	AIN Toolkit Service - Call Event Report - Per AIN Toolkit Service Subscription	$4.28	$7.79		$4.73	$8.64	
K.2.14	AIN Toolkit Service - Call Event Report - Per AIN Toolkit Service Subscription - Disconnect Only		$4.47			$6.08	

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K.2.15	AIN Toolkit Service - Call Event Special Study - Per AIN Toolkit Service Subscription	$0.13	$8.62		$0.12	$9.56	
L.0	**ACCESS DAILY USAGE FILE (ADUF)**						
L.1	**ACCESS DAILY USAGE FILE (ADUF)**						
L.1.1	ADUF, Message Processing, per message	$0.013928			$0.014391		
L.1.3	ADUF, Data Transmission (CONNECT:DIRECT), per message	$0.00012927			$0.00012973		
M.0	**DAILY USAGE FILES**						
M.1	**ENHANCED OPTIONAL DAILY USAGE FILE**						
M.1.1	Enhanced Optional Daily usage File: Message Processing, Per Message	$0.222451			$0.229109		
M.2	**OPTIONAL DAILY USAGE FILE**						
M.2.1	Optional Daily Usage File: Recording, per Message	$0.0000068			$0.0000071		
M.2.2	Optional Daily Usage File: Message Processing, Per Message	$0.006614			$0.006835		
M.2.3	Optional Daily Usage File: Message Processing, Per Magnetic Tape Provisioned	$48.77			$48.96		
M.2.4	Optional Daily Usage File: Data Transmission (CONNECT:DIRECT), Per Message	$0.00010772			$0.00010811		
N.0	**NONRECURRING COSTS**						
N.1	**SERVICE ORDER**						
N.1.1	Electronic Service Order, per local service request		$1.37			$1.52	
N.1.1	Electronic Service Order, per local service request - Disconnect Only		$0.18			$0.20	
N.1.2	Manual Service Order, per local service request		$10.73			$11.90	
N.1.2	Manual Service Order, per local service request - Disconnect Only		$1.65			$1.83	

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N.1.5	Order Coordination		$8.12			$9.00	
N.1.6	Order Coordination for Specified Conversion Time		$20.75			$23.02	
P.0	**UNBUNDLED LOOP COMBINATIONS**						
P.1	**2-WIRE VOICE GRADE LOOP WITH 2-WIRE LINE PORT (RES, BUS, COIN, PBX)**						
P.1.1	2-Wire Voice Grade Loop						
	Zone 1	$11.89			$12.94		
	Zone 2	$16.03			$17.06		
	Zone 3	$29.33			$31.87		
	Zone 4						
	Zone 5						
	Zone 6						

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P.1	**2-WIRE VOICE GRADE LOOP WITH 2-WIRE LINE PORT (CENTREX)**						
P.1.1	2-Wire Voice Grade Loop						
	Zone 1	$11.89			$12.94		
	Zone 2	$16.03			$17.06		
	Zone 3	$29.33			$31.87		
	Zone 4						
	Zone 5						
	Zone 6						
P.1.1	2-W VG Loop with 2-W Line Port (RES, BUS, Coin) - Nonrecurring costs - switch-as-is		$0.0920	$0.0920		$0.1020	$0.1020
P.1.1	2-W VG Loop with 2-W Line Port (PBX) - Nonrecurring costs - switch-as-is		$7.62	$1.72		$8.45	$1.91
P.1.1	2-W VG Loop with 2-W Line Port (Centrex) - Nonrecurring costs - switch-as-is		$4.75	$7.59		$21.50	$8.42
P.1.11	Centrex Common Block - Nonrecurring costs - switch-as-is		$4.66	$7.50		$5.17	$8.32
P.1.2	Exchange Port - 2-Wire Line Port	$1.12			$1.17		
P.1.17	PBX Subsequent Activity - Change/Rearrange Multiline Hunt Group		$7.09			$7.86	
P.3	**2-WIRE VOICE GRADE LOOP WITH 2-WIRE DID TRUNK PORT**						
	Zone 1	$22.22			$23.21		
	Zone 2	$27.39			$28.28		
	Zone 3	$43.97			$46.53		
P.3.2	Exchange Ports - 2-Wire DID Port for Combinations	$8.79			$8.71		
P.3.3	2-Wire Voice Grade Loop / 2-Wire DID Trunk Port Combination - Nonrecurring Costs - Switch-as-is		$7.08	$1.69		$7.85	$1.87
P.3.7	2-Wire DID Subsequent Activity - Add Trunks, Per Trunk		$29.08			$32.26	

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P.4	**2-WIRE ISDN DIGITAL GRADE LOOP WITH 2-WIRE ISDN DIGITAL LINE SIDE PORT**						
P.4.1	2-Wire ISDN Digital Grade Loop						
	Zone 1	$23.22			$24.71		
	Zone 2	$29.44			$30.77		
	Zone 3	$49.38			$52.56		
	Zone 4						
	Zone 5						
	Zone 6						
P.4.2	Exchange Port - 2-Wire ISDN Line Side Port	$7.07			$7.38		
P.4.3	2-Wire ISDN Digital Grade Loop / 2-Wire ISDN Line Side Port Comb. - Nonrec. Costs - Switch-as-is		$27.61	$15.33		$25.22	$17.00
P.5	**4-WIRE DS1 DIGITAL LOOP WITH 4-WIRE ISDN DS1 DIGITAL TRUNK PORT**						
	Zone 1	$148.57			$156.18		
	Zone 2	$175.24			$181.87		
	Zone 3	$260.73			$274.25		
P.5.3	4-Wire DS1 Digital Loop / 4-Wire ISDN DS1 Digital Trunk Port Comb. - Nonrec. Costs - Switch-as-is		$61.25	$55.34		$84.17	$61.38
P.5.5	4-Wire DS1 Dig. Loop/4-Wire ISDN DS1 Dig. Trunk Port Comb - Subseq. Chan. Activation - Per Chan.		$13.96			$15.48	
P.5.6	4-Wire DS1 Dig. Loop / 4-Wire ISDN DS1 Dig. Trunk Port Comb - Subseq. Inw./2-Way Telephone #s		$0.4879			$0.5412	
P.5.7	4-Wire DS1 Dig. Loop / 4-Wire ISDN DS1 Dig. Trunk Port Comb - Subseq. Outw. Telephone #s		$11.46			$12.71	
P.5.8	4-Wire DS1 Dig. Loop / 4-Wire ISDN DS1 Dig. Trunk Port Comb - Subseq. Inw. Telephone #s		$22.92			$25.42	

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P.6	**2-WIRE VOICE GRADE EXTENDED LOOP WITH DEDICATED DS1 INTEROFFICE TRANSPORT**						
P.6-1	First 2W VG in DS1						
	Zone 1	$257.46			$251.09		
	Zone 2	$262.63			$256.16		
	Zone 3	$279.21			$274.41		
	P.17.1 Nonrecurring Cost for Extended Loop or Local Channel and Interoffice Combination Switch-As-Is		$8.10	$8.10		$8.98	$8.98
	P.17.1 Nonrec. Cost for Extd. Loop or Local Channel and Interoffice Combination Switch-As-Is - Disc Only		$8.10	$8.10		$8.98	$8.98
	Nonrecurring Cost - 2-wire VG Extended Loop with Dedicated DS1 Interoffice Transport - NEW		$330.00	$182.65		$366.04	$202.58
	Nonrec. Cost - 2-wire VG Extended Loop with Dedicated DS1 Interoffice Transport - NEW - Disc. Only		$85.75	$23.07		$95.11	$25.60
P.6-2	D.4.1 Interoffice Transport - Dedicated - DS1 - Per Mile						
P.6-3	Additional 2W VG in same DS1						
	Zone 1	$14.85			$15.88		
	Zone 2	$20.02			$20.95		
	Zone 3	$36.60			$39.20		
	P.17.16 Nonrecurring Cost - New Feature Activation for Combination Use Only		$6.05	$4.36		$6.71	$4.84
P.7	**4-WIRE VOICE GRADE EXTENDED WITH DEDICATED DS1 INTEROFFICE TRANSPORT**						
P.7-1	First 4W VG in DS1						
	Zone 1	$265.26			$259.61		
	Zone 2	$273.44			$267.66		
	Zone 3	$299.66			$296.61		

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	P.17.1 Nonrecurring Cost for Extended Loop or Local Channel and Interoffice Combination Switch-As-Is		$8.10	$8.10		$8.98	$8.98
	P.17.1 Nonrec. Cost for Extd. Loop or Local Channel and Interoffice Combination Switch-As-Is-Disc. Only		$8.10	$8.10		$8.98	$8.98
	Nonrecurring Cost - 4-wire VG Extended Loop with Dedicated DS1 Interoffice Transport - NEW		$330.00	$182.65		$366.04	$202.58
	Nonrecurring Cost - 4-wire VG Extended Loop with Dedicated DS1 Interoffice Transport - NEW -Disc. Only		$85.75	$23.07		$95.11	$25.60
P.7-2	D.4.1 Interoffice Transport - Dedicated - DS1 - Per Mile	$0.1710			$0.1856		
P.7-3	Additional 4W VG in same DS1						
	Zone 1	$22.65			$24.40		
	Zone 2	$30.83			$32.45		
	Zone 3	$57.05			$61.40		
	P.17.16 Nonrecurring Cost - New Feature activation for Combination Use Only		$6.05	$4.36		$6.71	$4.84
P.8	**4-WIRE 56 OR 64 KBPS EXTD. DIGITAL LOOP WITH DEDICATED DS1 INTEROFFICE TRANSPORT**						
P.8-1	First 4W 56/64 in DS1						
	Zone 1	$269.25			$263.70		
	Zone 2	$278.68			$272.93		
	Zone 3	$308.91			$306.13		
	P.17.1 Nonrecurring Cost for Extended Loop or Local Channel and Interoffice Combination Switch-As-Is		$8.10	$8.10		$8.98	$8.98
	P.17.1 Nonrec. Cost for Extd. Loop or Local Channel and Interoffice Combination Switch-As-Is- Disc. Only		$8.10	$8.10		$8.98	$8.98

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	Nonrec. Cost - 4-wire 56 or 64 Kbps Extended Loop with Dedicated DS1 Interoffice Transport - NEW		$330.00	$182.65		$366.04	$202.58
	Nonrec. Cost - 4-wire 56 or 64 Kbps Extd Loop with Ded. DS1 Interoffice Transport - NEW - Disc Only		$85.75	$23.07		$95.11	$25.60
P.8-2	D.4.1 Interoffice Transport - Dedicated - DS1 - Per Mile	$0.1710			$0.1856		
P.8-3	Additional 4W 56/64 in same DS1						
	Zone 1	$26.64			$28.49		
	Zone 2	$36.07			$37.72		
	Zone 3	$66.30			$70.92		
	P.17.16 Nonrecurring Cost - New Feature activation for Combination Use Only		$6.05	$4.36		$6.71	$4.84
P.11	**4-WIRE DS1 DIGITAL EXTENDED LOOP WITH DEDICATED DS1 INTEROFFICE TRANSPORT**						
P.11-1	Fixed						
	Zone 1	$160.09			$161.88		
	Zone 2	$186.76			$187.57		
	Zone 3	$272.25			$279.95		
	P.17.1 Nonrecurring Cost for Extended Loop or Local Channel and Interoffice Combination Switch-As-Is		$8.10	$8.10		$8.98	$8.98
	P.17.1 Nonrec. Cost for Extd. Loop or Local Channel and Interoffice Combination Switch-As-Is- Disc. Only		$8.10	$8.10		$8.98	$8.98
	Nonrec. Cost - 4-wire DS1 Digital Extended Loop with Dedicated DS1 Interoffice Transport - NEW		$353.62	$220.07		$392.21	$244.08
	Nonrec. Cost - 4-wire DS1 Digital Extd. Loop with Ded. DS1 Interoffice Transp. - NEW - Disc. Only		$87.50	$29.21		$97.05	$32.40
P.11-2	D.4.1 Interoffice Transport - Dedicated - DS1 - Per Mile	$0.1710			$0.1856		

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P.13	**4-WIRE DS1 DIGITAL EXTENDED LOOP WITH DEDICATED DS3 INTEROFFICE TRANSPORT**						
P.13-1	First DS1 in DS3						
	Zone 1	$1,403.16			$1,369.39		
	Zone 2	$1,429.83			$1,395.08		
	Zone 3	$1,515.32			$1,487.46		
	P.17.1 Nonrecurring Cost for Extended Loop or Local Channel and Interoffice Combination Switch-As-Is		$8.10	$8.10		$8.98	$8.98
	P.17.1 Nonrec. Cost for Extd. Loop or Local Channel and Interoffice Combination Switch-As-Is- Disc. Only		$8.10	$8.10		$8.98	$8.98
	Nonrec. Cost - 4-wire DS1 Digital Extd. Loop with Ded. DS3 Interoffice Transport- New		$595.00	$289.60		$659.96	$321.20
	Nonrec. Cost - 4-wire DS1 Digital Extd. Loop with Ded. DS3 Interoffice Transport- New - Disc. Only		$92.14	$33.83		$102.20	$37.52
P.13-2	D.6.1 Interoffice Transport - Dedicated - DS3 - Per Mile	3.57			$3.87		
P.13-3	Additional DS1 in same DS3						
	Zone 1	$83.46			$87.20		
	Zone 2	$110.13			$112.89		
	Zone 3	$195.62			$205.27		
	P.17.16 Nonrecurring Cost - New Feature Activation for Combination Use Only		$6.05	$4.36		$6.71	$4.84
P.15	**4-WIRE DS1 DIGITAL LOOP WITH DDITS PORT**						
	4-Wire DS1 Digital Loop with DDITS Port - switch-as-is						
	Zone 1	$121.95			$128.39		
	Zone 2	$148.62			$154.08		

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	Zone 3	$234.11			$246.46		
P.15.3	4-wire DS1 Digital Loop / DDITS Trunk Port Combination - Nonrecurring Costs - Switch-as-is		$71.29	$42.11		$95.31	$46.71
P.15.5	4-Wire DS1 Dig. Loop / DDITS Trunk Port Comb. -Subsequent Channel Activation - Per Channel		$14.14			$15.69	
P.16	**2-WIRE LOOP/ 2 WIRE VOICE GRADE IO TRANSPORT/ 2 WIRE PORT**						
P.16-1	Fixed - Switch-as-is						
	Zone 1	$40.79			$41.22		
	Zone 2	$45.96			$46.29		
	Zone 3	$62.54			$64.54		
P.16.2	D.2.1 Interoffice Transport - Dedicated - 2 W VG per mile	$0.0084			$0.0091		
P.16.3	2W VG Loop / 2W VG IO Transport / 2W Port Combination - Nonrecurring Costs - Switch-as-is		$8.14	$1.69		$9.03	$1.87
P.17	**Nonrecurring Cost for Extended Loop or Local Channel and Interoffice Combination**						
P.17.1	Nonrecurring Cost for Extended Loop or Local Channel and Interoffice Combination Switch -As-Is		$8.10	$8.10		$8.98	$8.98
P.17.1	Nonrec. Cost for Extended Loop or Local Channel and Interoffice Comb. Switch -As-Is - Disc. Only		$8.10	$8.10		$8.98	$8.98
P.17.4	Nonrecurring Cost - New DS1 Interoffice Facility for Combination Use Only		$157.30	$110.42		$174.46	$122.46
P.17.4	Nonrecurring Cost - New DS1 Interoffice Facility for Combination Use Only - Disconnect Only		$41.12	$16.18		$45.61	$17.95
P.17.5	Nonrecurring Cost - New DS1 Interoffice Facility w/ 1/0 MUXing for Combination Use Only		$208.93	$123.71		$231.74	$137.20
P.17.5	Nonrec. Cost - New DS1 Interoffice Facility w/ 1/0 MUXing for Comb. Use Only - Disc. Only		$42.47	$17.39		$47.11	$19.29
P.17.7	Nonrecurring Cost - New DS3 or STS-1 Interoffice Facility for Combination Use Only		$288.50	$124.61		$320.00	$138.20

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P.17.7	Nonrec. Cost - New DS3 or STS-1 Interoffice Facility for Combination Use Only - Disconnect Only		$34.80	$16.96		<u>$38.60</u>	<u>$18.81</u>
P.17.8	Nonrecurring Cost - New DS3 or STS-1 w/ 3/1 MUXing Interoffice Facility for Combination Use Only		$392.63	$175.59		<u>$435.60</u>	<u>$194.74</u>
P.17.8	Nonrec. Cost - New DS3 or STS-1 w/ 3/1 MUXing Interoffice Fac. for Comb. Use Only - Disc. Only		$45.76	$20.80		<u>$50.76</u>	<u>$23.07</u>
P.17.10	Nonrecurring Cost - New VG Local Loop for Combination Use Only		$115.02	$54.58		<u>$127.59</u>	<u>$60.54</u>
P.17.10	Nonrecurring Cost - New VG Local Loop for Combination Use Only - Disconnect Only		$43.28	$5.68		<u>$48.00</u>	<u>$6.31</u>
P.17.11	Nonrecurring Cost - New DS1 Local Loop for Combination Use Only		$196.32	$109.65		<u>$217.75</u>	<u>$121.62</u>
P.17.11	Nonrecurring Cost - New DS1 Local Loop for Combination Use Only - Disconnect Only		$46.38	$13.03		<u>$51.44</u>	<u>$14.45</u>
P.17.12	Nonrecurring Cost - New DS3 or STS-1 Local Loop for Combination Use Only		$220.36	$139.50		<u>$244.42</u>	<u>$154.73</u>
P.17.12	Nonrecurring Cost - New DS3 or STS-1 Local Loop for Combination Use Only - Disconnect Only		$60.49	$23.69		<u>$67.10</u>	<u>$26.27</u>
P.17.16	Nonrecurring Cost - New Feature Activation for Combination Use Only		$6.05	$4.36		<u>$6.71</u>	<u>$4.84</u>
P.17.17	Nonrecurring Cost - New DS0 IOF for Combination Use Only		$85.38	$47.42		<u>$94.70</u>	<u>$52.59</u>
P.17.17	Nonrecurring Cost - New DS0 IOF for Combination Use Only - Disconnect Only		$40.82	$16.25		<u>$45.28</u>	<u>$18.03</u>
P.23	**2-WIRE VOICE GRADE EXTENDED LOOP/2 WIRE VOICE GRADE INTEROFFICE TRANSPORT**						
P.23-1	Fixed						
	Zone 1	$39.45			<u>$39.82</u>		
	Zone 2	$44.62			<u>$44.89</u>		
	Zone 3	$61.20			<u>$63.14</u>		
	P.17.1 Nonrec. Cost for Extd. Loop or Local Channel and Interoffice Comb. - Switch-As-Is		$8.10	$8.10		<u>$8.98</u>	<u>$8.98</u>

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	P.17.1 Nonrec. Cost for Extd. Loop or Local Channel and Interoffice Comb. - Switch-As-Is - Disc. Only		$8.10	$8.10		$8.98	$8.98
	Nonrec. Cost - 2-wire VG Extended Loop with 2-wire VG Interoffice Transport - NEW		$200.40	$102.00		$222.29	$113.13
	Nonrec. Cost - 2-wire VG Extd. Loop with 2-wire VG Interoffice Transport - NEW - Disc. Only		$84.10	$21.93		$93.28	$24.34
P.23-2	D.2.1 Interoffice Transport - Dedicate - 2-Wire Voice Grade - Per Mile	$0.0084			$0.0091		
P.24	**4-WIRE VOICE GRADE EXTENDED LOOP/ 4-WIRE VOICE GRADE INTEROFFICE TRANSPORT**						
P.24-1	Fixed						
	Zone 1	$44.43			$45.60		
	Zone 2	$52.61			$53.65		
	Zone 3	$78.83			$82.60		
	P.17.1 Nonrec. Cost for Extd. Loop or Local Channel and Interoffice Comb. - Switch-As-Is		$8.10	$8.10		$8.98	$8.98
	P.17.1 Nonrec. Cost for Extd. Loop or Local Channel and Interoffice Comb. - Switch-As-Is - Disc. Only		$8.10	$8.10		$8.98	$8.98
	Nonrec. Cost - 4-wire VG Extended Loop with 4-wire VG Interoffice Transport - NEW		$200.40	$102.00		$222.29	$113.13
	Nonrec. Cost - 4-wire VG Extd. Loop with 4-wire VG Interoffice Transport - NEW - Disc. Only		$84.10	$21.93		$93.28	$24.34
P.24-2	D.12.1 Interoffice Transport - Dedicated - 4-Wire Voice Grade - Per Mile	$0.0084			$0.0091		
P.25	**DS3 DIGITAL EXTENDED LOOP WITH DEDICATED STS1 INTEROFFICE TRANSPORT**						
P.25-1	Fixed	$1,488.10			$1,457.88		

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	P.17.1 Nonrec. Cost for Extd. Loop or Local Channel and Interoffice Comb. - Switch-As-Is		$8.10	$8.10		$8.98	$8.98
	P.17.1 Nonrec. Cost for Extd. Loop or Local Channel and Interoffice Comb. - Switch-As-Is - Disc. Only		$8.10	$8.10		$8.98	$8.98
	Nonrec. Cost - DS3 Digital Extd. Loop with Ded. DS3 Interoffice Transport - NEW		$508.86	$264.11		$564.42	$292.93
	Nonrec. Cost - DS3 Digital Extd. Loop with Ded. DS3 Interoffice Transport - NEW - Disc. Only		$95.29	$40.65		$105.70	$45.08
P.25-2	D.6.1 Interoffice Transport - Dedicated - DS3 - Per Mile	$3.57			$3.87		
P.25-3	A.16.2 High Capacity Unbundled Local Loop - DS3 - Per Mile	$10.06			$10.92		
P.26	**STS1 DIGITAL EXTENDED LOOP WITH DEDICATED STS1 INTEROFFICE TRANSPORT**						
P.26-1	Fixed	$1,511.68			$1,482.60		
	P.17.1 Nonrec. Cost for Extd. Loop or Local Channel and Interoffice Comb. - Switch-As-Is		$8.10	$8.10		$8.98	$8.98
	P.17.1 Nonrec. Cost for Extd. Loop or Local Channel and Interoffice Comb. - Switch-As-Is - Disc. Only		$8.10	$8.10		$8.98	$8.98
	Nonrec. Cost - STS1 Digital Extd. Loop with Ded. STS1 Interoffice Transport - NEW		$508.86	$264.11		$564.42	$292.93
	Nonrec. Cost - STS1 Digital Extd. Loop with Ded. STS1 Interoffice Transport - NEW - Disc. Only		$95.29	$40.65		$105.70	$45.08
P.26-2	D.10.1 Interoffice Transport - Dedicated - STS-1 - Per Mile	$3.57			$3.87		
P.26-3	Per Mile - Loop						
	A.16.16 High Capacity Unbundled Local Loop - STS-1 - Per Mile	$10.06			$10.92		

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P.50	**4-WIRE DS1 LOOP WITH CHANNELIZATION WITH PORT**						
P.50.VG1	First Voice Grade in DS1 - Switch-as-is						
	Zone 1	$192.53			$193.54		
	Zone 2	$219.19			$219.23		
	Zone 3	$304.69			$311.61		
P.50.VG2	Additional Voice Grade in same DS1	$2.00			$2.04		
P.50 DID1	First 2-Wire DID in DS1 -Switch-as-is						
	Zone 1	$200.00			$200.87		
	Zone 2	$226.66			$226.56		
	Zone 3	$312.16			$318.94		
P50DID2	Additional 2-Wire DID in same DS1	$9.47			$9.37		
P50ISDN-1	First ISDN in DS1 - Switch-as-is						
	Zone 1	$201.99			$203.25		
	Zone 2	$228.66			$228.94		
	Zone 3	$314.15			$321.32		
P50ISDN2	Additional ISDN in same DS1	$11.46			$11.75		
P.50.1	4-Wire DS1 Loop/Channelization Port Combination - Nonrecurring Costs - Switch-as-is		$72.61	$3.82		$96.77	$4.24
P.50.4	4-Wire DS1 Loop/Channelization Port Combination - Subsequent Activity - Add Lines - Per Line		$56.95			$63.17	
P.50.5	4-Wire DS1 Loop/Channelization Port Combination - Subsequent Activity - Add Trunks - Per Trunk		$78.32			$86.86	
P.51	**2-WIRE ISDN EXTENDED LOOP WITH DS1 INTEROFFICE TRANSPORT**						
P.51-1	First 2-Wire ISDN in DS1						
	Zone 1	$266.81			$260.63		

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	Zone 2	$274.68			$268.25		
	Zone 3	$299.93			$295.63		
	P.17.1 Nonrec. Cost for Extd. Loop or Local Channel and Interoffice Comb. - Switch-as-is		$8.10	$8.10		$8.98	$8.98
	P.17.1 Nonrec. Cost for Extd. Loop or Local Channel and Interoffice Comb. - Switch-as-is -Disc. Only		$8.10	$8.10		$8.98	$8.98
	Nonrec. Cost - 2-Wire ISDN Extd. Loop with DS1 Interoffice Transport - NEW		$330.00	$182.65		$366.04	$202.58
	Nonrec. Cost - 2-Wire ISDN Extd. Loop with DS1 Interoffice Transport - NEW - Disc. Only		$85.75	$23.07		$95.11	$25.60
P.51-2	D.4.1 Interoffice Transport - Dedicated - DS1 - Per Mile	$0.1710			$0.1856		
P.51-3	Additional 2-Wire ISDN in same DS1						
	Zone 1	$24.20			$25.42		
	Zone 2	$32.07			$32.04		
	Zone 3	$57.32			$60.42		
	P.17.16 Nonrec. Cost - New Feature Activation for Combination Use Only		$6.05	$4.36		$6.71	$4.84
P.52	**4-WIRE DS1 DIGITAL EXTENDED LOOP WITH DEDICATED STS-1 INTEROFFICE TRANSPORT**						
P.52-1	First in DS1 in STS1						
	Zone 1	$1,387.16			$1,354.39		
	Zone 2	$1,413.83			$1,380.08		
	Zone 3	$1,499.32			$1,472.46		
	P.17.1 Nonrec. Cost for Extd. Loop or Local Channel and Interoffice Comb. - Switch-as-is		$8.10	$8.10		$8.98	$8.98
	P.17.1 Nonrec. Cost for Extd. Loop or Local Channel and Interoffice Comb. - Switch-as-is -Disc. Only		$8.10	$8.10		$8.98	$8.98

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	Nonrec. Cost - 4-Wire DS1 Digital Extd. Loop with Ded. STS-1 Interoffice Transport - NEW		$490.87	$238.62		$544.46	$264.66
	Nonrec. Cost - 4-Wire DS1 Digital Extd. Loop with Ded. STS-1 Interoffice Transport - NEW - Disc. Only		$81.18	$29.99		$90.04	$33.26
P.52-2	D.10.1 Interoffice Transport- Dedicated - STS-1 - Per Mile	$3.57			$3.87		
P.52-3	Additional DS1 in same STS1						
	Zone 1	$83.46			$87.20		
	Zone 2	$110.13			$112.89		
	Zone 3	$195.62			$205.27		
	P.17.16 Nonrec. Cost - New Feature Activation for Combination Use Only		$6.05	$4.36		$6.71	$4.84
P.53	**2-WIRE VOICE GRADE EXTD LOOP WITH DED DS1 INTEROFFICE TRANSPORT W/ 3/1 MUX**						
P.53-1	First 2-Wire VG in First DS1 in DS3						
	Zone 1	$490.40			$476.04		
	Zone 2	$495.57			$481.11		
	Zone 3	$512.15			$499.36		
	P.17.1 Nonrec. Cost for Extd. Loop of Local Channel and Interoffice Combination - Switch-as-is		$8.10	$8.10		$8.98	$8.98
	P.17.1 Nonrec. Cost for Extd. Loop of Local Channel and Interoffice Comb. - Switch-as-is-Disc. Only		$8.10	$8.10		$8.98	$8.98
	Nonrec. Cost - 2-Wire VG Extd. Loop with Ded. DS1 Interoffice Transport with 3/1 Mux- NEW		$330.00	$182.65		$366.04	$202.58
	Nonrec. Cost - 2-Wire VG Extd. Loop with Ded. DS1 Interoffice Trans. with 3/1 Mux- NEW-Disc Only		$85.75	$23.07		$95.11	$25.60

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P.53-2	D.4.1 Interoffice Transport - Dedicated - DS1 - Per Mile	$0.1710			$0.1856		
P.53-3	Additional 2-Wire VG in same DS1						
	Zone 1	$14.85			$15.88		
	Zone 2	$20.02			$20.95		
	Zone 3	$36.60			$39.20		
	P.17.16 Nonrec. Cost - New Feature Activation for Combination Use Only		$6.05	$4.36		$6.71	$4.84
P.53-4	Additional DS1 in same DS3	$256.85			$248.97		
	P.17.16 Nonrec. Cost - New Feature Activation for Combination Use Only		$6.05	$4.36		$6.71	$4.84
P.54	**4-WIRE VOICE GRADE EXTENDED LOOP WITH DS1 INTEROFFICE TRANSPORT W/ 3/1 MUX**						
P.54-1	First 4-Wire VG in First DS1 in DS3						
	Zone 1	$498.20			$484.56		
	Zone 2	$506.38			$492.61		
	Zone 3	$532.60			$521.56		
	P.17.1 Nonrec. Cost for Extd. Loop of Local Channel and Interoffice Combination - Switch-as-is		$8.10	$8.10		$8.98	$8.98
	P.17.1 Nonrec. Cost for Extd. Loop of Local Channel and Interoffice Comb. - Switch-as-is-Disc. Only		$8.10	$8.10		$8.98	$8.98
	Nonrec. Cost - 4-Wire VG Extd. Loop with Ded. DS1 Interoffice Trans. with 3/1 Mux - NEW		$330.00	$182.65		$366.04	$202.58
	Nonrec. Cost - 4-Wire VG Extd. Loop with Ded. DS1 Interoffice Trans. with 3/1 Mux - NEW - Disc Only		$85.75	$23.07		$95.11	$25.60

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P.54-2	D.4.1 Interoffice Transport - Dedicated - DS1 - Per Mile	$0.1710			$0.1856		
P.54-3	Additional 4-Wire VG in same DS1						
	Zone 1	$22.65			$24.40		
	Zone 2	$30.83			$32.45		
	Zone 3	$57.05			$61.40		
	P.17.16 Nonrec. Cost - New Feature Activation for Combination Use Only		$6.05	$4.36		$6.71	$4.84
P.54-4	Additional DS1 in same DS3	$256.85			$248.97		
	P.17.16 Nonrec. Cost - New Feature Activation for Combination Use Only		$6.05	$4.36		$6.71	$4.84
P.55	**4-WIRE 56 OR 64 KBPS EXTD DIGITAL LOOP WITH DED. DS1 INTEROFFICE TRANS. W/ 3/1 MUX**						
P.55-1	First 4-Wire in First DS1 in DS3						
	Zone 1	$502.19			$488.65		
	Zone 2	$511.62			$497.88		
	Zone 3	$541.82			$531.08		
	P.17.1 Nonrec. Cost for Extd. Loop or Local Channel and Interoffice Comb. - Switch-as-is		$8.10	$8.10		$8.98	$8.98
	P.17.1 Nonrec. Cost for Extd. Loop or Local Channel and Interoffice Comb. - Switch-as-is -Disc. Only		$8.10	$8.10		$8.98	$8.98
	Nonrec. Cost- 4-Wire 56 or 64 Kbps Extd Loop w/Ded. DS1 Trans. w/ 3/1 Mux- NEW		$330.00	$182.65		$366.04	$202.58
	Nonrec. Cost- 4-Wire 56 or 64 Kbps Extd Loop w/Ded. DS1 Trans. w/ 3/1 Mux- NEW - Disc. Only		$85.75	$23.07		$95.11	$25.60

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		RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)	RECURRING	NON-RECURRING Including First	NON-RECURRING ADDITIONAL (If Different)
P.55-2	D.4.1 Interoffice Transport - Dedicated - DS1 - Per Mile	$0.1710			$0.1856		
P.55-3	Additional 4-Wire in same DS1						
	Zone 1	$26.64			$28.49		
	Zone 2	$36.07			$37.72		
	Zone 3	$66.30			$70.92		
	P.17.16 Nonrec. Cost - New Feature Activation for Combination Use Only		$6.05	$4.36		$6.71	$4.84
P.55-4	Additional DS1 in same DS3	$256.85			$248.97		
	P.17.16 Nonrec. Cost - New Feature Activation for Combination Use Only		$6.05	$4.36		$6.71	$4.84
P.56	**2-WIRE ISDN EXTENDED LOOP WITH DS1 INTEROFFICE TRANSPORT W/ 3/1MUX**						
P.56-1	First 2-Wire in First DS3						
	Zone 1	$499.75			$485.58		
	Zone 2	$507.62			$493.20		
	Zone 3	$532.87			$520.58		
	P.17.1 Nonrec. Cost for Extd. Loop or Local Channel and Interoffice Comb. - Switch-as-is		$8.10	$8.10		$8.98	$8.98
	P.17.1 Nonrec. Cost for Extd. Loop or Local Channel and Interoffice Comb. - Switch-as-is -Disc. Only		$8.10	$8.10		$8.98	$8.98
	Nonrec. Cost - 2-Wire ISDN Extd Loop with Ded. DS1 Interoffice Transport with 3/1 Mux - NEW		$330.00	$182.65		$366.04	$202.58
	Nonrec. Cost - 2-Wire ISDN Extd Loop w/ Ded. DS1 Interoffice Trans. w/ 3/1 Mux - NEW - Disc. Only		$85.75	$23.07		$95.11	$25.60

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P.56-2	D.4.1 Interoffice Transport - Dedicated - DS1 - Per Mile	$0.1710			$0.1856		
P.56-3	Additional 2-Wire in same DS1						
	Zone 1	$24.20			$25.42		
	Zone 2	$32.07			$33.04		
	Zone 3	$57.32			$60.42		
	P.17.16 Nonrec. Cost - New Feature Activation for Combination Use Only		$6.05	$4.36		$6.71	$4.84
P.56-4	Additional DS1 in same DS3	$256.85			$248.97		
	P.17.16 Nonrec. Cost - New Feature Activation for Combination Use Only		$6.05	$4.36		$6.71	$4.84
P.57	**4-WIRE DS1 DIGITAL EXTD LOOP WITH DED. DS1 INTEROFFICE TRANSPORT W/ 3/1/ MUX**						
P.57-1	First 4-Wire DS1 in DS3						
	Zone 1	$393.03			$386.83		
	Zone 2	$419.70			$412.52		
	Zone 3	$505.19			$504.90		
	P.17.1 Nonrec. Cost for Extd. Loop or Local Channel and Interoffice Comb. - Switch-as-is		$8.10	$8.10		$8.98	$8.98
	P.17.1 Nonrec. Cost for Extd. Loop or Local Channel and Interoffice Comb. - Switch-as-is - Disc. Only		$8.10	$8.10		$8.98	$8.98
	Nonrec. Cost - 4-Wire DS1 Digital Extd. Loop with Ded. DS1 Interoffice Transport with 3/1 Mux - NEW		$330.00	$182.65		$366.04	$202.58
	Nonrec. Cost- 4-Wire DS1 Dig Extd. Loop with Ded DS1 Interoffice Trans. w/ 3/1 Mux-NEW -Disc Only		$85.75	$23.07		$95.11	$25.60
P.57-2	D.4.1 Interoffice Transport - Dedicated - DS1 - Per Mile	$0.1710			$0.1856		
P.57-3	Additional 4-Wire DS1 in same DS3						

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	Zone 1	$174.33			$175.64		
	Zone 2	$201.00			$201.33		
	Zone 3	$286.49			$293.71		
	P.17.16 Nonrec. Cost - New Feature Activation for Combination Use Only		$6.05	$4.36		$6.71	$4.84
P.58	**4-WIRE 56 OR 64 KBPS DIGITAL EXTENDED LOOP WITH DS0 INTEROFFICE TRANSPORT**						
P.58-1	Fixed						
	Zone 1	$43.43			$44.83		
	Zone 2	$52.86			$54.06		
	Zone 3	$83.09			$87.26		
	P.17.1 Nonrec. Cost for Extd. Loop or Local Channel and Interoffice Comb. - Switch-as-is		$8.10	$8.10		$8.98	$8.98
	P.17.1 Nonrec. Cost for Extd. Loop or Local Channel and Interoffice Comb. - Switch-as-is -Disc. Only		$8.10	$8.10		$8.98	$8.98
	Nonrec. Cost- 4-Wire 56 or 64 Kbps Dig. Extd Loop w/ Ded DS0 Interoffice Transport - NEW		$200.40	$102.00		$222.29	$113.13
	Nonrec. Cost- 4-Wire 56 or 64 Kbps Dig. Extd Loop w/ Ded DS0 Interoffice Trans - NEW- Disc. Only		$84.10	$21.93		$93.28	$24.34
P.58-2	D.3.1 Interoffice Transport - Dedicate -DS0 - Per Mile	$0.0084			$0.0091		
Q.0	**D4 CHANNEL BANKS**						
Q.1	**D4 CHANNEL BANKS CENTRAL OFFICE**						
Q.1.1	D4 Channel Bank Inside CO - System						
Q.1.3	Unbundled Loop Concentration - ISDN (Brite Card)						
Q.1.4	Unbundled Loop Concentration - POTS Card						

APPENDIX B - BELLSOUTH WIRE CENTERS BY ZONES

Zone 1

BCRTFLBT	FTLDFLSG	KYWSFLMA	MIAMFLGR	MIAMFLWM
BCRTFLMA	FTLDFLSU	MIAMFLAE	MIAMFLIC	MNDRFLAV
CCBHFLMA	HLWDFLHA	MIAMFLAL	MIAMFLKE	NDADFLAC
DLBHFLMA	HLWDFLMA	MIAMFLAP	MIAMFLME	NDADFLOL
DYBHFLFN	JCVLFLCL	MIAMFLBA	MIAMFLNM	NKLRFLMA
FTLDFLCR	JCVLFLIA	MIAMFLBC	MIAMFLPB	ORLDFLMA
FTLDFLCY	JCVLFLJT	MIAMFLBR	MIAMFLPL	PMBHFLTA
FTLDFLMR	JCVLFLSJ	MIAMFLDB	MIAMFLSO	WPBHFLAN
FTLDFLOA	JCVLFLSM	MIAMFLFL	MIAMFLWD	

Zone 2

BCRTFLSA	FTLDFLJA	JCVLFLNO	NSBHFLMA	PNSCFLWA
BKVLFLJF	FTLDFLPL	JCVLFLOW	ORLDFLAP	PNVDFLMA
BLGLFLMA	FTLDFLWN	JCVLFLRV	ORLDFLCL	PRRNFLMA
BYBHFLMA	FTPRFLMA	JCVLFLWC	ORLDFLPC	PTSLFLMA
CNTMFLLE	GLBRFLMC	JPTRFLMA	ORLDFLPH	PTSLFLSO
COCOFLMA	GSVLFLMA	KYLRFLLS	ORLDFLSA	SBSTFLMA
COCOFLME	GSVLFLNW	KYLRFLMA	ORPKFLMA	SNFRFLMA
DBRYFLDL	HBSDFLMA	LKMRFLMA	ORPKFLRW	STAGFLBS
DBRYFLMA	HLNVFLMA	LYHNFLOH	OVIDFLCA	STAGFLMA
DELDFLMA	HLWDFLPE	MIAMFLCA	PACEFLPV	STAGFLSH
DLBHFLKP	HLWDFLWH	MIAMFLHL	PAHKFLMA	STRTFLMA
DLSPFLMA	HMSTFLAF	MIAMFLNS	PCBHFLNT	TTVLFLMA
DRBHFLMA	HMSTFLHM	MIAMFLOL	PLCSFLMA	VRBHFLBE
DYBHFLMA	HTISFLMA	MIAMFLRR	PMBHFLCS	VRBHFLMA
DYBHFLOB	ISLMFLMA	MIAMFLSH	PMBHFLFE	WPBHFLGA
DYBHFLOS	JCBHFLAB	MICCFLBB	PMBHFLMA	WPBHFLGR
DYBHFLPO	JCBHFLMA	MLBRFLMA	PNCYFLCA	WPBHFLHH
EGLLFLBG	JCBHFLSP	MNDRFLLO	PNCYFLMA	WPBHFLLE
EGLLFLIH	JCVLFLAR	MNDRFLLW	PNSCFLBL	WPBHFLRB
FLBHFLMA	JCVLFLBW	MRTHFLVE	PNSCFLFP	WPBHFLRP
FRBHFLFP	JCVLFLFC	NDADFLBR	PNSCFLHC	WWSPFLHI
FTLDFLAP	JCVLFLLF	NDADFLGG	PNSCFLPB	WWSPFLSH

Zone 3

ARCHFLMA	DNLNFLWM	JAY-FLMA	OKHLFLMA	TRENFLMA
BGPIFLMA	EORNFLMA	KYHGFLMA	OLTWFLLN	VERNFLMA
BLDWFLMA	FTGRFLMA	LKCYFLMA	PLTKFLMA	WELKFLMA
BNNLFLMA	GCSPFLCN	MCNPFLMA	PMPKFLMA	YNFNFLMA
BRSNFLMA	GCVLFLMA	MDBGFLPM	PRSNFLFD	YNTWFLMA
CDKYFLMA	GENVFLMA	MLTNFLRA	SBSTFLFE	YULEFLMA
CFLDFLMA	HAVNFLMA	MNSNFLMA	SGKYFLMA	
CHPLFLJA	HMSTFLEA	MXVLFLMA	STAGFLWG	
CSCYFLBA	HWTHFLMA	NWBYFLMA	SYHSFLCC	