ORIGINAL

BEFORE THE

FLORIDA PUBLIC SERVICE COMMISSION

DIRECT TESTIMONY OF

JOHN P. LYNOTT

ON BEHALF OF

AT&T COMMUNICATIONS OF THE SOUTHERN STATES, INC.

Docket No. 971140-TP

January 29, 1998

DIRECT TESTIMONY OF

JOHN P. LYNOTT

ON BEHALF OF

AT&T COMMUNICATIONS OF THE SOUTHERN STATES, INC.

DOCKET NO. 971140-TP

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND EMPLOYMENT.

A. My name is John P. Lynott, and my business address is 1875 Lawrence Street, Suite 875, Denver, Colorado 80202. I am employed by AT&T Communications as a District Manager in the Local Connectivity Costing and Pricing District of the Local Services Division.

Q. ARE YOU THE SAME JOHN P. LYNOTT WHO FILED DIRECT AND REBUTTAL TESTIMONY ON BEHALF OF AT&T AND MCI IN THE PROCEEDING (DOCKET NOS. 960833-TP/960846-TP/960757-TP) ON ISSUE 1 ELEMENTS?

A. Yes.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to help this Commission establish appropriate non-recurring cost (NRCs) rates for local market entry when an existing customer migrates from BellSouth to Competitive Local Exchange Carrier ("CLEC") such as AT&T. The specific focus of my testimony is to expand on the testimony I

have previously presented during the hearing held January 26-28, 1998, regarding the NRCs for certain UNEs. and explain the non-recurring costs associated with the elements of Issue 8 in this proceeding. I am attaching as Exhibit JPL-1 my previously filed Direct Testimony and as Exhibit JPL-2 my previously filed Rebuttal Testimony. The technical assumptions identified in these Testimonies are also applicable to the Issue 8 elements discussed below.

Q. WHAT IS THE BASIS FOR THE NON-RECURRING PRICES YOU ARE PROPOSING IN THIS PROCEEDING?

A. I rely on the AT&T/ MCI Non-Recurring Cost Model (NRCM) Release 2.0 filed previously in Docket 960833-TP and included again with this testimony as Exhibit JPL-5. Also included as Exhibit JPL-6 is the Nonrecurring Cost Technical Assistance Binder (NTAB) containing the technical assumptions for the NRCM. Both JPL-5 and JPL-6 are in diskette form.

Q. PLEASE EXPLAIN WHAT IS MEANT BY THE TERMS MIGRATION AND INSTALLATION.

A. Migration occurs when a customer with existing service requests a change in its local service provider (i.e., moving an existing BellSouth customer to AT&T). This contrasts with an installation, which is defined as the establishment of any new (or additional) service for a CLEC customer.

Q. COULD YOU BRIEFLY DESCRIBE THE STEPS FOR MODELING THE NON-RECURRING COSTS ASSOCIATED WITH CUSTOMER MIGRATION?

A. For the 2-wire analog "POTS" loop and port and the 2-wire ISDN/BRI loop and port, the NRCM assumes that migration activities can be accomplished electronically through the electronic gateway that exists between a CLEC and BellSouth and BellSouth's OSSs that the CLEC is accessing. Essentially, the process of migrating a BellSouth customer to a CLEC utilizing unbundled network elements is an update of OSS database records to identify the new service provider as the new customer of record. Thus, the cost for a migration order potentially is processing time only, which is recovered in recurring rates.

When an order does fall out, the NRCM assumes that the Provisioning Analyst Work Station ("PAWS"), or a similar OSS, assists in clearing some of the jeopardy conditions automatically, again resulting only in the cost for processing time. The NRCM, however, assumes that some manual work will be required to resolve fallout problems that PAWS cannot resolve (e.g., communication link failures between different OSSs, software release incompatibility, database errors, hardware failures, system maintenance, etc.).

Exhibit JPL-3 provides the NRCM's matrix for the migration service order activity.

Q. PLEASE EXPLAIN THE GENERAL SERVICE FLOW FOR THE DEVELOPMENT OF MIGRATION NON-RECURRING COSTS?

A. Generally, the service order flow is as follows, and is depicted in Figure 1:

1. The Service Order Processor ("SOP") sends the order to the Service Order Analysis & Control System ("SOAC"). SOAC analyzes the order and

determines if assignments or updates are necessary to outside plant (assignments/updates), interoffice facilities or central office equipment (assignments/updates), and whether local digital switch (recent change translations) functions are needed. It should be noted here, that in the case of a simple request of a customer to change providers with no change in what he or she is currently receiving in service (e.g., "as is" or "migration (means that the existing customer and their services are in place today and will remain identical with the new local service provider.), Unbundled Network Element Platform, and Soft Dial Tone (Soft Dial Tone is where the circuit facilities and the switch port are not reassigned, but are left in place even though the premises is vacated.), there is no need to access any down-stream systems via SOAC because all facilities are already in place. Thus, the only cost associated with this activity is processor time to change some records in BellSouth's databases.

2. The Provisioning Systems (e.g. Memory Administration/Recent Change) respond with assignments or updates and SOAC formulates the Element Management System ("EMS"), and Provisioning Systems Translation Packets and Messages based upon the component response data.

3. SOAC electronically sends the Translation Packets and Messages to EMS, and/or Provisioning Systems (e.g., Memory Administration Recent Change [MARCH] and Operations Processor System for Intelligent Network Elements [OPS/INE].

4. The Provisioning Systems and/or EMS electronically sends Translation Packets and Recent Change Messages to the Local Digital Switching Systems ("LDS")[2], Digital Cross-connect Systems ("DCS")[3], and/or other Stored Program or Processor Controlled Network Elements ("PCNE"). The EMS[4] also sends Translation Packets or Recent Change Messages to the Integrated Digital Loop Carrier ("IDLC")[5], Automated Digital Terminal Systems ("ADTS")[6], Fiber in The Loop ("FITL")[7], SONET ADM/LTE[8] or other Processor Controlled Intelligent Digital Loop Carrier ("DLC")[9].

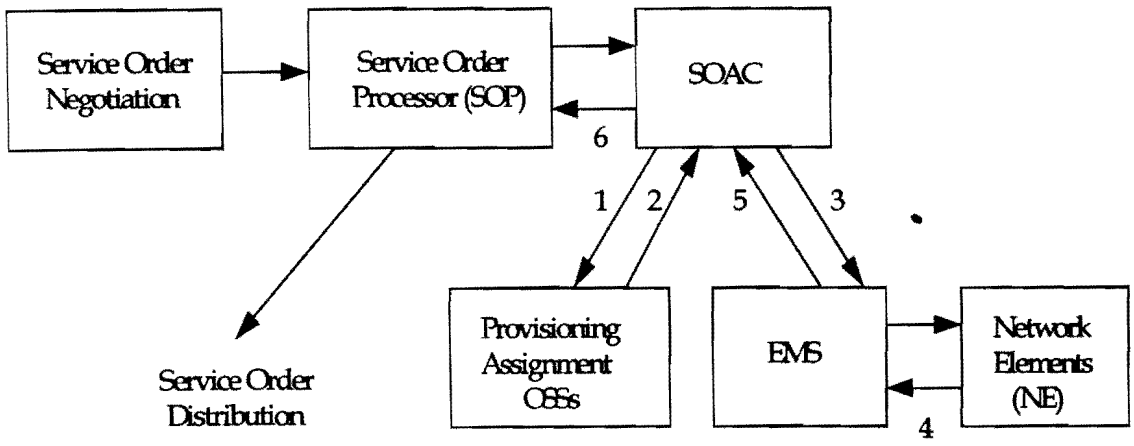
5. Upon receipt of the Message or Translation Packets, the EMS, Provisioning Systems, and Processor Controlled Network Element ("PCNE") will respond in one of two ways:

(a) The first is a positive acknowledgment that the Translation Packets or Messages received have been worked successfully. Assuming a positive acknowledgment response, service is normally provisioned within 2.0 seconds.

(b) The second is an error acknowledgment (fallout) sent to SOAC to indicate that the EMS, PCNE, and/or Provisioning Systems were unable to translate the Translation Packet or Message successfully. If this occurs, the order falls out of the system, the error(s) are resolved and the order is re-input into the process.

6. Assuming successful flow-through (no fallout or RMA), SOAC stores EMS, PCNE, and/or Provisioning Systems requests/responses in its databases for use of reports and inquiries. SOAC also sends the assignment section to the service order processor ("SOP"), and completions are automatically posted in the affected OSS Systems (e.g., Provisioning Systems, Work Management Systems, and Billing Systems, etc.)

High Level Provisioning Flow



Excerpts from Bellcore SR-OPT-001942, Issue 1; Service Order Analysis and Control (SOAC) , Interface to Intelligent Loop Administration System

Figure 1

Q. IS THIS SAME PROCESS FLOW ALSO APPLICABLE TO MIGRATION ACTIVITIES OF EXISTING BELLSOUTH 4-WIRE AND DS1 CUSTOMERS?

A. Yes. The general service flow is similar because the CLEC service order request is causing BellSouth's operational support systems to be electronically updated to reflect the assignment of the end-user's existing service or facilities to the CLEC. Certain activities would change only to reflect access to those OSS supporting 4-wire designed and DS1 facilities (e.g., TIRKS and NSDB).

Q. IS THERE AN EXISTING CHARGE TODAY FOR WHICH THIS COMMISSION CAN RELATE TO UNDERSTAND THE MIGRATION PROCESS?

A. Yes. In BellSouth's Interstate Access Tariff BellSouth charges long distance carriers a PIC (Primary Interexchange Carrier) NRC when a customer wishes to migrate from one long distance provider to another. It is an activity that only requires an update of records and which BellSouth currently charges $1.49 per activity. It should be noted that this NRC is based on a study performed by BellSouth in 1990. Clearly, adjustments to this study to recognize existing automation and removal of CPU costs (a recurring cost in a TELRIC study) will trend this cost to the level produced by the AT&T/MCI Non-Recurring Cost Model.

Q. WHAT CRITERION SHOULD THE COMMISSION USE TO EVALUATE THE APPROPRIATENESS OF NRCs?

A. As is the case with network elements in general, the Commission should ensure that NRCs are not structured in a manner that forces new entrants to pay for costs that they do not cause. Presently, for example, ILECs commonly "disconnect" unbundled network elements by software recent change only (i.e., without physical disconnection of any sort). This activity is referred to as 'soft dial tone' and requires no manual work. Yet, the non-recurring installation charges BellSouth proposes to charge new entrants invariably reflect the costs of physical reconnection, regardless of whether the facilities in question were ever physically disconnected in the first instance. Similarly, BellSouth proposes to charge CLECs new installation NRCs, which account for dispatch activity, when the CLEC is merely requesting that records be updated to reflect the migration of a BellSouth customer to the CLEC. Structuring NRCs so that new entrants must pay for costs that the incumbent will not actually incur is yet another means by which ILECs can erect competitive barriers to competition. Modeling costs that reflect the elimination of such proposals not only minimizes initial barriers to entry, but also closely links cost recovery with the manner in which the costs are actually incurred.

Q. WHAT PRICES DO YOU RECOMMEND BE ESTABLISHED BY THIS COMMISSION FOR THE MIGRATION OF A BELLSOUTH CUSTOMER TO A CLEC FOR THE FOUR SENARIOS OUTLINED IN ISSUE?

A I recommend the 'migration' service order activity NRC found in Exhibit JPL-4 as produced by the AT&T/MCI Non-Recurring Cost Model. The model establishes a price of $.21. I further recommend that this same 'migration' rate be

applied to service orders that migrate an existing BellSouth customer with 4-wire designed or DS1 loop and port service.

Q. WILL YOU PLEASE SUMMARIZE YOUR TESTIMONY?

A. Yes. In order for a competitive environment to exist, new entrants must have non-discriminatory access to the incumbent's databases and other resources for entering service orders to eliminate the need for costly, intermediate customer service contacts. Also, new entrants must only incur costs equal to those which the ILEC would incur using a forward looking network architecture and efficient OSS or else the CLEC is burdened with a barrier to entry and the ILEC has no incentive to become efficient. Finally, NRCs must be based upon TELRIC principles. The prices produced by the AT&T/MCI NRCM should be adopted by this Commission.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

ENDNOTES:

1. Agreement between BellSouth Telecommunications, Inc. and AT&T Communications of the South Central States, Inc.; Part I, Sections 28.1 and 28.6.4.
2. LDS requirements and objectives are found in modules of Bellcore's LSSGR; FR-64.
3. DCS requirements and objectives can be found in Bellcore's TR-NWT-000170.
4. EMS requirements, objectives, and interface specifications can be found in Bellcore's GR-2869-CORE & FR-439.
5. IDLC requirements and objectives can be found in TR-TSY-000303 and GR-303-CORE.
6. ADTS requirements and objectives can be found in Bellcore's TR-TSY-000174.
7. FITL requirements and objectives can be found in Bellcore's TA-NWT-000909.
8. SONET requirements and objectives can be found in Bellcore's GR-253-CORE of FR-440 (TSGR)..
9. DLC requirements and objectives can be found in Bellcore's TR-NWT-000057.

Exhibit _____
Docket No. 971140-TP
Lynott Exhibit JPL-1

BEFORE THE

FLORIDA PUBLIC SERVICE COMMISSION

DIRECT TESTIMONY OF
JOHN P. LYNOTT

ON BEHALF OF

AT&T COMMUNICATIONS OF THE SOUTHERN STATES, INC.

AND

MCI TELECOMMUNICATIONS COMPANY

AND

MCI METRO ACCESS TRANSMISSION SERVICES, INC.

Docket Nos. 960833-TP/ 960846-TP/971140-TP

November 13, 1997

DIRECT TESTIMONY OF

JOHN P. LYNOTT

ON BEHALF OF

AT&T COMMUNICATIONS OF THE SOUTHERN STATES, INC. AND

MCI TELECOMMUNICATIONS COMPANY AND

MCI METRO ACCESS TRANSMISSION SERVICES, INC.

DOCKET NOs: 960833-TP/960846-TP/971140-TP

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND EMPLOYMENT.

A. My name is John P. Lynott, and my business address is 1875 Lawrence Street, Suite 875, Denver, Colorado 80202. I am employed by AT&T Communications as a District Manager in the Local Connectivity Costing and Pricing District of the Local Services Division.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to help this Commission establish appropriate non-recurring cost (NRCs) rates for local market entry. It has been the experience of AT&T and MCI that the NRC rates being proposed by most incumbent local exchange carriers ("ILECs") are vastly overstated for a variety of reasons, including faulty assumptions or inaccurate input values relating to

network architecture, operations support systems (OSSs) capabilities and labor costs. AT&T and MCI have developed a costing tool that models forward-looking non-recurring costs in order to develop appropriate NRC rates. The specific focus of my testimony is to explain the technical assumptions that were used to develop the AT&T and MCI Non-Recurring Cost Model (NRCM).

Q. HOW IS YOUR TESTIMONY ORGANIZED?

A. I begin with a description of general assumptions that are used in the NRCM. I then describe in more detail some of the non-recurring activities that are costed out in the model. For brevity's sake, I do not describe in detail the technical assumptions underlying each and every activity provided for in the model. I have organized my testimony as follows:

SECTION I -	Qualifications and Background
SECTION II. -	General NRCM Cost Modeling Assumptions
SECTION III. -	Customer Migration Costs
SECTION IV. -	Non-Recurring Costs for Installation
SECTION V. -	Non-Recurring Costs for Disconnection
SECTION VI. -	Summary and Recommendation

SECTION I - Qualifications and Background

Q. PLEASE STATE YOUR EDUCATIONAL AND EMPLOYMENT BACKGROUND.

A. I attended Pennsylvania State University and graduated from Regis University in Denver, Colorado, receiving a BS degree, with a major in Technical Management (Emphasis on Electrical Engineering Technology; "EET"), and a minor in Economics. I have also successfully completed a mini-MBA at the Wharton School of Business/University of Pennsylvania, as well as numerous other technical and management training seminars and curriculums. I am presently pursuing a Master of Science degree in Technology Management ("MOTM") at the University of Denver. I am a member of the Institute of Electrical and Electronics Engineers ("IEEE").

I began my career as a Communications Technician with Mountain States Telephone and Telegraph Company ("Mountain Bell") in 1981 in the Network Switched Services department. From divestiture of the Bell System in 1984 until 1994, I held various assignments with US WEST Communications in the Network Terminal Equipment Center/Switching Control Center ("NTEC/SCC"), Technical Operations/Product Support, Network Maintenance Engineering, and Service Assurance/Electronic Switching Assistance Center ("ESAC"). In 1994, I left U S WEST for a position with AT&T Bell Laboratories/Network Systems as a Senior

Market Manager providing Custom Engineering and Development (CEAD), and Tier One Operations Support Systems ("OSS") support.

In November 1995, I accepted an assignment with AT&T Communications as a Technical Support Manager on local infrastructure access issues. Then in 1996 I accepted my current position within AT&T.

Q. MR. LYNOTT, COULD YOU PLEASE HIGHLIGHT THAT PORTION OF YOUR WORK EXPERIENCE THAT IS PARTICULARLY PERTINENT TO THE MATTERS DISCUSSED IN YOUR TESTIMONY?

A. Yes. While I have worked for AT&T since 1994, for most of my career I have worked in a Regional Bell Operating Company ("RBOC") environment with Mountain States Telephone and Telegraph Company ("Mountain Bell") or its successor Company, U S WEST Communications (U S WEST). Throughout my 13 years with these companies, I was heavily involved with the various work centers, functions, activities, and Operational Support Systems ("OSS") that are the focus of our testimony which follows. That experience began in my job as a Communications Technician actually performing the work, continued in various managerial positions observing and supervising others who performed the work, and culminated in other managerial assignments where I helped select the network element technologies and develop the industry standards involved.

Q. WOULD YOU PLEASE PROVIDE EXAMPLES OF THOSE JOB RESPONSIBILITIES AND EXPERIENCES THAT HAVE PARTICULAR APPLICATION HERE?

A. Certainly. My hands-on work as a Communications Technician (COT) for Mountain Bell included the timely provisioning and maintenance of POTS-type, "designed," and high capacity DS1 services in a central office (CO) environment. This required that I become very familiar with leading edge, processor-controlled network element central office conversions and replacement of older technologies with what were forward-looking technologies at that time. I also coordinated with outside plant (Installation and Maintenance ("I&M") technicians in the installation and maintenance of both POTS and designed services, as well as trunks and special services for interexchange carriers ("IXCs"). I specifically coordinated with the Special Services Center ("SSC") on the testing, acceptance, and maintenance of designed circuits, with the Circuit Provisioning Center ("CPC") to resolve fall-out of incorrect circuit designs, and the Switching Control Centers ("SCC"). As my career with Mountain Bell shifted into managerial roles, I trained and supervised technicians who performed these work functions, and interfaced on a biweekly basis with my counterparts in not only the SSC, SCC, CPC, and I&M groups, but also the Facilities Maintenance Administration Center ("FMAC") and Recent Change Memory Administration Center ("RCMAC," a switch translations work group). All of these work centers are important to the non-recurring cost (NRC) modeling issues addressed later in my testimony.

By 1988 my managerial responsibilities (after divestiture in 1984, with U S WEST) were Company-wide in scope, covering operations across all 14 states. In a series of managerial positions, I was responsible for developing and writing detailed technical methods and procedures (M&Ps) to govern the provisioning and maintenance of local exchange and access services; for resolving technical problems on the U S WEST network when field personnel could not; and for analysis and selection of vendor-specific, forward-looking OSS systems and technologies such as LDS, SONET, DCS, TR-303, SS7, and ADTS, many of which are discussed in the testimony which follows. In my last position at U S WEST, I served as liaison to Bell Communications Research ("Bellcore"). In this position I was responsible for assuring that the Company's new technology interfaces were compatible to legacy Bellcore OSS systems, which required a thorough understanding of flow-through provisioning and maintenance issues, problems, fallout, and systems, both upstream and downstream, and from ordering through order completion.

After leaving U S WEST in mid-1994 for AT&T Bell Laboratories (now Lucent Technologies), I served as Marketing Manager for the Company's provisioning and maintenance OSS systems for the Western Region, and also provided Tier I systems engineering support for all interfaces with U S WEST Communications. Since transferring to AT&T Communications in late 1995, I have been immersed in the technical aspects of the crucial NRC costing and pricing issues that must be resolved as AT&T, MCI, and other local service providers ("CLECs") move into

the local exchange market under the Federal Telecommunications Act of 1996. These varied work assignments over the years have all helped prepare me for addressing the issues in this case.

Q. HAVE YOU EVER BEEN INVOLVED IN NEGOTIATIONS AND/OR ARBITRATION PROCEEDINGS WITH ANY ILEC?

A. Yes, I was an AT&T lead negotiator on Interconnection, Unbundling, Collocation, and Local Number Portability (LNP) issues in the U S WEST negotiations. Subsequently, I was also involved in, and testified in Arbitration Proceedings on Technical Feasibility issues.

Q. HAVE YOU PREVIOUSLY TESTIFIED IN OTHER JURISDICTIONS?

A. Yes. I have previously testified in numerous times in Colorado, Texas, New York, Minnesota, Arizona, Utah, and New Mexico.

SECTION II - NRCM Assumptions

Q. PLEASE EXPLAIN THE PURPOSE OF THE NON RECURRING COST MODEL (NRCM).

A. As explained in the model's documentation (Exhibit JPL-1), the NRCM develops one time non-recurring cost estimates for the tasks and activities that may be performed by an ILEC such as BellSouth when a Competitive Local Exchange Carrier (CLEC) requests wholesale services, or, as is the subject of this proceeding, interconnection, and/or unbundled network elements. Utilizing a forward-looking cost methodology, the NRCM develops a "bottoms-up" estimate of non-recurring costs. To accomplish this, the NRCM reflects the individual tasks and activities that may be required to respond to CLEC requests.

Q. WHAT DO YOU MEAN WHEN YOU SAY "FORWARD-LOOKING COST" METHODOLOGY?

A. In the context of the NRCM, I use this term to refer to costs that an efficient provider, using currently available technology would incur to conduct the non-recurring activities described below.

Q. WHAT ARE NON-RECURRING COSTS?

A. Non-recurring costs are the efficient, one-time costs associated with establishing, disconnecting or rearranging unbundled network elements purchased from BellSouth at the request of a customer (e.g., CLEC). Non-recurring cost activities are those that only benefit the CLEC requesting the elements.

Q. WHY IS IT SO IMPORTANT THAT THE ACTIVITIES BEING PERFORMED SPECIFICALLY BENEFIT THE CLEC?

A. If the activity being performed is a one-time activity, but benefits all future users of a particular telecommunications facility, the costs of the activity typically are characterized as recurring. The costs of constructing a loop is one example. Proper 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. If all the forward-looking costs of a one-time activity benefiting multiple users are borne by the first telecommunications provider to use the facility, then obviously the first user will be forced to pay more than its fair share.

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. Rather, such activities are a function of embedded inefficiencies, and result in costs for which CLECs should not compensate an ILEC.

Q. CAN YOU EXPLAIN, BRIEFLY, HOW THE NRCM IS PUT TOGETHER?

A. Yes. 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 CLECs. Second, it is necessary to break down each action into the detailed work activities that comprise that service, 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 the required time, the labor rate, and the probability of occurrence of that work activity. The NRCM calculates non-recurring costs using precisely the steps I just described.

Version 2.0 of the NRCM is included with my testimony on a diskette. Also included on the diskette is the output file for Florida.

Q. WHAT PROCESSES DOES THE NRCM MODEL?

A. The majority of non-recurring processes which the NRCM models involve activities associated with pre-ordering, ordering and /or provisioning processes. Short descriptions of these processes are as follows:

- Pre-ordering: the process by which a CLEC interfaces with customers to determine customer needs, usually beginning with the ILEC providing to the CLEC information necessary to initiate orders. This information, such as customer premise address, phone number availability, feature availability and service availability, is made accessible to CLECs electronically so they can accurately respond to customers when taking service and feature orders.

- Ordering: the process by which a CLEC electronically submits a Local Service Request (LSR) order to an ILEC via an electronic gateway. The ILEC responds electronically with a positive confirmation of order acceptance or order fallout requiring CLEC resolution.

- Provisioning: the process by which an ILEC, after receipt of an LSR order, performs the necessary functions to provide Unbundled Network Elements (UNEs) requested by a CLEC.

Q. WHAT IS THE DIFFERENCE BETWEEN PRE-ORDERING AND ORDERING?

A. Pre-ordering is the process of gathering all of the information necessary to be able to create an accurate end user service order. This includes all of the information

about the services, if any, currently subscribed to by the end user, the service address, the facilities available to provide service to the end user, telephone number assignments, and the like. Once all of this information has been collected, ordering is the actual placing of an order for the various unbundled network elements needed to provide services to the end user.

Q. WHY IS PRE-ORDERING A FUNCTION THAT REQUIRES ACCESSING THE ILEC'S DATABASES?

A. When an entrant is going to use either resold services or unbundled network elements provided by the incumbent, the entrant will have to place a service order with the incumbent. If an entrant is to have its order properly identified with the end user's current service account, all of the information about the end user to be served must match the information the incumbent already has on that end user. Because the market is currently a monopoly, only the incumbent has the information about the billing and service address(es), the telephone numbers, and the features and functions that are used by each end user. Accordingly, the entrant must interface with the ILEC. Pre-ordering also allows the new entrant to talk to a potential customer about what services are available at his location, how soon it is likely service could be provided, and what the cost will be. This is the same function a customer experiences when shopping for new tires, or new stereo equipment.

Q. WHAT IS PROVISIONING?

A. Provisioning is the actual assignment of all of the network elements needed to provide services to a given end user. It is the turning up of service so that the new entrant is ready to provide service to the new or existing customer.

Q. HOW ARE THE PRE-ORDERING, ORDERING AND PROVISIONING, AS WELL AS MAINTENANCE AND BILLING, ELECTRONIC PROCESSES MANAGED ?

A. These processes are managed through the use of Operational Support Systems ("OSS").

Q. WHAT ARE OPERATIONAL SUPPORT SYSTEMS?

A. OSS are the electronic, software driven computer programs and databases that telephone companies use to manage their pre-ordering, ordering, provisioning, repair, maintenance and billing processes for both their retail and wholesale operations. Today's software programs and databases operate in a highly automated, accurate and rapid manner with little to no human intervention.

Q. WHY ARE OSS ASSUMPTIONS IMPORTANT TO THE DEVELOPMENT OF A NON-RECURRING COST MODEL?

A. Telecommunications networks have evolved to the point where functions such as billing, pre-ordering, ordering, provisioning and maintenance rely heavily on efficient, high availability Operational Support Systems in order to minimize non-recurring cost and maximize performance quality and reliability. In terms of "system solutions", significant advances have been implemented in the last 10-20 years that minimize the need for manual labor (and non-recurring costs) when these systems and databases are efficiently operated and maintained. In fact, the industry has developed and begun to implement the "next generation" of OSSs through industry standards such as Telecommunications Management Network, or TMN.

Not so long ago, functions such as processing a service order were very labor intensive, requiring constant human intervention to update manual inventories and to physically complete each and every order. Today, however, the databases existing within an incumbent's OSS architecture (often referred to as 'Legacy' systems) have been automated and re-engineered to virtually eliminate the need for human intervention. As these automated systems have developed over the past two decades, "[t]he watchwords for such systems became *flow through*, meaning that the processing of a problem or request for service would flow through several computer systems and be resolved without human intervention."[1] OSS evolution has had, and will continue to have, a very significant impact on non-recurring costs. Given that the major driver of high non-recurring costs had

been incremental labor times and labor rates, the reduced reliance on human intervention due to advanced OSSs has significantly reduced the incremental non-recurring cost associated with functions such as pre-ordering, ordering, provisioning and maintenance. Significant cost savings can be achieved with existing OSS, if their capabilities are not undermined by polluted databases or inefficient configurations.

Q ARE THERE ANY OTHER ASSUMPTIONS REGARDING OSSs THAT ARE RELEVANT TO MODELING NRCs?

A. Yes. Assumptions regarding recovery of OSS investment are important. First, the NRCM does not capture OSS investment required for the establishment and operation of the electronic gateway that serves as the medium for CLEC/ILEC interfacing because it has value over many years and to all exchange carriers utilizing the network. Second, BellSouth's current OSS investment is recovered through recurring rates, to the extent it needs to be recovered at all. Mechanized OSS manages the totality of the telecommunications network. Arguably, no OSS investment should result in any cost increase, even for recurring rates, because much, if not all, OSS investment is recovered through efficiency gains that result from that investment. That is, investing in up-to-date OSSs reduces costs for the ILEC, and, hence, the investment pays for itself over time.

Q. DO YOU HAVE AN EXAMPLE IN WHICH OSS EFFICIENCY GAINS WERE REALIZED?

A. Yes, as I mentioned previously, the provisioning of a service request, prior to the advent of efficient OSSs, was a manual, labor intensive effort that was prone to mistakes and service delays. Bellcore then developed, and the industry has implemented, several OSSs that have mechanized the assignment process. One software solution product of Bellcore called Facility Assignment and Control Systems (FACS) automated the assignment process. Another product called the Computer Operations For Main Frame Operations (COSMOS) automated manual inventory systems for tracking the assignment of central office equipment.

In addition, two other products from Bellcore further automate the provisioning process: the Loop Facility Assignment and Control system (LFACS) provides a mechanized inventory and assignment of the outside plant; and the Service Order Analysis and Control System (SOAC) tracks and analyzes the service order. SOAC determines if inventory assignments are required, and sends those assignment requests to the inventory systems (LFACS and COSMOS).

Together, these systems have mechanized the assignment process needed to provision a service request. As a result, for much of the POTS, complex, and special services, those systems have virtually eliminated the need for manual assignments, providing an efficient means for managing the network and

significantly reducing the work forces needed in the provisioning process. In addition, these systems have led the way for other enhancements and systems that now manage the work forces, produce translations that activate the local digital switch, and provision services in a completely electronic flow-through manner.

Q. CAN YOU PROVIDE AN EXPLANATION OF FALLOUT?

A. The term used when orders do not flow through an OSS automatically is "Fallout". Most ILEC systems are electronically linked and are dependent on one another. Occasionally an error will occur as data flows through the systems, and this error will cause a service order to "fall out" of the systems, resulting in the need for manual intervention. For example, in an electronic ordering process, if one of the OSSs receives erroneous or incompatible information from another OSS, the order will be designated as a process "fallout" and may require manual intervention to correct or complete the order.

It is important to note that the NRCM only considers "fallout" within the OSS managing the provisioning processes. Fallout during the pre-ordering and ordering processes (i.e., errors on the Local Service Request itself) are the responsibility of the CLEC to manually clear, as provided for in the Interconnection Agreement between AT&T and BellSouth.[2]

Q. IS FALLOUT IMPORTANT TO MEASURING NRCs?

A. Absolutely. Fallout is important because in many instances it is the only cost driver for an otherwise seamless electronic flow-through process. With OSSs that are well managed and maintained, the rate of fallout is expected to be minimal, especially in a competitive environment. This is a necessity because fallout affects the customer in terms of longer delivery intervals and restoration/response times, as well as higher cost of providing service; conditions a competitive company can ill afford.

Q. WHAT FALLOUT RATE IS USED IN THE NRCM?

A. The NRCM assumes a conservative fallout rate of 2%. Fallout levels proposed by MCI and AT&T were selected based on the judgment of our experts of a competitive industry, as well as fallout levels reported by ILECs. A 98% flow-through process rate is an achievable forward-looking benchmark. The level of fallout currently reported by some ILECs for resale orders is approaching, at, or better than, what our model proposes and this will be the trend in a competitive environment for UNE orders as well. A prime example is the SWBT transcripts for EASE/TSR flow through provisioning which indicate only a 1% fallout rate for resale orders.[3] SWBT has also indicated that they expect the same 99% flow-through for unbundled network elements (UNE) via similar systems. Moreover,

US West has also stated in a cost study filed before the Minnesota Public Service Commission on 7/11/97 that "97% of all CSB PIC Changes are completely mechanized." PIC changes involve the transfer of ILEC facilities between inter-exchange carriers and, thus, involve non-recurring activities comparable to those an ILEC must perform to provision unbundled network elements to CLECs.

Even BellSouth admits that low fallout rates currently are achievable.[4] Further, a competitive local environment will *necessitate* a low fallout rate, as indicated in the requirements RBOCs have supplied to Bellcore. According to Bellcore GR-2869, Issue 2, (Oct. 1996) pg.4-25, section 4.6.2 on Immediate Service Activation, "Activation will occur at the time of assignment" (i.e., immediately). Such requirements will not allow for high levels of fallout.

Q. IS THE 2% NRCM FALLOUT RATE SIMILAR TO THE ASSUMPTIONS BEING UTILIZED BY BELLSOUTH IN THEIR COST STUDIES?

A. Not at all. BellSouth, like several other ILECs, has assumed a significantly higher degree of manual intervention in its OSS systems, such as COSMOS/SWITCH, PREMIS, TIRKS, and LFACS. For the reasons discussed above, this assumption is invalid because it does not represent efficiently managed and forward looking systems, and, accordingly, produces a higher non-recurring cost than should be experienced even with the automatic flow-through processes that actually exists

today. In addition, BellSouth introduces unnecessary workgroups, such as the LCSC and ACAC, to internally rework orders that BellSouth deems contain CLEC order entry errors. Any manual assistance required to clear errors associated with the data on the Local Service Order will be performed by the CLEC, which incurs all cost. Since all order errors, not OSS fallout, are 100% electronically returned to the CLEC, BellSouth inappropriately overstates relevant non-recurring cost.

Q. IN ADDITION TO OSS, IS THE NETWORK ARCHITECTURE ASSUMPTION CRITICAL WHEN MODELING NON-RECURRING COSTS?

A. Yes. It's also important to understand and utilize forward looking network architectures in modeling non-recurring costs. For example, the NRCM utilizes Local Digital Switches ("LDS"), Integrated Digital Loop Carrier (IDLC/GR-303) for loops greater than 9 Kilofeet (for loops less than 9 Kilofeet, copper is assumed), Digital Cross-connect Systems ("DCS"), and Synchronous Optical Network ("SONET") rings for transport. These architectures are important because they are forward looking intelligent processor controlled network elements that can communicate over standard interfaces to the OSSs in such a manner that little-or-no manual intervention is required for provisioning or maintenance activities. These architectures are also the ones currently be deployed by BellSouth today. Technologies such as these work hand-in-hand

with advanced OSSs to minimize cost and improve customer service and are essential to the development of forward looking non-recurring costs.

Q. ARE THESE FORWARD LOOKING NETWORK TECHNOLOGIES AVAILABLE TODAY?

A. Yes, current forward looking network technologies are available to the telecommunications industry. In fact, BellSouth made headlines in a November 2, 1993, AT&T News press release: "BellSouth makes ISDN call via GR-303-compliant loop carrier." The news release stated that the demonstration points to substantially lowered costs for ISDN connections, expected to make ISDN service more attractive and widespread. SONET technology also is deployed currently within the BellSouth network, and is the existing, forward-looking technology in the industry. BellSouth offers a variety of SONET services in its Interstate Access Tariff.

Q. CAN YOU BRIEFLY DESCRIBE OTHER SIGNIFICANT ASPECTS OF THE NRCM'S METHODOLOGY AND ASSUMPTIONS?

A. Yes. As a threshold matter, the model develops separate non-recurring costs for migration, installation, and disconnection functions. The cost to disconnect has been modeled separately in order to model accurately an entrant's non-recurring costs, depending on whether the new entrant chooses to disconnect the feature or

function at the time an end user cancels service, or maintain the service, feature or function installed for a future customer. By contrast, in the current, non-competitive environment, ILEC connect charges often recover the cost of both the connection and the disconnection.

In addition, the NRCM assumes certain levels of testing. As an example, the NRCM does recognize continuity-type testing to insure connectivity. The costs of conformance-type testing (necessary to insure that installed facilities deliver services meeting the required specifications), however, are captured within the maintenance loading factor on recurring rates because this testing is performed during the Engineer, Furnish and Install (EF&I) phase associated with plant placement. As a result, the NRCM does not duplicate inclusion of these costs. The NRCM also assumes that BellSouth will proactively maintain its network to ensure that it operates properly and provides reliable customer service. Such proactive monitoring of the network is done in order to be aware of potential failures before they occur. In addition, BellSouth must respond to customer generated inquiries about service problems. The NRCM assumes that the costs for these types of testing are recovered in recurring rates.

Lastly, the NRCM models different process flows depending upon whether the service, feature, and/or function is considered a plain old telephone service ("POTS") or a designed/private line type special service. This distinction is critical from a cost perspective since a designed service may be significantly more

costly. For example, the use of special services test access points will trigger a costly designed circuit, which, in turn, triggers other costly processes (equipment/technology intensive designs), special services OSSs, and work centers/work groups that BellSouth does not use itself when provisioning or maintaining its own non-designed POTS type services. In addition, it is important for parity reasons to ensure that BellSouth charges new entrants for designed process flows only in circumstances in which BellSouth, for its own customers, would incur this expense.

Q. WHAT CRITERION SHOULD THE COMMISSION USE TO EVALUATE THE APPROPRIATENESS OF NRCs?

A. As is the case with network elements in general, the Commission should ensure that NRCs are not structured in a manner that forces new entrants to pay for costs that they do not cause. Presently, for example, ILECs commonly "disconnect" unbundled network elements by software command only (i.e., without physical disconnection of any sort). This activity is referred to as 'soft dial tone' and requires no manual work. Yet, the non-recurring installation charges BellSouth proposes to charge new entrants invariably reflect the costs of physical reconnection, regardless of whether the facilities in question were ever physically disconnected in the first instance. Structuring NRCs so that new entrants must pay for costs that the incumbent will not actually incur is yet another means by which ILECs can erect competitive barriers to competition. Modeling costs that

reflect the elimination of such proposals not only minimizes initial barriers to entry, but also closely links cost recovery with the manner in which the costs are actually incurred.

SECTION III - NRCs for Customer Migration

Q. PLEASE EXPLAIN WHAT IS MEANT BY THE TERMS MIGRATION AND INSTALLATION.

A. Migration occurs when a customer with existing service requests changes in its local service provider (i.e., moving existing ILEC customers to a CLEC). This contrasts with an installation, which is defined as the establishment of any new (or additional) service for a CLEC customer.

Q. COULD YOU BRIEFLY DESCRIBE THE STEPS FOR MODELING THE NON-RECURRING COSTS ASSOCIATED WITH CUSTOMER MIGRATION?

A. The NRCM assumes that migration activities can be accomplished electronically through the electronic gateway that exists between a CLEC and BellSouth and BellSouth's OSSs that the CLEC is accessing. Thus, the cost for a migration order potentially is processing time only, which is recovered in recurring rates.

When an order does fall out, the NRCM assumes that the Provisioning Analyst Work Station ("PAWS"), or a similar OSS, clears some of the jeopardy conditions automatically, again resulting only in the cost for processing time. The NRCM, however, assumes that some manual work will be required to resolve fallout problems that PAWS cannot resolve (e.g., communication link failures between different OSSs, software release incompatibility, database errors, hardware failures, system maintenance, etc.).

Based on my experience with New England Telephone Co.'s Mechanized Loop Assignment Center (MLAC), I have estimated that the average time expended by technicians to resolve system problems consists of 2.5 minutes to retrieve and analyze the order and 15 minutes to actually clear the jeopardy.

Q. CAN YOU EXPLAIN HOW PAWS CLEARS SOME OF THE JEOPARDY CONDITIONS?

A. Yes. The PAWS system is a software product from Bellcore that manages and tracks fallout or jeopardy conditions. When fallout is detected, OSSs such as SOAC route information about the fallout to PAWS. PAWS, in turn, routes this data to a particular work group or system that can assist in resolution of the problem. The PAWS software also comes equipped with a "work scripting" tool set which allows companies like BellSouth to construct work scripts that emulate otherwise manual transactions required to resolve the jeopardy condition. If, for

example, the system detects an interfering station condition (primary service cannot be installed, possibly because the disconnect for that service location has not been received yet), the work scripts would perform the necessary inquiry transactions on various systems, evaluate the condition and clear the conflict or reroute the fallout to a workgroup for further investigation.

SECTION IV - NRCs for Customer Installation

Q. HOW DOES THE NRCM DEVELOP INSTALLATION COSTS?

A. The best way to answer this question is using the development of non-recurring unbundled loop (For cost modeling purposes, 2 Wire POTS and ISDN BRI are the same. In addition, the NRCM provides for different activities that take place depending upon whether a copper loop or GR-303 fiber loop is being provisioned.) and port installation costs as an example. (Exhibit JPL-2.) The NRCM multiplies individual work activity times by the applicable rate per hour to determine the activity cost. After the total costs of provisioning the service type are calculated, the model sums the costs and applies an "overhead factor" to arrive at the total cost of provisioning that service type.

IS IT TECHNICALLY FEASIBLE FOR A FLOW-THROUGH PROVISIONING PROCESS TO OCCUR?

A. Yes. With the deployment today of efficient OSS, a flow-through provisioning process takes place the majority of the time.

Q. PLEASE EXPLAIN THE GENERAL SERVICE FLOW FOR THE DEVELOPMENT OF INSTALLATION NON-RECURRING COSTS?

A. Generally, the service order flow for OSS and INE is as follows and is illustrated below:

1. The Service Order Processor ("SOP") sends the order to the Service Order Analysis & Control System ("SOAC"). SOAC analyzes the order and determines if assignments or updates are necessary to outside plant (assignments/updates), interoffice facilities or central office equipment (assignments/updates), and whether local digital switch (recent change translations) functions are needed. If required, SOAC then generates an assignment request and sends it to the appropriate Provisioning Systems (e.g., Computer System for Mainframe Operations [COSMOS], Loop Facility Assignment and Control System [LFACS], Trunk Inventory and Record Keeping System [TIRKS], etc.). It should be noted here, that in the case of a simple request of a customer to change providers with no change in what he or she is currently receiving in service (e.g., "as is" ("As Is" means that the existing customer and their services are in place today and will remain identical.), Unbundled Network Element Platform, and

Soft Dial Tone (Soft Dial Tone is where the circuit facilities and the switch port are not reassigned, but are left in place even though the premises is vacated.), there is no need to access any down-stream systems via SOAC because all facilities are already in place. Thus, the only cost associated with this activity is processor time to change some records in BellSouth's databases.

2. The Provisioning Systems (e.g. Memory Administration/Recent Change) respond with assignments or updates and SOAC formulates the Element Management System ("EMS"), and Provisioning Systems Translation Packets and Messages based upon the component response data.

3. SOAC electronically sends the Translation Packets and Messages to EMS, and/or Provisioning Systems (e.g., Memory Administration Recent Change [MARCH] and Operations Processor System for Intelligent Network Elements [OPS/INE].

4. The Provisioning Systems and/or EMS electronically sends Translation Packets and Recent Change Messages to the Local Digital Switching Systems ("LDS")[5], Digital Cross-connect Systems ("DCS")[6], and/or other Stored Program or Processor Controlled Network Elements ("PCNE"). The EMS[7] also sends Translation Packets or Recent Change Messages to

the Integrated Digital Loop Carrier ("IDLC")[8], Automated Digital Terminal Systems ("ADTS")[9], Fiber in The Loop ("FITL")[10], SONET ADM/LTE[11] or other Processor Controlled Intelligent Digital Loop Carrier ("DLC")[12].

5. Upon receipt of the Message or Translation Packets, the EMS, Provisioning Systems, and Processor Controlled Network Element ("PCNE") will respond in one of two ways:

(a) The first is a positive acknowledgment that the Translation Packets or Messages received have been worked successfully. Assuming a positive acknowledgment response, service is normally provisioned within 2.0 seconds.

(b) The second is an error acknowledgment (fallout) sent to SOAC to indicate that the EMS, PCNE, and/or Provisioning Systems were unable to translate the Translation Packet or Message successfully. If this occurs, the order falls out of the system, the error(s) are resolved and the order is re-input into the process.

6. Assuming successful flow-through (no fallout or RMA), SOAC stores EMS, PCNE, and/or Provisioning Systems requests/responses in its databases for use of reports and inquiries. SOAC also sends the

assignment section to the service order processor ("SOP"), and completions are automatically posted in the affected OSS Systems (e.g., Provisioning Systems, Work Management Systems, and Billing Systems. etc.)

Q. PLEASE EXPLAIN THE INTEROFFICE TRANSPORT COST MODELING ASSUMPTIONS.

A. First, the non-recurring cost model assumes, that SONET rings for interoffice transport are the proper forward looking technology to employ and that DS1 and DS3 are virtual paths over the SONET ring.

Second, forward-looking Digital Crossconnect System/Electronic Digital Signal Crossconnect (DCS/EDSX[13]) technology is assumed. There is no need to manually perform option settings on the SONET equipment (i.e., line codes, features) because DCS/EDSX has default settings, and -- because it is software controlled. If changes of the default settings are required, it will be remote and in a flow-through manner from upstream OSS systems(s) such as the Bellcore Operations Processing System for Intelligent Network Elements ("OPS/INE"). The cross connects are performed electronically and will take approximately 50 milliseconds for CPU processing time with an acknowledgment response within 2 seconds per Bellcore specifications.[14]

Third, the study also assumes that the performance monitoring for Error Seconds ("ES"), Bit Error Rate ("BER"), Cyclical Redundancy Check ("CRC), Unavailable Seconds ("UAS"), Severely Error Seconds ("SES"), and Automatic Protection Switch Counts ("APS") have been set. Remote DS1 loop-back testing is facilitated by the use of a Testing OSS system ("TOS'). Finally, Quad (4-port) plug-in cards have been assumed.

Fourth, the transport non-recurring cost modeling does not include the end-to-end provision of special access/private line services, but rather only designed interoffice facilities ("IOF") transport and, therefore, the entire transport process is controlled by the Facilities Maintenance Administration Center ("FMAC") and not the Special Services Center (SSC). Thus, this transport cost reflects ordering capacity only.

Fifth, alarms are typically tested with the Facility Maintenance Administration Center ("FMAC") upon acceptance and turn-up of the intelligent network elements (i.e., DCS/EDSX, SONET Mux, etc.) and not on a facility by facility basis. This feature has no manual labor for testing other than trace lamp continuity because performance monitoring is performed automatically between the EDSX/DCS/EDSX and the Network Monitoring and Analysis ("NMA") OSS. This assumes, of course, that the FMAC has already built the parse rules, templates, and databases in the NMA OSS System. If performance monitoring

("PM") fails then intrusive testing will occur via a remote Integrated Test System ("ITS") or similar Test Operations System OSS system.

Finally, the cost for DS1 grooming within the DS3 Interoffice Transport is CPU processing time only. This feature has no manual labor because it assumes the new entrant has access to Flexcom/LINC, which is a Bellcore OSS end-user partitioned system, or Customer Network Controller ("CNC"), which is a Lucent end-user OSS system, that allows for end user customer access to EDSX/DCS and SONET Add/Drop Multiplexers for reconfiguration of their own DS3, DS1, and/or DSO bandwidth. This allows the new entrant the ability to groom the DS1 within the DS3 interoffice Transport.

Q. WHAT TIMES AND ACTIVITIES WERE ASSUMED FOR INTEROFFICE TRANSPORT?

A. Two channel units or plug-ins were assumed for each DS3. Three channel units or plug-ins were assumed for a DS1. The cards required to be installed are in DCS/EDSX, high speed SONET Multiplexer and low speed SONET multiplexer (applicable to DS1 only). This allows low speed drops (e.g., DS1s) from a high speed SONET ring (e.g., OC-48) to a low speed DS1. The times to install the cards was estimated at 2 minutes each. However, the time was divided by 4 to reflect the Quad (4-port) cards plug-ins for DCS/EDSX and the low speed multiplexer. The time for the high speed plug-in was divided by 28 to reflect the

capacity of an STS-1, DS3, or OC-1. For testing, its was assumed, as discussed above, all performance monitoring ("PM") registers were pre-set for autonomous reporting of PM threshold crossings to the OSS. However, it was assumed that it took the FMAC technician 3 minutes to retrieve and analyze the data. In addition, it was assumed that 1% of the time an ITS or intrusive test will be performed, if a performance Monitoring test fails. Fall out was included and the center assumed was the Circuit Provisioning Center.

V. NRCs for Customer Disconnects

Q. PLEASE DEFINE DISCONNECT.

A. Disconnect occurs when a service to a customer is ended.

Q. PLEASE DESCRIBE WHY THE NRCM MODELS DISCONNECTION NRCs SEPARATELY?

A. While ILECs, including BellSouth in its model, typically model installation NRC charges to include the cost of disconnection, the NRCM separates installation and disconnection for costing and pricing purposes. The rationale for this method is two fold. First, the ILEC should only receive the revenue for the disconnect at the time the actual disconnection occurs. This eliminates a "time value of money" concern that is inherent in most current ILEC methodologies.

Second, the disaggregation of installation and disconnect costs and prices also allows the new entrant the ability to benefit from the long standing and efficient practices with respect to Dedicated Inside Plant ("DIP") and Dedicated Outside Plant ("DOP"). The DIP and DOP processes allow for rapid activation or deactivation of services at an end user location without the need for physical disruption of the facility because, with DIP and DOP, physical connections remain in place and only a command from the OSS to the network element is necessary to activate or de-activate the service. If a new entrant chooses to have service de-activated using only software commands, disconnection NRCs become almost non-existent. BellSouth's current disconnect policy adheres to this practice of DIP and DOP in order to provide immediate service activation to the next customer at that premise. Thus, by modeling the installation separately from disconnection, the new entrant would have the same benefits from the DIP and DOP processes as would BellSouth.

VI. Summary and Recommendation

Q. WILL YOU PLEASE SUMMARIZE YOUR TESTIMONY?

A. Yes. In order for a competitive environment to exist, new entrants must have non-discriminatory access to the incumbent's databases and other resources for entering service orders to eliminate the need for costly, intermediate customer service contacts. Also, new entrants must only incur costs equal to those which

the ILEC would incur using a forward looking network architecture and efficient OSS or else the CLEC is burdened with a barrier to entry and the ILEC has no incentive to become efficient. Finally, NRCs must be based upon TELRIC principles.

The NRCM recognizes those requirements. The NRCM, therefore, corrects the many faulty assumptions that have been found in ILEC cost studies. The Non-Recurring Cost Model correctly adheres to the following:

(1) A forward looking cost model should incorporate the efficiencies of automated OSSs which provide for maximum electronic flow through of orders.

(2) To the extent fallout does indeed occur, it should be limited to approximately 2% of the total orders processed.

(3) Manual work times should reflect appropriate intervals based on the use of forward looking network technologies.

(4) Wherever appropriate, service orders should be processed through a non-designed POTS provisioning process as opposed to a more expensive designed services process.

(5) A forward looking cost model should incorporate the efficiencies of automated Intelligent Network Elements (SONET, GR-303/IDLC, DCS/EDSX, LDS, etc.) which provide for maximum electronic flow through for provisioning of orders.

(6) Wherever appropriate, the same work centers, work groups, technicians, and associated labor rates should be modeled at parity with how BellSouth provides similar services to itself.

(7) Migrations and installations should be recognized as mechanized whenever DIP and DOP will permit.

(8) Installation and disconnection should be calculated separately to account for significant cost differences dependent on a new entrant's disconnect decisions regarding DIP/DOP.

Q. DO YOU RECOMMEND ANY NRCs TO THIS COMMISSION?

A Yes. I recommend the NRCs found in Exhibit JPL-3.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

ENDNOTES:

1. The Froehlich/Kent ENCYCLOPEDIA OF TELECOMMUNICATIONS, VOLUME 12, Page 480.

2. Agreement between BellSouth Telecommunications, Inc. and AT&T Communications of the South Central States, Inc.; Part I, Sections 28.1 and 28.6.4.

3. Southwestern Bell recently indicated in its Texas filing that their EASE system, which services residential lines, has a fallout rate of 1%. (Transcripts; Open Meeting Prehearing Conference - 6/24/97 - Southwestern Bell before the PUC and ALJ.)

4. BellSouth Surrebuttal Testimony on 9/8/97 of William N. Stacy before the Georgia PSC in Docket No. 7061-U ("BellSouth has achieved a flow-through rate of approximately 97% in certain exchanges").

5. LDS requirements and objectives are found in modules of Bellcore's LSSGR; FR-64.

6. DCS requirements and objectives can be found in Bellcore's TR-NWT-000170.

7. EMS requirements, objectives, and interface specifications can be found in Bellcore's GR-2869-CORE & FR-439.

8. IDLC requirements and objectives can be found in TR-TSY-000303 and GR-303-CORE.

9. ADTS requirements and objectives can be found in Bellcore's TR-TSY-000174.

10. FITL requirements and objectives can be found in Bellcore's TA-NWT-000909.

11. SONET requirements and objectives can be found in Bellcore's GR-253-CORE of FR-440 (TSGR)..

12. DLC requirements and objectives can be found in Bellcore's TR-NWT-000057.

13. Bellcore SR-TSV-002275, BOC Notes on the LEC Network, Issue 2 (April 1994), section 9.2.2.2 , pages 9-7 and 9-8. states that "EDSXs are software controlled alternatives to the manual DSX." It also states that "DCSs are software -controlled devices considered to be intelligent network elements because they can provide the following features Remote Provisioning and rearrangement of the digital interconnections; Continuous service monitoring; Automatic equipment and facilities protection (self-healing capabilities); and Remote test access.

14. Bellcore TR-199-CORE Memory Administration Messages (OTGR).

Exhibit _____
Docket Nos. 960833-TP, 960846-TP, 971140-TP
Lynott Exhibit JPL-1
NRCM 2.0 Documentation

NON-RECURRING COST MODEL

Version 2.0

Model Description

040

TABLE OF CONTENTS

List of Attachments

A. Non-Recurring Types
B. Detailed Work Activities
C. Activity Assignment Table

I. OVERVIEW

The *Non-Recurring Cost Model (NRC Model)* develops one time (non-recurring) cost estimates for the tasks and activities that may be performed by an Incumbent Local Exchange Carrier (ILEC) when a Competitive Local Exchange Carrier (CLEC) requests wholesale services, interconnection, and/or unbundled network elements.

Utilizing a forward looking cost methodology, the *NRC Model* develops a "bottoms-up" estimate of non-recurring costs. The NRC Model reflects the individual OSS tasks and activities that may be required to respond to a CLEC request. To the extent feasible, each component has been separately costed.

The majority of non-recurring element types involve activities associated with the pre-ordering, ordering and /or provisioning process. A short description of these processes follows:

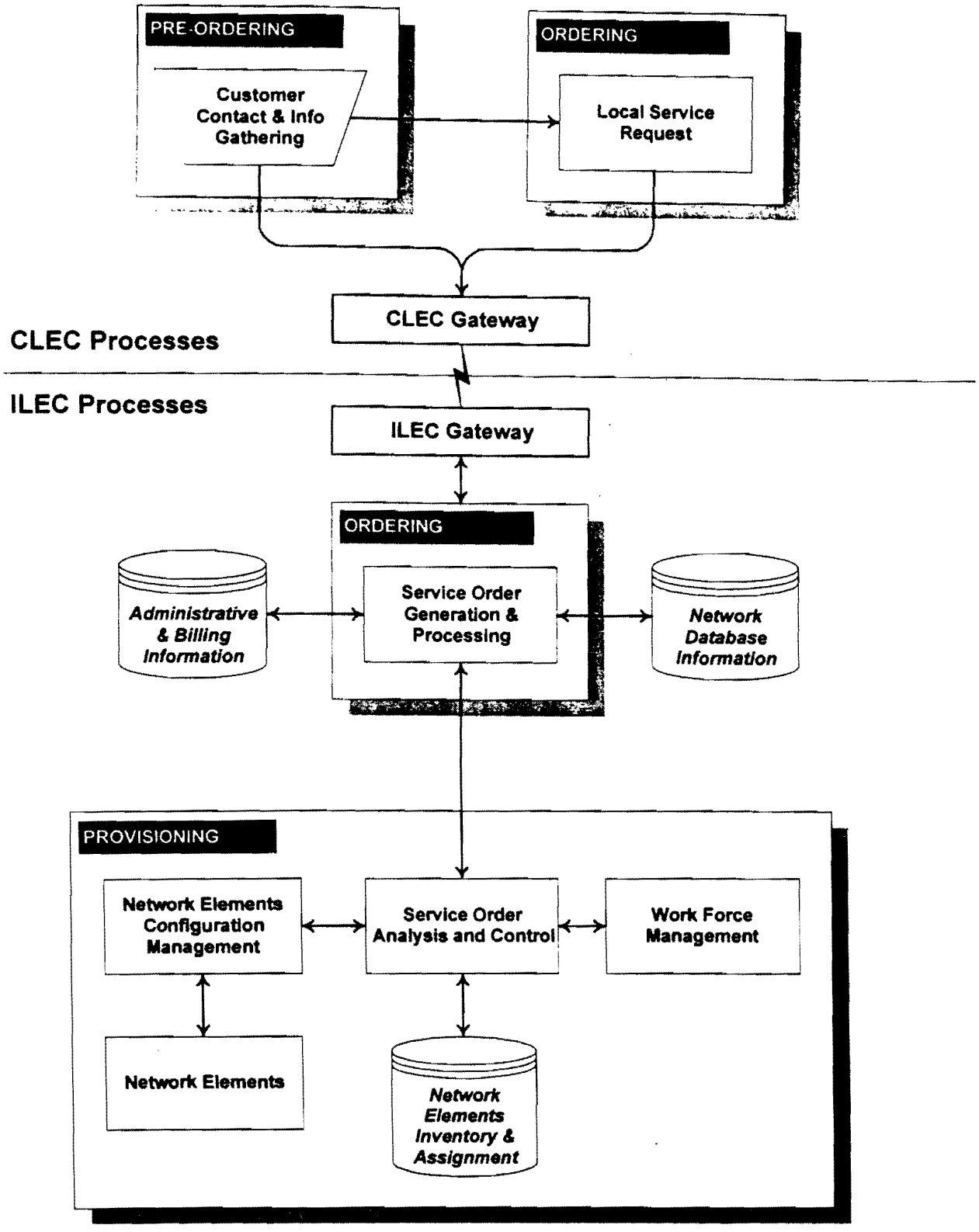
Pre-ordering: The process by which a CLEC interfaces with customers to determine customer needs. A CLEC and ILEC exchange necessary information to initiate orders. This information, such as customer premise address, phone number availability, feature availability and service availability is made accessible to CLECs electronically so they can accurately respond to customers when taking service and feature orders.

Ordering: The process by which a CLEC electronically submits a Local Service Request (LSR) to an ILEC via an electronic gateway. The ILEC responds electronically with a positive confirmation of order acceptance.

Provisioning: The process by which an ILEC, after receipt of an LSR order, performs the necessary functions to provide the service, interconnection, or Unbundled Network Elements (UNE) requested by a CLEC.

These processes are depicted in the high-level chart on the next page.

Description

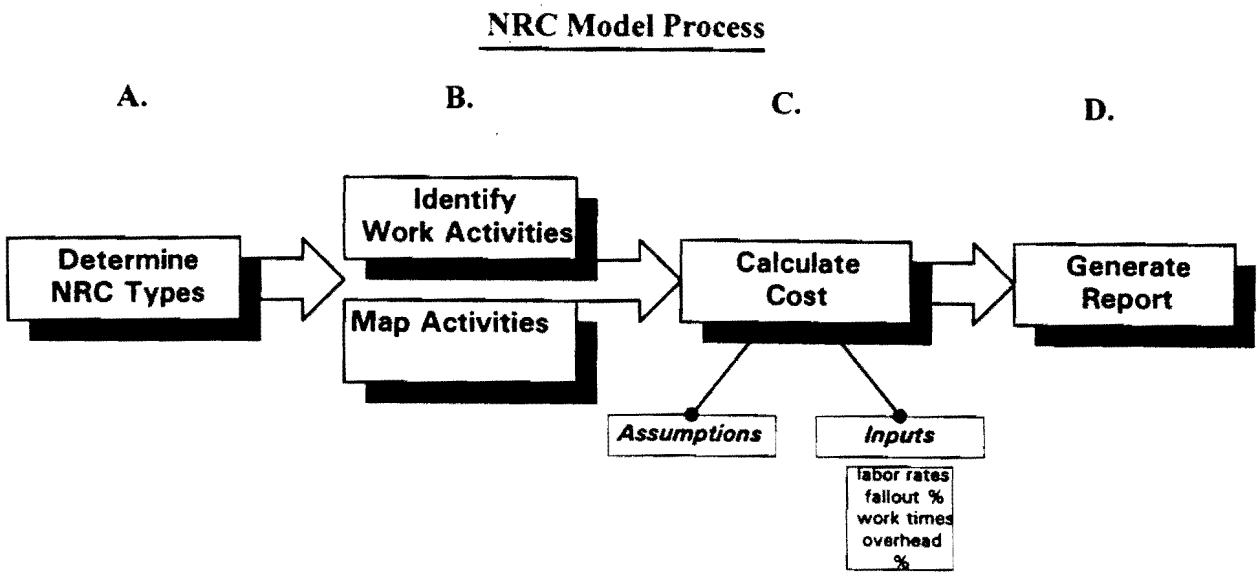


Description

In summary, the *NRC Model* provides a detailed step-by-step understanding of the systems required and the manual work activities performed by an ILEC in the ordering and provisioning of wholesale services and unbundled network elements. The model is designed to reflect the most efficient management and operations of existing ILEC OSSs.

II. METHODOLOGY

As shown by the following chart, the *NRC Model* develops costs in four distinct stages:



A. Determine Non-Recurring Cost Element Types:

The NRC element types that were initially selected for calculation by the model were developed based on a review of the charges proposed by ILECs during negotiation and arbitration proceedings. These NRC element types consist primarily of functions performed in the provisioning of service to existing customers (migration)[1] and to new

1 Migration is defined as moving existing ILEC customers to a CLEC.

customers (installation)[2]. It is anticipated that additional elements will be provided in future releases of the NRC Model. A number of additional elements have been added with this release.

The *Telecommunication Act of 1996* explicitly allows new entrants to provide local telecommunication services by means of various connectivity options. To the extent these options cause different costs to be incurred, such costs are modeled separately within the NRC Model. The local connectivity options include:

Total Services Resale (TSR): ILEC acts as a wholesaler of local telephone service which the CLEC then resells to end user customers.

Unbundled Network Elements Platform (UNE-P): CLEC purchases unbundled network elements in combination from the ILEC at cost-based rates.

Unbundled Network Elements (UNE): CLEC purchases individual unbundled network element(s), e.g., unbundled network element-loop (UNE-Loop), from an ILEC that may be used alone or in combination to provide telecommunication services to CLEC end user customers.

One example of a element type developed by the *NRC Model* is a "*POTS/ISDN Migration -UNE-P.* This element type represents the situation where an existing POTS or ISDN customer changes it's local service provider from an ILEC to a CLEC, and the CLEC serves the customer by purchasing the unbundled network elements in combination (UNE-P).

See **Attachment A** for a complete list of the NRC element types included in the model. Within the model, the user has the ability of either costing individual element types or batch processing a user selected list of element types all at once.

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2 Installation is defined as the establishment of service for a CLEC customer that is not currently served by an ILEC. Service may be for an existing or new customer premise.

B. Identify and Map Activities:

The *NRC Model* identifies the individual systems utilized and manual work activities performed, when an ILEC provides a non-recurring service. These activities are considered generic for the ILEC and fall primarily within the pre-ordering, ordering and provisioning processes. There have been 290 work activities identified and captured in the model. See **Attachment B** for a complete list and description of the activities included in the model.

The model then maps the appropriate set of work activities to each NRC element type. For example, to migrate a POTS customer under the UNE-P option, requires eighteen identified work activities. The logic of the *NRC Model* maps these activities to the NRC element type through an assignment table contained on the "*Process & Calcs*" sheet of the *NRC Model*.

As demonstrated in the following table excerpt, activity assignment is made by the placement of an "X" at the table intersection of activity and NRC element type. (Note: while some activities are generic to many NRC element types, others are specific to only a few.)

ID No.	Process Flow / Activity	1 POTS / ISDN BRI Migration - TSR	2 POTS / ISDN BRI Migration - UNE-Platform	...48
1	CLEC customer contact	X	X	
2	CLEC requests customer address data, CSR, and appointment	X	X	
3	ILEC gateway requests address data from Administrative Info	X	X	
4	ILEC gateway formats and returns address, CSR, and appointm			
5	CLEC customer service representative inputs LSR information	X	X	
6	ILEC gateway receives, validates and logs LSR, returns FOC	X	X	
7	CLEC gateway sends LSR to EXACT			
8	ILEC SOG retrieves CSR data, formats and passes to SOP	X	X	
9	EXACT and TUF sends request to SOP			
10	SOP sends request to SOAC	X	X	
11	SOAC analyzes order, generates assignment requests for OSP	X	X	
290				

When a user of the model chooses to cost out a particular NRC element type, the model selects the column corresponding to that NRC element type and looks for the activities

that are required to be performed. If an "X" is shown, the activity in that row is required. In the table shown above, for example, a *POTS Migration* under the TSR connectivity option requires steps 1, 2, 3, 5, 6, 8, 10, and 11. (Note: this is only a sample of activities required for this element type).

For each activity described above, the model incorporates costing inputs. These inputs include the probability of the activity's occurrence, the time to complete the work activity, and the labor rate associated with the work activity. The model then calculates the cost of each individual activity based upon these inputs and model assumptions. For a complete list of the activity assignment table, see Attachment C.

C. Calculate Costs:

The third stage of the model calculates the cost of each activity and process. The *NRC Model* uses advanced features of Microsoft Excel 7.0 including Visual Basic for Applications (VBA) macros and dialog boxes. The User Guide, which is a separate document, contains additional information on how to run the model.

Through the use of "drop-down" input screens, the model provides the user with alternative input feeds that impact non-recurring service costs. These input screens include the following:

NRC Model - Control Panel: Prompts the user to select NRC element type and state.

Customize Batch: Allows the user to exclude elements from a Batch Run Scenario.

Manual Labor Rates: Prompts the user to either accept or override default values for the input labor rates.

Other NRC Model Inputs: Prompts the user to either accept or override default input values for the following *NRC Model* inputs. (Note: the Assumptions and Inputs of the model are described in more detail later in this document)

- Copper Fiber Ratio (Copper %)
- Central Office Staffing Ratio (% of lines served via staffed central offices)
- Average Trip Time
- Setup Time
- Work Activities per Order (in central office)
- Percentage Non Dedicated Facilities
- Variable Overhead (%)
- POTS System Fallout
- Complex System Fallout

Description

After the user has selected a element type, and has accepted or adjusted any of the default inputs, the model selects all of the activities associated with that particular non-recurring element type based upon the assignment table. Once these activities are selected, the model calculates the cost of each activity using the following formula:

Activity Cost = (Activity Probability (%) x Time (minutes)) x Rate ($ per hour) / 60

The chart below demonstrates how the model performs this step:

A Probability (%)	B Time (minutes)	C Rate ($/hour)	D = (A x B x C) / 60 Cost w/out Overhead ($)
NA			
100.0%	-	R	$ -
NA			
100.0%	-	R	$ -
40.0%	2.50	36.64	$ 0.61
2.0%	20.00	36.64	$ 0.24
40.0%	0.25	36.64	$ 0.06
40.0%	2.00	36.64	$ 0.49
40.0%	0.25	36.64	$ 0.06
40.0%	1.50	36.64	$ 0.37
2.0%	-	R	$ -
2.0%	2.50	33.87	$ 0.03
2.0%	15.00	33.87	$ 0.17
60.0%	-	R	$ -

As reflected above, an assumption in the model is that forward looking OSS investments and system processing costs should be recovered in competitively neutral recurring rates as opposed to non-recurring rates. Therefore, the costs of these activities are set to zero by the placement of an "R" in the *Rate* input field.

Finally, the model sums the costs of all appropriate activities for each element type and then applies the user defined "overhead factor" to arrive at the total cost of providing the element.

D. Generate Results

After all calculations have been completed, the model populates the results into a table. NRC element types that are run individually are output by the model as follows:

Alabama - NRC Elements	Cost	
POTS / ISDN BRI - Install - UNE - Loop	$ 2.17	with overhead
	$ 1.97	without overhead

When results are run in batch mode, the model outputs the cost of each NRC element type generated by the model in a single table.

III. Assumptions And Data Inputs

This section provides a description of the data inputs and general assumptions (technical and otherwise) used by the *NRC Model.*

A. Efficient Operations Support Systems

The *NRC Model* assumes the existence of OSSs which are operated efficiently by the ILEC. Such systems are automated and mechanized today, and should be capable of handling all movement of data electronically between other systems and databases.

The *NRC Model* OSSs are defined by the following minimum criteria:

- All databases are updated on a timely basis, regularly maintained for maximum performance, and are consistent with each other
- OSSs are appropriately sized and electronically linked
- OSSs use front-end edits to minimize the possibility that erroneous information is entered
- OSSs rely on the latest software releases and reside on high availability platforms

In addition, the environment in which the *NRC Model* OSSs are operated is defined by the following:

- No network exhaustion is assumed
- To the extent problems occur, the ILEC will pro-actively conduct a proper root cause analysis and will implement changes to eliminate the problem
- CLECs will have access to these OSSs via an electronic interface
- Work throughput is efficiently planned (i.e., POTS and ISDN BRI-type services should not be classified as designed circuits. Such a classification is unnecessary, does not mirror ILEC procedures, and drives up costs.)
- Company personnel are adequately trained
- The deployment of the latest data communications network technology

B. Recovery of Operations Support System Investment

The *NRC Model* assumes that the costs of the underlying OSSs (i.e., hardware, system software, and processor costs) should be recovered in the LEC's recurring wholesale and retail rates.

In general, OSSs are not developed or partitioned to support only one class of customer, such as a CLEC, nor are they established to support a particular set of functions, such as non-recurring functions. Instead, the architecture of OSSs today is designed to manage the totality of the LEC's telecommunication network, with individual systems and databases reliant on each other for optimal integrity.

In the FCC's order in Docket 96-325, a recurring cost was defined as one that is incurred periodically overtime.[3] OSS development is predicated on the assumption that the OSS will have a life-span of several years. To properly recover this investment in a one-time charge would require a precise present value calculation to prevent over or under recovery of this cost. However, the FCC has found that, "in practice, the present value of the recurring costs cannot be calculated with sufficient accuracy to warrant up-front recovery of these costs".[4]

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3 FCC Order 96-325, paragraph 745. First Report And Order - Released: August 8, 1996

4 Ibid., paragraph 746.

The FCC has concluded that:

> "imposing non-recurring charges for recurring costs could pose a barrier to entry because these charges may be excessive, reflecting costs that may (1) not actually occur, (2) be incurred later than predicted; (3) not be incurred as long as predicted; (4) be incurred at a level that is lower than predicted; (5) be incurred less frequently than predicted; and (6) be discounted to the present using a cost of capital that is too low."[5]

Further, OSS investments, like switching and loop investments, produce long term assets, the recovery of which should, like the recovery of switching and loop costs, be amortized over the life of those assets.

C. Electronic Fallout

Fallout refers to errors in an electronic flow-through process. For example, in an electronic ordering process, if one of the OSSs receives erroneous or incompatible information from another OSS, the order will "fallout" of the electronic process and may require manual intervention to correct or complete the order.

Fallout is important because in many instances it is the only cost-driver for an otherwise seamless electronic flow-through process. In the absence of fallout, many processes would only have systems processing costs, costs which should be recovered via competitively neutral recurring rates.

There are four major categories of electronic fallout.

1. Database synchronization errors
2. Network element denial
3. Communication errors
4. Synchronization Errors

Database synchronization errors occur when databases that contain identical data do not match, or they disagree as to the availability or status of a needed resource. Typical database synchronization errors that fallout include street names that exist in one database that are not duplicated in other databases. Another example is when facilities marked as 'spare' in one database are not reflected as available in another database.

Network element denial is a second type of fallout. It can happen when an Intelligent Network Element (INE), such as a Local Digital Switch, responds that it cannot perform a

5 Ibid., paragraph 747.

task requested by another component of the network for whatever reason. For example, the element management system might believe that a certain version of software is available to activate certain features, when in reality the installation of this software has not yet been performed.

Communication errors represent the failure of the communication links between OSS, the Element Management Systems (EMS), and/or the INE. These errors take place because a valid communication path cannot be found between the elements.

Synchronization errors occur when two separate components (OSS to OSS or OSS to EMS & INE) attempt to communicate, but fail to establish the necessary communications protocols, even though the link is functioning.

Of the four categories of fallout, the error that occurs most often is database synchronization error. The degree of fallout from these four categories can and should be minimized by properly maintaining the OSS databases and the telecommunication network.

In determining the input values for fallout, in both a simple (POTS) and complex environment, the NRC Model draws upon industry experience and comparable industry information[6]. Relying on the assumption of efficiently operated OSSs and processes, the default fallout rate utilized in the NRC Model is 2%. This is further supported in Bellcore GR-22869, where according to Section 4.6.2 (Immediate Service Activation) "Activation will occur at the time of assignment"(i.e., immediately)[7]. This variable is user adjustable for both POTS and complex fallout.

D. Labor Rates

The labor rates used by the *NRC Model* represent a fully assigned rate, which includes wages and benefits for first-line supervision through third level management. In addition, the labor rate accounts for non-productive time, overtime pay, clerical support and other

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[6] Southwestern Bell recently indicated in its Texas filing that their EASE system, which services residential lines, has a fallout rate of 1% (transcripts; Open Meeting Prehearing Conference- 6/24/97- Southwestern Bell before the P.U.C. and A.L.J.) In addition, US West states in a cost study filed before the Minnesota Public Service Commission on 7/11/97 that "97% of all CSB PIC Changes are completely mechanized."

[7] Bellcore GR-2869, Issue 2, (Oct. 1996) pg. 4-25, section 4.6.2

miscellaneous expenses. Finally, labor rates have been developed and applied for 14 different job classifications in order to account for the varying levels of labor costs incurred by different work centers and process activities.

When available, union contract labor rates are used as the foundation for developing the appropriate rates. Since data was not readily available to derive average rates by adjusting for pay zones and wage progression, the top pay zone represented by the union contract for each state is used for all rates, thereby assuming that the entire work force is at the maximum rate within their pay band.

The particular job classifications used in the *NRC Model* were identified by reviewing individual work activities included in the model. This information, when combined with knowledge of job descriptions, job function codes, union contracts and information drawn from publicly available cost studies, enabled the identification of the following technical titles to be used in the model.

Technician Type
Business Dispatch Administration Center (BDAC)
Consumer Dispatch Administration Center
Circuit Provisioning Center (CPC)
Customer Service Center
Frame Control Center (FCC)
Facility Maintenance Adminstration Center
Installation & Maintenance / Outside Plant
Loop Assignment Center (LAC)
Network Terminal Equipment Center (NTEC)
Recent Change Memory Administration Center
Switching Control Center (SCC)
Special Service Center (SSC)
Splicing
InterLATA Carrier Service Center

Publicly available cost models suggest that benefits generally equate to approximately a 33%-35% increase over the contract labor rates. The *NRC Model* uses a 40% benefits loading to provide a conservatively high cost estimate. The first through third level

management salaries and benefits were calculated and loaded on to the labor rates based on a ratio of 15:1 for contract to supervisory personnel, and 5:1 for the next two layers of management. The salary and benefits for one clerical position were also incorporated.

The loaded hourly rates were inflated by 23% to represent productive hourly rates. This includes paid time off for vacations, holidays, personal days, training, coffee breaks, etc. Miscellaneous expenses were added to cover such items as travel expense, training, and office supplies. Finally, another increment was added to cover premium pay for overtime worked.

Provided below is an example of the labor rate calculation.

Wage Rate Components	Input	Hourly	Cumulative	Derivation
Basic wage rate		$20.00	$20.00	Union contract
Benefits loading	40%	$8.00	$28.00	Subject matter expert
Non productive time loading	123%	$6.56	$34.56	2080 paid hrs / 1685 prod hrs
Overtime loading		$1.78	$36.34	$3000 annual overtime / 1685 prod hrs
Miscellaneous loading		$1.19	$37.53	$2000 annual misc exp / 1685 prod hrs
First line supervisor salary w/benefits	$75,000			SME estimate
First Level hourly w/benefits	$36.06			Salary & bene / 2080 paid hours
First Level hourly		$2.40	$39.94	1st level sal & bene / 15 reports
Second level mgmt. ave. salary w/benefits	$105,000			SME estimate
Second level hourly w/benefits	$50.48			Salary & bene / 2080 paid hours
Second Level hourly		$0.67	$40.61	2nd level sal & bene / 75 reporting people
Third level ave. salary w/benefits	$135,000			SME estimate
Third level hourly w/benefits	$64.90			Salary & bene / 2080 paid hours
Third level sal. (Hr.) divided by 375		$0.17	$40.78	3rd level sal & bene / 375 reporting people
Support Clerk ave. salary w/benefits	$51,800			SME estimate
Support clerk hourly w/benefits	$24.90			Salary & bene / 2080 paid hours
Support clerk sal. (Hr.) divided by 375		$0.07	$40.85	Support clerk sal & bene / 375 people

E. Work Times And Probabilities

The estimated work times contained within the *NRC Model* incorporate the following underlying assumptions:

1. Dedicated Facilities

The *NRC Model* assumes dedicated facilities exist in the plant, both inside (Dedicated Inside Plant-DIP) and outside (Dedicated Outside Plant-DOP). Long standing practices have demonstrated that it is more cost efficient to commit facilities ahead of time to facilitate rapid service activation. This is accomplished during the construction phase (i.e., building of the plant). Anticipated living units are assigned facilities in the inventory systems such as LFACS and SWITCH. The inventory systems are updated to reflect this commitment.

When customers move from one location, it is assumed that in time another customer will move into the same location. Therefore, the "disconnect" of a service is in reality a "deactivation" of service to a particular living unit, (i.e., no physical work is performed).

2. Testing

For the TSR and UNE-P local market entry scenarios, the *NRC Model* assumes that all testing will be performed by the ILEC and that the cost of this testing is recovered through recurring rates. In addition, the *NRC Model* assumes that the CLEC will be responsible for the testing of customer loops once the customer is terminated on the CLEC switch. Problems reported by the customer could be verified and located using the new entrant's Mechanized Loop Testing system (MLT). If the problem was in the new entrant's equipment the new entrant would repair it. If the trouble was determined to be outside of the new entrant's local switch and collocated equipment, it would be referred to the ILEC. Any other information that would be required by the ILEC could be obtained from the new entrant's test center.

In addition, it is assumed that special service circuits will be tested prior to "turn-up". These costs have been accounted for in the *NRC Model*.

3. Activity Work Times And Probabilities

Work time estimates and probabilities are associated with various activities. The work time estimate is the average amount of time required to perform a particular work function. These time estimates were obtained from subject matter experts. A probability represents the percentage time a particular work function/activity is performed when processing a particular service offering. For example, if 20% of the lines are served by unstaffed central offices, the probability of travel time would also be 20%. As with the time estimates, these probabilities were determined by subject matter experts.

F. Other Input Fields

1. NRC Element type

This input variable allows the user to cost out individual NRC element types. There are 48 element types to select from (see Attachment A). It is expected that other element types will be added in the future.

2. State Selection

The user is able to choose a state jurisdiction to model. State selection is intended to drive the appropriate labor rates for that particular state.

3. Manual Labor Rates ($ per hour)

When the state selection is made, the model provides an input screen containing the labor rates for that particular run. This screen can be used to modify the default labor rates contained in the model.

4. Copper-Fiber Ratio

This ratio represents the percent of lines served by straight copper as opposed to lines served by fiber (i.e., Integrated Digital Loop Carrier). The model default is 60% fiber, 40% copper. The significance of this variable is that there are additional work steps associated with copper plant. This ratio can be user adjusted .

5. Central Office Staffed Ratio

This input variable represents the number of lines in a state that are served out of central offices which have technicians on site. The significance of this variable is that additional travel time and cost is required in order to do work in those offices that are not normally staffed. For example, service orders may require a technician to be dispatched for work to be completed at a non-staffed office. As the default ratio, the NRC Model assumes that 80% of the lines in a state are served by staffed central offices.

6. Average Trip Time

This variable accounts for the travel time of a technician. These technicians may need to periodically make trips to the field to rearrange outside plant, or will need to travel to the non-staffed central offices to complete various work activities such as customer orders, on-going maintenance, etc. The Work Management OSS will schedule and develop the work load and activities for the traveling technicians. Thus, the travel time is associated with several work activities, not just one. The default value contained in the NRC Model for the travel time is 20 minutes.

7. Setup Time

This user adjustable variable accounts, as an example, for the time associated with setting up cones while working at the Feeder Distribution Interface (FDI) or the Service Area Interface (SAI). A default value of 5 minutes is used in the Model.

8. Number of Work Activities Per Order (central office)

The average number of work activities is set at four. The default assumption is that the technician will complete four work activities.

9. Percentage Non Dedicated Facilities

This input represents the percentage of non dedicated facilities for POTS type service. A default of 0% is used in the model. As indicated in the model any cost associated with non dedicated facilities should be recovered via recurring rate elements of services.

10. Variable Overhead (%)

This input represents the loading variable overhead expenses not already captured in the model. The default is 10.4% and is derived from Hatfield Model support documentation.

Non-Recurring Element Types

1. POTS / ISDN BRI - Migration - TSR
2. POTS/ISDN BRI - Migration - UNE- Platform
3. POTS/ISDN BRI - Migration - UNE-Loop
4. POTS/ISDN BRI - Install - TSR
5. POTS/ISDN BRI - Install - UNE-Platform
6. POTS/ISDN BRI - Install - UNE-Loop
7. 4 Wire - Migration - UNE-Loop
8. 4 Wire - Install - UNE-Loop
9. Feature Changes
10. 2 Wire Cross Connect at the FDI - Migration
11. 2 Wire Cross Connect at the FDI - Install
12. 4 Wire Cross Connect at the FDI - Migration
13. 4 Wire Cross Connect at the FDI - Install
14. Cross Connect 2 wire, 6 line NID - Install
15. Channelized DS1 Virtual Feeder to RT - Install
16. DS1 Interoffice Transport
17. DS3 Interoffice Transport
18. POTS/ISDN BRI - Disconnect - TSR/UNE - Platform
19. POTS/ISDN BRI - Disconnect - UNE Loop
20. 4 Wire Disconnect - UNE Loop
21. 2 Wire Cross Connect Disconnect at the FDI
22. 4 Wire Cross Connect Disconnect at the FDI
23. Channelized DS1 Virtual Feeder to RT
24. 2 wire Loop, different CO - Migration
25. 2 wire Loop, different CO - Install
26. 4 wire Loop, different CO - Migration
27. 4 wire Loop, different CO - Install
28. DS1 Loop to Customer Premise - Migration
29. DS1 Loop to Customer Premise - Install
30. Line Port (DS0, Analog, ISLU) - Install
31. Channelized DS1 Line Port (TR-303-IDT) - Install
32. 2 wire Loop, different CO - disconnect
33. 4 wire Loop, different CO - disconnect
34. DS1 Loop to Customer Premise - disconnect
35. Line Port (DS0, Analog, ISLU) - disconnect
36. Channelized DS1 Line Port (TR-303-IDT) - disconnect
37. Fiber Cross Connects - Install
38. Fiber Cross Connects - disconnect
39. SS7 Links (A&D, DS0) - Install
40. SS7 Links (A&D, DS0) - disconnect
41. SS7 Links (A&D, DS1) - Install
42. SS7 Links (A&D, DS1) - disconnect

Description

43. SS7 STP global title translations - Install
44. SS7 STP message transfer part - Install
45. SS7 STP global title translations - disconnect
46. SS7 STP message transfer part - disconnect

Detailed Work Activities

NRC Model

Activity Descriptions

STEP	TASK/ACTIVITY	DESCRIPTION
1	CLEC customer contact	Customer service representative obtains the service address, customer name, and customer service requests.
2	CLEC requests customer address data, CSR, and appointment from ILEC	CLEC representative requests service address information from the customer and then inputs that information into the gateway to confirm that the service address is listed in the ILEC's databases. For migrating customers, the CLEC also requests additional customer information that is found in the Customer Service Record which is stored by the ILEC.
3	ILEC gateway requests address data from Administrative Information System and CSR	The gateway processes the CLEC service request by obtaining Customer Service Record information from the Administrative Information System.
4	ILEC gateway formats and returns address, CSR, and appointment data to CLEC	The gateway passes address verification and CSR information back to CLEC.
5	CLEC customer service representative inputs LSR information into LOS	CLEC creates Local Service Request (LSR) from information gathered from the customer and ILEC CSR (if available).
6	ILEC gateway receives, validates and logs LSR, returns FOC, and passes LSR to SOG	The gateway receives, validates and logs the Local Service Request (LSR). At this point, if erroneous information was input into the LSR, the gateway would return the order to a CLEC service representative who would have to correct, then re-input the order. If the order is valid, the ILEC confirms that the order is complete by sending the CLEC a Firm Order Commitment to the CLEC. The ILEC then passes the LSR back to its Service Order Generator (SOG) for further down-stream processing.
7	CLEC gateway sends LSR to EXACT	EXACT validates service order request and transmits to TUF.

8	ILEC SOG retrieves CSR data, formats and passes to SOP	The ILEC's SOG receives the LSR data from the gateway and generates a service order (e.g., formats the LSR data into a service order) which is passed to the Service Order Processor (SOP) for processing.
9	EXACT and TUF sends request to SOP	TUF is the OSS which translates the USOCs and FIDs that are required; then sends to the ILEC SOP.
10	SOP sends request to SOAC	The ILEC Service Order Processor receives a service order and passes the service order to the SOAC-like system. If the service order is not properly formatted, SOAC will send the service order back to an ILEC service rep for correction.
11	SOAC analyzes order, generates assignment requests for OSP, COE, IOF, etc.	SOAC analyzes the service order and sends assignment request to the inventory systems e.g., LFACS, SWITCH, and TIRKS
12	SOAC analyzes order, generates assignment requests for COE and IOF, etc.	SOAC analyzes the service order and sends assignment request to the inventory systems e.g., SWITCH, and TIRKS
13	LFACS makes OSP assignments, e.g., cable and pair	LFACS commits OSP facilities for the assignment request and then sends back to SOAC.
14	LFACS makes OSP spare and available for reassignments, e.g., cable and pair	LFACS spares up OSP facilities for re-assignment.
15	COE and EICT assignments are made	SWITCH commits central office equipment for the assignment request and then sends it back to SOAC.
16	COE and EICT spare and available for reassignments are made	SWITCH spares up central office equipment for the reassignment
17	SOAC receives COE, OSP, IOF, etc.	SOAC receives information back from LFACS, SWITCH, and TIRKS.
18	SOAC receives COE and IOF, etc.	SOAC re-assembles the pieces of information and formulates the customer vertical features (call forwarding, call waiting, etc.) based on customer service demands which are recorded in USOCs and FIDs. SOAC then forwards this information to MARCH.
19	COSMOS / SWITCH assigns OE / LU	COSMOS/SWITCH commits central office equipment for the assignment

		request and then sends it back to SOAC.
20	COSMOS / SWITCH removes OE / LU	COSMOS/SWITCH spares up central office equipment for the reassignment
21	SWITCH assigns IDT port	SWITCH commits LDS ports
22	SWITCH assigns call reference values (CRV)	CPU processing time
23	SWITCH deletes call reference values (CRV)	CPU processing time
24	SOAC delivers recent change translation information	SOAC re-assembles the pieces of information and formulates the customer vertical features (call forwarding, call waiting, etc.) based on customer service demands which are recorded in USOCs and FIDs. SOAC then forwards this information to MARCH.
25	SOAC delivers recent change disconnect information	SOAC notifies MARCH of disconnect
26	MARCH updates LDS	MARCH updates the Local Digital Switch (LDS) with information about the features and services that the customer has requested.
27	SOAC delivers equipment and facility information to NSDB	TIRKS transmits a formatted electronic "word document" which contains the assignment and other information to the Network and Services Database and to the Work Force Administration Control
28	NSBD downloads assignments to OPS/INE	NSDB stores active record and passes the appropriate assignments to Operations Systems/Intelligent Network Elements (OPS/INE). OPS/INE takes the information from NSDB and updates specific INE's.
29	OPS/INE delivers Cross Connect and equipment provisioning message to INE	Operations Systems sends a message to the actual Intelligent Network Element and tells it to make certain changes to establish a circuit.
30	OPS/INE delivers Cross Connect and equipment disconnect message to INE	After the INE has been updated, the INE sends a positive acknowledgment back to OPS/INE which then forwards this acknowledgment back to WFA/C. WFA/C then sends completion reports (jeopardies) back to NSDB.
31	OPS/INE updates WFA/C	After the INE has been updated, the INE sends a positive acknowledgment back to

		OPS/INE which then forwards this acknowledgment back to NSDB.
32	WFA/C updates NSDB	Question as to whether line 32 should read OPS/INE updates NSDB.
33	SOAC updates SOP	SOAC updates the SOP with completion information.
34	SOP updates WFA, NSDB, LMOS, BOSS, CRIS, etc.	After all completion work is done, SOP electronically updates LMOS to make sure that the repair center recognizes Business Office Records to keep a record of the types of service and other information about customers (credit report); CRIS to update or create billing records. Question as to whether WFA, NSDB should be included in line 34.
35	SOP updates WFA, NSDB, and CABS	SOP notifies CABS with updated information
36	PICS sends plug-in assignments to TIRKS	PICS sends correct plug- in to TIRKS for specific service
37	TIRKS provides equipment and facility assignments	TIRKS receives request from SOAC for trunk and high capacity service information. TIRKS inventories equipment and assigns the required resources to S.O. This step is only performed for special services, interoffice facilities, high capacity services, etc.
38	TIRKS updates SOAC	After TIRKS has assigned equipment, it sends an assignment completion status to SOAC and forwards an electronic "word document" to WFA/DI (DO) and NSDB.
39	CPU time for NMA for PM data from test	NMA monitors certain network elements for reliability purposes
40	SOP completes LSR	ILEC Service Order Processor updates the Customer Service Record and LSR to complete status.
41	ILEC gateway notifies CLEC of completed order	The electronic gateway notifies the CLEC that the service order has been completed.
42	ILEC billing system issues final bill to migrating customer	The ILEC's billing system (CRIS) issues a final bill to its retail customer. This step only needs to be completed for migrations.
43	**TSR , UNE-PLATFORM, & CHANGES**	
44	Fall Out: RMAs forwarded to PAWS for reconciliation	PAWS has the ability to automatically and manually clear RMAs.

45	Fall Out: Pull and analyze order	This entails analyzing the order and manually clearing the RMA and re-entering the order back into the mechanized process.
46	Fall Out: Clear jeopardy	Technician in the RCMAC clears the RMA.
47	**2-WIRE LOOP**	
48	**Copper**	
49	Pull and analyze order (copper)	Technician in the CO prints and analyzes the order
50	Pull and analyze order (copper)	Technician in the CO prints and analyzes the order
51	Travel time to the central office (non-staffed) minutes / 4 work activities	When a CO is **not** staffed a technician must be dispatched to the CO (assumes the technician will perform 4 functions at the same CO)
52	Travel time to the central office (non-staffed) minutes / 4 work activities	When a CO is **not** staffed a technician must be dispatched to the CO (assumes the technician will perform 4 functions at the same CO)
53	Conduct continuity test (check dial tone and ANI)	Before disconnecting from ILEC switch, test for accurate TN.
54	Install cross connect from MDF to terminal block (copper)	Frame technician runs cross connect in CO
55	Install cross connect from MDF to terminal block (copper)	Frame technician runs cross connect in CO
56	Conduct continuity test (check dial tone and ANI)	After running new Cross Connect perform continuity test and ANI.
57	Close order	Technician closes order in SWITCH which sends information to SOAC, SOAC sends SOP completion information.
58	Close order	Technician closes order in SWITCH which sends information to SOAC, SOAC sends SOP completion information.
59	ILEC MLT test and or ISTF test	ILEC performs MLT and ISTF test
60	CLEC MLT test and or ISTF test	CLEC performs it's own MLT and ISTF test
61	Fall Out: RMAs forwarded to PAWS for reconciliation	Some RMAs are cleared utilizing pre-programmed scripts in PAWS. Other RMAs require manual assistance
62	Fall Out: Pull and analyze order (copper)	This entails analyzing the order and manually clearing the RMA and re-inserting back into the mechanized process
63	Fall Out: Clear jeopardy	Technician in the LAC clears the RMA

64	Pull and analyze order (copper)	Technician in the CO prints and analyzes the order
65	Travel time to the central office (non-staffed) minutes / 4 work activities	When a CO is **not** staffed a technician must be dispatched to the CO(assumes the technician will perform 4 functions at the same CO)
66	Disconnect cross connect from MDF (Copper)	Frame technician removes cross connect jumper that connects to ILEC switch
67	Close order	Technician closes order in SWITCH which sends information to SOAC, SOAC sends SOP completion information.
68	**IDLC (GR-303)**	
69	Install DSO TSI at RT (CPU time)	This is CPU time only and is done by OPS/INE to the INE at the RT
70	Disconnect DSO TSI at RT (CPU Time)	This is CPU time only and is done by OPS/INE to the INE at the RT
71	**CHANNELIZED DS1 CAPACITY FOR THE VRT (TR-303)**	This is CPU time only and is done by OPS/INE to the INE at the VRT
72	Pull and analyze order	Technician in the CO prints and analyzes the order
73	Travel time to the central office (non-staffed) minutes / 4 work activities	When a CO is **not** staffed a technician must be dispatched to the CO (assumes the technician will perform 4 functions at the same CO)
74	Install IDT line port card	Place card in LDS
75	Install DSX cross connect (5 Wire)	Technician places the 5 wire cross connect at the DSX frame in the CO to the CLEC collocation.
76	Perform quasi random signaling source (QRSS) test via remote ITS - DTAU	TL1 command sent from ITS
77	Disconnect DSX cross connect (5 Wire)	Technician removes the 5 wire cross connect at the DSX frame
78	CPU time at SONET MUX (DS1)	This is CPU time only and is done by OPS/INE in the CO
79	CPU time at RT (DS1 TSI)	This is CPU time only and is done by OPS/INE at the RT
80	Conduct continuity test - quasi random signaling source (QRSS) from ITS/DTAU	
81	Close Order	WFA/DI notifies TIRKS which sends completion to SOAC, SOAC sends SOP completion notice.

82	Fall Out: Pull and analyze order	This entails analyzing the order to determine next action to take.
83	Fall Out: Resolve Fallout	Circuit Provisioning Center (CPC) performs the design function
84	Pull and analyze order	Technician in the CO prints and analyzes the order
85	Travel time to the central office (non-staffed) minutes / 4 work activities	When a CO is **not** staffed a technician must be dispatched to the CO (assumes the technician will perform 4 functions at the same CO)
86	CPU Time at SONET MUX (DS1)	This is CPU time only and is done by OPS/INE in the CO
87	CPU Time at RT (DS1 TSI)	This is CPU time only and is done by OPS/INE at the RT
88	Disconnect DSX Cross Connect (5 Wire)	Technician removes the 5 wire cross connect jumper at the DSX frame in the CO
89	Close Order	WFA/DI notifies TIRKS which sends completion to SOAC, SOAC sends SOP completion notice.
90	**FIBER CROSS CONNECTS**	
91	Pull and analyze order (FMAC)	FMAC Technician prints and analyzes the order.
92	Travel time to the central office	This is completed by a Cable Splicing Technician.
93	Install 2 Pigtails (2 minutes x 2 Pigtails)	This functions is performed by FMAC Technician.
94	Remove 2 Pigtails (2 minutes x 2 Pigtails)	This function is performed by FMAC Technician.
95	OTDR (Optical Time Domain Reflectometer) testing using Fiber Check 5000 type system	This function is performed when a fiber cross connect is tested.
96	Close order	WFA/DO notifies Design Center, updates TIRKS, and SOAC notifies SOP of completion.
97	**2 - WIRE CROSS CONNECT AT THE FDI (SUB-LOOP UNBUNDLING)**	The 2 wire Cross Connect that is done at the Feeder Distribution Interface by the Installation Technician
98	Pull and analyze order	Installation Technician prints and analyzes the order
99	Travel time to FDI / 2 work activities	This includes the time to travel to the FDIs
100	Setup time / 2 work activities	This includes setting safety cones, opening

		FDI, getting required tools
101	Conduct continuity test for ILEC	This test is done to insure that the correct Cross Connects are identified
102	Cross Connect (Binding Post)	Perform Cross Connect functions using Binding Posts
103	Conduct continuity test for CLEC	When the Cross Connect is completed, a continuity test is performed
104	Tear Down Set Up / 2 work activities	This function is performed by the Installation Technician and entails closing the Cross Connect box, replacing tools, and collecting safety cones
105	Close Order	WFA/DO notifies SOP of completion, SOP notifies SOAC of completion
106	Fall Out: RMAs forwarded to PAWS for restoration	Installation Technician using FAS contacts the Loop Assignment Center (LAC) for correct assignments
107	Fall Out: Pull and analyze order	LAC analyzes the order and makes corrections
108	Fall Out: Clear jeopardy	LAC updates LFACS
109	Pull and analyze order	Installation Technician prints and analyzes the order
110	Travel time to FDI (more than 2 miles) / 2 work activities.	This includes the time to travel to the FDI
111	Setup time / 2 work activities	This includes setting safety cones, opening FDI, getting required tools
112	Conduct continuity test for ILEC	When the Cross Connect is completed, a continuity test is performed
113	Disconnect existing Cross Connect (Binding Post)	Disconnect performed at Binding Post
114	Tear Down Set Up / 2 work activities	This function is performed by the Installation Technician and entails closing the Cross Connect box replacing tools and collecting safety cones
115	Close Order	WFA/DO notifies SOP of completion, SOP notifies SOAC of completion
116	**4 - WIRE CROSS CONNECT AT THE FDI (SUB-LOOP UNBUNDLING)**	The 4 wire Cross Connect that is done at the Feeder Distribution Interface by the Installation Technician
117	Pull and analyze order	Technician prints and analyzes the order
118	Pull and analyze order	Technician analyzes the order
119	Pull and analyze order (NTEC)	Technician in the CO prints and analyzes the order

120	Travel Time to FDI / 1 work activities	This is the travel time to the FDI from the dispatch location
121	Negotiate customer release	
122	Setup time / 1 work activity	This includes setting safety cones, opening FDI, getting required tools
123	Cross Connect (Binding Post)	This is connecting a Cross Connect at the FDI
124	Tear Down Set Up	This function is performed by the Installation Technician and entails closing the Cross Connect box replacing tools and collecting safety cones
125	Travel Time to 4 wire NID	This is the time to travel to the customers location
126	Setup Time to 4 wire NID	This includes setting safety cones, getting required tools
127	1000 Hz test	Technician conducts 1000 Hz test
128	Tear Down Set Up	This function is performed by the Installation Technician and entails closing the Cross Connect box, replacing tools, and collecting safety cones
129	Travel time to the central office (non-staffed) minutes / 4 activities	When a CO is **not** staffed a technician must be dispatched to the CO (assumes the technician will perform 4 functions at the same CO)
130	Disconnect SMAS (wire wrap)	CO technician performs wire wrap disconnections in order to disconnect the SMAS points
131	Disconnect cross connect from MDF (Cosmic-like frame, e.g. punch down, 2 four wire)	Frame technician removes cross connect jumper that connects to ILEC switch
132	Travel time with in the staffed CO / 4 work activities	This time includes moving from floor to floor within the same building
133	Close Order	WFA/DO notifies SCC which completes in TIRKS, TIRKS then notifies SOAC which notifies SOP of completion
134	Close Order	WFA/DI notifies WFA/C and sends completion to TIRKS which notifies SOAC and updates SOP completion notice
135	Close Order (NTEC Contact SSC)	WFA/DI notifies WFA/C and sends completion to TIRKS which notifies SOAC and updates SOP completion notice

136	Fall Out: Pull and analyze order	CPC analyzes the order and makes corrections
137	Fall Out: Manual design process	CPC performs design functions
138	Pull and analyze order	Installation Technician prints and analyzes the order
139	Travel Time to FDI / 1 work activities	This includes the time to travel to the FDI from the dispatch center
140	Setup time / 1 work activities	This includes setting safety cones, opening FDI, getting required tools
141	Disconnect existing Cross Connect (Binding Post)	This is disconnecting a Cross Connect at the Binding Posts
142	Tear Down Set Up / 1 work activities	This function is performed by the Installation Technician and entails closing the Cross Connect box replacing tools and collecting safety cones
143	Close Order	WFA/DO notifies Design Center which completes in TIRKS, TIRKS then updates SOAC which notifies SOP of completion
144	**4 - WIRE LOOP - And other Designed Services**	
145	Pull and analyze order (SSC)	Technician in the SSC analyzes the order
146	Pull and analyze order (NTEC)	Technician in the CO prints and analyzes the order
147	Pull and analyze order (FMAC)	Technician in the CO prints and analyzes the order
148	Travel time to the central office (non-staffed) minutes / 4 work activities	When a CO is **not** staffed a technician is dispatched to the CO (assumes the technician will perform 4 functions at the same CO)
149	Travel time to the central office (non-staffed) minutes / 4 work activities	When a CO is **not** staffed a technician is dispatched to the CO (assumes the technician will perform 4 functions at the same CO)
150	Negotiate customer release	SSC contacts the customer to negotiate a time when service can be interrupted
151	Install cross connect MDF (COSMIC-like frame, e.g. punch-down, 1 four wire jumper)	NTEC technician runs cross connect in CO
152	Remove cross connect MDF (COSMIC-like frame, e.g. punch-down, 1 four wire jumper)	NTEC technician disconnects jumper in CO
153	Install cross connect MDF (COSMIC-like frame, e.g. punch-	NTEC technician runs cross connect in CO

	down, 2 four wire jumpers)	
154	Install cross connect (COSMIC-like frame, e.g. punch-down, 2 wire jumpers)	NTEC technician runs cross connect in CO
155	Cross connect (Wire Wrap, to AD4 ADTS Channel Bank / unitized SMAS)	NTEC technician runs cross connect in CO
156	Disconnect (Wire Wrap, to AD4 ADTS Channel Bank / unitized SMAS)	NTEC technician disconnects jumper in CO
157	Install channel unit at AD4	NTEC places channel unit in AD4 bank
158	Remove cross connect (COSMIC-like frame, e.g. punch-down, 2 wire four jumpers)	NTEC technician disconnects jumpers in CO
159	Remove cross connect - Wire Wrap to AD4 Channel Bank (ADTS) / unitized SMAS	NTEC technician disconnects jumpers in CO
160	Remove channel unit from AD4	NTEC technician disconnects jumpers in CO
161	Cross connect (4 wire SMAS, Wire Wrap, to D4 Channel Bank / unitized SMAS)	NTEC technician runs cross connect in CO
162	Remove cross connect (4 wire SMAS, Wire Wrap, to D4 Channel Bank / unitized SMAS)	NTEC technician disconnects jumpers in CO
163	Install 2 two wire shielded pair cross connects at the protector frame	NTEC technician connects jumpers in CO
164	Install 2 two wire shielded pair cross connects at the protector frame	FMAC technician connects jumpers in CO
165	Install 2 four wire cross connect at the Toll Distribution Frame	NTEC technician connects jumpers in CO
166	Install 5 wire cross connect DSX bay	NTEC technician connects jumpers in CO
167	Install 2 four wire cross connect at the Toll Distribution Frame	FMAC technician connects jumpers in CO
168	Install 5 wire cross connect DSX bay	FMAC technician connects jumpers in CO
169	Remove 2 two wire shielded pair cross connects at the protector frame	NTEC technician connects jumpers in CO
170	Remove 1 four wire cross connect at the Toll Distribution Frame	NTEC technician disconnects jumpers in CO

171	Remove 5 wire cross connect DSX bay	FMAC technician disconnects jumpers in CO
172	Remove 2 two wire shielded pair cross connects at the protector frame	FMAC technician disconnects jumpers in CO
173	Remove 1 four wire cross connect at the Toll Distribution Frame	FMAC technician disconnects jumpers in CO
174	Remove 5 wire cross connect DSX bay	FMAC technician disconnects jumpers in CO
175	Perform quasi random signaling source (QRSS) test via remote ITS - DTAU	TL1 command sent from ITS
176	Place plug-in at RT	NTEC places plug-in at Remote Terminal
177	Place plug-in at ADM	NTEC technician places plug-ins at Add Drop Mux
178	Place plug-in at RT	FMAC places plug-in at Remote Terminal
179	Place plug-in at ADM	FMAC technician places plug-ins at Add Drop Mux
180	Install DSO TSI at RT (CPU time)	CPU time only
181	Cross connect (4 wire SMAS) (Wire Wrap)	NTEC technician performs wire wrap connections in order to connect the SMAS points
182	Remove Cross connect (4 wire SMAS) (Wire Wrap)	NTEC technician performs disconnection to the SMAS points
183	Conduct SS7 test	SSC performs test
184	Conduct loop back analysis test	SSC performs test
185	Conduct loop back analysis test	SSC performs test
186	Conduct testing (1000 Hz.)	SSC performs test
187	Close Order (SSC)	WFA/DI notifies WFA/C and sends completion to TIRKS which notifies SOAC and updates SOP completion notice
188	Close Order (NTEC)	WFA/DI notifies WFA/C and sends completion to TIRKS which notifies SOAC and updates SOP completion notice
189	Close Order (FMAC)	WFA/DI notifies WFA/C and sends completion to TIRKS which notifies SOAC and updates SOP completion notice
190	Fall Out: Pull and analyze order (CPC)	All 4 wire loops are designed. CPC analyzes the order.
191	Fall Out: Resolve Fallout (CPC)	CPC designs circuit and re-inputs into mechanized process

192	Fall Out: Pull and analyze order (CPC)	All 4 wire loops are designed. CPC analyzes the order.
193	Fall Out: Resolve Fallout (CPC)	CPC designs circuit and re-inputs into mechanized process
194	Pull and analyze order (NTEC)	Technician in the CO prints and analyzes the order
195	Pull and analyze order (SSC)	Technician analyzes the order
196	Travel time to the central office (non-staffed) minutes / 4 activities	When a CO is **not** staffed a technician must be dispatched to the CO (assumes the technician will perform 4 functions at the same CO)
197	Disconnect SMAS (wire wrap)	NTEC technician performs disconnection to the SMAS points
198	Disconnect cross connect from MDF (Cosmic-like frame, e.g. punch down, 2 four wire)	NTEC technician disconnects jumper in CO
199	Close Order (NTEC Contact SSC)	WFA/DI notifies WFA/C and sends completion to TIRKS which notifies SOAC and updates SOP completion notice
200	Close Order (SSC)	WFA/DI notifies WFA/C and sends completion to TIRKS which notifies SOAC and updates SOP completion notice
201	**SIMPLE CROSS CONNECT AT THE NID (SUB-LOOP UNBUNDLING)**	This cross connect is done at the customer premise Network Interface Device
202	Pull and analyze order	Installation Technician prints and analyzes the order
203	Travel time to customer premises / 1 work activities	This is the time to travel to the customers location
204	Setup time / 1 work activity	This includes setting safety cones, getting required tools
205	Terminate to NID	The Installation Technician mounts the Network Interface Device and connects the required wires
206	Conduct dial tone continuity test	After the NID is mounted the Installation Technician conducts test
207	Tear Down Set Up / 1 work activities	This function is performed by the Installation Technician and entails replacing tools, and collecting safety cones
208	Close Order	WFA/DO notifies SOP of completion, SOP notifies SOAC of completion

209	Fall Out: RMAs cleared automatically by PAWS	Some orders are cleared by PAWS while others require RMA
210	Fall Out: Pull and analyze order	LAC analyzes the order and makes corrections
211	Fall Out: Clear Jeopardy	LAC updates LFACS
212	Pull and analyze order	Installation Technician prints and analyzes the order
213	Travel time to customer premises / 4 work activities	This includes the time to travel to the NID
214	Disconnect cross connect from NID	This activity includes disconnecting the connections at the NID
215	Close Order	WFA/DO notifies SOP of completion, SOP notifies SOAC of completion
216	**SMART CROSS CONNECT AT THE NID (SUB-LOOP UNBUNDLING)**	This Cross Connect is done at the customer premise Network Interface Device
217	Pull and analyze order	Installation Technician prints and analyzes the order
218	Travel time to customer premises / 4 work activities	This is the time to travel to the customers location
219	Card plug in	Install plug-in card
220	Install wiring to NID (J-Mounting Shelf including RJ-48 jack exists)	Place appropriate wiring and perform the Cross Connect function
221	Conduct continuity and card loop back test	This test is performed to ensure that the new plug-in card performs as required
222	Close Order	WFA/DO notifies Design Center which completes in TIRKS, TIRKS then notifies SOAC which notifies SOP of completion
223	Fall Out: Pull and analyze order	CPC analyzes the order and makes corrections
224	Fall Out: Manual design process	CPC performs design functions
225	Pull and analyze order	Installation Technician prints and analyzes the order
226	Travel time to customer premises / 4 work activities	This is the time to travel to the customers location
227	Disconnect cross connect from NID	Technician disconnects wiring
228	Close Order	WFA/DO notifies Design Center which completes in TIRKS, TIRKS then updates SOAC which notifies SOP of completion
229	**DS3 INTEROFFICE TRANSPORT (BAND WIDTH)**	
230	Pull and analyze order	Technician in the CO prints and analyzes the order

231	Travel time to the central office (non-staffed) minutes / 4 work activities	When a CO is **not** staffed a technician must be dispatched to the CO (assumes the technician will perform 4 functions at the same CO)
232	Install card for DCS	Install plug-in card
233	Install card for SONET MUX	Install plug-in card
234	Electronic Cross Connect on DCS	CPU time at the DCS
235	Electronic Cross Connect on SONET MUX	CPU time at the MUX
236	Performance Monitoring Testing	This function includes setting up for the test and all associated criteria, monitoring the test
237	Retrieve and analyze performance monitoring data	The function includes setting up the PM testing capability and routing to the PM center
238	Intrusive Test (ITS)	This a 15 minute,30 minute, or 1 hour test and monitoring
239	CPU time for registers	
240	Close Order	WFA/DI notifies WFA/C and sends completion to TIRKS which updates SOAC and sends SOP completion notice
241	Fall Out: Pull and analyze order	CPC analyzes the order and makes corrections
242	Fall Out: Resolve Fallout	CPC perform design function
243	Pull and analyze order	Technician in the CO prints and analyzes the order
244	Travel time to non-staffed office / 4 work activities	When a CO is **not** staffed a technician must be dispatched to the CO (assumes the technician will perform 4 functions at the same CO)
245	Remove the card	Remove the plug-in
246	Close Order	WFA/DI notifies WFA/C and sends completion to TIRKS which updates SOAC and sends SOP completion notice
247	**DS1 INTEROFFICE TRANSPORT**	
248	Pull and analyze order	Technician in the CO prints and analyzes the order
249	Travel time to the central office (non-staffed) minutes / 4 work activities	When a CO is **not** staffed a technician is dispatched to the CO (assumes the technician will perform 4 functions at the same CO)
250	Install card for DCS	Install plug-in card
251	Install card for SONET MUX	Install plug-in card

	(high speed - OC48 to STS1)	
252	Install plug in for low speed DS1 (low speed STS1 to DS1)	Install plug-in card
253	Electronic cross connect on DCS	CPU time at the DCS
254	Electronic cross connect on low speed DS1 (low speed DS1)	CPU time at the DS1 cross connect
255	Conduct continuity test - quasi random signaling source (QRSS) from ITS/DTAU	Keep alive signal applied to prevent alarms from activating
256	Performance Monitoring Testing	The function includes setting up the PM testing capability and routing to the PM center
257	Retrieve and analyze performance monitoring data	This function includes setting up for the test and all associated criteria monitoring the test
258	Conduct SS7 test	Overall continuity test
259	Intrusive Test (ITS)	This a 15 minute, 30 minute, or 1 hour test and monitoring
260	CPU time for registers	
261	Close order	WFA/DI notifies WFA/C and sends completion to TIRKS which updates SOAC and sends SOP completion notice
262	Fall Out: Pull and analyze order	CPC analyzes the order and makes corrections and notifies installation technician
263	Fall Out: Resolve Fallout	CPC updates TIRKS minimal RMAs
264	Pull and analyze order	Technician in the CO prints and analyzes the order
265	Travel time to non-staffed office / 4 work activities	When a CO is **not** staffed a technician is dispatched to the CO (assumes the technician will perform 4 functions at the same CO)
266	Remove the card	Remove plug-in from equipment bay
267	Close Order	WFA/DI notifies WFA/C and sends completion to TIRKS which updates SOAC and sends SOP completion notice
268	**Intra-Building Travel**	
269	Travel time with in the staffed CO / 4 work activities	NTEC technicians go from frame to frame which are located on different floors of the same building
270	Travel time with in the staffed CO / 4 work activities	FMAC technicians go from frame to frame which are located on different floors of the same building
271	**SS7 STP global title translations**	

272	Receive work request	LSR is transmitted to the ILEC (pre order completed if required)
273	Analyze request	CPC analyzes LSR for completeness
274	Build request into WFA	Populate appropriate WFA fields
275	Pull and analyze order	SSC coordinates the orders
276	Services - GTT translations (input into SEAS)	Input GTT into SEAS
277	close order	WFA/DI notifies WFA/C and sends completion to TIRKS which updates SOAC and sends SOP completion notice
278	Fallout: Pull and analyze order	CPC analyzes the order
279	Fallout: Resolve Fallout	CPC updates TIRKS minimal RMAs
280	**SS7 STP message transfer part**	
281	Receive work request	LSR is transmitted to the ILEC
282	Analyze request	SSC analyzes LSR for completeness
283	Build request into WFA	Populate appropriate WFA fields
284	Pull and analyze order	SSC coordinates the orders
285	Create and input screening table	Establish STP screening tables as related to A LINK point code
286	MTP point code to link set translations	Build MTP to point code to link set translation at ILEC STP
287	Establish link set	MRVT test which checks MTP to link set functionality
288	close order	WFA/DI notifies WFA/C and sends completion to TIRKS which updates SOAC and sends SOP completion notice
289	Fallout: Pull and analyze order	CPC analyzes the order
290	Fallout: Resolve Fallout	SSC updates TIRKS minimal RMAs

SERVICE ORDER PROCESS / NON-RECURRING TYPE MATRIX

ID No.	Process Flow / Activity	1	2	3	4	5	6	7	8	9	10	11
		POTS / ISDN BRI - Migration - TSR	POTS / ISDN BRI - Migration - UNE-Platform	POTS / ISDN BRI - Migration - UNE - Loop	POTS / ISDN BRI - Install - TSR	POTS / ISDN BRI - Install - UNE - Platform	POTS / ISDN BRI - Install - UNE - Loop	4 Wire - Migration - UNE - Loop	4 Wire - Install - UNE - Loop	Feature Changes	2 Wire Cross Connect at the FDI - Migration	2 Wire Cross Connect at the FDI - Install
1	CLEC customer contact	X	X	X	X	X	X	X	X	X	X	X
2	CLEC requests customer address data, CSR, and appointment from ILEC											
3	ILEC gateway requests address data from Administrative Information System and	X	X	X	X	X	X	X	X	X	X	X
4	ILEC gateway formats and returns address, CSR, and appointment data to CLEC				X	X	X	X	X	X	X	X
5	CLEC customer service representative inputs LSR information into LOS	X	X	X	X	X	X	X	X	X	X	X
6	ILEC gateway receives, validates and logs LSR, returns FOC, and passes LSR to	X	X	X	X	X	X	X	X	X	X	X
7	CLEC gateway sends LSR to EXACT											
8	ILEC SOG retrieves CSR data, formats and passes to SOP	X	X	X				X	X	X	X	X
9	EXACT and TUF sends request to SOP											
10	SOP sends request to SOAC	X	X	X	X	X	X	X	X	X	X	X
11	SOAC analyzes order, generates assignment requests for OSP, COE, IOF, etc	X	X	X	X	X	X	X	X	X	X	X
12	SOAC analyzes order, generates assignment requests for COE and IOF, etc											
13	LFACS makes OSP assignments, e.g., cable and pair			X	X	X	X	X	X		X	X
14	LFACS makes OSP spare and available for reassignments, e.g., cable and pair											
15	COE and EICT assignments are made			X	X	X	X	X	X			
16	COE and EICT spare and available for reassignments are made											
17	SOAC receives COE, OSP, IOF, etc	X	X	X	X	X	X	X	X	X	X	X
18	SOAC receives COE and IOF, etc											
19	COSMOS / SWITCH assigns OE / LU											
20	COSMOS / SWITCH removes OE / LU											
21	SWITCH assigns IDT port											
22	SWITCH assigns call reference values (CRV)											
23	SWITCH deletes call reference values (CRV)											
24	SOAC delivers recent change translation information	X	X	X	X	X				X	X	
25	SOAC delivers recent change disconnect information											
26	MARCH updates LDS	X	X	X	X	X				X	X	
27	SOAC delivers equipment and facility information to NSDB			X	X	X	X					
28	NSBD downloads assignments to OPS/INE			X	X	X	X					
29	OPS/INE delivers Cross Connect and equipment provisioning message to INE			X	X	X	X					
30	OPS/INE delivers Cross Connect and equipment disconnect message to INE											
31	OPS/INE updates WFA/C											
32	WFA/C updates NSDB			X	X	X	X					
33	SOAC updates SOP	X	X	X	X	X	X	X	X	X	X	X
34	SOP updates WFA, NSDB, LMOS, BOSS, CRIS, etc	X	X	X	X	X	X	X	X	X	X	X
35	SOP updates WFA, NSDB, and CABS											
36	PICS sends plug-in assignments to TIRKS											
37	TIRKS provides equipment and facility assignments							X	X			
38	TIRKS updates SOAC							X	X			
39	CPU time for NMA for PM data from test											
40	SOP completes LSR	X	X	X	X	X	X	X	X	X	X	X
41	ILEC gateway notifies CLEC of completed order	X	X	X	X	X	X	X	X	X	X	X
42	ILEC billing system issues final bill to migrating customer	X	X	X				X			X	
43	**TSR, UNE-PLATFORM, & CHANGES**											
44	Fall Out - RMAs forwarded to PAWS for reconciliation	X	X		X	X				X		
45	Fall Out - Pull and analyze order	X	X		X	X				X		
46	Fall Out - Clear jeopardy	X	X		X	X				X		
47	**2-WIRE LOOP**											
48	**Copper**											
49	Pull and analyze order (copper)			X			X					

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ATTACHMENT C

SERVICE ORDER PROCESS / NON-RECURRING

ID No.	Process Flow / Activity	12 4 Wire Cross Connect at the FDI - Migration	13 4 Wire Cross Connect at the FDI - Install	14 Cross Connect 2 wire, 6 line NID - Install	15 Channelized DS1 Virtual Feeder to RT - Install	16 DS1 Interoffice Transport	17 DS3 Interoffice Transport	18 POTS / ISDN BRI - Disconnect - TSR / UNE - Platform	19 POTS / ISDN BRI- Disconnect - UNE Loop	20 4 -Wire Disconnect - UNE Loop	21 2 Wire Cross Connect Disconnect at the FDI	22 4 Wire Cross Connect Disconnect at the FDI	23 Channelized DS1Virtual Feeder to RT - Disconnect
1	CLEC customer contact	X	X	X				X	X	X	X	X	
2	CLEC requests customer address data, CSR, and appointment from ILEC												
3	ILEC gateway requests address data from Administrative Information System and	X	X	X				X	X	X	X	X	
4	ILEC gateway formats and returns address, CSR, and appointment data to CLEC	X	X	X					X	X	X	X	
5	CLEC customer service representative inputs LSR information into LOS	X	X	X	X	X	X	X	X	X	X	X	X
6	ILEC gateway receives, validates and logs LSR, returns FOC, and passes LSR to	X	X	X	X	X	X	X	X	X	X	X	X
7	CLEC gateway sends LSR to EXACT				X	X	X						
8	ILEC SOG retrieves CSR data, formats and passes to SOP	X	X	X				X					
9	EXACT and TUF sends request to SOP				X	X	X						
10	SOP sends request to SOAC	X	X	X	X	X	X		X	X	X	X	X
11	SOAC analyzes order, generates assignment requests for OSP, COE, IOF, etc	X	X	X	X	X	X	X	X	X	X	X	X
12	SOAC analyzes order, generates assignment requests for COE and IOF, etc												
13	LFACS makes OSP assignments, e g , cable and pair	X	X		X								
14	LFACS makes OSP spare and available for reassignments, e g , cable and pair							X	X	X	X	X	X
15	COE and EICT assignments are made				X								
16	COE and EICT spare and available for reassignments are made								X	X			X
17	SOAC receives COE, OSP, IOF, etc	X	X		X	X	X		X	X	X	X	X
18	SOAC receives COE and IOF, etc												
19	COSMOS / SWITCH assigns OE / LU												
20	COSMOS / SWITCH removes OE / LU												
21	SWITCH assigns IDT port												
22	SWITCH assigns call reference values (CRV)												
23	SWITCH deletes call reference values (CRV)												
24	SOAC delivers recent change translation information												
25	SOAC delivers recent change disconnect information							X					
26	MARCH updates LDS												
27	SOAC delivers equipment and facility information to NSDB				X	X	X		X	X			X
28	NSBD downloads assignments to OPS/INE				X	X	X		X	X			X
29	OPS/INE delivers Cross Connect and equipment provisioning message to INE				X	X	X						
30	OPS/INE delivers Cross Connect and equipment disconnect message to INE								X	X			X
31	OPS/INE updates WFA/C				X	X	X		X	X			X
32	WFA/C updates NSDB				X	X	X		X	X			X
33	SOAC updates SOP	X	X	X	X	X	X	X	X	X	X	X	X
34	SOP updates WFA, NSDB, LMOS, BOSS, CRIS, etc	X	X	X	X			X	X	X	X	X	X
35	SOP updates WFA, NSDB, and CABS					X	X						
36	PICS sends plug-in assignments to TIRKS					X	X						
37	TIRKS provides equipment and facility assignments	X	X		X	X	X	X		X		X	X
38	TIRKS updates SOAC	X	X		X	X	X			X		X	X
39	CPU time for NMA for PM data from test				X	X	X						
40	SOP completes LSR	X	X	X	X	X	X	X	X	X	X	X	X
41	ILEC gateway notifies CLEC of completed order	X	X	X	X	X	X	X	X	X	X	X	X
42	ILEC billing system issues final bill to migrating customer	X		X									
43	**TSR , UNE-PLATFORM, & CHANGES**												
44	Fall Out RMAs forwarded to PAWS for reconciliation							X					
45	Fall Out Pull and analyze order							X					
46	Fall Out Clear jeopardy							X					
47	**2-WIRE LOOP**												
48	**Copper**												
49	Pull and analyze order (copper)												

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SERVICE ORDER PROCESS / NON-RECURRING

ID No.	Process Flow / Activity	24 2 wire Loop, different CO - Migration	25 2 wire Loop, different CO - Install	26 4 wire Loop, different CO - Migration	27 4 wire Loop, different CO - Install	28 DS1 Loop to Customer Premise - Migration	29 DS1 Loop to Customer Premise - Install	30 Line Port (DS0, Analog, ISLU) - Install	31 Channelized DS1 line port (TR-303-IDT) - Install	32 2 wire Loop, different CO - disconnect	33 4 wire Loop, different CO - disconnect	34 DS1 Loop to Customer Premise - disconnect	35 Line Port (DS0, Analog, ISLU) - Disconnect	36 Channelized DS1 line port (TR-303-IDT) - Disconnect
1	CLEC customer contact	X	X	X	X	X	X	X		X	X	X	X	
2	CLEC requests customer address data, CSR, and appointment from ILEC													
3	ILEC gateway requests address data from Administrative Information System and	X	X	X	X	X	X	X		X	X	X	X	
4	ILEC gateway formats and returns address, CSR, and appointment data to CLEC	X	X	X	X	X	X	X		X	X	X	X	
5	CLEC customer service representative inputs LSR information into LOS	X	X	X	X	X	X	X	X	X	X	X	X	X
6	ILEC gateway receives, validates and logs LSR, returns FOC, and passes LSR to	X	X	X	X	X	X	X	X	X	X	X	X	X
7	CLEC gateway sends LSR to EXACT								X					X
8	ILEC SOG retrieves CSR data, formats and passes to SOP	X	X	X	X	X	X			X	X	X		
9	EXACT and TUF sends request to SOP								X					X
10	SOP sends request to SOAC	X	X	X	X	X	X	X	X	X	X	X	X	X
11	SOAC analyzes order, generates assignment requests for OSP, COE, IOF, etc	X	X	X	X	X	X			X	X	X		
12	SOAC analyzes order, generates assignment requests for COE and IOF, etc							X	X				X	X
13	LFACS makes OSP assignments, e.g., cable and pair	X	X	X	X									
14	LFACS makes OSP spare and available for reassignments, e.g., cable and pair									X	X			
15	COE and EICT assignments are made	X	X	X	X	X	X	X						
16	COE and EICT spare and available for reassignments are made									X	X	X	X	
17	SOAC receives COE, OSP, IOF, etc	X	X	X	X	X	X			X	X	X		
18	SOAC receives COE and IOF, etc							X					X	
19	COSMOS / SWITCH assigns OE / TU							X						
20	COSMOS / SWITCH removes OE / TU												X	
21	SWITCH assigns IDT port													X
22	SWITCH assigns call reference values (CRV)								X					
23	SWITCH deletes call reference values (CRV)													X
24	SOAC delivers recent change translation information							X					X	
25	SOAC delivers recent change disconnect information													
26	MARCH updates LDS							X					X	
27	SOAC delivers equipment and facility information to NSDB							X	X				X	X
28	NSBD downloads assignments to OPS/INE													
29	OPS/INE delivers Cross Connect and equipment provisioning message to INE													
30	OPS/INE delivers Cross Connect and equipment disconnect message to INE													
31	OPS/INE updates WFA/C													
32	WFA/C updates NSDB								X					X
33	SOAC updates SOP	X	X	X	X	X	X	X	X	X	X	X	X	X
34	SOP updates WFA, NSDB, LMOS, BOSS, CRIS, etc	X	X	X	X	X	X	X	X	X	X	X	X	X
35	SOP updates WFA, NSDB, and CABS													
36	PICS sends plug-in assignments to TIRKS													
37	TIRKS provides equipment and facility assignments	X	X	X	X	X	X		X	X	X	X		X
38	TIRKS updates SOAC	X	X	X	X	X	X		X	X	X	X		X
39	CPU time for NMA for PM data from test								X					
40	SOP completes LSR	X	X	X	X	X	X	X	X	X	X	X	X	X
41	ILEC gateway notifies CLEC of completed order	X	X	X	X	X	X	X	X	X	X	X	X	X
42	ILEC billing system issues final bill to migrating customer	X		X		X								
43	**TSR, UNE-PLATFORM, & CHANGES**													
44	Fall Out - RMAs forwarded to PAWS for reconciliation							X					X	
45	Fall Out - Pull and analyze order							X					X	
46	Fall Out - Clear jeopardy							X					X	
47	**2-WIRE LOOP**													
48	**Copper**													
49	Pull and analyze order (copper)							X						

SERVICE ORDER PROCESS / NON-RECURRING

ID No.	Process Flow / Activity	37 Fiber Cross Connects - Install	38 Fiber Cross Connects - Disconnect	39 SS7 Links (A&D, DS0) Install	40 SS7 Links (A&D, DS0) Disconnect	41 SS7 Links (A&D, DS1) Install	42 SS7 Links (A&D, DS1) Disconnect	43 SS7 STP global title translations Install	44 SS7 STP message transfer part - Install	45 SS7 STP global title translations Disconnect	46 SS7 STP message transfer part - Disconnect
1	CLEC customer contact			X	X						
2	CLEC requests customer address data, CSR, and appointment from ILEC										
3	ILEC gateway requests address data from Administrative Information System and			X	X						
4	ILEC gateway formats and returns address, CSR, and appointment data to CLEC			X	X						
5	CLEC customer service representative inputs LSR information into LOS	X	X	X	X	X	X				
6	ILEC gateway receives, validates and logs LSR, returns FOC, and passes LSR to	X	X	X	X	X	X				
7	CLEC gateway sends LSR to EXACT	X	X			X	X				
8	ILEC SOG retrieves CSR data, formats and passes to SOP			X	X						
9	EXACT and TUF sends request to SOP					X	X				
10	SOP sends request to SOAC	X	X	X	X	X	X				
11	SOAC analyzes order, generates assignment requests for OSP, COE, IOF, etc	X	X	X	X	X	X				
12	SOAC analyzes order, generates assignment requests for COE and IOF, etc										
13	LFACS makes OSP assignments, e.g., cable and pair										
14	LFACS makes OSP spare and available for reassignments, e.g., cable and pair										
15	COE and EICT assignments are made			X	X						
16	COE and EICT spare and available for reassignments are made										
17	SOAC receives COE, OSP, IOF, etc	X	X	X	X	X	X				
18	SOAC receives COE and IOF, etc										
19	COSMOS / SWITCH assigns OE / LU										
20	COSMOS / SWITCH removes OE / LU										
21	SWITCH assigns IDT port										
22	SWITCH assigns call reference values (CRV)										
23	SWITCH deletes call reference values (CRV)										
24	SOAC delivers recent change translation information										
25	SOAC delivers recent change disconnect information										
26	MARCH updates LDS										
27	SOAC delivers equipment and facility information to NSDB					X	X				
28	NSBD downloads assignments to OPS/INE					X	X				
29	OPS/INE delivers Cross Connect and equipment provisioning message to INE					X	X				
30	OPS/INE delivers Cross Connect and equipment disconnect message to INE										
31	OPS/INE updates WFA/C					X	X				
32	WFA/C updates NSDB					X	X				
33	SOAC updates SOP	X	X	X	X	X	X				
34	SOP updates WFA, NSDB, LMOS, BOSS, CRIS, etc	X	X	X	X						
35	SOP updates WFA, NSDB, and CABS					X	X				
36	PICS sends plug-in assignments to TIRKS					X	X				
37	TIRKS provides equipment and facility assignments	X	X	X	X	X	X				
38	TIRKS updates SOAC	X	X	X	X	X	X				
39	CPU time for NMA for PM data from test					X	X				
40	SOP completes LSR	X	X	X	X	X	X				
41	ILEC gateway notifies CLEC of completed order	X	X	X	X	X	X				
42	ILEC billing system issues final bill to migrating customer										
43	**TSR, UNE-PLATFORM, & CHANGES**										
44	Fall Out - RMAs forwarded to PAWS for reconciliation										
45	Fall Out - Pull and analyze order										
46	Fall Out - Clear jeopardy										
47	**2-WIRE LOOP**										
48	**Copper**										
49	Pull and analyze order (copper)										

SERVICE ORDER PROCESS / NON-RECURRING TYPE MATRIX

ID No.	Process Flow / Activity	1 POTS / ISDN BRI - Migration - TSR	2 POTS / ISDN BRI - Migration - UNE-Platform	3 POTS / ISDN BRI - Migration - UNE - Loop	4 POTS / ISDN BRI - Install - TSR	5 POTS / ISDN BRI - Install - UNE - Platform	6 POTS / ISDN BRI - Install - UNE - Loop	7 4 Wire - Migration - UNE - Loop	8 4 Wire - Install - UNE - Loop	9 Feature Changes	10 2 Wire Cross Connect at the FDI - Migration	11 2 Wire Cross Connect at the FDI - Install
50	Pull and analyze order (copper)				X	X						
51	Travel time to the central office (non-staffed) minutes / 4 work activities			X			X					
52	Travel time to the central office (non-staffed) minutes / 4 work activities				X	X						
53	Conduct continuity test (check dial tone and ANI)			X								
54	Install cross connect from MDF to terminal block (copper)			X			X					
55	Install cross connect from MDF to terminal block (copper)				X	X						
56	Conduct continuity test (check dial tone and ANI)			X			X					
57	Close order			X			X					
58	Close order				X	X						
59	ILEC MLT test and or ISTF test				X	X						
60	CLEC MLT test and or ISTF test						X					
61	Fall Out - RMAs forwarded to PAWS for reconciliation			X			X					
62	Fall Out - Pull and analyze order (copper)			X			X					
63	Fall Out - Clear jeopardy			X			X					
64	Pull and analyze order (copper)											
65	Travel time to the central office (non-staffed) minutes / 4 work activities											
66	Disconnect cross connect from MDF (Copper)											
67	Close order											
68	**IDLC (GR-303)**											
69	Install DSO TSI at RT (CPU time)			X			X		X			
70	Disconnect DSO TSI at RT (CPU Time)											
71	**CHANNELIZED DS1 CAPACITY FOR THE VRT (TR-303)**											
72	Pull and analyze order											
73	Travel time to the central office (non-staffed) minutes / 4 work activities											
74	Install IDT line port card											
75	Install DSX cross connect (5 Wire)											
76	Perform quasi random signalling source (QRSS) test via remote ITS - DTAU											
77	Disconnect DSX cross connect (5 Wire)											
78	CPU time at SONET MUX (DS1)											
79	CPU time at RT (DS1 TSI)											
80	Conduct continuity test - quasi random signaling source (QRSS) from ITS/DTAU											
81	Close Order											
82	Fall Out - Pull and analyze order											
83	Fall Out - Resolve Fallout											
84	Pull and analyze order											
85	Travel time to the central office (non-staffed) minutes / 4 work activities											
86	CPU Time at SONET MUX (DS1)											
87	CPU Time at RT (DS1 TSI)											
88	Disconnect DSX Cross Connect (5 Wire)											
89	Close Order											
90	**FIBER CROSS CONNECTS**											
91	Pull and analyze order (FMAC)											
92	Travel time to the central office											
93	Install 2 Pigtails (2 minutes x 2 Pigtails)											
94	Remove 2 Pigtails (2 minutes x 2 Pigtails)											
95	OTDR (Optical Time Domain Reflecometer) testing using Fiber Check 5000 type systems											
96	Close order											
97	**2 - WIRE CROSS CONNECT AT THE FDI (SUB-LOOP UNBUNDLING)**											
98	Pull and analyze order										X	X
99	Travel time to FDI / 2 work activities										X	X
100	Setup time / 2 work activities										X	X

SERVICE ORDER PROCESS / NON-RECURRING

ID No.	Process Flow / Activity	12 4 Wire Cross Connect at the FDI - Migration	13 4 Wire Cross Connect at the FDI - Install	14 Cross Connect 2 wire, 6 line NID - Install	15 Channelized DS1 Virtual Feeder to RT - Install	16 DS1 Interoffice Transport	17 DS3 Interoffice Transport	18 POTS / ISDN BRI - Disconnect - TSR / UNE - Platform	19 POTS / ISDN BRI- Disconnect - UNE Loop	20 4 -Wire Disconnect - UNE Loop	21 2 Wire Cross Connect Disconnect at the FDI	22 4 Wire Cross Connect Disconnect at the FDI	23 Channelized DS1Virtual Feeder to RT - Disconnect
50	Pull and analyze order (copper)												
51	Travel time to the central office (non-staffed) minutes / 4 work activities												
52	Travel time to the central office (non-staffed) minutes / 4 work activities												
53	Conduct continuity test (check dial tone and ANI)												
54	Install cross connect from MDF to terminal block (copper)												
55	Install cross connect from MDF to terminal block (copper)												
56	Conduct continuity test (check dial tone and ANI)												
57	Close order												
58	Close order												
59	ILEC MLT test and or ISTF test												
60	CLEC MLT test and or ISTF test												
61	Fall Out RMAs forwarded to PAWS for reconciliation								X				
62	Fall Out Pull and analyze order (copper)								X				
63	Fall Out Clear jeopardy								X				
64	Pull and analyze order (copper)								X				
65	Travel time to the central office (non-staffed) minutes / 4 work activities								X				
66	Disconnect cross connect from MDF (Copper)								X				
67	Close order								X				
68	**IDLC (GR-303)**												
69	Install DS0 TSI at RT (CPU time)												
70	Disconnect DS0 TSI at RT (CPU Time)								X				
71	**CHANNELIZED DS1 CAPACITY FOR THE VRT (TR-303)**												
72	Pull and analyze order				X								
73	Travel time to the central office (non-staffed) minutes / 4 work activities				X								
74	Install IDT line port card												
75	Install DSX cross connect (5 Wire)				X								
76	Perform quasi random signalling source (QRSS) test via remote ITS - DTAU												
77	Disconnect DSX cross connect (5 Wire)												
78	CPU time at SONET MUX (DS1)				X								
79	CPU time at RT (DS1 TSI)				X								
80	Conduct continuity test - quasi random signaling source (QRSS) from ITS/DTAU				X								
81	Close Order				X								
82	Fall Out Pull and analyze order				X								
83	Fall Out Resolve Fallout				X								
84	Pull and analyze order												X
85	Travel time to the central office (non-staffed) minutes / 4 work activities												X
86	CPU Time at SONET MUX (DS1)												X
87	CPU Time at RT (DS1 TSI)												X
88	Disconnect DSX Cross Connect (5 Wire)												X
89	Close Order												X
90	**FIBER CROSS CONNECTS**												
91	Pull and analyze order (FMAC)												
92	Travel time to the central office												
93	Install 2 Pigtails (2 minutes x 2 Pigtails)												
94	Remove 2 Pigtails (2 minutes x 2 Pigtails)												
95	OTDR (Optical Time Domain Reflectometer) testing using Fiber Check 5000 types												
96	Close order												
97	**2 - WIRE CROSS CONNECT AT THE FDI (SUB-LOOP UNBUNDLING)**												
98	Pull and analyze order												
99	Travel time to FDI / 2 work activities												
100	Setup time / 2 work activities												

SERVICE ORDER PROCESS / NON-RECURRING

ID No.	Process Flow / Activity	24 2 wire Loop, different CO - Migration	25 2 wire Loop, different CO - Install	26 4 wire Loop, different CO - Migration	27 4 wire Loop, different CO - Install	28 DS1 Loop to Customer Premise - Migration	29 DS1 Loop to Customer Premise - Install	30 Line Port (DS0, Analog, ISLU) - Install	31 Channelized DS1 line port (TR-303-IDT) - Install	32 2 wire Loop, different CO - disconnect	33 4 wire Loop, different CO - disconnect	34 DS1 Loop to Customer Premise - disconnect	35 Line Port (DS0, Analog, ISLU) - Disconnect	36 Channelized DS1 line port (TR-303-IDT) - Disconnect
50	Pull and analyze order (copper)												X	
51	Travel time to the central office (non-staffed) minutes / 4 work activities							X					X	
52	Travel time to the central office (non-staffed) minutes / 4 work activities													
53	Conduct continuity test (check dial tone and ANI)													
54	Install cross connect from MDF to terminal block (copper)							X						
55	Install cross connect from MDF to terminal block (copper)													
56	Conduct continuity test (check dial tone and ANI)													
57	Close order							X						
58	Close order													
59	ILEC MLT test and or ISTF test							X						
60	CLEC MLT test and or ISTF test													
61	Fall Out - RMAs forwarded to PAWS for reconciliation													
62	Fall Out - Pull and analyze order (copper)													
63	Fall Out - Clear jeopardy													
64	Pull and analyze order (copper)													
65	Travel time to the central office (non-staffed) minutes / 4 work activities													
66	Disconnect cross connect from MDF (Copper)												X	
67	Close order												X	
68	**IDLC (GR-303)**													
69	Install DSO TSI at RT (CPU time)													
70	Disconnect DSO TSI at RT (CPU Time)													
71	**CHANNELIZED DS1 CAPACITY FOR THE VRT (TR-303)**													
72	Pull and analyze order								X					X
73	Travel time to the central office (non-staffed) minutes / 4 work activities								X					X
74	Install IDT line port card								X					
75	Install DSX cross connect (5 Wire)								X					
76	Perform quasi random signalling source (QRSS) test via remote ITS - DTAU								X					
77	Disconnect DSX cross connect (5 Wire)													X
78	CPU time at SONET MUX (DS1)													
79	CPU time at RT (DS1 TSI)													
80	Conduct continuity test - quasi random signaling source (QRSS) from ITS/DTAU													
81	Close Order								X					X
82	Fall Out - Pull and analyze order								X					X
83	Fall Out - Resolve Fallout								X					X
84	Pull and analyze order													
85	Travel time to the central office (non-staffed) minutes / 4 work activities													
86	CPU Time at SONET MUX (DS1)													
87	CPU Time at RT (DS1 TSI)													
88	Disconnect DSX Cross Connect (5 Wire)													
89	Close Order													
90	**FIBER CROSS CONNECTS**													
91	Pull and analyze order (FMAC)													
92	Travel time to the central office													
93	Install 2 Pigtails (2 minutes x 2 Pigtails)													
94	Remove 2 Pigtails (2 minutes x 2 Pigtails)													
95	OTDR (Optical Time Domain Reflectometer) testing using Fiber Check 5000 types													
96	Close order													
97	**2 - WIRE CROSS CONNECT AT THE FDI (SUB-LOOP UNBUNDLING)**													
98	Pull and analyze order													
99	Travel time to FDI / 2 work activities													
100	Setup time / 2 work activities													

SERVICE ORDER PROCESS / NON-RECURRING

ID No.	Process Flow / Activity	37 Fiber Cross Connects - Install	38 Fiber Cross Connects - Disconnect	39 SS7 Links (A&D, DS0) Install	40 SS7 Links (A&D, DS0) Disconnect	41 SS7 Links (A&D, DS1) Install	42 SS7 Links (A&D, DS1) Disconnect	43 SS7 STP global title translations Install	44 SS7 STP message transfer part - Install	45 SS7 STP global title translations Disconnect	46 SS7 STP message transfer part - Disconnect
50	Pull and analyze order (copper)										
51	Travel time to the central office (non-staffed) minutes / 4 work activities										
52	Travel time to the central office (non-staffed) minutes / 4 work activities										
53	Conduct continuity test (check dial tone and ANI)										
54	Install cross connect from MDF to terminal block (copper)										
55	Install cross connect from MDF to terminal block (copper)										
56	Conduct continuity test (check dial tone and ANI)										
57	Close order										
58	Close order										
59	ILEC MLT test and or ISTF test										
60	CLEC MLT test and or ISTF test										
61	Fall Out RMAs forwarded to PAWS for reconciliation										
62	Fall Out Pull and analyze order (copper)										
63	Fall Out Clear jeopardy										
64	Pull and analyze order (copper)										
65	Travel time to the central office (non-staffed) minutes / 4 work activities										
66	Disconnect cross connect from MDF (Copper)										
67	Close order										
68	**IDLC (GR-303)**										
69	Install DSO TSI at RT (CPU time)										
70	Disconnect DSO TSI at RT (CPU Time)										
71	**CHANNELIZED DS1 CAPACITY FOR THE VRT (TR-303)**										
72	Pull and analyze order										
73	Travel time to the central office (non-staffed) minutes / 4 work activities										
74	Install IDT line port card										
75	Install DSX cross connect (5 Wire)										
76	Perform quasi random signalling source (QRSS) test via remote ITS - DTAU										
77	Disconnect DSX cross connect (5 Wire)										
78	CPU time at SONET MUX (DS1)										
79	CPU time at RT (DS1 TSI)										
80	Conduct continuity test - quasi random signaling source (QRSS) from ITS/DTAU										
81	Close Order										
82	Fall Out Pull and analyze order										
83	Fall Out Resolve Fallout										
84	Pull and analyze order										
85	Travel time to the central office (non-staffed) minutes / 4 work activities										
86	CPU Time at SONET MUX (DS1)										
87	CPU Time at RT (DS1 TSI)										
88	Disconnect DSX Cross Connect (5 Wire)										
89	Close Order										
90	**FIBER CROSS CONNECTS**										
91	Pull and analyze order (FMAC)	X	X								
92	Travel time to the central office	X	X								
93	Install 2 Pigtails (2 minutes x 2 Pigtails)	X									
94	Remove 2 Pigtails (2 minutes x 2 Pigtails)		X								
95	OTDR (Optical Time Domain Reflectometer) testing using Fiber Check 5000 types	X									
96	Close order	X	X								
97	**2 - WIRE CROSS CONNECT AT THE FDI (SUB-LOOP UNBUNDLING)**										
98	Pull and analyze order										
99	Travel time to FDI / 2 work activities										
100	Setup time / 2 work activities										

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SERVICE ORDER PROCESS / NON-RECURRING TYPE MATRIX

ID No.	Process Flow / Activity	1 POTS / ISDN BRI - Migration - TSR	2 POTS / ISDN BRI - Migration - UNE-Platform	3 POTS / ISDN BRI - Migration - UNE - Loop	4 POTS / ISDN BRI - Install - TSR	5 POTS / ISDN BRI - Install - UNE - Platform	6 POTS / ISDN BRI - Install - UNE - Loop	7 4 Wire - Migration - UNE - Loop	8 4 Wire - Install - UNE - Loop	9 Feature Changes	10 2 Wire Cross Connect at the FDI - Migration	11 2 Wire Cross Connect at the FDI - Install
101	Conduct continuity test for ILEC										X	X
102	Cross Connect (Binding Post)										X	X
103	Conduct continuity test for CLEC										X	
104	Tear Down Set Up / 2 work activities										X	X
105	Close Order										X	X
106	Fall Out RMAs forwarded to PAWS for restoration										X	X
107	Fall Out Pull and analyze order										X	X
108	Fall Out Clear jeopardy										X	X
109	Pull and analyze order											
110	Travel time to FDI (more than 2 miles) / 2 work activities*											
111	Setup time / 2 work activities											
112	Conduct continuity test for ILEC											
113	Disconnect existing Cross Connect (Binding Post)											
114	Tear Down Set Up / 2 work activities											
115	Close Order											
116	**4 - WIRE CROSS CONNECT AT THE FDI (SUB-LOOP UNBUNDLING)**											
117	Pull and analyze order											
118	Pull and analyze order											
119	Pull and analyze order (NTEC)											
120	Travel Time to FDI / 1 work activities											
121	Negotiate customer release											
122	Setup time / 1 work activity											
123	Cross Connect (Binding Post)											
124	Tear Down Set Up											
125	Travel Time to 4 wire NID											
126	Setup Time to 4 wire NID											
127	1000 hz test											
128	Tear Down Set Up											
129	Travel time to the central office (non-staffed) minutes / 4 activities											
130	Disconnect SMAS (wire wrap)											
131	Disconnect cross connect from MDF (Cosmic-like frame, e.g. punch down, 2 four wire)											
132	Travel time with in the staffed CO / 4 work activities											
133	Close Order											
134	Close Order											
135	Close Order (NTEC Contact SSC)											
136	Fall Out Pull and analyze order											
137	Fall Out Manual design process											
138	Pull and analyze order											
139	Travel Time to FDI / 1 work activities											
140	Setup time / 1 work activities											
141	Disconnect existing Cross Connect (Binding Post)											
142	Tear Down Set Up / 1 work activities											
143	Close Order											
144	**4 - WIRE LOOP - And other Designed Services**											
145	Pull and analyze order (SSC)							X	X			
146	Pull and analyze order (NTEC)							X	X			
147	Pull and analyze order (FMAC)											
148	Travel time to the central office (non-staffed) minutes / 4 work activities							X	X			
149	Travel time to the central office (non-staffed) minutes / 4 work activities											
150	Negotiate customer release							X				

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SERVICE ORDER PROCESS / NON-RECURRING

ID No.	Process Flow / Activity	12 4 Wire Cross Connect at the FDI - Migration	13 4 Wire Cross Connect at the FDI - Install	14 Cross Connect 2 wire, 6 line NID - Install	15 Channelized DS1 Virtual Feeder to RT - Install	16 DS1 Interoffice Transport	17 DS3 Interoffice Transport	18 POTS / ISDN BRI - Disconnect - TSR / UNE - Platform	19 POTS / ISDN BRI- Disconnect - UNE Loop	20 4 -Wire Disconnect - UNE Loop	21 2 Wire Cross Connect Disconnect at the FDI	22 4 Wire Cross Connect Disconnect at the FDI	23 Channelized DS1Virtual Feeder to RT - Disconnect
101	Conduct continuity test for ILEC												
102	Cross Connect (Binding Post)												
103	Conduct continuity test for CLEC												
104	Tear Down Set Up / 2 work activities												
105	Close Order												
106	Fall Out RMAs forwarded to PAWS for restoration										X		
107	Fall Out Pull and analyze order										X		
108	Fall Out Clear jeopardy										X		
109	Pull and analyze order										X		
110	Travel time to FDI (more than 2 miles) / 2 work activities*										X		
111	Setup time / 2 work activities										X		
112	Conduct continuity test for ILEC										X		
113	Disconnect existing Cross Connect (Binding Post)										X		
114	Tear Down Set Up / 2 work activities										X		
115	Close Order										X		
116	**4 - WIRE CROSS CONNECT AT THE FDI (SUB-LOOP UNBUNDLING)**												
117	Pull and analyze order	X	X										
118	Pull and analyze order	X	X									X	
119	Pull and analyze order (NTEC)	X											
120	Travel Time to FDI / 1 work activities	X	X										
121	Negotiate customer release	X											
122	Setup time / 1 work activity	X	X										
123	Cross Connect (Binding Post)	X	X										
124	Tear Down Set Up	X	X										
125	Travel Time to 4 wire NID	X	X										
126	Setup Time to 4 wire NID	X	X										
127	1000 hz test	X	X										
128	Tear Down Set Up	X	X										
129	Travel time to the central office (non staffed) minutes / 4 activities	X											
130	Disconnect SMAS (wire wrap)	X											
131	Disconnect cross connect from MDF (Cosmic like frame, e.g. punch down, 2 four	X											
132	Travel time with in the staffed CO / 4 work activities	X											
133	Close Order	X	X										
134	Close Order	X	X									X	
135	Close Order (NTEC Contact SSC)	X											
136	Fall Out Pull and analyze order	X	X										
137	Fall Out Manual design process	X	X										
138	Pull and analyze order											X	
139	Travel Time to FDI / 1 work activities											X	
140	Setup time / 1 work activities											X	
141	Disconnect existing Cross Connect (Binding Post)											X	
142	Tear Down Set Up / 1 work activities											X	
143	Close Order											X	
144	**4 - WIRE LOOP - And other Designed Services**												
145	Pull and analyze order (SSC)												
146	Pull and analyze order (NTEC)												
147	Pull and analyze order (EMAC)												
148	Travel time to the central office (non staffed) minutes / 4 work activities												
149	Travel time to the central office (non-staffed) minutes 4 work activities												
150	Negotiate customer release												

SERVICE ORDER PROCESS / NON-RECURRING

ID No.	Process Flow / Activity	24 2 wire Loop, different CO - Migration	25 2 wire Loop, different CO - Install	26 4 wire Loop, different CO - Migration	27 4 wire Loop, different CO - Install	28 DS1 Loop to Customer Premise - Migration	29 DS1 Loop to Customer Premise - Install	30 Line Port (DS0, Analog, ISLU) - Install	31 Channelized DS1 line port (TR-303-IDT) - Install	32 2 wire Loop, different CO - disconnect	33 4 wire Loop, different CO - disconnect	34 DS1 Loop to Customer Premise - disconnect	35 Line Port (DS0, Analog, ISLU) - Disconnect	36 Channelized DS1 line port (TR-303-IDT) - Disconnect
101	Conduct continuity test for ILEC													
102	Cross Connect (Binding Post)													
103	Conduct continuity test for CLEC													
104	Tear Down Set Up / 2 work activities													
105	Close Order													
106	Fall Out RMAs forwarded to PAWS for restoration													
107	Fall Out Pull and analyze order													
108	Fall Out Clear jeopardy													
109	Pull and analyze order													
110	Travel time to FDI (more than 2 miles) / 2 work activities"													
111	Setup time / 2 work activities													
112	Conduct continuity test for ILEC													
113	Disconnect existing Cross Connect (Binding Post)													
114	Tear Down Set Up / 2 work activities													
115	Close Order													
116	**4 - WIRE CROSS CONNECT AT THE FDI (SUB-LOOP UNBUNDLING)**													
117	Pull and analyze order													
118	Pull and analyze order													
119	Pull and analyze order (NTEC)													
120	Travel Time to FDI / 1 work activities													
121	Negotiate customer release													
122	Setup time / 1 work activity													
123	Cross Connect (Binding Post)													
124	Tear Down Set Up													
125	Travel Time to 4 wire NID													
126	Setup Time to 4 wire NID													
127	1000 hz test													
128	Tear Down Set Up													
129	Travel time to the central office (non-stalled) minutes / 4 activities													
130	Disconnect SMAS (wire wrap)													
131	Disconnect cross connect from MDF (Cosmic like frame, e.g. punch down, 2 hour													
132	Travel time with in the staffed CO / 4 work activities													
133	Close Order													
134	Close Order													
135	Close Order (NTEC Contact SSC)													
136	Fall Out Pull and analyze order													
137	Fall Out Manual design process													
138	Pull and analyze order													
139	Travel Time to FDI / 1 work activities													
140	Setup time / 1 work activities													
141	Disconnect existing Cross Connect (Binding Post)													
142	Tear Down Set Up / 1 work activities													
143	Close Order													
144	**4 - WIRE LOOP - And other Designed Services**													
145	Pull and analyze order (SSC)	X	X	X	X	X	X			X	X	X		
146	Pull and analyze order (NTEC)	X	X	X	X					X	X			
147	Pull and analyze order (FMAC)					X	X					X		
148	Travel time to the central office (non-stalled) minutes / 4 work activities	X	X	X	X					X	X			
149	Travel time to the central office (non-stalled) minutes / 4 work activities					X	X					X		
150	Negotiate customer release	X		X		X				X	X	X		

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SERVICE ORDER PROCESS / NON-RECURRING

ID No.	Process Flow / Activity	37 Fiber Cross Connects - Install	38 Fiber Cross Connects - Disconnect	39 SS7 Links (A&D, DS0) - Install	40 SS7 Links (A&D, DS0) - Disconnect	41 SS7 Links (A&D, DS1) - Install	42 SS7 Links (A&D, DS1) - Disconnect	43 SS7 STP global title translations - Install	44 SS7 STP message transfer part - Install	45 SS7 STP global title translations - Disconnect	46 SS7 STP message transfer part - Disconnect
101	Conduct continuity test for ILEC										
102	Cross Connect (Binding Post)										
103	Conduct continuity test for CLEC										
104	Tear Down Set Up / 2 work activities										
105	Close Order										
106	Fall Out RMAs forwarded to PAWS for restoration										
107	Fall Out Pull and analyze order										
108	Fall Out Clear jeopardy										
109	Pull and analyze order										
110	Travel time to FDI (more than 2 miles) / 2 work activities*										
111	Setup time / 2 work activities										
112	Conduct continuity test for ILEC										
113	Disconnect existing Cross Connect (Binding Post)										
114	Tear Down Set Up / 2 work activities										
115	Close Order										
116	**4 - WIRE CROSS CONNECT AT THE FDI (SUB-LOOP UNBUNDLING)**										
117	Pull and analyze order										
118	Pull and analyze order										
119	Pull and analyze order (NTEC)										
120	Travel Time to FDI / 1 work activities										
121	Negotiate customer release										
122	Setup time / 1 work activity										
123	Cross Connect (Binding Post)										
124	Tear Down Set Up										
125	Travel Time to 4 wire NID										
126	Setup Time to 4 wire NID										
127	1000 hz test										
128	Tear Down Set Up										
129	Travel time to the central office (non-staffed) minutes / 4 activities										
130	Disconnect SMAS (wire wrap)										
131	Disconnect cross connect from MDF (Cosmic like frame, e.g. punch down, 2 four										
132	Travel time with in the staffed CO / 4 work activities										
133	Close Order										
134	Close Order										
135	Close Order (NTEC Contact SSC)										
136	Fall Out Pull and analyze order										
137	Fall Out Manual design process										
138	Pull and analyze order										
139	Travel Time to FDI / 1 work activities										
140	Setup time / 1 work activities										
141	Disconnect existing Cross Connect (Binding Post)										
142	Tear Down Set Up / 1 work activities										
143	Close Order										
144	**4 - WIRE LOOP - And other Designed Services**										
145	Pull and analyze order (SSC)			X	X						
146	Pull and analyze order (NTEC)			X	X						
147	Pull and analyze order (FMAC)										
148	Travel time to the central office (non-staffed) minutes / 4 work activities			X	X						
149	Travel time to the central office (non-staffed) minutes / 4 work activities										
150	Negotiate customer release										

SERVICE ORDER PROCESS / NON-RECURRING TYPE MATRIX

ID No.	Process Flow / Activity	1 POTS / ISDN BRI - Migration - TSR	2 POTS / ISDN BRI - Migration - UNE-Platform	3 POTS / ISDN BRI - Migration - UNE - Loop	4 POTS / ISDN BRI - Install - TSR	5 POTS / ISDN BRI - Install - UNE - Platform	6 POTS / ISDN BRI - Install - UNE - Loop	7 4 Wire - Migration - UNE - Loop	8 4 Wire - Install - UNE - Loop	9 Feature Changes	10 2 Wire Cross Connect at the FDI - Migration	11 2 Wire Cross Connect at the FDI - Install
151	Install cross connect MDF (COSMIC like frame, e.g. punch-down, 1 four wire jumper)							X				
152	Remove cross connect MDF (COSMIC like frame, e.g. punch-down, 1 four wire jumper)											
153	Install cross connect MDF (COSMIC like frame, e.g. punch-down, 2 four wire jumpers)								X			
154	Install cross connect (COSMIC like frame, e.g. punch-down, 2 wire jumpers)											
155	Cross connect (Wire Wrap, to AD4 ADTS Channnel Bank / unitized SMAS)											
156	Disconnect (Wire Wrap, to AD4 ADTS Channnel Bank / unitized SMAS)											
157	Install channel unit at AD4											
158	Remove cross connect (COSMIC-like frame, e.g. punch-down, 2 wire four jumpers)											
159	Remove cross connect - Wire Wrap to AD4 (channnel Bank (ADTS) / unitized SMAS											
160	Remove channel unit from AD4											
161	Cross connect (4 wire SMAS, Wire Wrap, to D4 Channnel Bank / unitized SMAS)											
162	Remove cross connect (4 wire SMAS, Wire Wrap, to D4 Channnel Bank / unitized SMAS)											
163	Install 2 two wire shielded pair cross connects at the protector frame											
164	Install 2 two wire shielded pair cross connects at the protector frame											
165	Install 2 four wire cross connect at the Toll Distribution Frame											
166	Install 5 wire cross connect DSX bay											
167	Install 2 four wire cross connect at the Toll Distribution Frame											
168	Install 5 wire cross connect DSX bay											
169	Remove 2 two wire shielded pair cross connects at the protector frame											
170	Remove 1 four wire cross connect at the Toll Distribution Frame											
171	Remove 5 wire cross connect DSX bay											
172	Remove 2 two wire shielded pair cross connects at the protector frame											
173	Remove 1 four wire cross connect at the Toll Distribution Frame											
174	Remove 5 wire cross connect DSX bay											
175	Perform quasi random signalling source (QRSS) test via remote TFS - DTAU											
176	Place plug-in at RT											
177	Place plug-in at ADM											
178	Place plug-in at RT											
179	Place plug-in at ADM											
180	Install DSO TSI at RT (CPU time)											
181	Cross connect (4 wire SMAS) (Wire Wrap)								X			
182	Remove Cross connect (4 wire SMAS) (Wire Wrap)											
183	Conduct SS7 test											
184	Conduct loop back analysis test											
185	Conduct loop back analysis test											
186	Conduct testing (1000 Hz)							X	X			
187	Close Order (SSC)							X	X			
188	Close Order (NTEC)							X	X			
189	Close Order (FMAC)											
190	Fall Out Pull and analyze order (CPC)							X	X			
191	Fall Out Resolve Fallout (CPC)							X	X			
192	Fall Out Pull and analyze order (CPC)											
193	Fall Out Resolve Fallout (CPC)											
194	Pull and analyze order (NTEC)											
195	Pull and analyze order (SSC)											
196	Travel time to the central office (non-staffed) minutes / 4 activities											
197	Disconnect SMAS (wire wrap)											
198	Disconnect cross connect from MDF (Cosmic like frame, e.g. punch down, 2 four wire)											
199	Close Order (NTEC Contact SSC)											
200	Close Order (SSC)											

SERVICE ORDER PROCESS / NON-RECURRING

ID No.	Process Flow / Activity	12 4 Wire Cross Connect at the FDI - Migration	13 4 Wire Cross Connect at the FDI - Install	14 Cross Connect 2 wire, 6 line NID - Install	15 Channelized DS1 Virtual Feeder to RT - Install	16 DS1 Interoffice Transport	17 DS3 Interoffice Transport	18 POTS / ISDN BRI - Disconnect - TSR / UNE - Platform	19 POTS / ISDN BRI- Disconnect - UNE Loop	20 4 -Wire Disconnect - UNE Loop	21 2 Wire Cross Connect Disconnect at the FDI	22 4 Wire Cross Connect Disconnect at the FDI	23 Channelized DS1Virtual Feeder to RT - Disconnect
151	Install cross connect MDF (COSMIC-like frame, e.g. punch-down, 1 four wire jum												
152	Remove cross connect MDF (COSMIC-like frame, e.g. punch-down, 1 four wire ju												
153	Install cross connect MDF (COSMIC-like frame, e.g. punch-down, 2 four wire jum												
154	Install cross connect (COSMIC-like frame, e.g. punch-down, 2 wire jumpers)												
155	Cross connect (Wire Wrap, to AD4 ADTS Channnel Bank / unitized SMAS)												
156	Disconnect (Wire Wrap, to AD4 ADTS Channnel Bank / unitized SMAS)												
157	Install channel unit at AD4												
158	Remove cross connect (COSMIC-like frame, e.g. punch-down, 2 wire four jumpers												
159	Remove cross connect - Wire Wrap to AD4 Channnel Bank (ADTS) / unitized SM												
160	Remove channel unit from AD4												
161	Cross connect (4 wire SMAS, Wire Wrap, to D4 Channnel Bank / unitized SMAS)												
162	Remove cross connect (4 wire SMAS, Wire Wrap, to D4 Channnel Bank / unitized												
163	Install 2 two wire shielded pair cross connects at the protector frame												
164	Install 2 two wire shielded pair cross connects at the protector frame												
165	Install 2 four wire cross connect at the Toll Distribution Frame												
166	Install 5 wire cross connect DSX bay												
167	Install 2 four wire cross connect at the Toll Distribution Frame												
168	Install 5 wire cross connect DSX bay												
169	Remove 2 two wire shielded pair cross connects at the protector frame												
170	Remove 1 four wire cross connect at the Toll Distribution Frame												
171	Remove 5 wire cross connect DSX bay												
172	Remove 2 two wire shielded pair cross connects at the protector frame												
173	Remove 1 four wire cross connect at the Toll Distribution Frame												
174	Remove 5 wire cross connect DSX bay												
175	Perform quasi random signalling source (QRSS) test via remote ITS - DTAU												
176	Place plug-in at RT												
177	Place plug-in at ADM												
178	Place plug-in at RT												
179	Place plug-in at ADM												
180	Install DSO TSI at RT (CPU time)												
181	Cross connect (4 wire SMAS) (Wire Wrap)												
182	Remove Cross connect (4 wire SMAS) (Wire Wrap)												
183	Conduct SS7 test												
184	Conduct loop back analysis test												
185	Conduct loop back analysis test												
186	Conduct testing (1000 Hz)												
187	Close Order (SSC)												
188	Close Order (NTEC)												
189	Close Order (FMAC)												
190	Fall Out Pull and analyze order (CPC)												
191	Fall Out Resolve Fallout (CPC)												
192	Fall Out Pull and analyze order (CPC)									X		X	X
193	Fall Out Resolve Fallout (CPC)									X		X	X
194	Pull and analyze order (NTEC)									X			
195	Pull and analyze order (SSC)									X			
196	Travel time to the central office (non-staffed) minutes / 4 activities									X			
197	Disconnect SMAS (wire wrap)									X			
198	Disconnect cross connect from MDF (Cosmic like frame, e.g. punch down, 2 four									X			
199	Close Order (NTEC Contact SSC)									X			
200	Close Order (SSC)									X			

SERVICE ORDER PROCESS / NON-RECURRING

ID No.	Process Flow / Activity	24 2 wire Loop, different CO - Migration	25 2 wire Loop, different CO - Install	26 4 wire Loop, different CO - Migration	27 4 wire Loop, different CO - Install	28 DS1 Loop to Customer Premise - Migration	29 DS1 Loop to Customer Premise - Install	30 Line Port (DS0, Analog, ISLU) - Install	31 Channelized DS1 line port (TR-303-IDT) - Install	32 2 wire Loop, different CO - disconnect	33 4 wire Loop, different CO - disconnect	34 DS1 Loop to Customer Premise - disconnect	35 Line Port (DS0, Analog, ISLU) - Disconnect	36 Channelized DS1 line port (TR-303-IDT) - Disconnect
151	Install cross connect MDF (COSMIC-like frame, e.g. punch-down, 1 four wire jum			X	X									
152	Remove cross connect MDF (COSMIC-like frame, e.g. punch-down, 1 four wire ju										X			
153	Install cross connect MDF (COSMIC-like frame, e.g. punch-down, 2 four wire jum													
154	Install cross connect (COSMIC-like frame, e.g. punch-down, 2 wire jumpers)	X	X											
155	Cross connect (Wire Wrap, to AD4 ADTS Channel Bank / unitized SMAS)	X	X											
156	Disconnect (Wire Wrap, to AD4 ADTS Channel Bank / unitized SMAS)													
157	Install channel unit at AD4	X	X	X	X									
158	Remove cross connect (COSMIC-like frame, e.g. punch-down, 2 wire four jumpers									X				
159	Remove cross connect - Wire Wrap to AD4 Channnel Bank (ADTS) / unitized SM									X	X			
160	Remove channel unit from AD4									X	X			
161	Cross connect (4 wire SMAS, Wire Wrap, to D4 Channnel Bank / unitized SMAS)			X	X									
162	Remove cross connect (4 wire SMAS, Wire Wrap, to D4 Channnel Bank / unitized													
163	Install 2 two wire shielded pair cross connects at the protector frame													
164	Install 2 two wire shielded pair cross connects at the protector frame						X							
165	Install 2 four wire cross connect at the Toll Distribution Frame													
166	Install 5 wire cross connect DSX bay													
167	Install 2 four wire cross connect at the Toll Distribution Frame						X							
168	Install 5 wire cross connect DSX bay					X	X							
169	Remove 2 two wire shielded pair cross connects at the protector frame													
170	Remove 1 four wire cross connect at the Toll Distribution Frame													
171	Remove 5 wire cross connect DSX bay													
172	Remove 2 two wire shielded pair cross connects at the protector frame											X		
173	Remove 1 four wire cross connect at the Toll Distribution Frame											X		
174	Remove 5 wire cross connect DSX bay											X		
175	Perform quasi random signalling source (QRSS) test via remote TTS - DTAU					X	X							
176	Place plug-in at RT													
177	Place plug-in at ADM													
178	Place plug-in at RT						X							
179	Place plug-in at ADM						X							
180	Install DSO TSI at RT (CPU time)													
181	Cross connect (4 wire SMAS) (Wire Wrap)													
182	Remove Cross connect (4 wire SMAS) (Wire Wrap)													
183	Conduct SS7 test													
184	Conduct loop back analysis test													
185	Conduct loop back analysis test						X							
186	Conduct testing (1000 Hz)	X	X	X	X									
187	Close Order (SSC)	X	X	X	X	X	X			X	X	X		
188	Close Order (NTEC)	X	X	X	X					X	X			
189	Close Order (FMAC)					X	X					X		
190	Fall Out Pull and analyze order (CPC)	X	X	X	X	X	X			X	X	X		
191	Fall Out Resolve Fallout (CPC)	X	X	X	X	X	X			X	X	X		
192	Fall Out Pull and analyze order (CPC)													
193	Fall Out Resolve Fallout (CPC)													
194	Pull and analyze order (NTEC)													
195	Pull and analyze order (SSC)													
196	Travel time to the central office (non-staffed) minutes / 4 activities													
197	Disconnect SMAS (wire wrap)													
198	Disconnect cross connect from MDF (Cosmic-like frame, e.g. punch down, 2 four													
199	Close Order (NTEC Contact SSC)													
200	Close Order (SSC)													

SERVICE ORDER PROCESS / NON-RECURRING

ID No.	Process Flow / Activity	37 Fiber Cross Connects - Install	38 Fiber Cross Connects - Disconnect	39 SS7 Links (A&D, DS0) - Install	40 SS7 Links (A&D, DS0) - Disconnect	41 SS7 Links (A&D, DS1) - Install	42 SS7 Links (A&D, DS1) - Disconnect	43 SS7 STP global title translations - Install	44 SS7 STP message transfer part - Install	45 SS7 STP global title translations - Disconnect	46 SS7 STP message transfer part - Disconnect
151	Install cross connect MDF (COSMIC-like frame, e.g. punch-down, 1 four wire jum										
152	Remove cross connect MDF (COSMIC-like frame, e.g. punch-down, 1 four wire ju										
153	Install cross connect MDF (COSMIC-like frame, e.g. punch-down, 2 four wire jum										
154	Install cross connect (COSMIC-like frame, e.g. punch-down, 2 wire jumpers)										
155	Cross connect (Wire Wrap, to AD4 ADTS Channnel Bank / unitized SMAS)			X							
156	Disconnect (Wire Wrap, to AD4 ADTS Channnel Bank / unitized SMAS)				X						
157	Install channel unit at AD4			X							
158	Remove cross connect (COSMIC-like frame, e.g. punch-down, 2 wire four jumpers										
159	Remove cross connect - Wire Wrap to AD4 Channnel Bank (ADTS) / unitized SM										
160	Remove channel unit from AD4				X						
161	Cross connect (4 wire SMAS, Wire Wrap, to D4 Channnel Bank / unitized SMAS)										
162	Remove cross connect (4 wire SMAS, Wire Wrap, to D4 Channnel Bank / unitized										
163	Install 2 two wire shielded pair cross connects at the protector frame										
164	Install 2 two wire shielded pair cross connects at the protector frame										
165	Install 2 four wire cross connect at the Toll Distribution Frame										
166	Install 5 wire cross connect DSX bay										
167	Install 2 four wire cross connect at the Toll Distribution Frame										
168	Install 5 wire cross connect DSX bay										
169	Remove 2 two wire shielded pair cross connects at the protector frame										
170	Remove 1 four wire cross connect at the Toll Distribution Frame										
171	Remove 5 wire cross connect DSX bay										
172	Remove 2 two wire shielded pair cross connects at the protector frame										
173	Remove 1 four wire cross connect at the Toll Distribution Frame										
174	Remove 5 wire cross connect DSX bay										
175	Perform quasi random signalling source (QRSS) test via remote ITS - DTAU										
176	Place plug-in at RT										
177	Place plug-in at ADM										
178	Place plug-in at RT										
179	Place plug-in at ADM										
180	Install DS0 TSI at RT (CPU unit)										
181	Cross connect (4 wire SMAS) (Wire Wrap)										
182	Remove Cross connect (4 wire SMAS) (Wire Wrap)										
183	Conduct SS7 test			X							
184	Conduct loop back analysis test			X							
185	Conduct loop back analysis test										
186	Conduct testing (1000 Hz)										
187	Close Order (SSC)			X	X						
188	Close Order (NTEC)			X	X						
189	Close Order (FMAC)										
190	Fall Out Pull and analyze order (CPC)			X	X						
191	Fall Out Resolve Fallout (CPC)			X	X						
192	Fall Out Pull and analyze order (CPC)										
193	Fall Out Resolve Fallout (CPC)										
194	Pull and analyze order (NTEC)										
195	Pull and analyze order (SSC)										
196	Travel time to the central office (non-staffed) minutes / 4 activities										
197	Disconnect SMAS (wire wrap)										
198	Disconnect cross connect from MDF (Cosmic-like frame, e.g. punch down, 2 four										
199	Close Order (NTEC Contact SSC)										
200	Close Order (SSC)										

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SERVICE ORDER PROCESS / NON-RECURRING TYPE MATRIX

ID No.	Process Flow / Activity	1 POTS / ISDN BRI - Migration - TSR	2 POTS / ISDN BRI - Migration - UNE-Platform	3 POTS / ISDN BRI - Migration - UNE - Loop	4 POTS / ISDN BRI - Install - TSR	5 POTS / ISDN BRI - Install - UNE - Platform	6 POTS / ISDN BRI - Install - UNE - Loop	7 4 Wire - Migration - UNE - Loop	8 4 Wire - Install - UNE - Loop	9 Feature Changes	10 2 Wire Cross Connect at the FDI - Migration	11 2 Wire Cross Connect at the FDI - Install
201	**SIMPLE CROSS CONNECT AT THE NID (SUB-LOOP UNBUNDLING)**											
202	Pull and analyze order											
203	Travel time to customer premises / 1 work activities											
204	Setup time / 1 work activity											
205	Terminate to NID											
206	Conduct dial tone continuity test											
207	Tear Down Set Up / 1 work activities											
208	Close Order											
209	Fall Out - RMAs cleared automatically by PAWS											
210	Fall Out - Pull and analyze order											
211	Fall Out - Clear Jeopardy											
212	Pull and analyze order											
213	Travel time to customer premises / 4 work activities											
214	Disconnect cross connect from NID											
215	Close Order											
216	**SMART CROSS CONNECT AT THE NID (SUB-LOOP UNBUNDLING)**											
217	Pull and analyze order											
218	Travel time to customer premises / 4 work activities											
219	Card plug in											
220	Install wiring to NID (J-Mounting Shell including RJ-48 jack costs)											
221	Conduct continuity and card loop back test											
222	Close Order											
223	Fall Out - Pull and analyze order											
224	Fall Out - Manual design process											
225	Pull and analyze order											
226	Travel time to customer premises / 4 work activities											
227	Disconnect cross connect from NID											
228	Close Order											
229	**DS3 INTEROFFICE TRANSPORT (BAND WIDTH)**											
230	Pull and analyze order											
231	Travel time to the central office (non-staffed) minutes / 4 work activities											
232	Install card for DCS											
233	Install card for SONET MUX											
234	Electronic Cross Connect on DCS											
235	Electronic Cross Connect on SONET MUX											
236	Performance Monitoring Testing											
237	Retrieve and analyze performance monitoring data											
238	Intrusive Test (ITS)											
239	CPU time for registers											
240	Close Order											
241	Fall Out - Pull and analyze order											
242	Fall Out - Resolve Fallout											
243	Pull and analyze order											
244	Travel time to non-staffed office / 4 work activities											
245	Remove the card											
246	Close Order											
247	**DS1 INTEROFFICE TRANSPORT**											
248	Pull and analyze order											
249	Travel time to the central office (non-staffed) minutes / 4 work activities											
250	Install card for DCS											
251	Install card for SONET MUX (high speed - OC-48 to STS1)											

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SERVICE ORDER PROCESS / NON-RECURRING

ID No.	Process Flow / Activity	12 4 Wire Cross Connect at the FDI - Migration	13 4 Wire Cross Connect at the FDI - Install	14 Cross Connect 2 wire, 6 line NID - Install	15 Channelized DS1 Virtual Feeder to RT - Install	16 DS1 Interoffice Transport	17 DS3 Interoffice Transport	18 POTS / ISDN BRI - Disconnect - TSR / UNE - Platform	19 POTS / ISDN BRI- Disconnect - UNE Loop	20 4 -Wire Disconnect - UNE Loop	21 2 Wire Cross Connect Disconnect at the FDI	22 4 Wire Cross Connect Disconnect at the FDI	23 Channelized DS1Virtual Feeder to RT - Disconnect
201	**SIMPLE CROSS CONNECT AT THE NID (SUB-LOOP UNBUNDLING)**												
202	Pull and analyze order			X									
203	Travel time to customer premises / 1 work activities			X									
204	Setup time / 1 work activity			X									
205	Terminate to NID			X									
206	Conduct dial tone continuity test			X									
207	Tear Down Set Up / 1 work activities			X									
208	Close Order			X									
209	Fall Out RMAs cleared automatically by PAWS												
210	Fall Out Pull and analyze order												
211	Fall Out Clear Jeopardy												
212	Pull and analyze order												
213	Travel time to customer premises / 4 work activities												
214	Disconnect cross connect from NID												
215	Close Order												
216	**SMART CROSS CONNECT AT THE NID (SUB-LOOP UNBUNDLING)**												
217	Pull and analyze order												
218	Travel time to customer premises / 4 work activities												
219	Card plug in												
220	Install wiring to NID (J-Mounting Shelf including RJ-48 jack exists)												
221	Conduct continuity and card loop back test												
222	Close Order												
223	Fall Out. Pull and analyze order												
224	Fall Out Manual design process												
225	Pull and analyze order												
226	Travel time to customer premises / 4 work activities												
227	Disconnect cross connect from NID												
228	Close Order												
229	**DS3 INTEROFFICE TRANSPORT (BAND WIDTH)**												
230	Pull and analyze order						X						
231	Travel time to the central office (non-staffed) minutes / 4 work activities						X						
232	Install card for DCS						X						
233	Install card for SONET MUX						X						
234	Electronic Cross Connect on DCS						X						
235	Electronic Cross Connect on SONET MUX						X						
236	Performance Monitoring Testing						X						
237	Retrieve and analyze performance monitoring data						X						
238	Intrusive Test (ITS)						X						
239	CPU time for registers						X						
240	Close Order						X						
241	Fall Out Pull and analyze order						X						
242	Fall Out Resolve Fallout						X						
243	Pull and analyze order												
244	Travel time to non-staffed office / 4 work activities												
245	Remove the card												
246	Close Order												
247	**DS1 INTEROFFICE TRANSPORT**												
248	Pull and analyze order					X							
249	Travel time to the central office (non-staffed) minutes / 4 work activities					X							
250	Install card for DCS					X							
251	Install card for SONET MUX (high speed OC-48 to STS1)					X							

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SERVICE ORDER PROCESS / NON-RECURRING

ID No.	Process Flow / Activity	24 2 wire Loop, different CO - Migration	25 2 wire Loop, different CO - Install	26 4 wire Loop, different CO - Migration	27 4 wire Loop, different CO - Install	28 DS1 Loop to Customer Premise - Migration	29 DS1 Loop to Customer Premise - Install	30 Line Port (DS0, Analog, ISLU) - Install	31 Channelized DS1 line port (TR-303-IDT) - Install	32 2 wire Loop, different CO - disconnect	33 4 wire Loop, different CO - disconnect	34 DS1 Loop to Customer Premise - disconnect	35 Line Port (DS0, Analog, ISLU) - Disconnect	36 Channelized DS1 line port (TR-303-IDT) - Disconnect
201	**SIMPLE CROSS CONNECT AT THE NID (SUB-LOOP UNBUNDLING)**													
202	Pull and analyze order													
203	Travel time to customer premises / 1 work activities													
204	Setup time / 1 work activity													
205	Terminate to NID													
206	Conduct dial tone continuity test													
207	Tear Down Set Up / 1 work activities													
208	Close Order													
209	Fall Out RMAs cleared automatically by PAWS													
210	Fall Out Pull and analyze order													
211	Fall Out Clear Jeopardy													
212	Pull and analyze order													
213	Travel time to customer premises / 4 work activities													
214	Disconnect cross connect from NID													
215	Close Order													
216	**SMART CROSS CONNECT AT THE NID (SUB-LOOP UNBUNDLING)**													
217	Pull and analyze order													
218	Travel time to customer premises / 4 work activities													
219	Card plug in													
220	Install wiring to NID (J-Mounting Shell including RJ-48 jack exists)													
221	Conduct continuity and card loop back test													
222	Close Order													
223	Fall Out Pull and analyze order													
224	Fall Out Manual design process													
225	Pull and analyze order													
226	Travel time to customer premises / 4 work activities													
227	Disconnect cross connect from NID													
228	Close Order													
229	**DS3 INTEROFFICE TRANSPORT (BAND WIDTH)**													
230	Pull and analyze order													
231	Travel time to the central office (non-staffed) minutes / 4 work activities													
232	Install card for DCS													
233	Install card for SONET MUX													
234	Electronic Cross Connect on DCS													
235	Electronic Cross Connect on SONET MUX													
236	Performance Monitoring Testing													
237	Retrieve and analyze performance monitoring data													
238	Intrusive Test (ITS)													
239	CPU time for registers													
240	Close Order													
241	Fall Out Pull and analyze order													
242	Fall Out Resolve Fallout													
243	Pull and analyze order													
244	Travel time to non-staffed office / 4 work activities													
245	Remove the card													
246	Close Order													
247	**DS1 INTEROFFICE TRANSPORT**													
248	Pull and analyze order													
249	Travel time to the central office (non-staffed) minutes / 4 work activities													
250	Install card for DCS													
251	Install card for SONET MUX (high speed - OC48 to STS1)													

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SERVICE ORDER PROCESS / NON-RECURRING

ID No.	Process Flow / Activity	37 Fiber Cross Connects - Install	38 Fiber Cross Connects - Disconnect	39 SS7 Links (A&D, DS0) Install	40 SS7 Links (A&D, DS0) Disconnect	41 SS7 Links (A&D, DS1) Install	42 SS7 Links (A&D, DS1) Disconnect	43 SS7 STP global title translations - Install	44 SS7 STP message transfer part - Install	45 SS7 STP global title translations Disconnect	46 SS7 STP message transfer part - Disconnect
201	**SIMPLE CROSS CONNECT AT THE NID (SUB-LOOP UNBUNDLING)**										
202	Pull and analyze order										
203	Travel time to customer premises / 1 work activities										
204	Setup time / 1 work activity										
205	Terminate to NID										
206	Conduct dial tone continuity test										
207	Tear Down Set Up / 1 work activities										
208	Close Order										
209	Fall Out RMAs cleared automatically by PAWS										
210	Fall Out Pull and analyze order										
211	Fall Out Clear Jeopardy										
212	Pull and analyze order										
213	Travel time to customer premises / 4 work activities										
214	Disconnect cross connect from NID										
215	Close Order										
216	**SMART CROSS CONNECT AT THE NID (SUB-LOOP UNBUNDLING)**										
217	Pull and analyze order										
218	Travel time to customer premises / 4 work activities										
219	Card plug in										
220	Install wiring to NID (J-Mounting Shelf including RJ 48 jack exists)										
221	Conduct continuity and card loop back test										
222	Close Order										
223	Fall Out Pull and analyze order										
224	Fall Out Manual design process										
225	Pull and analyze order										
226	Travel time to customer premises / 4 work activities										
227	Disconnect cross connect from NID										
228	Close Order										
229	**DS3 INTEROFFICE TRANSPORT (BAND WIDTH)**										
230	Pull and analyze order										
231	Travel time to the central office (non-staffed) minutes / 4 work activities										
232	Install card for DCS										
233	Install card for SONET MUX										
234	Electronic Cross Connect on DCS										
235	Electronic Cross Connect on SONET MUX										
236	Performance Monitoring Testing										
237	Retrieve and analyze performance monitoring data										
238	Intrusive Test (ITS)										
239	CPU time for registers										
240	Close Order										
241	Fall Out Pull and analyze order										
242	Fall Out Resolve Fallout										
243	Pull and analyze order										
244	Travel time to non-staffed office / 4 work activities										
245	Remove the card										
246	Close Order										
247	**DS1 INTEROFFICE TRANSPORT**										
248	Pull and analyze order					X	X				
249	Travel time to the central office (non-staffed) minutes / 4 work activities					X	X				
250	Install card for DCS					X					
251	Install card for SONET MUX (high speed - OC 48 to STS1)					X					

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SERVICE ORDER PROCESS / NON-RECURRING TYPE MATRIX

ID No.	Process Flow / Activity	1 POTS / ISDN BRI - Migration - TSR	2 POTS / ISDN BRI - Migration - UNE-Platform	3 POTS / ISDN BRI - Migration - UNE - Loop	4 POTS / ISDN BRI - Install - TSR	5 POTS / ISDN BRI - Install - UNE - Platform	6 POTS / ISDN BRI - Install - UNE - Loop	7 4 Wire - Migration - UNE - Loop	8 4 Wire - Install - UNE - Loop	9 Feature Changes	10 2 Wire Cross Connect at the FDI - Migration	11 2 Wire Cross Connect at the FDI - Install
252	**Install plug in for low speed DS1 (low speed STS1 to DS1)**											
253	Electronic cross connect on DCS											
254	Electronic cross connect on low speed DS1 (low speed DS1)											
255	Conduct continuity test - quasi random signaling source (QRSS) from TTS/DTAU											
256	Performance Monitoring Testing											
257	Retrieve and analyze performance monitoring data											
258	Conduct SS7 test											
259	Intrusive Test (TTS)											
260	CPU time for registers											
261	Close order											
262	Fall Out Pull and analyze order											
263	Fall Out Resolve Fallout											
264	Pull and analyze order											
265	Travel time to non-staffed office / 4 work activities											
266	Remove the card											
267	Close Order											
268	**Intra-Building Travel**											
269	Travel time with in the staffed CO / 4 work activities							X	X			
270	Travel time with in the staffed CO / 4 work activities											
271	**SS7 STP global title translations**											
272	Receive work request											
273	Analyze request											
274	Build request into WFA											
275	Pull and analyze order											
276	Services - GTT translations (input into SEAS)											
277	close order											
278	Fallout Pull and analyze order											
279	Fallout Resolve Fallout											
280	**SS7 STP message transfer part**											
281	Receive work request											
282	Analyze request											
283	Build request into WFA											
284	Pull and analyze order											
285	Create and input screening table											
286	MTP point code to link set translations											
287	Establish link set											
288	close order											
289	Fallout Pull and analyze order											
290	Fallout Resolve Fallout											

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SERVICE ORDER PROCESS / NON-RECURRING

ID No.	Process Flow / Activity	12 4 Wire Cross Connect at the FDI - Migration	13 4 Wire Cross Connect at the FDI - Install	14 Cross Connect 2 wire, 6 line NID - Install	15 Channelized DS1 Virtual Feeder to RT - Install	16 DS1 Interoffice Transport	17 DS3 Interoffice Transport	18 POTS / ISDN BRI - Disconnect - TSR / UNE - Platform	19 POTS / ISDN BRI- Disconnect - UNE Loop	20 4 -Wire Disconnect - UNE Loop	21 2 Wire Cross Connect Disconnect at the FDI	22 4 Wire Cross Connect Disconnect at the FDI	23 Channelized DS1Virtual Feeder to RT - Disconnect
252	**Install plug in for low speed DS1 (low speed STS1 to DS1)**					X							
253	Electronic cross connect on DCS					X							
254	Electronic cross connect on low speed DS1 (low speed DS1)					X							
255	Conduct continuity test - quasi random signaling source (QRSS) from ITS/DTAU					X							
256	Performance Monitoring Testing					X							
257	Retrieve and analyze performance monitoring data					X							
258	Conduct SS7 test												
259	Intrusive Test (ITS)					X							
260	CPU time for registers					X							
261	Close order					X							
262	Fall Out Pull and analyze order					X							
263	Fall Out Resolve Fallout					X							
264	Pull and analyze order												
265	Travel time to non-staffed office / 4 work activities												
266	Remove the card												
267	Close Order												
268	**Intra-Building Travel**												
269	Travel time with in the staffed CO / 4 work activities				X					X			X
270	Travel time with in the staffed CO / 4 work activities												
271	**SS7 STP global title translations**												
272	Receive work request												
273	Analyze request												
274	Build request into WFA												
275	Pull and analyze order												
276	Services - GTT translations (input into SEAS)												
277	close order												
278	Fallout Pull and analyze order												
279	Fallout Resolve Fallout												
280	**SS7 STP message transfer part**												
281	Receive work request												
282	Analyze request												
283	Build request into WFA												
284	Pull and analyze order												
285	Create and input screening table												
286	MTP point code to link set translations												
287	Establish link set												
288	close order												
289	Fallout Pull and analyze order												
290	Fallout Resolve Fallout												

SERVICE ORDER PROCESS / NON-RECURRING

ID No.	Process Flow / Activity	24 2 wire Loop, different CO - Migration	25 2 wire Loop, different CO - Install	26 4 wire Loop, different CO - Migration	27 4 wire Loop, different CO - Install	28 DS1 Loop to Customer Premise - Migration	29 DS1 Loop to Customer Premise - Install	30 Line Port (DS0, Analog, ISLU) - Install	31 Channelized DS1 line port (TR-303-IDT) - Install	32 2 wire Loop, different CO - disconnect	33 4 wire Loop, different CO - disconnect	34 DS1 Loop to Customer Premise - disconnect	35 Line Port (DS0, Analog, ISLU) - Disconnect	36 Channelized DS1 line port (TR-303-IDT) - Disconnect
252	Install plug in for low speed DS1 (low speed STS1 to DS1)													
253	Electronic cross connect on DCS													
254	Electronic cross connect on low speed DS1 (low speed DS1)													
255	Conduct continuity test - quasi random signaling source (QRSS) from ITS/DTAU													
256	Performance Monitoring Testing													
257	Retrieve and analyze performance monitoring data													
258	Conduct SS7 test													
259	Intrusive Test (ITS)													
260	CPU time for registers													
261	Close order													
262	Fall Out Pull and analyze order													
263	Fall Out Resolve Fallout													
264	Pull and analyze order													
265	Travel time to non-staffed office / 4 work activities													
266	Remove the card													
267	Close Order													
268	**Intra-Building Travel**													
269	Travel time with in the staffed CO / 4 work activities	X	X	X	X					X	X			
270	Travel time with in the staffed CO / 4 work activities					X	X					X		
271	**SS7 STP global title translations**													
272	Receive work request													
273	Analyze request													
274	Build request into WFA													
275	Pull and analyze order													
276	Services - GTT translations (input into SEAS)													
277	close order													
278	Fallout Pull and analyze order													
279	Fallout Resolve Fallout													
280	**SS7 STP message transfer part**													
281	Receive work request													
282	Analyze request													
283	Build request into WFA													
284	Pull and analyze order													
285	Create and input screening table													
286	MTP point code to link set translations													
287	Establish link set													
288	close order													
289	Fallout Pull and analyze order													
290	Fallout Resolve Fallout													

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SERVICE ORDER PROCESS / NON-RECURRING

ID No.	Process Flow / Activity	37 Fiber Cross Connects - Install	38 Fiber Cross Connects - Disconnect	39 SS7 Links (A&D, DS0) Install	40 SS7 Links (A&D, DS0) Disconnect	41 SS7 Links (A&D, DS1) Install	42 SS7 Links (A&D, DS1) Disconnect	43 SS7 STP global title translations install	44 SS7 STP message transfer part - install	45 SS7 STP global title translations Disconnect	46 SS7 STP message transfer part - Disconnect
252	Install plug in for low speed DS1 (low speed STS1 to DS1)					X					
253	Electronic cross connect on DCS					X	X				
254	Electronic cross connect on low speed DS1 (low speed DS1)					X	X				
255	Conduct continuity test - quasi random signaling source (QRSS) from TTS/DTAU					X					
256	Performance Monitoring Testing					X					
257	Retrieve and analyze performance monitoring data					X					
258	Conduct SS7 test					X					
259	Intrusive Test (ITS)					X					
260	CPU time for registers					X	X				
261	Close order					X	X				
262	Fall Out Pull and analyze order					X	X				
263	Fall Out Resolve Fallout					X	X				
264	Pull and analyze order										
265	Travel time to non-staffed office / 4 work activities										
266	Remove the card										
267	Close Order										
268	**Intra-Building Travel**										
269	Travel time with in the staffed CO 4 work activities			X	X						
270	Travel time with in the staffed CO / 4 work activities	X	X			X	X				
271	**SS7 STP global title translations**										
272	Receive work request							X		X	
273	Analyze request							X		X	
274	Build request into WFA							X		X	
275	Pull and analyze order							X		X	
276	Services - GTT translations (input into SEAS)							X		X	
277	close order							X		X	
278	Fallout Pull and analyze order							X		X	
279	Fallout Resolve Fallout							X		X	
280	**SS7 STP message transfer part**										
281	Receive work request								X		X
282	Analyze request								X		X
283	Build request into WFA								X		X
284	Pull and analyze order								X		X
285	Create and input screening table								X		X
286	MTP point code to link set translations								X		X
287	Establish link set								X		X
288	close order								X		X
289	Fallout Pull and analyze order								X		X
290	Fallout Resolve Fallout								X		X

NON-RECURRING COST MODEL

Version 2.0

USER GUIDE

1. General Introduction

The ***Non-Recurring Cost Model*** sponsored by AT&T and MCI is a spreadsheet based costing tool that calculates the forward-looking cost of customer connection, disconnection, and change of service. The model also calculates the costs of additional activities related to interconnection, unbundling, and wholesale service. This User Guide is provided to help the user step through the *NRC Model*. Additional detail is provided in the Model Description document.

To enhance the cost model's functionality and to facilitate ease-of-use, the model utilizes advanced features of **Microsoft Excel 7.0**; these features include *visual basic for applications* (VBA) macros and dialog boxes. The macros are routines that serve to automate repetitive processes and to simplify operations and calculations. The dialog boxes allow users to quickly and accurately choose NRC scenarios and to alter the numerous user-adjustable variables via drop-down boxes, check boxes, buttons, and spinners.

The model is composed of 17 unique sheets, including: eight standard Excel worksheets, three VBA module sheets, and six dialog sheets. The following sheets are visible at model start-up:

- *Control* - buttons to run and navigate the model and to present summary results
- *Processes & Calcs* - process steps, calculations, and inputs for the intersection of NRC type and required process
- *Inputs* - presents NRC elements and inputs from dialog box interfaces
- *Batch Output* - detailed outputs and costs for each NRC element
- *Input Record* - detailed record of the selected inputs compared to the default inputs
- *Glossary* - presents telephony acronyms, technical terminology, and descriptions
- *Source Code* - visual basic for applications code
- *Copy Input Value Code* - visual basic for applications code
- *Save Option Code* - visual basic for applications code

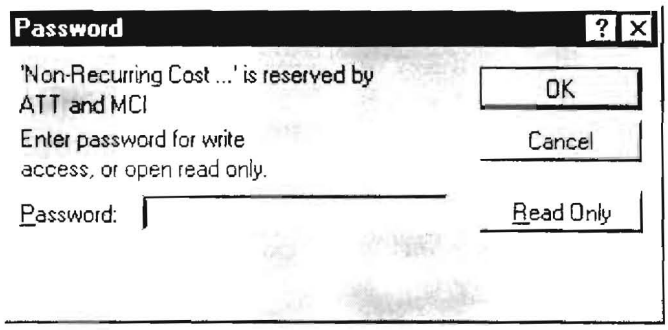
The following sheets are hidden at model start-up:

- *dlg NRC model* - first dialog box
- *dlg Customize Batch* - second dialog box
- *dlg Labor Rates* - third dialog box
- *dlg Other NRC* - fourth dialog box
- *dlg Instruction* - NRC Model user instructions
- *dlg Developer's Notes* - checklist for model developers
- Batch PO Staging - a staging sheet used for printing Batch Output
- Batch Summary Tempy Sheet - a staging sheet used for printing Batch Output

The hidden sheets can only be seen directly by going to the toolbar and using the **Format - Sheet - Unhide** command. These sheets are hidden because model users do not need to access these sheets to run the model.

2. Opening the Model

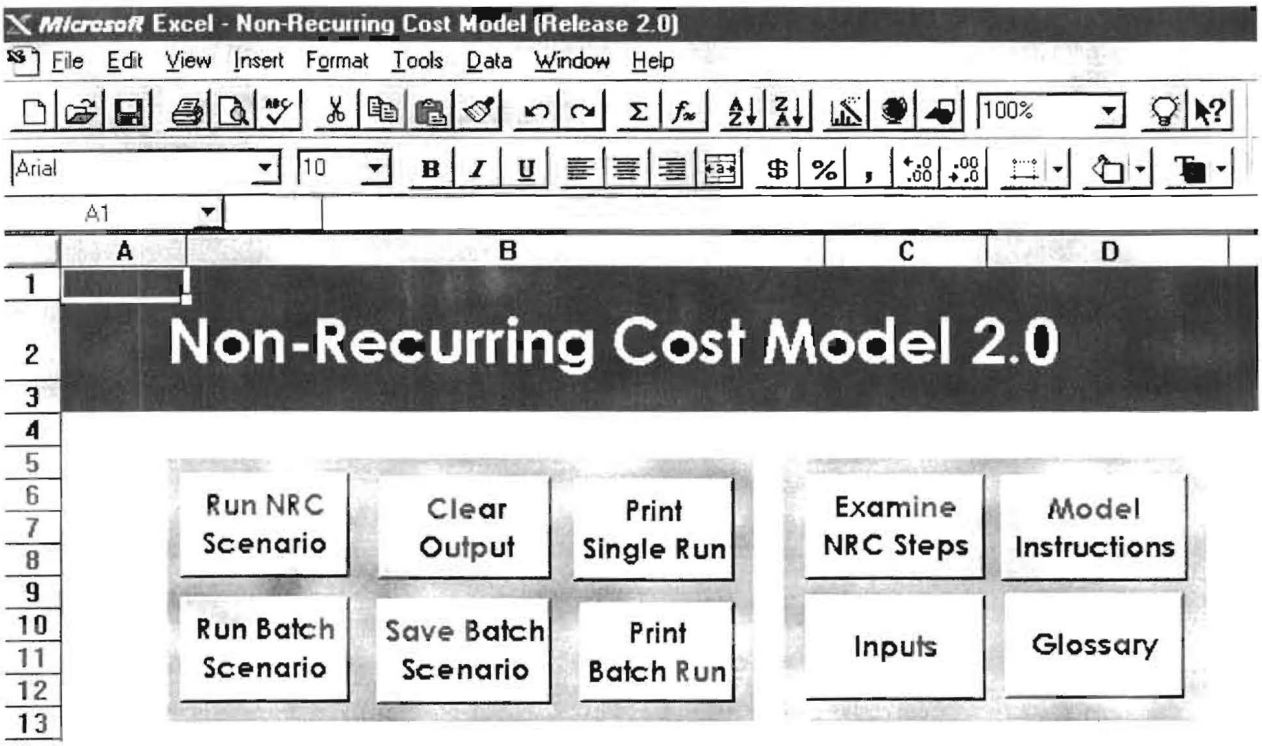
When the user opens the model they will see the following Password protection message.



The model user must open the model by clicking the 'Read Only' option. The user will be able to do everything they need to do with the model with the 'Read Only' option. This protection ensures that the user will not inadvertently change the coding in the model. Once opened as 'Read Only' the file may be saved with a *different* file name.

3. "Control" Sheet

When the user opens the ***Non-Recurring Cost Model*** they are presented with a "*Control*" sheet.



The "*Control*" sheet presents eight buttons to run and navigate the ***Non-Recurring Cost Model***.

On the left side of the sheet there are six buttons for running the model, printing output, clearing output, and saving data. The following is a description of the functionality provided by each button:

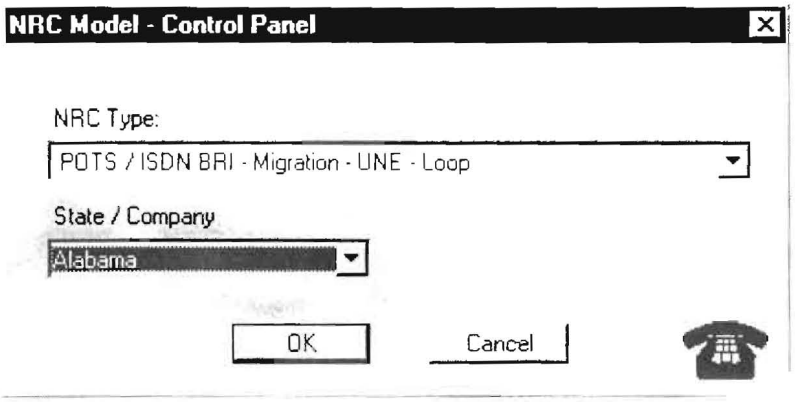
- *Run NRC Scenario* - used to calculate the cost of a single NRC element
- *Run Batch Scenario* - used to calculate the costs of all the NRC elements
- *Clear Output* - used to clear the output from the latest 'NRC Scenario' or 'Batch Scenario'
- *Save Batch Scenario* - used to save the summary data, the inputs, and the output detail for a 'Batch Scenario' to a separate Excel workbook
- *Print Single Run* - used to print the summary data and the inputs from a 'NRC Scenario'
- *Print Batch Run* - used to print the summary data, the inputs, and the output detail for a 'Batch Scenario'.

On the right side of the "*Control*" sheet there are four additional buttons. The buttons provide the following additional functionality:

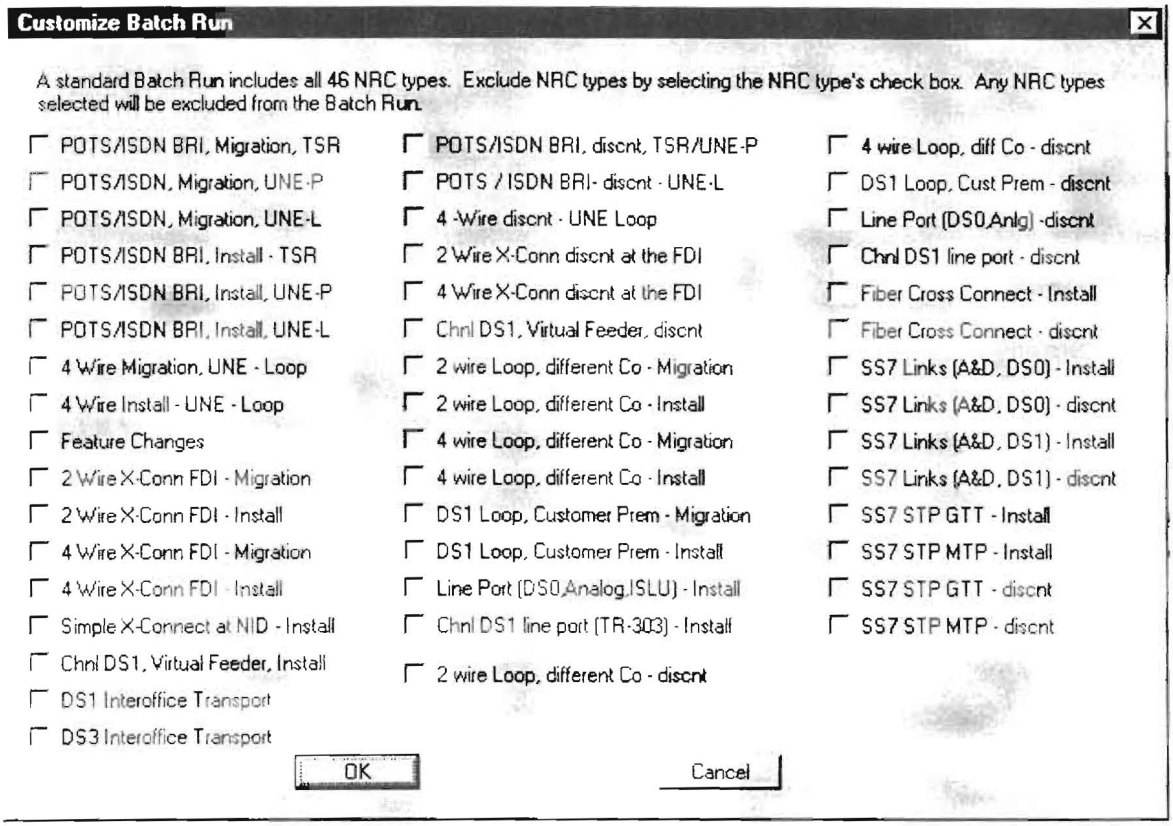
- *Examine NRC Steps* - goes to the "*Processes & Calcs*" sheet where the specific steps costed for a particular NRC element or the complete table of processing steps may be viewed
- *Model Instructions* - used to call up a simple help tool
- *Inputs* - used to quickly go to the "*Input*" sheet
- *Glossary* - used to examine a list of telephony terms and acronyms by going to the "*Glossary*" worksheet.

4. Dialog Boxes

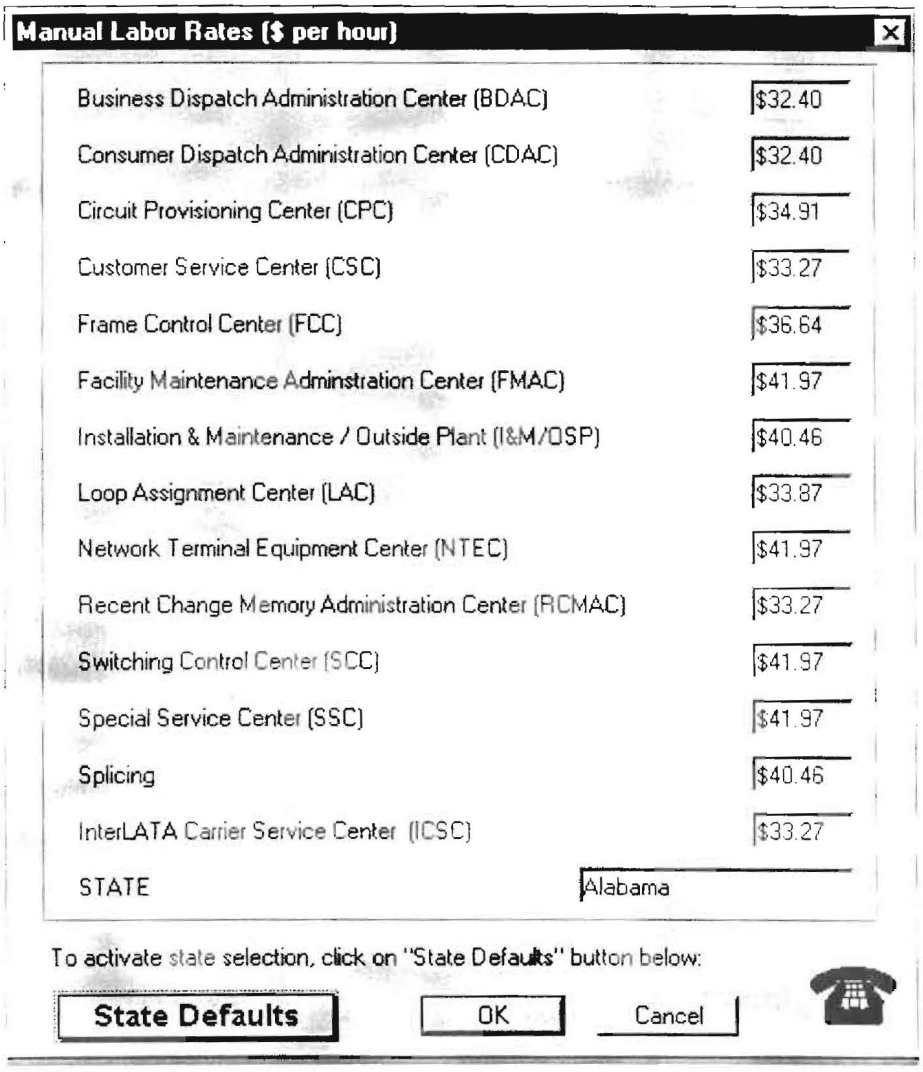
The first dialog box, titled "*NRC Model - Control Panel*", allows the user to choose the type of non-recurring charge and the state. For Batch Runs the NRC Type drop down box is not used because all the NRC Elements are included in a Batch Run.



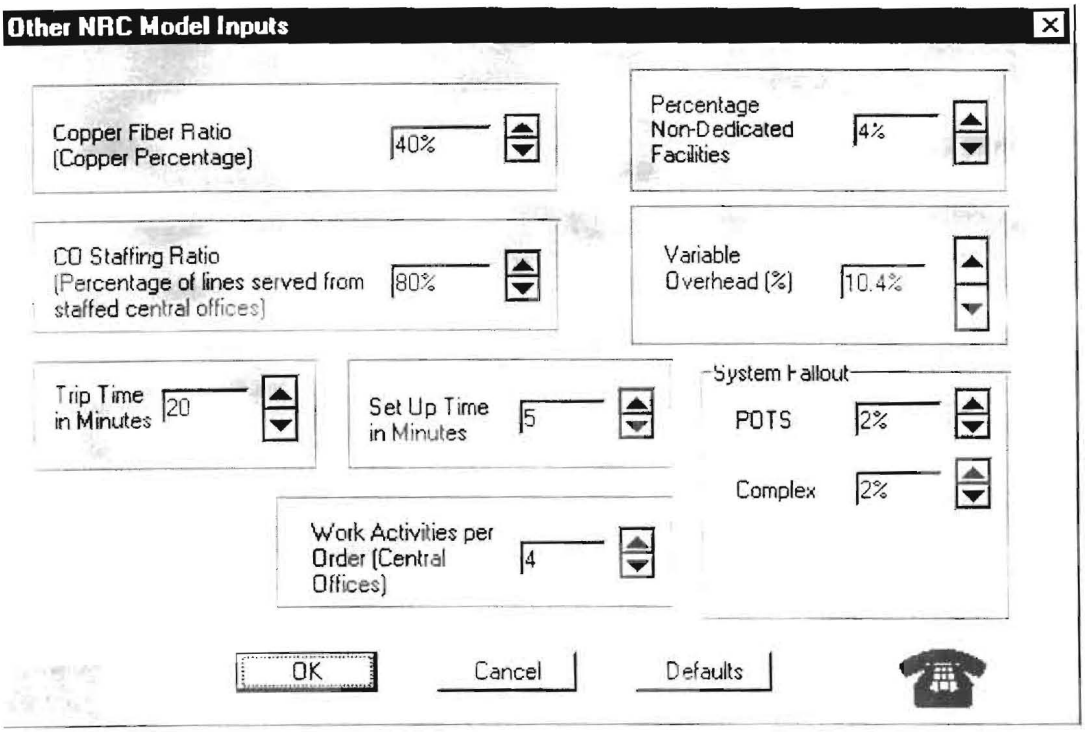
The second dialog box, titled "*Customize Batch Run*" allows the user to **exclude** certain elements from the batch run. The user can exclude elements by checking the boxes that correspond to the element. If the user does not wish to exclude any elements, they should ensure that none of the check boxes are selected and then click the OK button to continue.



The third dialog box, titled "*Manual Labor Rates (S per hour)*" allows the user to set individual labor rates for 14 technician types. The lower edit box on this dialog box shows the state whose labor rates appear in the other edit boxes. When initially running the model for a state, the user must select the **State Defaults** button. The model will populate the edit boxes with the labor rates for the state. The user must then choose the OK button to continue to the next dialog sheet. If the lower edit box displays the correct name of the state chosen for a model run, the user can immediately click the OK button to continue to the next dialog box.



The fourth and final dialog box, titled "*Other NRC Model Inputs*", allows the user to adjust nine categories of inputs; these categories include: the copper-fiber ratio, CO staffing ratio, trip time, setup times, work activities per order, variable overhead percentage, percentage of non-dedicated facilities, and system fallout percentages for POTS and complex actions. The user can select the model's defaults by selecting the Defaults button. When the user is satisfied with the inputs click the OK button to continue.



5. Running the Model

To run the *Non-Recurring Cost Model* the user must first choose "*Run NRC Scenario*" or "*Run Batch Scenario*" from the "*Control Sheet*". After choosing one of these options, the user will be presented, in succession, with the four dialog boxes noted above. The user has the option to run the model with the default inputs or to adjust them.

When the user chooses "*Run NRC Scenario*", the user will be presented with a summary output on the "*Control*" sheet; showing NRC element and cost. If the user wishes to see further detail they should use the "*Examine NRC Steps*" button. This button will take the user to the "*Processes & Calcs*" sheet. This sheet will be "filtered" for those activities required for the chosen NRC element. The user can go to the "*Inputs Record*" sheet to examine which of the inputs were used to create the current outputs.

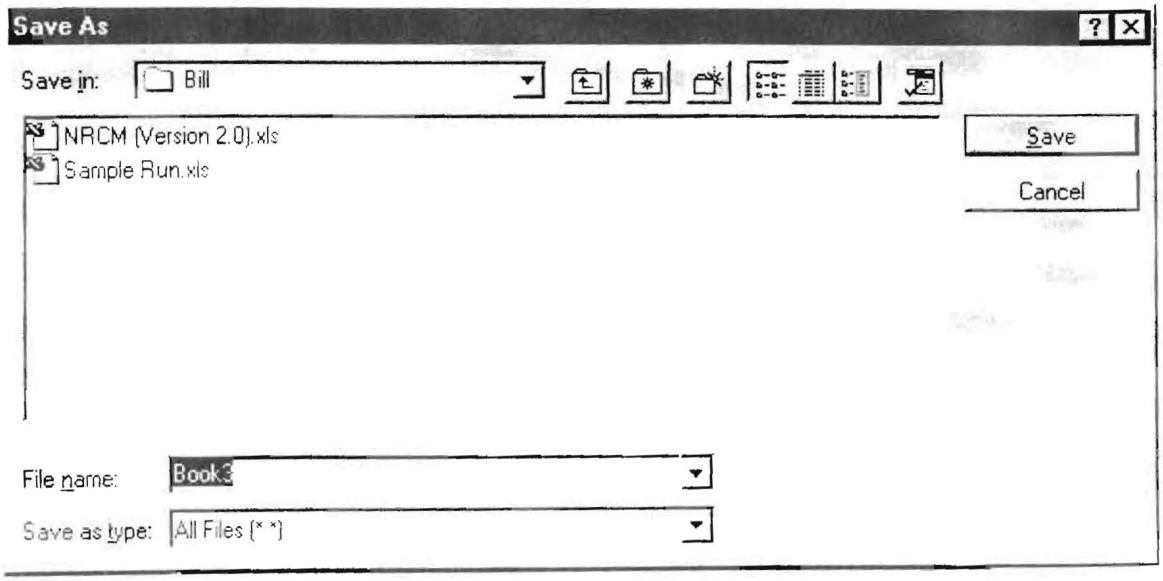
When the user chooses the "*Run Batch Scenario*" the model will produce a comprehensive summary list of NRC types and costs on the "*Control Sheet*". To examine all the required steps for each NRC element, the user should go to the "*Batch Output*" sheet. This sheet records all the steps required for each of the NRC types. Finally, the model also produces a list of the inputs used to create the "Batch Output" in the "Input Record".

Important Note

If the user runs another Scenario or Batch Run, the model will overwrite the contents of the "Control", "Batch Output", and "Input Record" sheets. If the user requires a permanent record of a Batch Run, they should use the save option outlined in section 6, page 10 of this users guide.

6. "Saving Batch Scenario" Data

By selecting the "Save Batch Scenario" button the model will save all the data relevant to a Batch Run in a separate Excel workbook. The workbook will include 3 sheets entitled: *"Summary"*, *"Batch Output"*, and *"Input Record"*. These sheets will contain the same data that resides in the sheets *"Control"*, *"Batch Output"*, and *"Input Record"* respectively. The model will prompt the user to name and choose the directory for the newly created workbook with the following message screen:



The user should use this screen just as they normally would. When the user has named the workbook, the model will remind the user that the new workbook is still open and return the user to the "Control" screen.

7. Printing A "Batch Scenario"

The user can print all the data relevant to a "Batch Scenario" by clicking the "Print Batch Scenario" button on the "Control" sheet. This button invokes a print MACRO that will send three print jobs to the user's default printer. The list below details the three print jobs:

- 1st Print Job
  ⇒ Content - Summary of NRC Elements and costs from the "Control" sheet
  ⇒ Page length - 2 pages

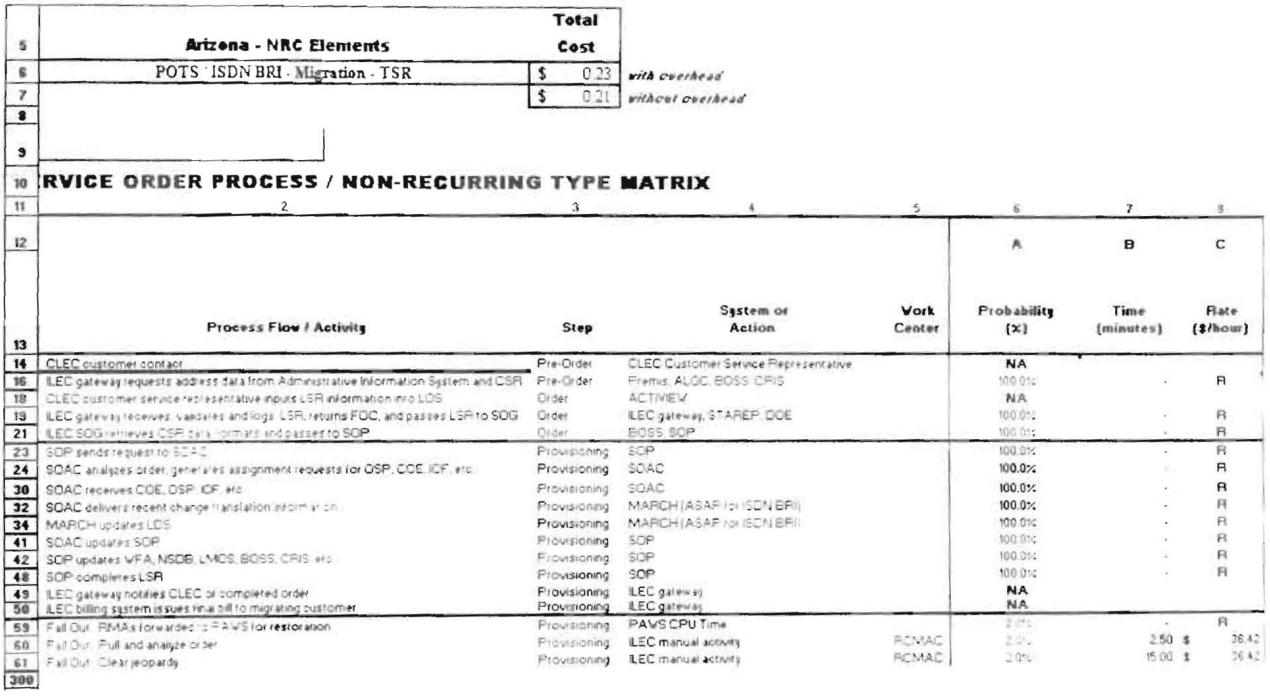
- 2nd Print Job
  ⇒ Content - Summary of Inputs from the "Input Record" Sheet
  ⇒ Page length - 1 page

- 3rd Print Job
  ⇒ Content - "Batch Output" sheet in its entirety
  ⇒ Pages - 48 pages.

The print MACRO is an excellent time saver. However, the user must realize that the total pages sent to your default printer upon execution of the MACRO is 51 pages.

8. Examining Model Mechanics and Algorithms

The user may wish to examine the detail behind the costs for each NRC element. The user can go to the "*Processes and Calcs*" sheet to see the specific electronic and or manual steps that the model used to generate element costs. The example below shows how the user could view only those activities that take place for *POTS / ISDN - Migration - TSR*, the model uses Excel's **Data - Filter - Autofilter** function. By using this function, the "*Processes and Calcs*" sheet will only show activities in which the NRC element and activity step intersect, this intersection is marked by an "**X**". The user should note that NRC scenarios are placed in columns and the process steps are in rows.



	Arizona - NRC Elements	Total Cost	
6	POTS / ISDN BRI - Migration - TSR	$ 0.23	*with overhead*
7		$ 0.21	*without overhead*

RVICE ORDER PROCESS / NON-RECURRING TYPE MATRIX

	2	3	4	5	6	7	8
					A	B	C
13	Process Flow / Activity	Step	System or Action	Work Center	Probability (x)	Time (minutes)	Rate ($/hour)
14	CLEC customer contact	Pre-Order	CLEC Customer Service Representative		NA		
16	ILEC gateway requests address data from Administrative Information System and CSR	Pre-Order	Premis, ALOC, BOSS, CRIS		100.0%	-	R
18	CLEC customer service representative inputs LSR information into LOS	Order	ACTIVIEW		NA		
19	ILEC gateway receives, validates and logs LSR, returns FOC, and passes LSR to SOG	Order	ILEC gateway, STAREP, ODE		100.0%	-	R
21	ILEC SOG retrieves CSP data, formats and passes to SOP	Order	BOSS, SOP		100.0%	-	R
23	SOP sends request to SOAC	Provisioning	SOP		100.0%	-	R
24	SOAC analyzes order, generates assignment requests for OSP, COE, IOF, etc.	Provisioning	SOAC		100.0%	-	R
30	SOAC receives COE, OSP, IOF, etc.	Provisioning	SOAC		100.0%	-	R
32	SOAC delivers recent change translation information	Provisioning	MARCH (ASAP for ISDN BRI)		100.0%	-	R
34	MARCH updates LOS	Provisioning	MARCH (ASAP for ISDN BRI)		100.0%	-	R
41	SOAC updates SOP	Provisioning	SOP		100.0%	-	R
42	SOP updates WFA, NSDB, LMOS, BOSS, CRIS, etc.	Provisioning	SOP		100.0%	-	R
48	SOP completes LSR	Provisioning	SOP		100.0%	-	R
49	ILEC gateway notifies CLEC of completed order	Provisioning	ILEC gateway		NA		
50	ILEC billing system issues final bill to migrating customer	Provisioning	ILEC gateway		NA		
59	Fall Out: RMAs forwarded to PAWS for restoration	Provisioning	PAWS CPU Time		2.0%	-	R
60	Fall Out: Pull and analyze order	Provisioning	ILEC manual activity	RCMAC	2.0%	2.50	$ 36.42
61	Fall Out: Clear jeopardy	Provisioning	ILEC manual activity	RCMAC	2.0%	15.00	$ 36.42
300							

BEFORE THE

FLORIDA PUBLIC SERVICE COMMISSION

REBUTTAL TESTIMONY OF

JOHN P. LYNOTT

ON BEHALF OF

AT&T COMMUNICATIONS OF THE SOUTHERN STATES, INC.

AND

MCI TELECOMMUNICATIONS CORPORATION

AND

MCI METRO ACCESS TRANSMISSION SERVICES, INC.

Docket No. 960833-TP/960846-TP/960757-TP/971140-TP/960916-TP

December 9, 1997

REBUTTAL TESTIMONY OF

JOHN P. LYNOTT

ON BEHALF OF

AT&T COMMUNICATIONS OF THE SOUTHERN STATES, INC., AND

MCI TELECOMMUNICATIONS CORPORATION, AND

MCI METRO ACCESS TRANSMISSION SERVICES, INC.

DOCKET NOs.: 960833-TP/960846-TP/971140-TP/960757-TP/960916-TP

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND EMPLOYMENT.

A. My name is John P. Lynott, and my business address is 1875 Lawrence Street, Suite 875, Denver, Colorado 80202. I am employed by AT&T Communications as a District Manager in the Local Connectivity Costing and Pricing District of the Local Services Division.

Q. ARE YOU THE SAME JOHN P. LYNOTT WHO FILED DIRECT TESTIMONY ON BEHALF OF AT&T AND MCI IN THIS PROCEEDING?

A. Yes.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my rebuttal testimony is to address: (1) the direct testimony of BellSouth witness Eno Landry concerning non-recurring costs (NRC), (2) certain deficiencies in BellSouth's non-recurring cost study, (3) modifications required to BellSouth's non-recurring cost study to efficiently provide the aforementioned

elements, and (4) advantages of the AT&T/MCI Non-Recurring Cost Model (NRCM) for modeling BellSouth's non-recurring costs.

Q. DO YOU HAVE A SPECIFIC CONCERN WITH THE TESTIMONY OF BELLSOUTH's WITNESS ENO LANDRY?

A. Yes. In describing the major components contributing to non-recurring costs, Mr. Landry identifies the receiving and processing of the service request into an internal order as a BellSouth cost. This is also reflected in BellSouth's cost study as cost associated with the Local Customer Service Center (LCSC). In a competitive local environment, it is the responsibility of the Competitive Local Exchange Carrier (CLEC) to process the local service order for BellSouth provisioning. The insertion of the LCSC work group in the ordering and provisioning processes is discriminatory to the CLEC. Such additional costs are not being borne by BellSouth. Indeed, AT&T and BellSouth have an Interconnection Agreement to provide for the mechanized flow of pre-ordering and ordering service request data exchange.

Q. ARE THERE OTHER MODELING ERRORS IN THE BELLSOUTH NON-RECURRING COST STUDIES?

A. Yes. AT&T and MCI joint witness Thomas Hyde discusses the methodological and assumption concerns with the BellSouth studies. Highlights include BellSouth's embedded cost nature (early 1990 sources with little to no detail of functions being performed), inappropriate network architecture assumptions (over-engineering and excess plant), which results in unnecessary work functions that BellSouth does not experience itself, and duplicate work activities due to

BellSouth's treatment of each and every unbundled network element being provisioned on separate orders. For example, a CLEC has no use for a standalone loop without the loop being connected to a port or dedicated transport or its own equipment located in collocation space.

Q. ARE OPERATIONAL SUPPORT SYSTEM ASSUMPTIONS IMPORTANT TO THE DEVELOPMENT OF A NON-RECURRING COST MODEL?

A. Yes. Telecommunications networks have evolved to the point where functions such as billing, pre-ordering, ordering, provisioning and maintenance rely heavily on efficient, high availability Operational Support Systems (OSSs) in order to minimize non-recurring cost and maximize performance quality and reliability.

Q DO BELLSOUTH'S ASSUMPTIONS REGARDING OSSs NEGATIVELY IMPACT THE MODELING OF NRCs?

A Yes. First, assumptions regarding recovery of OSS investment are important. The AT&T/MCI NRC Model does not capture OSS investment required for the establishment and operation of the electronic gateway that serves as the medium for CLEC/ILEC interfacing, because this Commission has already stated that these cost will be borne by each individual provider. Charging such costs to new entrants would be a barrier to competitive entry. Yet, in spite of this clear direction from this Commission, BST has proposed to recover the costs of its proposed electronic gateway through a separate charge assessed on each and every order received from a CLEC for an unbundled element.

Additionally, BellSouth's current OSS investment (not the gateway to access these OSSs) is being recovered through recurring rates, to the extent it needs to be recovered at all. Mechanized OSS manages the totality of the telecommunications network. Arguably, no OSS investment should result in any cost increase, even for recurring rates, because much, if not all, OSS investment is recovered through efficiency gains that result from that investment. That is, investing in up-to-date OSSs reduces costs for the ILEC, and, hence, the investment pays for itself over time.

BellSouth fails to recognize the efficiencies of its own existing ('Legacy') OSSs. BellSouth failed to consider the automated systems that are currently available to support and replace manual activities/functions performed by their respective work centers. BellSouth's non-recurring cost worksheets provide only a brief description of the activities performed by these work centers. Having spent several years dealing with service provisioning in an ILEC, work-times and work groups indicated by BellSouth are overstated or unnecessary due to the many advances in operational support systems. Rebuttal Exhibit JPL-1 is a table that identifies certain work functions BellSouth includes in calculating non-recurring cost. I have provided certain automated systems (OSS) that are currently available and their functionality as an example of why such manual work costs are not warranted.

Q. CAN YOU PROVIDE AN EXAMPLE OF NECESSARY ADJUSTMENTS TO BELLSOUTH'S NON-RECURRING COST STUDY?

A. Yes. Rebuttal Exhibit JPL-2 consists of (page 1 of 2) BellSouth's NRC Inputs for the 2-wire ADSL-compatible Loop and (page 2 of 2) Adjusted NRC Inputs for the 2-wire ADSL-compatible Loop. The Adjusted NRC Inputs depiction also reflects the correction of modeling flaws as identified by AT&T/MCI witness Thomas Hyde.

Q. WHAT IS THE PURPOSE OF THE PROPOSED CHANGES IN THE BELLSOUTH COST STUDIES?

A. The recommended adjustments offer this Commission information to better evaluate the BellSouth cost studies. The BellSouth cost study modifications are necessary to more accurately portray BellSouth's own cost using efficient practices, not the historic practices BellSouth is modeling.

In addition, the AT&T/MCI Non-Recurring Cost Model (NRCM) does not currently cost each of the specific non-recurring activities identified by this Commission. The NRCM does, however, contain many of the necessary work steps/activities and work times required to order and provision these unbundled network elements. Following the NRCM's TSLRIC costing guidelines, adjustments were made to recognize electronic ordering, efficiently managed OSSs and forward-looking network architecture benefits. Necessary adjustments to BellSouth's other filed studies is attached as Rebuttal Exhibit JPL-3. Certain critical assumptions are provided, e.g., detailed work activities and times, as well as a brief explanation where worktimes or probabilities, e.g. the probability of a line served at a non-staffed central office affects travel, have been modified.

Q. PLEASE EXPLAIN YOUR ASSUMPTION ON FALLOUT?

A. The term used when orders do not flow through an OSS automatically is "Fallout". Most ILEC systems are electronically linked and are dependent on one another. Occasionally an error will occur as data flows through the systems, and this error will cause a service order to "fall out" of the systems, resulting in the need for manual intervention. For example, in an electronic ordering process, if one of the OSSs receives erroneous or incompatible information from another OSS, the order will be designated as a process "fallout" and may require manual intervention to correct or complete the order.

It is important to note that the NRCM only considers "fallout" within the OSS managing the provisioning processes. Fallout during the pre-ordering and ordering processes (i.e., errors on the Local Service Request itself) are the responsibility of the CLEC to manually clear.

Q. IS FALLOUT IMPORTANT TO MEASURING NRCs?

A. Absolutely. Fallout is important because in many instances it is the only cost driver for an otherwise seamless electronic flow-through process. With OSSs that are well managed and maintained, the rate of fallout is expected to be minimal, especially in a competitive environment. This is a necessity because fallout affects the customer in terms of longer delivery intervals and restoration/response times, as well as higher cost of providing service; conditions a competitive company can ill afford.

Q. DOES BELLSOUTH RECOGNIZE FALLOUT IN THEIR COST STUDIES?

A. Yes. BellSouth, like several other ILECs, has assumed a significant degree of manual intervention in its OSS systems, such as COSMOS/SWITCH, PREMIS, TIRKS, and LFACS. In fact, BellSouth assumes a 100% manual ordering and provisioning process with no recognition of its OSS capabilities. For the reasons discussed above, this assumption is invalid because it does not represent efficiently managed and forward looking systems, and, accordingly, produces a higher non-recurring cost than should be experienced even with the automatic flow-through processes that actually exists today. In addition, BellSouth introduces unnecessary workgroups, such as the LCSC and ACAC, to internally rework orders that BellSouth deems contain CLEC order entry errors. Any manual assistance required to clear errors associated with the data on the Local Service Order will be performed by the CLEC. Since all ordering errors, not provisioning OSS fallout, can be 100% electronically returned to the CLEC, BellSouth inappropriately overstates relevant non-recurring cost.

Q. IN ADDITION TO OSS, IS THE NETWORK ARCHITECTURE ASSUMPTION CRITICAL WHEN MODELING NON-RECURRING COSTS?

A. Yes. It's also important to understand and utilize forward looking network architectures in modeling non-recurring costs. For example, the NRCM utilizes Local Digital Switches ("LDS"), Integrated Digital Loop Carrier (IDLC/GR-303) for loops greater than 9 Kilofeet (for loops less than 9 Kilofeet, copper is assumed), Digital Cross-connect Systems ("DCS"), and Synchronous Optical

Network ("SONET") rings for transport. These architectures are important because they are forward looking intelligent processor controlled network elements that can communicate over standard interfaces to the OSSs in such a manner that little-or-no manual intervention is required for provisioning or maintenance activities. These architectures are also the ones currently being deployed by BellSouth today. Technologies such as these work hand-in-hand with advanced OSSs to minimize cost and improve customer service and are essential to the development of forward looking non-recurring costs.

Q. HAS BELLSOUTH INCLUDED THE AVAILABILITY OF THIS TECHNOLOGY IN DEVELOPING ITS PROPOSED PRICES FOR NRCs?

A. No. BellSouth has not reflected the use of the latest technology in its cost studies for NRCs. As reflected in the rebuttal testimony of Thomas Hyde, BellSouth instead has relied upon studies on equipment placed into service before 1995. Thus, it is apparent that BellSouth's cost studies for NRCs do not reflect forward-looking, least cost technology, and should be rejected.

Q. DOES THE AT&T/MCI NRCM REFLECT THE USE OF THE LATEST AVAILABLE FORWARD-LOOKING LEAST COST TECHNOLOGY DESCRIBED ABOVE?

A. Yes.

Q. PLEASE DISCUSS THE AT&T/MCI NON-RECURRING COST MODEL'S (NRCM) ASSUMPTIONS FOR THE TR-303 IDLC CONCERNING SUB-LOOP UNBUNDLING.

A. The NRCM assumes that the DOP (what is this?) and NID are in place. After the CLEC purchases a Virtual Tributary DS1 (VT-1) on the ILEC OC-3 Fiber Feeder from the Remote Terminal ("RT") to the CLEC collocation space, the installation (and subsequent disconnection) of an unbundled loop would not require any manual effort. The appearance of any new or migrated virtual DS0 customer loop at the collocation area would be accomplished electronically using the appropriate OSSs and the functionality that is inherent in TR-303 IDLC systems. In other words, if the ILEC has 24 DS0 channels/customers on its Virtual Tributary DS1 (VT-1) and terminated on its Local Digital Switch (LDS) and one (1) customer decides to migrate to the CLEC, the ILEC would still retain the other 23 on their VT1 and LDS. If the second customer (DS0) decides to migrate to the CLEC, the ILEC would still retain the other 22 DS0s on its VT1 and LDS - and so on. It should be noted that in the above scenario, it is assumed that both VT1s are resident on the same ILEC Fiber Feeder (OC-3). Each OC-3 has the a total DS1 payload capacity – depending on electronics and configuration – of 84 VT1s.

Q. IS THIS THE SAME AS SUB-LOOP UNBUNDLING, ONLY IN A TR-303 IDLC ENVIRONMENT?

A. Absolutely not, because the CLEC in the above scenario is still using the same ILEC OC-3 Loop fiber feeder, and is simply grooming from one Virtual DS1 tributary or channel (VT1) to another Virtual DS1 tributary or channel within the same ILEC OC-3 fiber feeder. The DS0s are groomed via communications from a provisioning/recent change OSS to the electronic time slot interchange (TSI) at the remote terminal (RT). If the CLEC were to provide its own OC-3 or physical

DS1 from their POP to the RT or Feeder Distribution Interface (FDI), then it may be considered as sub-loop Unbundling.

Q. WHAT ARE SOME OF THE ADVANTAGES OF THE AT&T/MCI NRC MODEL?

A. The NRCM provides a detailed step-by-step understanding of the systems required and the manual work activities performed by an ILEC in the ordering and provisioning of wholesale services and unbundled network elements.

The NRCM models efficient, currently practiced processes using a TELRIC network that supports wholesale services and unbundled network elements.

The NRCM can be modified to reflect the removal or addition of work steps/activities by updating the steps on the 'Processes & Calcs' spreadsheet of the NRCM. The user determines the work/processes by selecting any of the 290 activities for each service type on the 'Processes & Calcs' spreadsheet.

The NRCM allows for user inputs to adjust for specific regional conditions, including the copper/fiber ratio of served loops and loops served by staffed vs. non-staffed facilities. A proper cost study must account for these data.

The NRCM identifies cost in the manner in which costs are incurred and requested for installation, migration, and disconnect non-recurring activities.

Q. DO YOU RECOMMEND ANY NRCs BASED ON ADJUSTMENTS TO BELLSOUTH'S NRC STUDIES TO THIS COMMISSION?

A Yes. Adhering to TSLRIC principles and based on necessary adjustments to BellSouth's NRC cost studies identified above and in the rebuttal testimony of Thomas Hyde, I recommended certain modifications that have been utilized by AT&T witness Wayne Ellison for purposes of AT&T's rate proposal in this docket.

Q. WILL YOU PLEASE SUMMARIZE YOUR TESTIMONY?

A. Yes. In order for a competitive environment to exist, new entrants must have non-discriminatory access to the incumbent's databases and other resources for entering service orders to eliminate the need for costly, intermediate customer service contacts. Also, new entrants must only incur costs equal to those which the ILEC would incur using a forward looking network architecture and efficient OSS or else the CLEC is burdened with a barrier to entry and the ILEC has no incentive to become efficient. Finally, NRCs must be based upon TSLRIC principles.

The NRCM recognizes those requirements. The NRCM, therefore, corrects the many faulty assumptions that have been found in ILEC cost studies. The Non-Recurring Cost Model correctly adheres to the following:

(1) A forward looking cost model should incorporate the efficiencies of automated OSSs which provide for maximum electronic flow through of orders.

(2) To the extent fallout does indeed occur, it should be limited to approximately 2% of the total orders processed.

(3) Manual work times should reflect appropriate intervals based on the use of forward looking network technologies.

(4) Wherever appropriate, service orders should be processed through a non-designed POTS provisioning process as opposed to a more expensive designed services process.

(5) A forward looking cost model should incorporate the efficiencies of automated Intelligent Network Elements (SONET, GR-303/IDLC, DCS/EDSX, LDS, etc.) which provide for maximum electronic flow through for provisioning of orders.

(6) Wherever appropriate, the same work centers, work groups, technicians, and associated labor rates should be modeled at parity with how BellSouth provides similar services to itself.

(7) Migrations and installations should be recognized as mechanized whenever DIP and DOP will permit.

(8) Installation and disconnection should be calculated separately to account for significant cost differences dependent on a new entrant's disconnect decisions regarding DIP/DOP.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

Work Center	BellSouth Reason for NRC[1]	Automated Systems not considered in development of Non-Recurring Cost
WMC ACAC	WMC coordinates dispatched technicians -- Any IMC or Network Svcs-Clerical time is reflected in WMC time. ACAC coordinates overall administration of svc order ACAC coordinates overall service turnup -- ACAC includes incremental time for handling various coordination issues (3.57 min--install & disconnect)	**WFA/C** – (Bellcore) The central operations system coordinating the installation and maintenance work and determining the dispatch system into which work orders flow. This automated online system screens service orders according to type and complexity, routes orders to the proper departments, monitors the work until completion, and verifies the quality of work through final testing of the circuits. **WFA/DI**—(Bellcore) A system that coordinates, tracks, prices and loads inside (central office) installation, maintenance and routine work activity. **WFA/DO**—(Bellcore) A system that coordinates, tracks, prices and loads outside installation, maintenance and routine work activity. **FORCE**—(Bellcore) A system that assigns work taking into account the qualifications and daily schedules of each technician, generates daily list of work to be done by the employees at each location.
AFIG OSPE	AFIG assigns facility OSPE reviews request, assigns FRN, & returns svc inquiry to LCSC	**FACS**—(Bellcore) Facility Assignment and Control Systems (SOAC, LFACS, SWITCH/COSMOS, TIRKS, PAWS). Automated systems to provide assignments of inventory, to track and sequence service request, and to deliver work request to other down stream systems. FACS currently has the capability of flow-through assignment. A forward looking network will include all available facilities. RMAs should be kept to a minimum (e.g., 2%)
CPG	CPG processes svc request & generates DLR & word document to ALEC & field	**FACS/TIRKS**—(Bellcore) Facility Assignment and Control Systems (SOAC, LFACS, SWITCH/COSMOS, TIRKS, PAWS) Automated systems to provide assignments of inventory, to track and sequence service request, and to deliver work request to other down stream systems. TRIKS currently has the capability of flow-through assignment. A forward looking network will include all available facilities. RMAs should be kept to a minimum (e.g., 2%)

[1] BellSouth Non-Recurring Cost Work Sheets, F2wadsl.xls, F2whdsl, F2wdistr.xls, F4whdsl, F4wdistr.xls.

Florida - BS - NRC Elements	Total Cost	
POTS / ISDN BRI - Migration - UNE - Platform	$ 0.21	with overhead
	$ 0.19	without overhead

No ILEC cost is reflected for errors identified on the LSR due to the 100% electronic return of this fallout to the CLEC for clearance.

User Input or SME defined

R = Recurring rate element. Operation Support System manage the totality of the network.

SERVICE ORDER PROCESS / NON-RECURRING TYPE MATRIX

Local Service Request (LSR) Processes:
Pre-Order - Determine Customer needs.
Order - Submit LSR via Electronic Gateway and receive positive acceptance (FOC) or fallout.
Provisioning - ILEC performs necessary functions to provide request.

Reflects the individual task required to respond to CLEC

1	2		4	5	6	7	8	9
ID No.	Process Flow / Activity	Step	System or Action	Work Center	A Probability (%)	B Time (minutes)	C Rate ($/hour)	D = (A x B x C) / 60 Cost w/out Overhead ($)
1	CLEC customer contact	Pre-Order	CLEC Customer Service Representative		NA			
2	CLEC requests customer address data, CSR, and appointment from ILEC	Pre-Order	CLEC gateway		NA			
3	ILEC gateway requests address data from Administrative Information System and CSR	Pre-Order	Premis, ALOC, BOSS, CRIS		100.0%	-	R	$ -
5	CLEC customer service representative inputs LSR information into LOS	Order	ACTIVIEW		NA			
6	ILEC gateway receives, validates and logs LSR, returns FOC, and passes LSR to SOG	Order	ILEC gateway, STAREP, DOE		100.0%	-	R	$ -
8	ILEC SOG retrieves CSR data, formats and passes to SOP	Order	BOSS, SOP		100.0%	-	R	$ -
10	SOP sends request to SOAC	Provisioning	SOP		100.0%	-	R	$ -
11	SOAC analyzes order, generates assignment requests for OSP, COE, IOF, etc.	Provisioning	SOAC		100.0%	-	R	$ -
17	SOAC receives COE, OSP, IOF, etc.	Provisioning	SOAC		100.0%	-	R	$ -
24	SOAC delivers recent change translation information	Provisioning	MARCH (ASAP for ISDN BRI)		100.0%	-	R	$ -
26	MARCH updates LDS	Provisioning	MARCH (ASAP for ISDN BRI)		100.0%	-	R	$ -
33	SOAC updates SOP	Provisioning	SOP		100.0%	-	R	$ -
34	SOP updates WFA, NSDB, LMOS, BOSS, CRIS, etc.	Provisioning	SOP		100.0%	-	R	$ -
40	SOP completes LSR	Provisioning	SOP		100.0%	-	R	$ -
41	ILEC gateway notifies CLEC of completed order	Provisioning	ILEC gateway		NA			
42	ILEC billing system issues final bill to migrating customer	Provisioning	ILEC gateway		NA			
44	Fall Out: RMAs forwarded to PAWS for reconciliation	Provisioning	PAWS CPU Time		2.0%	-	R	$ -
45	Fall Out: Pull and analyze order	Provisioning	ILEC manual activity	RCMAC	2.0%	2.50	$ 33.27	$ 0.03
46	Fall Out: Clear jeopardy	Provisioning	ILEC manual activity	RCMAC	2.0%	15.00	$ 33.27	$ 0.17

OSS or OSS-like that manages the activity.

Fallout represents errors within OSS that require assistance to clear.

FLORIDA Non-Recurring Cost

Price Proposal v2.0

Element No.	NRC TYPE	TOTAL COST
2	POTS / ISDN BRI - Migration - UNE- Platform	0.21