ORIGINAL

BEFORE THE

FLORIDA PUBLIC SERVICE COMMISSION

DIRECT TESTIMONY OF

JOHN C. KLICK

ON BEHALF OF

AT&T COMMUNICATIONS OF THE SOUTHERN STATES, INC.

AND

MCI TELECOMMUNICATIONS COMPANY

AND

MCI METRO ACCESS TRANSMISSION SERVICES, INC.

DOCKET NO.: 960833-TP/960846-TP/971140-TP

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Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is John C. Klick. I am President of Klick, Kent & Allen, Inc. (KK&A), an economic and financial consulting firm specializing in cost analysis. My business address is Klick, Kent & Allen, Inc., 66 Canal Center Plaza, Suite 670, Alexandria, VA 22314.

Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND.

A. I received a Bachelor of Science degree in Mathematics from Bates College in 1970. In addition, I have taken graduate courses in accounting, finance, and operations research.

Q. PLEASE DESCRIBE YOUR WORK EXPERIENCE.

A. After graduation from Bates College, I joined the Cost and Statistics Department

of the Southern Railway System. Since that time, I have been continuously involved in cost analyses for a variety of industries. Many of these cost studies have been submitted in administrative proceedings, in court, and in arbitrations. These studies -- which have included analyses of stand-alone costs, short-run and long-run incremental costs and long-run and short-run marginal costs -- often have employed complex, computer-driven cost models incorporating detailed engineering input data and sophisticated discounted cash flow techniques. KK&A has been retained by MCI and AT&T to assist in analyzing the cost evidence being submitted in various proceedings arising out of the Telecommunications Act of 1996.

Q. WILL YOU BRIEFLY SUMMARIZE YOUR RECENT EXPERIENCE THAT IS RELEVANT TO THIS PROCEEDING?

A. I have had extensive experience with large, computerized data bases and cost models. In addition, because many of these models have been presented in the context of litigation, I have had to analyze models sponsored by opposing parties, explain their deficiencies, and defend the model assumptions and techniques that I have utilized. Following are examples of projects that my firm has undertaken in these areas.

During the past year, KK&A has been retained by MCI and AT&T to assist them in presenting and analyzing cost evidence in various state proceedings arising out

of the Telecommunications Act of 1996. We have presented Hatfield Model costs for unbundled network elements (UNEs) in a number of jurisdictions, including Colorado, the District of Columbia, Idaho, Iowa, Minnesota, Montana, Nebraska, New Mexico, North Dakota, South Dakota, Washington, and Wyoming. We have critiqued cost studies submitted by Bell Atlantic in Delaware, the District of Columbia, Maryland, New Jersey, Pennsylvania, Virginia, and West Virginia. We have submitted evaluations of cost studies presented by GTE in Iowa, Minnesota, Nebraska, New Mexico, Oregon, Texas and Washington. We also have submitted testimony in Texas on Southwestern Bell's cost studies, and critiques of the Benchmark Cost Proxy Model (BCPM) in Colorado, Washington and Utah. Most recently, we have conducted a series of cross-model comparisons to help identify for several state Commissions the ways in which various models (*e.g.*, the Hatfield Model, BCPM, the GTE models, and U S WEST's Regional Loop Cost Analysis Program or RLCAP) develop costs and the input variables to which they are particularly sensitive. Results of these cross-model analyses have been presented in Washington and Utah.

KK&A also has considerable relevant experience in other network industries, including the postal, railroad, pipeline, and trucking industries. For example:

- We are the original developers of an annuity-based model for developing the stand-alone costs of railroad operations. This has evolved into a complex, discounted cash flow model that engineers an efficient railroad system on a

forward-looking basis and determines the annual capital and operating costs required for such a system to earn its cost of capital over the life of its assets. This model is used by the Surface Transportation Board (STB, formerly the Interstate Commerce Commission "ICC") to evaluate major pricing complaints by shippers, and I have presented testimony based on this model on behalf of rail carriers in more than 15 proceedings over the past eight years.

- Approximately six years ago, I was retained by a major petroleum products pipeline company to assist it in determining the marginal, incremental, and stand-alone costs of various services that it provides on its system. I worked closely with the pipeline company's engineering and regulatory personnel to design computerized modeling approaches for developing these costs. I have presented several volumes of testimony on behalf of this company before the Federal Energy Regulatory Commission. Since their development, these models have been utilized extensively by company personnel to perform analyses that are not litigation-related, and my firm is frequently asked to oversee the engineering work underlying these applications.

- The Association of American Railroads (AAR) retained me to develop a cost model utilized to determine the incremental right-of-way maintenance and investment costs that would be caused by the passage of heavily-loaded freight trains and lightly-loaded, high-speed passenger trains. In developing this model, I worked closely with the AAR's consulting engineers. I presented and defended

the model results in two proceedings before the ICC and STB, which recently has adopted the model as the best approach to determining these incremental costs.

- The firm was retained by a major railroad to deconstruct and critique a right-of-way grading model that was presented by an opposing party in litigation. This was a PC-based model that relied upon the application of complex engineering algorithms to digitized topographical map data. Under an extremely tight time-frame, we were able to run this model, determine that its internal algorithms were flawed in several respects, re-design a competing model to correct these flaws, and submit testimony critiquing the original and setting forth the proposed alternative.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. I have been asked by MCI and AT&T to describe the costing methodology that should be used to determine the appropriate costs of collocation in the State of Florida. The costing methodology that I am advocating is the Collocation Cost Model (Model) sponsored by MCI and AT&T that uses sound economic costing principles, and complies with the requirements of the Telecommunications Act of 1996, the *First Report and Order* adopted August 1, 1996 addressing interconnection and the *Second Report and Order* adopted June 9, 1997 addressing collocation.

Q. HOW IS YOUR TESTIMONY ORGANIZED?

A. My testimony is divided into three sections. In Section I, I describe the economic costing principles that should guide the development of collocation costs. In Section II, I describe the constituents and operations of the Model and show that the attributes of the Model conform to these principles. In Section III, I present the results of applying the Model to Bell South in the State of Florida.

I. PRINCIPLES

Q. GIVEN THE CRITICAL ROLE OF COSTS IN REFLECTING RELATIVE ECONOMIC EFFICIENCY, WHAT CHARACTERISTICS SHOULD PRACTICAL MEASURES OF THE COSTS OF COLLOCATION EMBODY?

A. Sound economic measures of costs should (1) be forward-looking; (2) reflect the long run; (3) be incremental; (4) incorporate least-cost technologies; and (5) reflect cost-causation to the maximum extent feasible.

Q. DOES THE FCC ORDER INCORPORATE THESE ECONOMIC PRINCIPLES?

A. Yes. The FCC's *First Report and Order* requires the application of each of these

principles, in developing estimates of TELRIC. Specifically, the FCC requires that cost measurement should be "long-run" and reflect "incremental cost." The *First Report and Order* defines long run as: ". . . a period of time long enough so that all of a firm's costs become variable or avoidable." FCC Order ¶677. Incremental costs are defined as "the additional costs (usually expressed as a cost per unit) that a firm will incur as a result of expanding the output of a good or service by producing an additional quantity of the good or service." FCC Order ¶675. The *First Report and Order* also mandates that cost studies reflect the most efficient technology that is currently being installed. FCC Order ¶685. Finally, the *First Report and Order* recognizes the importance of attributing costs to the activities that create those costs. FCC Order ¶691.

Q. HAS THE FCC SPECIFICALLY REJECTED COSTING APPROACHES THAT ARE NOT CONSISTENT WITH THESE PRINCIPLES?

A. Yes. The FCC determined that several of the methodologies advocated by incumbent LECs for cost determination and pricing were unsuitable. In particular, the FCC properly rejected the notion that pricing of network elements and interconnection should reflect embedded costs. FCC Order ¶704-707.

Q. WHAT ARE THE APPROPRIATE ECONOMIC PRINCIPLES THAT SHOULD GUIDE THE DEVELOPMENT OF THE COSTS OF PHYSICAL

COLLOCATION?

A. Charges for collocation -- like those for recurring and non-recurring charges for unbundled network elements -- should reflect the forward-looking, long-run economic costs of collocation. In addition, to satisfy the non-discrimination requirement of the 1996 Act, the *First Report and Order recommends* that cost calculations be based on Total Element Long-Run Incremental Cost (or TELRIC). These are the cost levels that establish prices in competitive markets.

Consistent with these principles, the Collocation Model calculates forward-looking, economic costs. As a result, prices for collocation based on these costs will provide appropriate signals to both producers and consumers, and ensure efficient entry and utilization of the basic local exchange infrastructure.

Q. ARE THERE OTHER ECONOMIC PRINCIPLES THAT SHOULD BE KEPT IN MIND IN CALCULATING COLLOCATION COSTS?

A. Yes, there are two. First, it is important to recognize that the ILECs have greater access to cost information necessary to calculate costs than do other parties. Given this asymmetric access to cost data, it is important that ILECs *prove* the nature and magnitude of any forward-looking costs that they seek to impose on potential entrants. The Collocation Model calculates costs using the best publicly-available data that can be identified, and it permits calculations to be

made based on ILEC-provided data *if* the ILEC can demonstrate that these data accurately represent efficient, forward-looking costs.

Second, economists and cost analysts generally agree that costs must be attributed on a cost-causative basis. Costs are considered causally-related to a particular activity or capability if the costs are incurred as a direct result of providing the item, or can be avoided, in the long run, when the company ceases to provide that activity or capability.

The Collocation Model uses cost-causative principles to associate forward-looking costs with the specific requirements of CLECs seeking to collocate. In particular, the Collocation Model includes the forward-looking costs of capital (debt and equity) needed to support investments required to provide physical collocation efficiently. The principle of cost causation requires that overhead costs be included to the extent that they vary with the output of particular activities or capabilities, whatever their accounting classification. To the extent that there are overhead costs that truly are *common* to two or more activities, these common overhead costs should be recovered from each activity on a competitively-neutral basis in order to ensure that the non-discrimination requirements of the 1996 Act are satisfied.

The Collocation Model incorporates a 10.4% markup to estimate these overhead costs. Statistical evidence and a growing literature on activity-based accounting

systems suggest that many of the costs that have traditionally been considered common overhead costs actually should be considered service-specific or element-specific costs. The method of treating overhead costs in the Collocation Model renders any precise distinction between costs attributable to collocation elements and common overhead costs unnecessary. Insofar as the 10.4% markup captures all of the relevant overhead costs, it includes any element-specific costs *and* a reasonable share of any common overhead costs. Moreover, if regulators set prices for physical collocation equal to the costs that the Collocation Model reports for each collocation element, these prices will allow the ILECs to recover all of their economic costs, including a reasonable profit, but no more. From this perspective, too, the Model approach is reasonable.

Q. WHAT OTHER COSTING PRINCIPLES SHOULD GUIDE THE DEVELOPMENT OF THE COSTS OF COLLOCATION?

A. Any cost model along with full documentation must be publicly available in a format that allows interested parties to fully scrutinize the model and to re-run the model using different input values.

Q. WHY IS IT IMPORTANT THAT COST MODELS BE PUBLICLY REVIEWABLE IN THIS FASHION?

A. Lacking open cost models, regulators and intervenors historically have been

forced to rely solely on cost studies prepared and provided by the ILECs. Not surprisingly, attempts to review, analyze, and verify the input data relied upon and the cost data produced by such models have met with only limited success.

Two sources of frustration have been experienced repeatedly. First, the lack of publicly-available information related to ILEC collocation (and other cost) studies has made a meaningful review difficult or impossible. Many of the inputs and assumptions used by the ILECs have been made available grudgingly, subject to proprietary protection in each jurisdiction in which they are utilized.

The second source of frustration has been the lack of independent cost data for use as a benchmark for evaluating the ILEC-provided data. Without such third-party/independent data sources, it has been impossible for either regulators or intervenors to critically evaluate the reasonableness of ILEC assumptions and the validity of the resulting cost estimates.

In contrast to the difficulty experienced when attempting to evaluate ILEC collocation studies, a review of the Collocation Model is direct and straight-forward. Documentation of the Model is available, including descriptions of the technical inputs and assumptions that are relied upon. Because the Model is publicly-available and its inputs can be varied by the user, it is possible to directly evaluate the Model for accuracy and to measure the sensitivity of the Model to changes in various inputs. The Collocation Model uses clearly documented and

verifiable methodologies and non-proprietary data. Both the inputs and outputs to the Model are open for inspection and analysis. The reviewer thus is in a position to review the Model and to conclude that it produces both reasonable and verifiable results for the costs of physical and virtual collocation.

In summary, a fundamental issue with any cost study is the integrity of the assumptions, calculations and input values used to develop the cost outputs. The only method to test the reliability of the final product is to make the input data, methodology, and assumptions readily- accessible for independent scrutiny and evaluation.

II. CONSTITUENTS AND OPERATION OF THE COLLOCATION MODEL

Q. PLEASE PROVIDE A SUMMARY DESCRIPTION OF THE COLLOCATION MODEL'S OPERATION.

A. MCI and AT&T retained technical subject matter experts to develop the efficient, forward-looking costs associated with physical and virtual collocation. Based upon a central office model layout and a collocation area model layout (described in detail in the testimony of Mr. Bissell), these experts identified the investments that an efficient ILEC would need to make to provide collocation space to potential CLEC collocators (including the engineering, furnish, and installation costs). These investments were used as inputs into the Collocation Model to

estimate the recurring and non-recurring costs associated with physical and virtual collocation as described in Exhibit JCK-1 to my testimony, the Collocation Cost Model Description and Users' Guide.

Q. CAN YOU BRIEFLY SUMMARIZE THE ANALYTICAL APPROACH REFLECTED IN THE COLLOCATION MODEL?

A. The focus of the Collocation Model is to determine the investment and operating costs that would be incurred by an efficient ILEC to provide collocated space in its central office, using forward-looking technology that is currently available.

In doing so, the Collocation Model developers recognized that it would be most efficient in a physical collocation arrangement for ILECs to locate space for multiple collocators together, so that they could more effectively utilize certain of the facilities (such as the DC Power Plant, and common space). On the other hand, requiring *all* collocators to be in contiguous space within a CO would be inefficient, because such a large, single block of space is unlikely to be available within a CO, or it may be located several floors away from the existing ILEC cross-connect systems. Thus, the model layout constructed struck a rational balance, designing and equipping a 550 square-foot area that would provide four 100 square-foot collocation areas.

The Collocation Model developers also recognized that it would be most efficient

in a virtual collocation arrangement for a CLEC to place its own telecommunications equipment in an area of the CO currently used by the ILEC for its own equipment. The equipment is typically mounted in metal telecommunications relay racks that are 2' wide, 1' deep, and 7' high. The racks are placed in "lineups" (rows) located 2' 6" to 3' apart to provide for aisle space in front and back for maintenance purposes. The relay rack footprint (2' by 1') plus 50% of the front and rear aisles (1' 6" + 1' 6" = 3') would require 8 square feet (2' x 4') of floor space. The Virtual Collocation Model assumes that each relay rack uses 9 square feet of floor space, which is sufficiently generous to incorporate end guards and 15" deep frames. Telecommunications relay racks are fabricated with pre-drilled ironwork uprights to permit the installation of equipment shelves on an "as required" basis and many existing relay racks in an ILEC CO will typically have unused space which can be used to mount CLEC equipment shelves. For this reason this technical model recommends that the cost model for virtual collocation develop the cost of floor space for a virtual collocation environment in increments of ¼ relay racks (the equivalent of 2.25 square feet of floor space).

The Collocation Model does not include the costs of retrofitting the CO to meet asbestos removal or ADA requirements, nor does it include other costs that could be associated with repairing or remodeling existing building space, because these costs are not consistent with the forward-looking, least-cost approach of the model.

The Physical Collocation Model also addresses ILEC security concerns by including the cost of security access cards for controlled access by CLEC representatives into the CO in a physical collocation arrangement. The Central Office Model Layout assumes the CO is equipped with an automated security card reading system. Again, this is consistent with the forward-looking, least-cost approach of the model.

CLEC personnel will not normally be required to visit virtual collocated equipment. When a CLEC visit is required, the Virtual Colloction Model assumes that a security escort will be provided for building admittance and exit, and attendance at the equipment location. The Model assumes the security escort labor rate is equal to that of a Frame Technician.

The investment required to construct the collocation space identified in the collocation area model layout was separated by the technical experts into three categories: (1) assets that would be shared by the four potential CLEC collocators and the ILEC (category 1), (2) assets that would be shared by the four potential collocators, but *not* by the ILEC (category 2), and (3) assets that would be used exclusively by only *one* of the collocators. This last category was further subdivided into investments that are reusable when an existing occupant leaves and a new collocator occupies the space (category 3) and assets that cannot be reused (category 4). All investments in categories 1 and 2 can be used by both the first and subsequent occupants of the collocated space.

A major concern with the cost of physical collocation is the substantial barrier to entry that is created if sizable, one-time, up-front expenditures are required of CLECs to obtain physical collocated space -- space that can be used over a period of years by multiple occupants -- at a time when they have relatively few customers and are, therefore, most vulnerable competitively. On the other hand, ILECs express concern that if collocators abandon the physical collocation space before its economic life is exhausted, ILECs could somehow be saddled with an expense that they would be unable to recover over the long run. The Collocation Model developed by MCI and AT&T balances these competing concerns as well.

Investments that are incurred for the benefit of a single collocator *and* cannot be used by subsequent occupants of the collocation space (*i.e.* category 4 investments) are treated by the Model as *non-recurring* costs. Investments that are shared by more than one CLEC and/or can be used by subsequent occupants of the same collocation space (*i.e.* categories 1 through 3) are treated as *recurring* costs that would be paid for on a monthly basis by the collocators. In converting these investments to monthly costs, however, the Collocation Model incorporates a cost of capital that compensates the ILEC for *both* the time value of money and the business risk it incurs. In addition, the Model includes a user-adjustable "occupancy adjustment factor" to explicitly recognize that each physical collocation space provided in the collocation area model layout may not be fully occupied over its economic life. The "occupancy adjustment factor" is fully described in exhibit JCK-1. Use of this factor has the effect of increasing monthly

costs to account for those time periods in which the physical collocation space may not be occupied.

Calculation of both the monthly capital costs and the monthly operating expenses that would be incurred by the ILEC in efficiently providing collocation space on a recurring basis are developed using standard financial techniques. Items such as taxes, general support investment, and common costs are reflected in the cost outputs of the Collocation Model.

The Virtual Collocation Model assumes the CLEC is responsible for directing all maintenance activities associated with the virtual equipment. This includes system surveillance, direction of repair activity, and requests to the ILEC for maintenance assistance. The ILEC is responsible for hardware functions such as circuit pack replacement and changing fuses. Work will be performed by the ILEC upon the request of the CLEC, and will be reimbursed using the labor rate for the appropriate qualified technician, assumed in the Model to be equivalent to that of a Network Terminal Equipment Center technician.

III. COLLOCATION COST MODEL RESULTS

Q. CAN YOU SUMMARIZE THE OUTPUTS OF THIS MODEL FOR FLORIDA?

A. Yes, the Cost Model estimates costs for the following collocation elements (the elements are described in detail in the testimony of Rick Bissell).

- Planning
- Entrance Fiber
- Power Delivery
- Power Consumption
- Voice Grade Connectivity
- DS-1 (DCS or DSX) Connectivity
- DS-3 (DCS or DSX) Connectivity
- Optical Connectivity
- Virtual to Virtual Connectivity (Applies to Virtual Collocation)
- Grounding (Applies to Physical Collocation)
- Realty (Cage Construction - Applies to Physical Collocation)
- Land and Building

The DS-1 and DS-3 connectivity costs are presented in two alternative ways, each modeled with either a DCS cross-connect or a DSX cross-connect. This flexibility permits the output from the Model to be tailored to the collocation requirements experienced by a particular ILEC at a specific CO location.

In addition, the Collocation Model also addresses ILEC security concerns by including the cost of security access cards for controlled access by CLEC representatives into the CO in a physical collocation arrangement. In a virtual

collocation arrangement, the Model includes the cost of a security escort for staffed and unstaffed COs and for different response times.

The costs for Bell South in Florida, reflected in the Model's Summary Cost sheets attached as Exhibit JCK-2A (Physical Collocation Model Output) and Exhibit JCK-2B (Virtual Collocation Model Output), are categorized as either non-recurring or monthly recurring costs. Costs are represented in a cafeteria-style menu format. The total cost for collocation space is dependent upon the requirement for elements such as connectivity, usage of power, and number of cages required by a CLEC at a particular location. For example, a CLEC may request a combination of copper connectivity such as voice grade and DS-1 (DSX), or only voice grade service. It would be inaccurate to sum all of the recurring costs to arrive at a grand total, because several alternative costs are presented for elements such as Power Delivery and Circuitry.

Q. PLEASE SUMMARIZE THE RESULTS OF THE COLLOCATION MODEL FOR THE STATE OF FLORIDA.

A. Exhibits JCK-2A and JCK-2B are printouts that reflect the results of running the Collocation Cost Model for BellSouth in Florida. In addition, an electronic version of the Collocation Cost Model on diskette is included as Exhibit JCK-3.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

Collocation Cost Model

Description and Users' Guide

MCI Communications Corporation

AT&T Corporation

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OVERVIEW

The Collocation Cost Model (Cost Model) is based on the Central Office Model Layout and the Collocation Area Model Layout developed by subject matter experts to model the costs associated with constructing and operating both an efficient physical collocation space and the costs associated with a virtual collocation arrangement. Those Layouts assume best practice central office planning strategies, least cost suppliers, and competitive bidding. Collectively, the Cost Model and Model Layouts are referred to as the Collocation Model (Model).

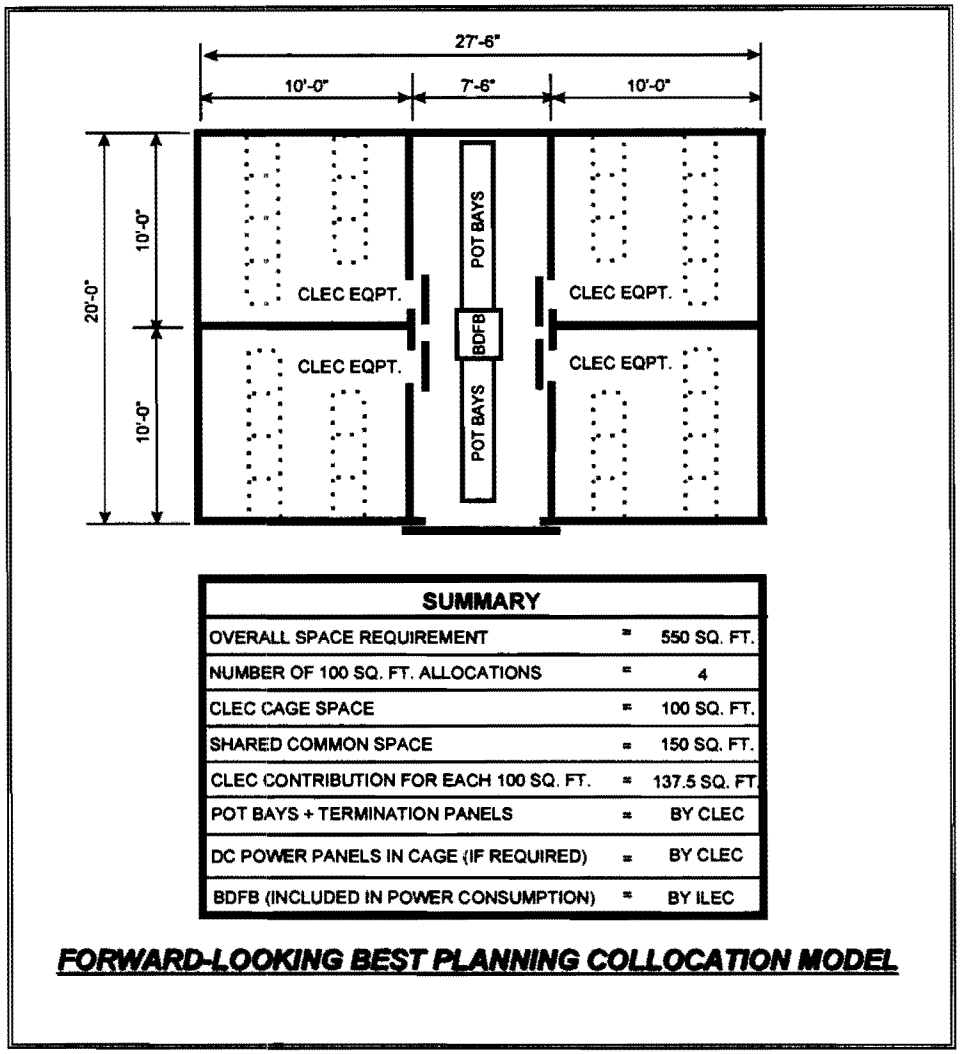
Physical Collocation

The Model Layout recognizes that it is inefficient for an incumbent local exchange carrier (ILEC) to require that the physical collocation areas of all competitive local exchange carriers (CLECs) be located in contiguous space. Such a large space is not likely to be available in close proximity to the MDF or cross connect, thus raising CLEC costs because copper connectivity recurring charges (for voice grade, DS-1, and DS-3) and fiber riser charges are all length sensitive and power delivery non-recurring charges (NRCs) increase with complexity and distance relative to the shared 48V power plant.

By contrast, (see diagram below) the Model assumes construction of a 550 square foot physical collocation area consisting of four 100 square foot physical collocation spaces plus a common area of 150 square feet to accommodate interface equipment. Spaces of this size generally are available in ILEC central offices (COs).

Interface equipment (such as point of termination bays) located in the common area paid for by the CLECs can be purchased and installed by the CLECs, and therefore associated costs are not included in the Cost Model. (An exception is the collocation battery distribution fuse bay, BDFB, which extends fusing from the DC power plant to the collocation space. This is an ILEC responsibility and its costs are included in the power consumption elements of the Cost Model.)

PHYSICAL COLLOCATION AREA



SUMMARY		
OVERALL SPACE REQUIREMENT	=	550 SQ. FT.
NUMBER OF 100 SQ. FT. ALLOCATIONS	=	4
CLEC CAGE SPACE	=	100 SQ. FT.
SHARED COMMON SPACE	=	150 SQ. FT.
CLEC CONTRIBUTION FOR EACH 100 SQ. FT.	=	137.5 SQ. FT.
POT BAYS + TERMINATION PANELS	=	BY CLEC
DC POWER PANELS IN CAGE (IF REQUIRED)	=	BY CLEC
BDFB (INCLUDED IN POWER CONSUMPTION)	=	BY ILEC

FORWARD-LOOKING BEST PLANNING COLLOCATION MODEL

Virtual Collocation

The Model Layout also recognizes that it would be most efficient in a virtual collocation arrangement for a CLEC to place its own telecommunications equipment in an area of the CO currently used by the ILEC for its own equipment. The equipment is typically mounted in metal telecommunications relay racks that are 2' wide, 1' deep, and 7' high. The racks are placed in "lineups" (rows) located 2' 6" to 3' apart to provide for aisle space in front and back for maintenance purposes. The relay rack footprint (2' by 1') plus 50% of the front and rear aisles (1' 6" + 1' 6" = 3') would require 8 square feet (2' x 4') of floor space. The Virtual Collocation Model assumes that each relay rack uses 9 square feet of floor space, which is sufficiently generous to incorporate end guards and 15" deep

frames. Telecommunications relay racks are fabricated with pre-drilled ironwork uprights to permit the installation of equipment shelves on an "as required" basis and many existing relay racks in an ILEC CO will typically have unused space which can be used to mount CLEC equipment shelves. The Virtual Collocation Model develops the cost of floor space in increments of ¼ relay racks (the equivalent of 2.25 square feet of floor space). The overall methodology for calculating monthly rental charges remains the same as for physical collocation.

Virtual collocation requirements include fiber connectivity between the first manhole outside the CO and the CLEC's virtually collocated equipment via the Fiber Distribution Frame (FDF); -48V DC power connectivity between the CLEC equipment and a battery distribution fuse bay (BDFB); copper (Voice Grade, DS-1, DS-3) and optical connectivity between the collocation area and an appropriate ILEC cross-connect. In a virtual collocation arrangement the demarcation point between the ILEC and CLEC is at the closest appropriate ILEC cross-connect.

Investment Recovery

Building cost is recovered in the Cost Model by including the appropriate per square foot building cost. This cost accounts for building space, including costs attributable to meeting environmental and other regulations. The Cost Model does not include the costs of retrofitting the Central Office to meet asbestos removal or ADA requirements or for other costs associated with fixing up existing building space, which are not the CLECs' responsibility.

The investments developed by the Collocation Cost Model are converted into recurring and non-recurring costs. Investment components categorized as recurring costs can be re-used and are converted to levelized annual capital costs. The levelizing procedure uses standard financial techniques based on plant investment for that component from the relevant element input sheet, return of capital (depreciation), return on capital and an income tax gross-up on the equity component of the return.

Investment components categorized as non-recurring are not re-useable and are reflected in the summary output as the total investment adjusted to include other taxes and variable overhead.

Security

The Physical Collocation Model also addresses ILEC security concerns by including the cost of security access cards for controlled access by CLEC representatives into the CO in a physical collocation arrangement. The Central Office Model Layout assumes the CO is

equipped with an automated security card reading system. Again, this is consistent with the forward-looking, least-cost approach of the model.

In the Virtual Collocation Model, CLEC personnel will not normally be required to visit virtual collocated equipment. When a CLEC visit is required, the model assumes that a security escort will be provided for building admittance and exit, and attendance at the equipment location. The Model assumes the security escort labor rate is equal to that of a Frame Technician.

ELEMENTS MODELED

The Cost Model estimates costs for the following collocation elements.

- Planning
- Entrance Fiber
- Power Delivery
- Power Consumption
- Voice Grade Connectivity
- DS-1 (DCS or DSX) Connectivity
- DS-3 (DCS or DSX) Connectivity
- Optical Connectivity
- Virtual to Virtual Connectivity (applies to Virtual Collocation)
- Grounding (applies to Physical Collocation)
- Realty (Cage Construction - applies to Physical Collocation)
- Land and Building

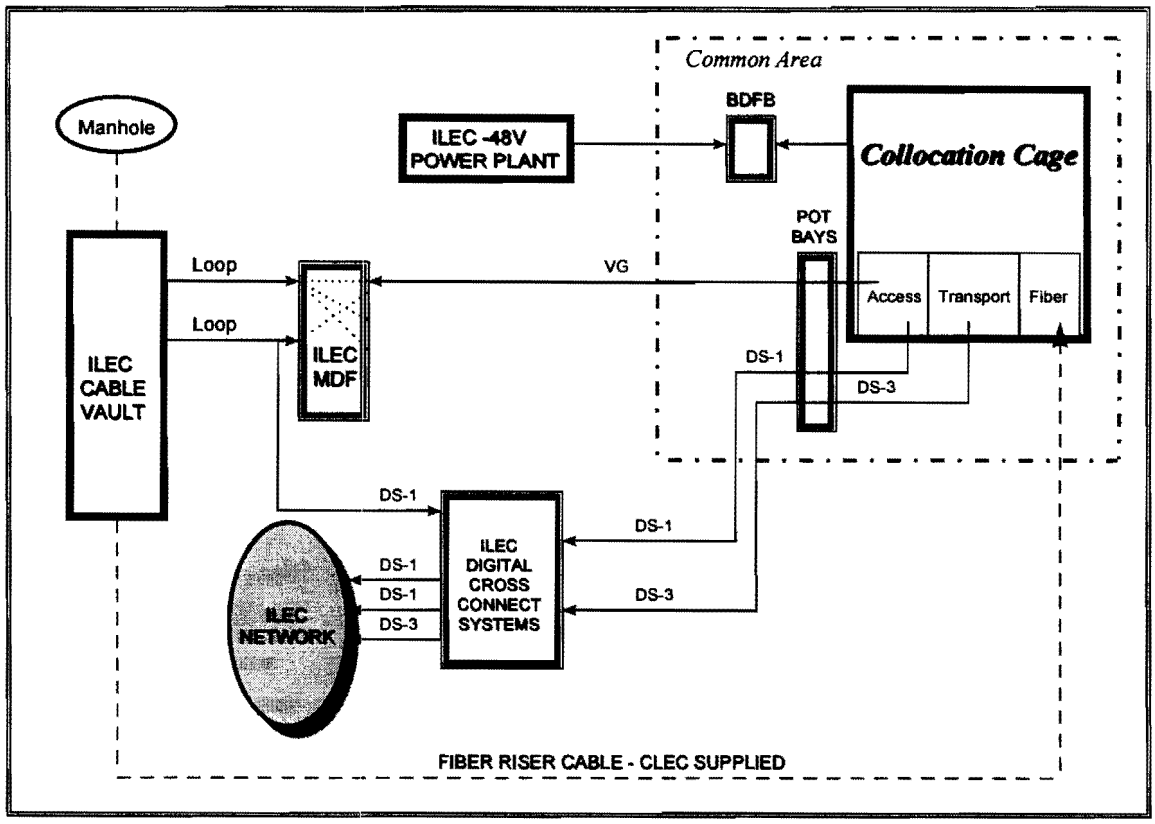
The DS-1 and DS-3 are presented in two alternative ways, each modeled with either a DCS cross-connect or DSX cross-connect.

In addition, the Cost Model estimates the cost of security access cards for controlled access by CLEC representatives into the CO in the physical collocation scenario and a security escort under the virtual collocation scenario.

The following diagrams provide an overview of the collocation elements modeled and costed under physical and virtual collocation.

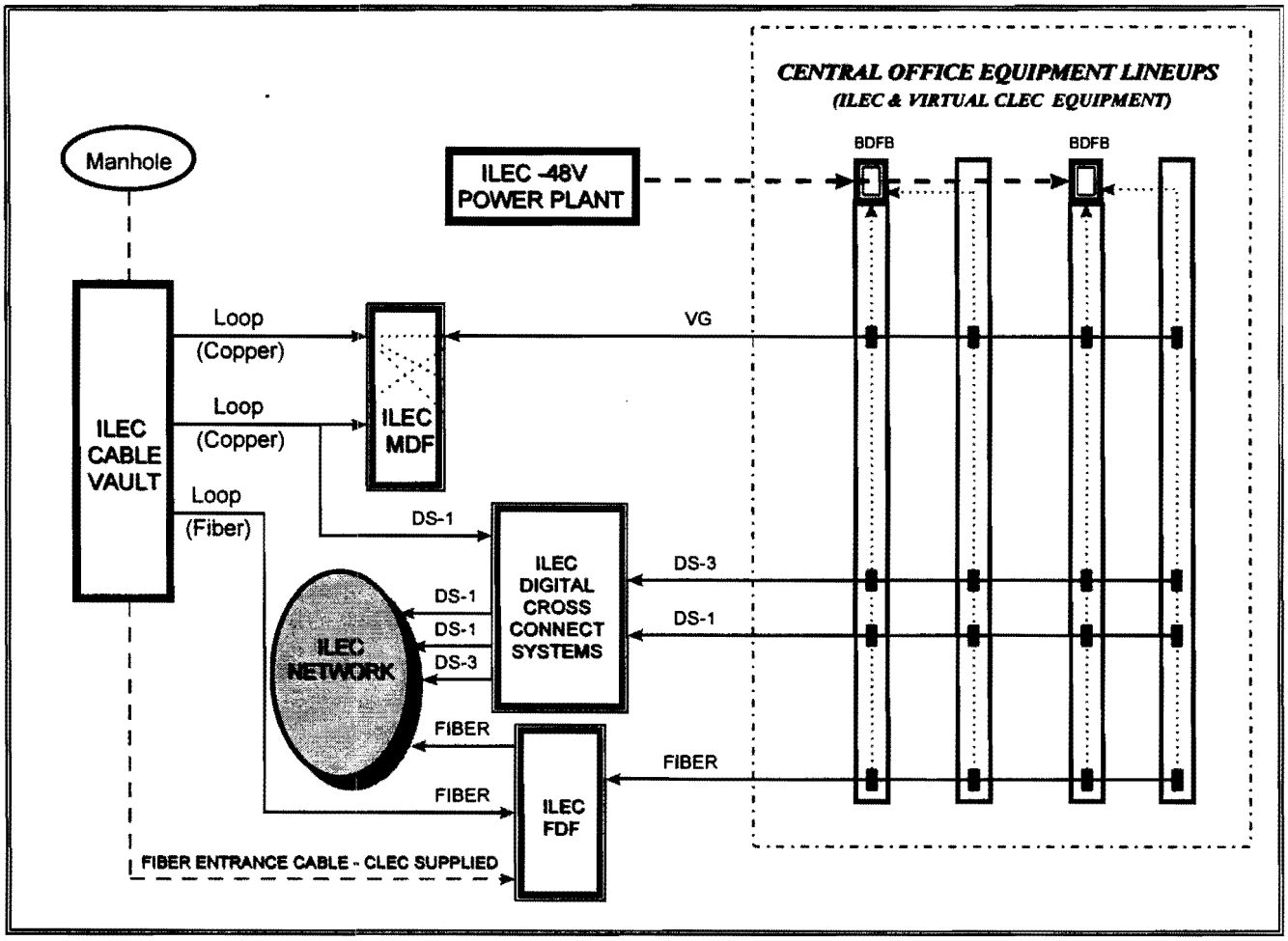
OVERVIEW - ELEMENTS MODELED

PHYSICAL COLLOCATION OVERVIEW



OVERVIEW - ELEMENTS MODELED

VIRTUAL COLLOCATION OVERVIEW



OVERVIEW - ELEMENTS MODELED

SUMMARY COSTS

The Cost Model results for the physical collocation elements and the virtual collocation elements are organized in the Summary Cost sheets as follows:

PHYSICAL COLLOCATION SUMMARY COSTS

- Cage Construction
  - Planning
  - Grounding
  - Cage Preparation
  - Land & Building
  - Cable Racking (Entrance Fiber, Connectivity and Power Delivery)
- Entrance Fiber
- Power Delivery
- Power Consumption
- Connectivity
  - Voice Grade
  - DS-1
    - DCS
    - DXS
  - DS-3
    - DCS
    - DXS
  - Optical
- Security Access Cards
- Entrance Fiber Structure Charge

OVERVIEW - ELEMENTS MODELED

VIRTUAL COLLOCATION SUMMARY COSTS

- Planning
- Land & Building
- Entrance Fiber
- Power Delivery
- Power Consumption
- Connectivity
  - Voice Grade
  - DS-1
    - DCS
    - DXS
  - DS-3
    - DCS
    - DXS
  - Optical
  - Virtual to Virtual
- Equipment Maintenance and Security Escort
- Entrance Fiber Structure Charge

COSTS CALCULATED

The Cost Model calculates the investment costs for each component required in each of the collocation elements. Costs for two of the elements are presented using two alternative technologies. These costs include, where appropriate, the capital carrying costs (i.e. depreciation, and return on the debt and equity investment required to provide physical collocation, and income taxes on the equity portion of the return on capital). Collocation investment-related expenses -- such as maintenance expenses related to ILEC maintained equipment -- are included by applying expense-to-investment ratios to the collocation Cost Model investments, as appropriate. These expense-to-investment ratios are calculated from the 1995 ARMIS data reported by the ILECs. Provision for general support expenses, other taxes, variable overhead expenses, and uncollectibles expense are included in the Cost Model.

INVESTMENT CLASSIFICATION

Four investment classifications were developed, based on whether a collocation component is shared among the CLECs and the ILEC and reusable (category one), shared among CLECS but not with the ILEC and reusable (category two), used exclusively by one CLEC and reusable (category three) or used exclusively by one CLEC and non-reusable (category four). These classifications help to determine whether an investment is modeled as a recurring or non-recurring cost and whether expense and overhead categories are applicable. A non-reusable investment has a useful life no greater than the expected tenure of the CLEC's occupancy. Non-reusable investments are classified as non-recurring charges in the model. None of the items shared by four CLECs or by CLECs and the ILEC are classified as non-recurring.

The total investment shared by four CLECs (category two investments that only apply to physical collocation) is divided by four to reflect the cost per physical collocation cage area (of which there are four, each sized at 100 square feet in the Model) and is reflected as such in the total investment column of the element specific input sheets. In contrast, category one investments, which may be shared among the ILEC and CLECs, are already on a per unit basis (for example: per circuit, or per cable as identified on input sheets) in the element specific input sheets and, therefore, are not divided by the number of users. Category three investments are used by only one CLEC, therefore, the total investment for a given item is used to calculate the monthly recurring charge. Similarly, category four investments are used by only one CLEC, and the total investment for a given item is used to calculate the non-recurring charge.

Four different components included within the Entrance Fiber element are identified below to illustrate the way in which investments are classified in the Cost Model.

INVESTMENT CLASSIFICATION

Investment Category				
Category	1	2	3	4
Investment Characteristics				
Used By	ILEC and CLECs	4 CLECs (physical collocation)	1 CLEC	1 CLEC
Reusable	Yes	Yes	Yes	No
Charge	Recurring	Recurring	Recurring	Non-Recurring
Type	Occupancy Charge	Levelized Investment divided by 4	Levelized Investment	One Time Installation Cost
Cost Determination				
Direct Investment	Yes	Yes	Yes	Yes
Levelized Direct Investment	Yes	Yes	Yes	No
Direct Investment Related Expenses	Yes	No (maintenance performed by CLECs)	No (maintenance performed by CLEC)	No (maintenance performed by CLEC)
Levelized General Support Investment	Yes	No (maintenance performed by CLECs)	No (maintenance performed by CLEC)	No (maintenance performed by CLEC)
General Support Investment Related Expenses	Yes	No (maintenance performed by CLECs)	No (maintenance performed by CLEC)	No (maintenance performed by CLEC)
Other Taxes	Yes	Yes	Yes	Yes
Variable Overhead	Yes	Yes	Yes	Yes
Uncollectibles	Yes	Yes	Yes	No
Example of Classification of Components in "Entrance Fiber" Element				
Entrance Fiber Components	140 feet of Shared 12" Ladder Rack	20 feet of Shared 12" Ladder Rack	5 feet of 12" Ladder Rack	Installation of Entrance Fiber on Shared Rack

CAPITAL CARRYING COST CALCULATION

Levelized Direct Investment

The levelizing procedure applied to direct investment for investment categories one, two, and three is identical. Category four investments are treated as non-recurring costs and are not levelized. The Cost Model calculates the annual capital cost for each component using standard financial techniques based on plant investment for that component from the relevant element input sheet, return of capital (depreciation), return on capital and an income tax gross-up on the equity component of the return. Each of these elements of the capital carrying cost estimate is discussed below.

Tax Gross Up of Equity Return

The weighted average cost of capital (return) is built up from several user-adjustable inputs. A debt/equity ratio is assumed, along with cost of debt and a cost of equity, for an overall weighted average cost of capital. The equity component of the return is subject to federal, state, and local income tax. As a consequence, it is necessary to increase the pre-tax return dollars, so that the after-tax return is equal to that assumed in developing the weighted-average cost of capital. A combined federal, state and local income tax (FSLIT) rate was used to gross up return dollars to achieve this result.

Depreciation Method

The Cost Model assumes straight-line depreciation and calculates return on investment, tax gross-up and depreciation expenses annually on the mid-year value of the investment. This is conservative, because substitution of nonlinear or accelerated depreciation schedules for straight-line depreciation would decrease annual capital carrying costs. Default values for the service lives of the equipment used in the Cost Model are based on average projection lives (adjusted for net salvage value).

Return Calculation

Return is earned only on net capital. Because depreciation results in a declining value of plant each year, the return amount declines over the service life of the plant. To ensure that a meaningful long-run capital carrying cost is calculated, the return amount is levelized over the assumed life of the investment using net present value factors. An annual capital carrying charge factor is developed for economic depreciation lives from 1 to 80 years. These factors (which also are disaggregated into their depreciation, return, and tax components) are then applied to investment in each plant category (with interpolation to account for fractional year values for economic life) to determine the annual capital carrying cost for each plant category.

The resulting annual capital charge for categories one, two, and three is divided by 12 to determine the monthly recurring charge for the investment.

EXPENSE CALCULATION

Direct Investment-Related Expenses

The cost categories contained in the FCC's Uniform System of Accounts ("USOA") are used as the point of departure for estimating the operating expenses associated with providing collocation space.

ILECs report historical expense information for each of these major categories through the FCC's ARMIS program. The ARMIS data used in the Cost Model include investment and operating expenses and revenues for a given local carrier and state.

Certain expenses, particularly those for maintenance, are assumed to be functions of their associated capital investments. The Cost Model estimates these using historic expense ratios calculated from balance sheet and expense account information reported in each carrier's ARMIS report. These expense ratios are applied to the investments developed by the Cost Model to calculate associated operating expense amounts. The ARMIS information used to perform these functions is contained in the ARMIS Inputs worksheet, and the expense factors are computed in the 95 Actuals worksheet of the Cost Model. Neither of these sheets contain user-adjustable inputs.

As shown above, the Cost Model applies operating expenses only to category one investments, assuming that investments shared by the ILEC and CLECs will be maintained by the ILEC and are subject to maintenance expense recapture. Category two, three, and four investments are not shared with the ILEC, and the Cost Model assumes that investments in these categories will be maintained by the CLEC when they are part of a physical collocation arrangement.Therefore, no ILEC maintenance-related expenses are developed for category two, three or four investments.

The Virtual Collocation Model assumes the CLEC is responsible for directing all maintenance activities associated with the virtual equipment. This includes system surveillance, direction of repair activity, and requests to the ILEC for maintenance assistance. The ILEC is responsible for hardware functions such as circuit pack replacement and changing fuses. Work will be performed by the ILEC upon the request of the CLEC, and will be reimbursed using the labor rate for the appropriate qualified technician, assumed in the Model to be equivalent to that of a Network Terminal Equipment Center technician.

Levelized General Support Investment and Expenses

The Cost Model calculates investment for furniture, office equipment, general purpose computers, buildings, motor vehicles, garage work equipment, and other work equipment.

The Cost Model uses actual 1995 investment (from ARMIS) to calculate company specific investment ratios. For example, the investment ratio for furniture equals the 1995 company-specific furniture investment divided by the 1995 company specific total plant in service (TPIS) investment. This ratio is multiplied by the investment developed by the Cost Model to determine the portion of general support investment assigned to that asset category. This process is repeated for each general support investment and applied to each investment component. Levelized general support investment is included in cost calculations related to category one only, because only investments shared among the ILEC and CLECs will be maintained by the ILEC.

Levelized capital costs for general support investment are calculated in the same way as levelized capital costs are calculated for direct investment. *See* Cost Determination, Capital Carrying Cost Calculation.

General support expenses are calculated in the same way as expenses are calculated for direct investment-related expenses. The 1995 company-specific expense to investment ratio is calculated from ARMIS and the resulting ratio is multiplied by the Cost Model calculated general support investment developed by the Cost Model.

Levelized general support expenses are included for cost calculations related to category one only, because only investments shared among the ILEC and CLECs will be maintained by the ILEC.

Other Taxes

The Cost Model assumes that other taxes will be incurred by the ILEC for *any* collocation-related investment it provides, regardless of what parties use the investment and whether it is a recurring or a non-recurring cost.

Variable Overhead

Certain costs that vary with the size of the firm, and therefore do not meet the economic definition of a pure overhead, are often included under the classification of General and Administrative expenses by ILECs.[1] Some of these costs are nonetheless attributed to overhead under ILEC accounting procedures, and a small portion of these costs may be "common" costs that are shared among several elements and would not be affected by changes in the quantity of only one of the those elements. The Cost Model includes a portion of these "overhead" costs in the cost estimates.

The variable support expenses for ILECs included in the Model are higher than those of other industries operating in more competitive environments. Based on studies of

1 For Example, if an ILEC did not provide loops it would be a much smaller company, and would therefore have lower overhead costs.

variable support expenses in competitive industries (such as the interexchange industry), the Cost Model applies as a default a 10.4 percent variable support factor to *any* collocation-related investment provided by the ILEC, regardless of what parties use the investment and whether it is a recurring or a non-recurring cost.

Uncollectibles

The uncollectibles factor is a company-specific ratio calculated by dividing ARMIS 4304 Uncollectibles by ARMIS Access Revenues. The factor is applied to investments modeled as recurring costs in categories one, two, and three. Because non-recurring costs are assumed by the Cost Model to be paid to ILECs at inception of collocation space occupancy, they would not be subject to uncollectible recapture.

OTHER ADJUSTMENTS TO COST CALCULATIONS

Occupancy Adjustment Factor for Physical Collocation space

The Cost Model also anticipates that the physical collocation space may not be occupied for 100 percent of its useful life. To reflect this expectation, the Cost Model incorporates an occupancy adjustment factor (fill factor) input, which is located in the General Inputs sheet. The occupancy adjustment factor (which represents an estimate of the proportion of cage months the physical collocation space is projected to be occupied), is applied in the Cost Model by dividing the levelized recurring cost of this category of investment by the occupancy adjustment, thereby increasing the amount of recurring investment costs recovered from the CLECs to account for the unoccupied time. The factor is applied to category two and three physical collocation investments, which are not shared with the ILEC and are treated as recurring costs.

NON USER-ADJUSTABLE INPUT AREAS

The Cost Model is a Microsoft Excel-based program. All of the Microsoft Excel 7.0 functionality is available to the user, and no cells have been locked or password protected. However, some spreadsheet features and functions (options) have been turned off to facilitate use of the graphical user interface, thereby preserving the integrity of the Cost Model methodology and assumptions. The user should modify only the pre-defined, user-adjustable inputs as identified in the Cost Model or risk improper calculations not intended by the Collocation Cost Model and Cost Model developers. Any modification to cells other than those defined as user-adjustable could render the results inconsistent with the intent of the Collocation Model developers, and users are expressly prohibited from claiming otherwise.

USER-ADJUSTABLE INPUT AREAS

The Cost Model's input values contain the costs of collocation components that make up each element to be provided by the ILEC. These costs were developed (1) from estimates of labor rates and hours for engineering and installation combined with material costs, or (2) as a combined estimate of Engineering, Furnished and Installation (EF&I) costs obtained by subject matter experts. (See the Collocation Model Layout Documentation for a detailed explanation of how the element-specific collocation inputs were developed.)

User-adjustable inputs that apply to all elements include various capital cost parameters and the expected service lives (depreciation) of the components. These are contained in the General Inputs sheet.

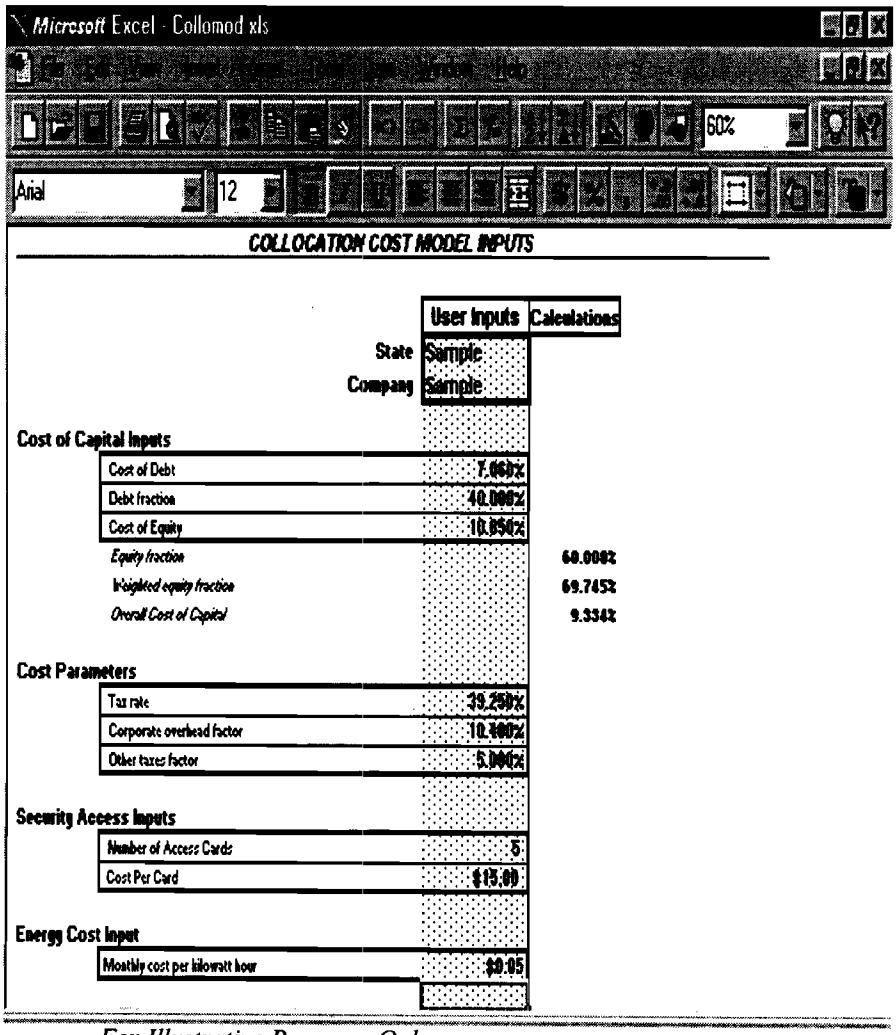
User-Adjustable inputs for Planning, and Power Consumption (with the exception of the Monthly Cost Per Kilowatt Hour input found in the Energy Cost input section of the General Inputs sheet of the Cost Model) are limited to the labor rates found in the General Inputs sheet of the Cost Model. User-adjustable inputs for the Land and Building investment are limited to those inputs found in the Collocation Specific Inputs section of the General Inputs sheet of the Cost Model. Security access inputs for physical collocation are also found in the General Inputs sheet of the Cost Model and the labor rate for virtual collocation security escort is included under the frame technician labor rate in the General Inputs sheet.

User-adjustable inputs for each component required in each of the collocation elements generally fall into two categories, *i.e.* number of units and the quantity of each component. These data are used to populate detailed, element-specific, input tables.

General Inputs Sheet

The General Inputs sheet contains user-adjustable inputs such as state and company name of the entity under analysis and the financial parameters used to convert investments categorized as recurring costs to levelized annual capital costs for each component. Several inputs used in the calculation of the land and building investment are also included in the General Inputs sheet, as are labor rate inputs used throughout the Cost Model for each element as appropriate (*e.g.* First Level Management labor rate is used in the ILEC Manpower Requirements work area sheets used to calculate the cost of planning for physical collocation and virtual collocation).

The screen below depicts the General Inputs sheet, using the Cost Model default inputs.



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General Inputs Description

Cost of Capital Inputs

The capital cost inputs, including the debt/equity ratio, cost of debt, and cost of equity, are used to develop the overall cost of capital. Inputs required include cost of debt, debt fraction and cost of equity (the program solves for the equity fraction). The weighted average cost of capital is used to calculate the capital costs.

Default Values:

Cost of Debt	**7.70%**
Debt fraction	**45.000%**
Cost of Equity	**11.90%**

Cost Parameters

Tax Rate: The combined federal, state income and local income tax rate on the return on equity.

Corporate Overhead Factor: Forward-looking corporate overhead costs, expressed as a fraction of the sum of all capital costs and operations expenses calculated by the model.

Other taxes factor: Operating taxes (primarily gross receipts and property taxes) paid by a telephone company in addition to federal, state income and local income taxes.

Default Values:

Tax rate	**39.250%**
Corporate overhead factor	**10.400%**
Other taxes factor	**5.000%**

Security Access Inputs

Number of Access Cards: The quantity of security access cards per CLEC request.

Cost Per Access Card: The cost per security access card including a maintenance fee, for controlled access by CLEC representatives into the CO.

Default Values:

Number of Access Cards	**5**
Cost Per Card	**$15.00**

Energy Cost Input

Definition: The monthly cost per kilowatt hour used in the calculation of the Power Consumption cost, expressed as the monthly AC rate per DC amp.

Default Value:

Monthly cost per kilowatt hour	**$0.05**

Collocation-Specific Inputs

Ancillary Requirement: The percent of total square foot of central office building area per floor dedicated to ancillary equipment. Used in the Land and Buildings cost calculation.

Assignable Space Factor: The percent of total square foot of central office building area per floor dedicated to primary equipment. Used in the Land and Buildings cost calculation.

Cost of Land Per Square Foot: The land cost associated with the central office. Used in the Land and Buildings cost calculation.

Cost Per Sq. Ft.: The building cost per square foot associated with the central office. Used in the Land and Buildings cost calculation. The default assumption is developed from R.S. Means data based on a survey of RBOC central office construction costs. The Collocation Cost Model assumptions for cage preparation overstate construction costs because the Cost Model includes items that already may be captured in the R.S. Means data such as Heating Ventilation and Air Conditioning (HVAC) and lighting improvements. Due to the omission of detailed information on what costs are included in the construction costs in R.S. Means, the Model developers have, to date, been unable to document (and therefore adjust for) this potential overstatement.

Occupancy Factor: The occupancy adjustment factor (which represents an estimate of the proportion of cage months the physical collocation space is projected to be occupied)

is applied in the Cost Model by dividing the levelized recurring cost of physical collocation category two and three investments by the occupancy adjustment factor to gross-up the investment.

Building to Land Ratio: The multiplier of central office building gross floor area to arrive at total lot size to accommodate building and parking requirements.

Default Values:

Ancillary Requirement	**25.00%**
Assignable Space Factor	**80.00%**
Cost of Land per Sq. Ft	**$20.00**
Cost Per Sq. Ft (1997 RS Means, Telephone Exchange)	**$121.50**
Occupancy Factor (Based on Cage Months)	**75.00%**
Building to Land Ratio	**2.00**

Entrance Fiber Structure

Negotiated/Tariffed Entrance Fiber Structure Charge: The entrance fiber structure charge reflects the annual charge per foot of conduit that supports the entrance fiber between the manhole and cable vault.

Number of Innerducts per Conduit: The number of innerducts per conduit reflects the number of innerducts included in the conduit structure between the manhole and cable vault. It is used to determine the annual charge per innerduct foot of conduit.

Default Value:

Negotiated/Tariffed Entrance Fiber Structure Charge	**$0.560**
Number of Innerducts per Conduit	**3**

Labor Rates

The Cost Model uses five labor rates.

Frame Technician (Frame Tech): The labor rate per hour for a frame technician (state specific input) is also used as the labor rate input for security escort in the virtual collocation scenario.

Splicer: The labor rate per hour for a splicer (state specific input).

Network Terminal Equipment Center (NTEC): The labor rate per hour for a NTECH (state specific input) is also used as the labor rate input for equipment maintenance labor in the virtual collocation scenario.

First Level Management: The labor rate per hour for first level management manpower.

Contractor Labor: The labor rate per hour for contractor labor.

Default Value:

Frame Technician (Frame Tech)	**State Specific**
Splicer	**State Specific**
Network Terminal Equipment Center (NTEC)	**State Specific**
First Level Management	**$55.03**
Contractor Labor	**$55.00**

The Cost Model uses a default labor rate value of $55.00 for all contractor labor rates except for the -48 volt power consumption cost, which is based on a contractor price quote that incorporates 64 hours of contractor labor for engineering at $65.00 per hour. When the Model is adjusted to reflect state-specific costs, these default values are modified as follows:

For Frame Technicians, Splicers, and NTECs: A state-specific labor rate per hour is calculated based on hourly labor rates found in union contracts. These are fully assigned rates, which include wages and benefits for first-line supervision through third level (middle) management. Since the union contracts identify higher and lower pay zones within a state, where it was not possible to identify the average rate for a labor category, the highest pay zone is used for all rates, thereby assuming that the entire work force is at a maximum rate within their bands. Two publicly available ILEC cost studies – one filed by NYNEX in New York State and one filed by Bell South in Georgia – suggest that benefits generally represent an additional 33% -35% in costs over the contract labor rates. The Cost 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. These ratios are based on the judgment of SMEs. The salary and benefits for one clerical position are also incorporated. The loaded hourly rates are adjusted upward by 23% to take into account paid nonproductive time, including time off for vacations, holidays, personal days, training, coffee breaks, etc. Miscellaneous expenses are added to cover such items as travel expense, training, and office supplies. Finally, another increment is added to cover premium pay for overtime worked.

For First Level Management: The same loading methodology is used as for frame technicians and splicers, but since there are no union contracts on which to base the unloaded hourly rate for first level management, that input value was set by subject matter experts. With the loadings, the default national rate is $55.03.

Contractor Labor: Subject matter experts determined that $55.00 per hour represents an upper bound on the rate for contractor labor, and that number is used in the Cost Model (except for the engineering contractor labor rate of $65.00 for the -48 volt power consumption cost noted above). Where state-specific contractor labor rate data are available, that data could be used in place of the default value.

Provided below is an example of a 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

Depreciation

Definition: The economic lives and net salvage percents of various network plant categories are used to develop annual depreciation requirements.

Default Value:

Account	USOA Category	Economic Lives	Net Salvage Percent
2112	Motor Vehicles	8.24	11.21%
2115	Garage Work Equipment	12.22	-10.71%
2116	Other Work Equipment	13.04	3.21%
2121	Buildings	46.93	1.87%
2122	Furniture	15.92	6.88%
2123.1	Office Support Equipment	10.78	6.91%
2123.2	Company Comm Equipment	7.40	3.76%
2124	Computers	6.12	3.73%
2212	Digital Switching	16.17	2.97%
2220	Operator Systems	9.41	-0.82%
2232	Digital Circuit Equipment	10.24	-1.69%
2351	Public Telephone	7.60	7.97%
2426-nm	Intrabuilding - Non-Metallic	26.11	-10.52%
2422	Underground Cable Non-Metallic	26.45	-14.58%
2441	Conduit Systems	56.19	-10.34%

ELEMENT-SPECIFIC USER-ADJUSTABLE INPUTS

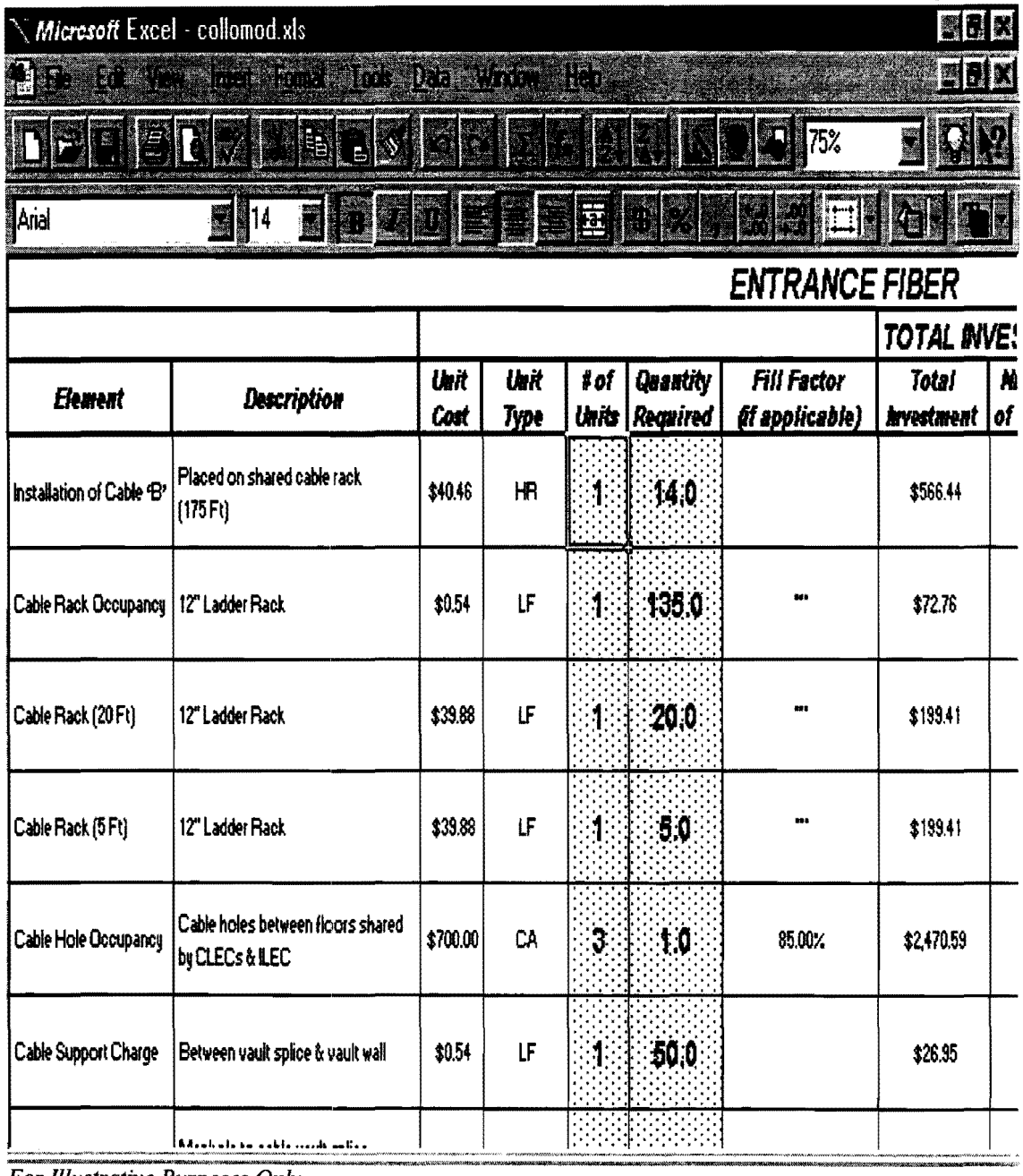
User-adjustable inputs for each component used in the physical collocation and virtual collocation elements are found in each of the following representative element input sheets. The input sheets for the elements in physical and virtual collocation are similar with the exception that some components used in the physical collocation arrangement differ from those in the virtual collocation arrangement. The user can access each of these input sheets directly by selecting the respective element's Button in the Control sheet. Descriptions of the components that make up each element are included within the respective element's input sheet in the Remarks column. For illustrative purposes, the physical collocation input sheets are described as follows.

Entrance Fiber

The physical collocation Entrance Fiber input sheet depicted below contains user-adjustable inputs for the number of units and the quantity of each component related to entrance fiber, including: Installation of Cable B, Cable Rack Occupancy, 20-foot Cable Rack, 5-foot Cable Rack, Cable Hole Occupancy, Cable Support Charge, Cable Pulling, Splicing Activity, and Splice Fibers.

For example, the fiber cable placement investment (labeled as Installation of Cable B) is calculated by multiplying the user-adjustable labor cost per hour input (located in the General Inputs Sheet under Splicer Labor) by the number of hours input (located in the Entrance Fiber input sheet in the quantity column) required to install the entrance fiber used by one CLEC and to place it on the rack shared by the ILEC and as many as four CLECs. To calculate the shared rack occupancy charge (labeled as Cable Rack Occupancy) a material cost per foot assumption is multiplied by a user-adjustable input for total linear feet of rack required (located in the Entrance Fiber input sheet in the quantity column) by one CLEC (based on a potential 74 cable pile up).

COST MODEL INPUT



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ENTRANCE FIBER

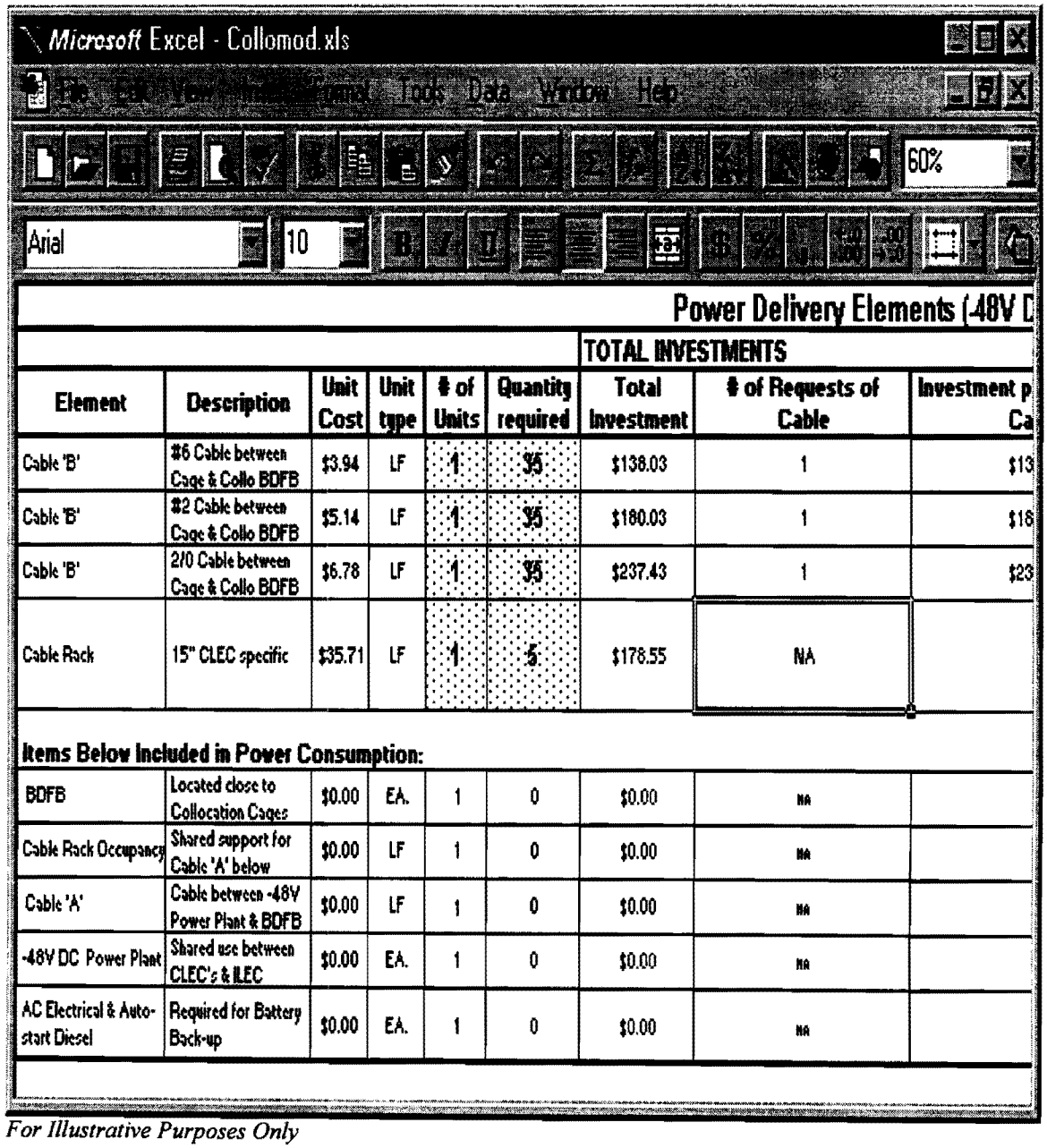
TOTAL INVE

Element	Description	Unit Cost	Unit Type	# of Units	Quantity Required	Fill Factor (if applicable)	Total Investment	M of
Installation of Cable "B"	Placed on shared cable rack (175 Ft)	$40.46	HR	1	14.0		$566.44	
Cable Rack Occupancy	12" Ladder Rack	$0.54	LF	1	135.0	""	$72.76	
Cable Rack (20 Ft)	12" Ladder Rack	$39.88	LF	1	20.0	""	$199.41	
Cable Rack (5 Ft)	12" Ladder Rack	$39.88	LF	1	5.0	""	$199.41	
Cable Hole Occupancy	Cable holes between floors shared by CLECs & ILEC	$700.00	CA	3	1.0	85.00%	$2,470.59	
Cable Support Charge	Between vault splice & vault wall	$0.54	LF	1	50.0		$26.95	

For Illustrative Purposes Only

Power Delivery

The physical collocation Power Delivery Input sheet depicted below contains user-adjustable inputs for number of units and the quantity of each for Cable B in either 40, 100, or 200 amp service, and for the Cable Rack. The input values were provided by the subject matter experts who constructed the Collocation Model.



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Power Delivery Elements (-48V D

						TOTAL INVESTMENTS		
Element	**Description**	**Unit Cost**	**Unit type**	**# of Units**	**Quantity required**	**Total Investment**	**# of Requests of Cable**	**Investment p Ca**
Cable 'B'	#6 Cable between Cage & Collo BDFB	$3.94	LF	1	35	$138.03	1	$13
Cable 'B'	#2 Cable between Cage & Collo BDFB	$5.14	LF	1	35	$180.03	1	$18
Cable 'B'	2/0 Cable between Cage & Collo BDFB	$6.78	LF	1	35	$237.43	1	$23
Cable Rack	15" CLEC specific	$35.71	LF	1	5	$178.55	NA	
Items Below Included in Power Consumption:								
BDFB	Located close to Collocation Cages	$0.00	EA.	1	0	$0.00	NA	
Cable Rack Occupancy	Shared support for Cable 'A' below	$0.00	LF	1	0	$0.00	NA	
Cable 'A'	Cable between -48V Power Plant & BDFB	$0.00	LF	1	0	$0.00	NA	
-48V DC Power Plant	Shared use between CLEC's & ILEC	$0.00	EA.	1	0	$0.00	NA	
AC Electrical & Auto-start Diesel	Required for Battery Back-up	$0.00	EA.	1	0	$0.00	NA	

For Illustrative Purposes Only

COPPER CONNECTIVITY (VOICE GRADE, DS-1, DS-3)

The following physical collocation element input sheets deal with the investment required for connectivity between the Collocation Area and the ILEC cross-connects. Connectivity between the CLEC and ILEC is modeled for three different transmission bandwidths: Voice Grade (DS-0), DS-1, and DS-3. For DS-1 and DS-3, two alternative cross connects (DCS and DSX) are modeled. The input values were provided by the subject matter experts who constructed the Collocation Model.

Voice Grade

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TOTAL INVE

Element	Description	Unit Cost	Unit Type	# of Units Required	Quantity Required	Fill Factor (if applicable)	Total Investment
Cable Rack 1A	20" Ladder Rack	$36.11	LF	1	5	***	$180.55
Cable Rack 2A	20" Ladder Rack	$36.11	LF	1	20	***	$180.55
Cable B	Cable from Pot Bay Terminal Strip to HMDF (100 pair)	$4.33	LF	1	165		$713.80
Cable Hole	2 Cable Holes (278 Cable Occupan	$700.00	Hole	2	1	85.00%	$1,647.06
Cable Rack B	20" Ladder Rack (278 Cable Occupancy)	$36.11	LF	1	150	***	$5,416.59
MDF-H	Horizontal Terminal Strips for X-Conn to Access (100 pins)	$103.25	EA.	1	1		$103.25
MDF	MDF Terminal Strip Space (1 Block Space)	$178.95	EA.	1	1	85.00%	$210.53

*** Fill Factor was applied according to the Cable Rack Occupancy Chart included in Additional Backup

For Illustrative Purposes Only

DS-1 (DCS)

Microsoft Excel - Collomod.xls

DS-1 Se

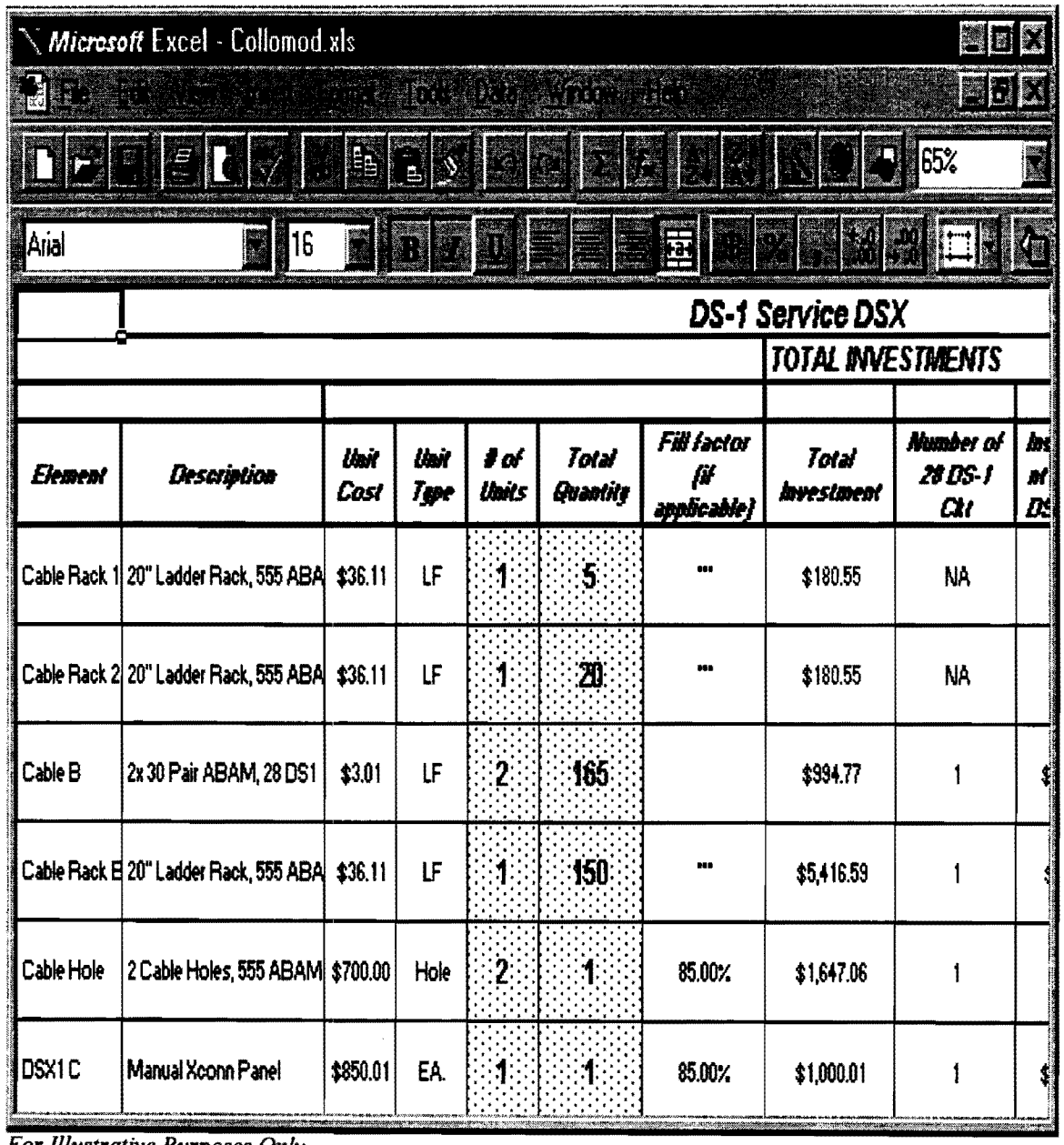
TOT

Element	Description	Unit Cost	Unit Type	# of Units	Total Quantity	Fill factor (if applicable)	T Inve
Cable Rack 1A	20" Ladder Rack, 555 ABAM	$36.11	LF	1	5	***	$1
Cable Rack 2A	20" Ladder Rack, 555 ABAM	$36.11	LF	1	20	***	$1
Cable B	2x 30 Pair ABAM, 28 DS1	$3.01	LF	2	165		$9
Cable Rack B	20" Ladder Rack, 555 ABAM	$36.11	LF	1	150	***	$5,
Cable Hole	2 Cable Holes, 555 ABAM	$700.00	Hole	2	1	85.00%	$1,
DCS	Digital Xconn	$329.23	per DS1	1	7168	85.00%	$2,77

*** Fill Factor was applied according to the Cable Rack Occupancy Chart included in Additional Backup

For Illustrative Purposes Only

DS-1 (DSX)



DS-1 Service DSX

TOTAL INVESTMENTS

Element	Description	Unit Cost	Unit Type	# of Units	Total Quantity	Fill factor (if applicable)	Total Investment	Number of 28 DS-1 Ckt	In at DS
Cable Rack 1	20" Ladder Rack, 555 ABA	$36.11	LF	1	5	""	$180.55	NA	
Cable Rack 2	20" Ladder Rack, 555 ABA	$36.11	LF	1	20	""	$180.55	NA	
Cable B	2x 30 Pair ABAM, 28 DS1	$3.01	LF	2	165		$994.77	1	$
Cable Rack B	20" Ladder Rack, 555 ABA	$36.11	LF	1	150	""	$5,416.59	1	$
Cable Hole	2 Cable Holes, 555 ABAM	$700.00	Hole	2	1	85.00%	$1,647.06	1	
DSX1 C	Manual Xconn Panel	$850.01	EA.	1	1	85.00%	$1,000.01	1	$

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DS-3 (DCS)

Microsoft Excel - Collomod.xls

DS-3 Service DCS

TOTAL INVE

Element	Description	Unit Cost	Unit Type	# of Units	Quantity Required	Fill Factor (if applicable)	Total Investment
Cable Rack 1A	20" Ladder Rack, 555-734 type	$36.11	LF	1	5	""	$180.55
Cable Rack 2A	20" Ladder Rack, 555-734 type	$36.11	LF	1	20	""	$180.55
Cable B	734 Shielded (2 cables per DS3)	$0.86	LF	2	165		$283.34
Cable Rack B	20" Ladder Rack, 555 734 Type (cable occupancy 278)	$36.11	LF	1	150	""	$5,416.59
Cable Hole	2 Cable holes between floors, 555 734 Type (cable occupancy 278)	$700.00	Hole	2	1	85.00%	$1,647.06
DCS	DS3 Digital Xconn	$2,293.30	per DS3	1	512	85.00%	$1,381,378.82

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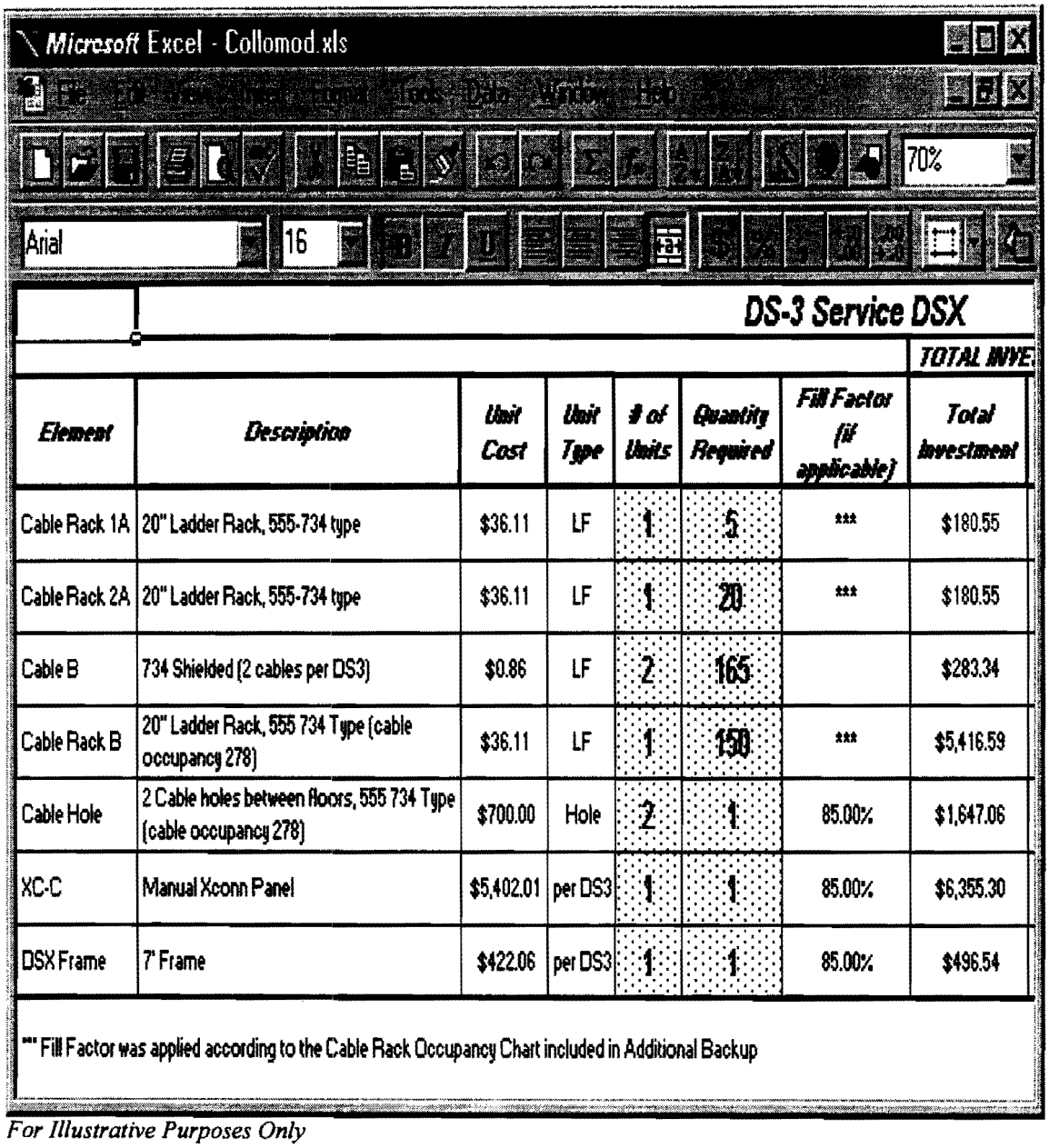
DS-3 (DSX)



DS-3 Service DSX

TOTAL INVE

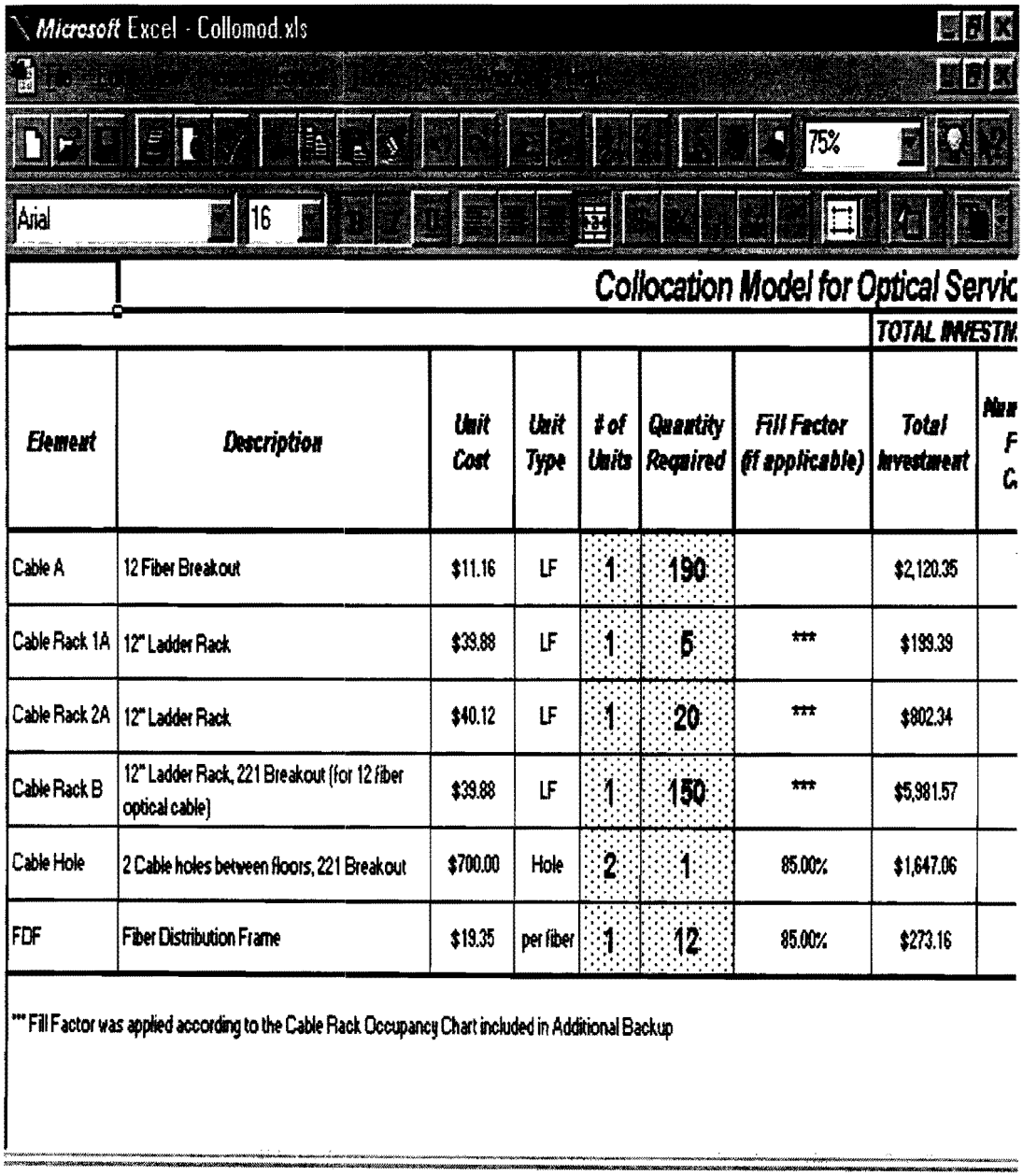
Element	Description	Unit Cost	Unit Type	# of Units	Quantity Required	Fill Factor (if applicable)	Total Investment
Cable Rack 1A	20" Ladder Rack, 555-734 type	$36.11	LF	1	5	***	$180.55
Cable Rack 2A	20" Ladder Rack, 555-734 type	$36.11	LF	1	20	***	$180.55
Cable B	734 Shielded (2 cables per DS3)	$0.86	LF	2	165		$283.34
Cable Rack B	20" Ladder Rack, 555 734 Type (cable occupancy 278)	$36.11	LF	1	150	***	$5,416.59
Cable Hole	2 Cable holes between floors, 555 734 Type (cable occupancy 278)	$700.00	Hole	2	1	85.00%	$1,647.06
XC-C	Manual Xconn Panel	$5,402.01	per DS3	1	1	85.00%	$6,355.30
DSX Frame	7' Frame	$422.06	per DS3	1	1	85.00%	$496.54

*** Fill Factor was applied according to the Cable Rack Occupancy Chart included in Additional Backup

For Illustrative Purposes Only

OPTICAL CONNECTIVITY

The following physical collocation element input sheet represents the investment required for connectivity between the Collocation Area and the ILEC Fiber Distribution Frame. The input values were provided by the subject matter experts who constructed the Collocation Model.



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Collocation Model for Optical Servic

TOTAL INVESTM

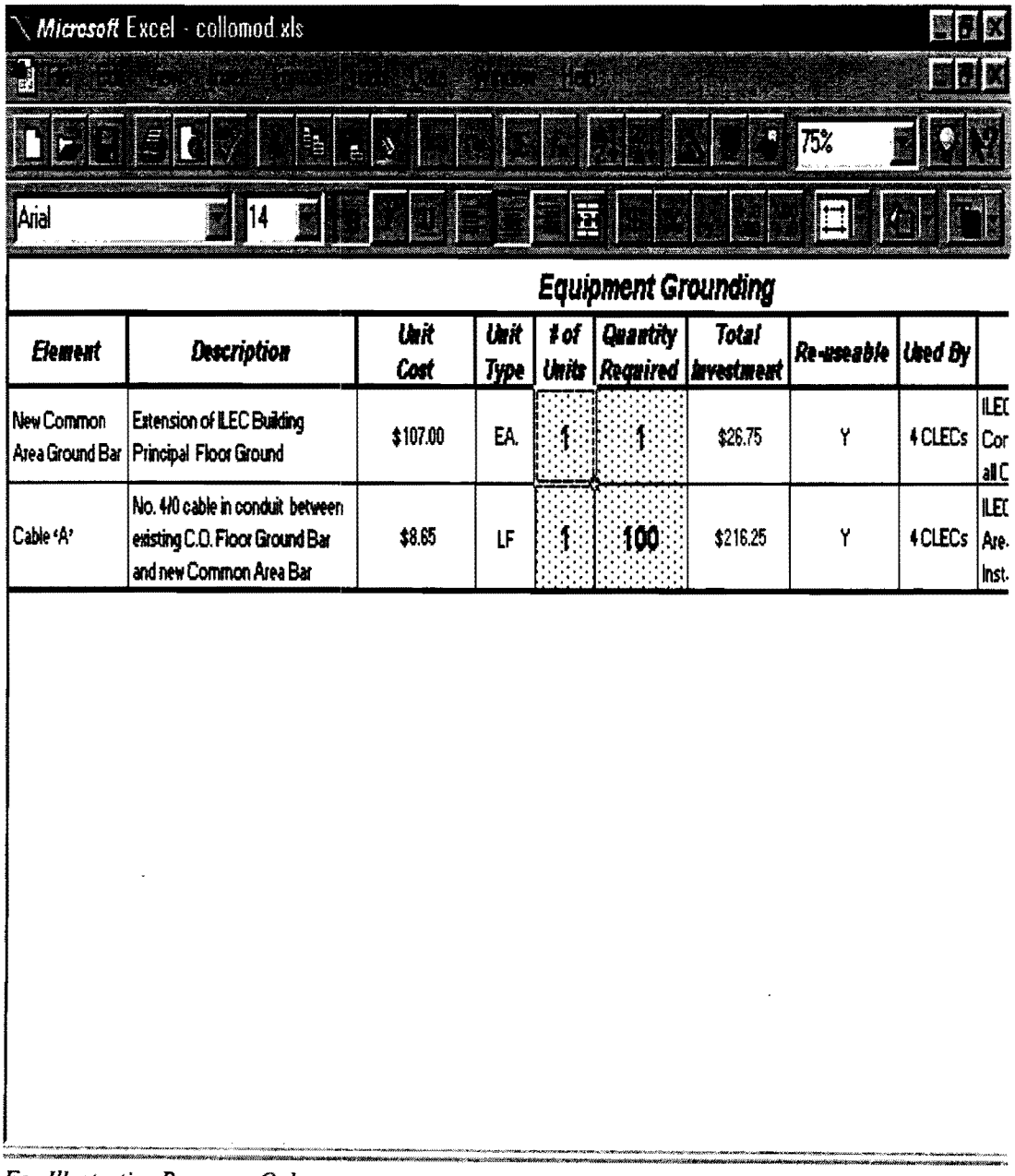
Element	Description	Unit Cost	Unit Type	# of Units	Quantity Required	Fill Factor (if applicable)	Total Investment	Nu F C
Cable A	12 Fiber Breakout	$11.16	LF	1	190		$2,120.35	
Cable Rack 1A	12" Ladder Rack	$39.88	LF	1	5	***	$199.39	
Cable Rack 2A	12" Ladder Rack	$40.12	LF	1	20	***	$802.34	
Cable Rack B	12" Ladder Rack, 221 Breakout (for 12 fiber optical cable)	$39.88	LF	1	150	***	$5,981.57	
Cable Hole	2 Cable holes between floors, 221 Breakout	$700.00	Hole	2	1	85.00%	$1,647.06	
FDF	Fiber Distribution Frame	$19.35	per fiber	1	12	85.00%	$273.16	

*** Fill Factor was applied according to the Cable Rack Occupancy Chart included in Additional Backup

For Illustrative Purposes Only

Grounding

The physical collocation Grounding input sheet (applies to physical collocation) depicted below contains user-adjustable inputs related to the installation of a new common ground bar in the Common Area, and a new ground cable to connect to the existing Floor Ground Bar. The input values were provided by the subject matter experts who constructed the Collocation Model.



Equipment Grounding

Element	Description	Unit Cost	Unit Type	# of Units	Quantity Required	Total Investment	Re-useable	Used By	
New Common Area Ground Bar	Extension of ILEC Building Principal Floor Ground	$107.00	EA.	1	1	$26.75	Y	4 CLECs	ILEC Cor all C
Cable 'A'	No. 4/0 cable in conduit between existing C.O. Floor Ground Bar and new Common Area Bar	$8.65	LF	1	100	$216.25	Y	4 CLECs	ILEC Are. Inst.

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Cage Preparation

The Cage Preparation (applies to physical collocation) input sheet contains user-adjustable inputs for the number of units and the quantity of each element required for the construction of a typical physical Collocation Area in an ILEC Central Office. The input values were provided by the subject matter experts who constructed the Collocation Model.

Microsoft Excel - Collomod.xls

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SUMMARY OF CAGE PREPARATION COST ELEMENTS

ITEM	Unit Cost	Unit Type	# of Units	Quantity Required	Total Investment	Cost Per 100 Sq. Ft	Re-useable	Used By
Partitioning *	$20.90	LF	1	155	$3,239.50	$809.88	Y	4 CLECs
Floor Tile	$1.71	SF	1	550	$940.50	$235.13	Y	4 CLECs
Padlocks for Cages	$50.00	EA.	1	4	$200.00	$50.00	Y	4 CLECs
Plywood	$250.00	Sheet	1	1	$250.00	$62.50	Y	4 CLECs
HVAC	$1,785.00	TONS	1	7.7	$13,744.50	$3,436.13	Y	4 CLECs
Lighting	$117.00	EA.	1	22	$2,574.00	$643.50	Y	4 CLECs
Switching (Motion Detector Type)	$214.00	EA.	1	5	$1,070.00	$267.50	Y	4 CLECs
Electrical Panel	$2,150.00	EA.	1	1	$2,150.00	$537.50	Y	4 CLECs
Electrical Receptacles	$48.32	EA.	1	12	$579.84	$144.96	Y	4 CLECs
Mesh Grounding	$10.80	LF	1	10	$108.00	$27.00	Y	4 CLECs
TOTAL COLLOCATION AREA COST					$24,856.34			
TOTAL PER 100 SQ. FT. ALLOCATION						$6,214.09		

Total Investment reflects the costs associated with four different collocators in 4 separate cages.
* Partitioning includes supply of posts, fabric, rails, gates & installation

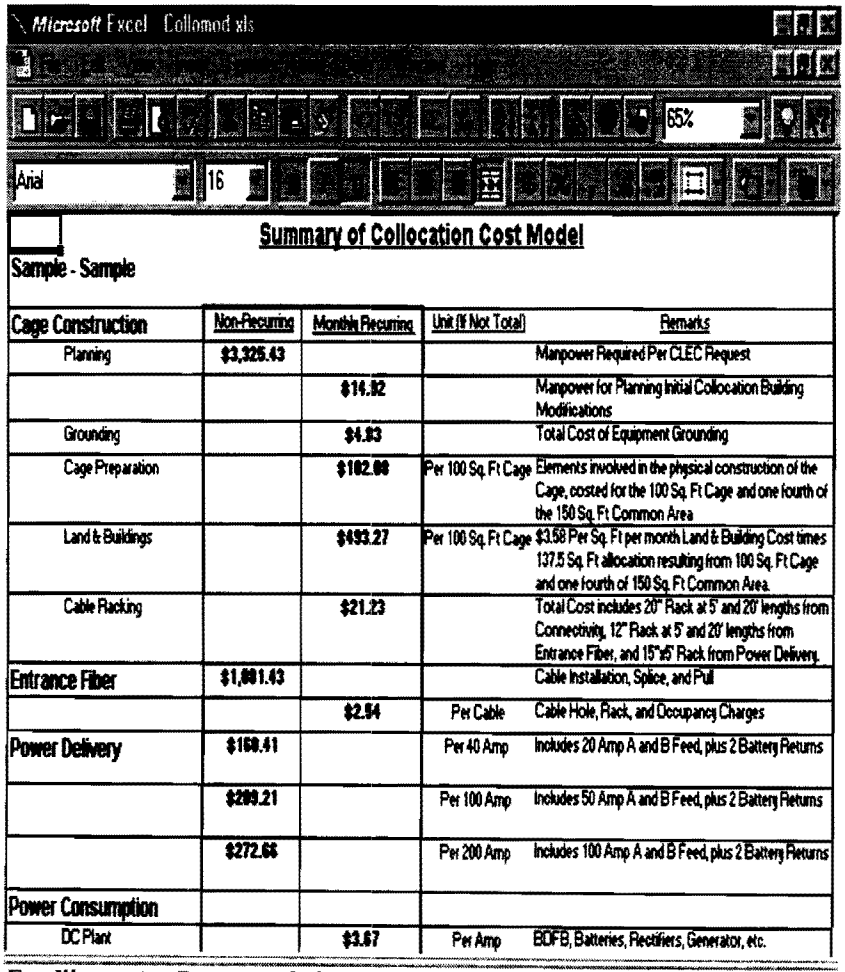
For Illustrative Purposes Only

COST MODEL OUTPUT

SUMMARY COST

The Summary Cost sheet for physical and virtual collocation are similar with the exception that some components used in the physical collocation arrangement differ from those in the virtual collocation arrangement.

The costs reflected on the Summary Cost sheet depicted below (physical collocation shown) are categorized as either non-recurring or monthly recurring costs. Costs are represented on a unit of consumption basis. It is inaccurate to sum all of the recurring costs to arrive at a grand total, because several alternative costs are presented for elements such as Power Delivery and Connectivity. The total cost for collocation is dependent upon a CLEC's requirement for connectivity, usage of power, number of cages requested (in a physical collocation arrangement), etc. For example, a CLEC may request a combination of copper connectivity such as voice grade and DS-1 (DSX), or only voice grade service. The summary output provides flexibility to the user so that costs tailored to a CLEC's requirements at a particular location can be specified.



Summary of Collocation Cost Model

Sample - Sample

Cage Construction	Non-Recurring	Monthly Recurring	Unit (If Not Total)	Remarks
Planning	$3,325.43			Manpower Required Per CLEC Request
		$14.82		Manpower for Planning Initial Collocation Building Modifications
Grounding		$4.83		Total Cost of Equipment Grounding
Cage Preparation		$182.88	Per 100 Sq. Ft Cage	Elements involved in the physical construction of the Cage, costed for the 100 Sq. Ft Cage and one fourth of the 150 Sq. Ft Common Area
Land & Buildings		$493.27	Per 100 Sq. Ft Cage	$3.58 Per Sq. Ft per month Land & Building Cost times 137.5 Sq. Ft allocation resulting from 100 Sq. Ft Cage and one fourth of 150 Sq. Ft Common Area.
Cable Racking		$21.23		Total Cost includes 20" Rack at 5' and 20' lengths from Connectivity, 12" Rack at 5' and 20' lengths from Entrance Fiber, and 15"x6" Rack from Power Delivery.
Entrance Fiber	$1,881.43			Cable Installation, Splice, and Pull
		$2.54	Per Cable	Cable Hole, Rack, and Occupancy Charges
Power Delivery	$168.41		Per 40 Amp	Includes 20 Amp A and B Feed, plus 2 Battery Returns
	$299.21		Per 100 Amp	Includes 50 Amp A and B Feed, plus 2 Battery Returns
	$272.66		Per 200 Amp	Includes 100 Amp A and B Feed, plus 2 Battery Returns
Power Consumption				
DC Plant		$3.67	Per Amp	BDFB, Batteries, Rectifiers, Generator, etc.

For Illustrative Purposes Only

CAGE CONSTRUCTION

The cage construction category (applies to physical collocation) incorporates all of the elements included in the physical collocation area. Recurring cage construction costs are based on the number of one-hundred square-foot areas required by a particular collocator. As a result, a user of the Cost Model can multiply the cage construction elements by the number of hundred square foot areas required to determine the total cost for the respective element.

The only non-recurring cost in the cage construction category is for planning of a CLEC's collocation space requirement. The non-recurring planning cost shown on the physical collocation summary cost sheet represents the manpower/engineering required to plan a CLEC request, regardless of the number of one hundred square-foot areas required.

ENTRANCE FIBER

The entrance fiber category includes a non-recurring charge, in the physical collocation arrangement, for installing the entrance fiber between the cable vault and the physical collocation area. This includes placing the cable on the shared rack, pulling the cable, splicing of the cable in the cable vault, and the cable vault splice case. The recurring cost in both the physical arrangement and virtual arrangement includes the per cable occupancy charge for sharing the ILEC cable holes and rack. The virtual arrangement also includes recurring costs for the fiber distribution frame and optical patch cords.

POWER DELIVERY

The power delivery charge for physical collocation includes the non-recurring charge for installing the power A and power B feed plus two battery returns. Three alternative costs for different levels of amperage service are shown depending on the power requirements of the CLEC. Power delivery for virtual collocation includes only the occupancy charge for the rack since the power feeds are installed at the same time as the equipment they serve and by the same installers.

POWER CONSUMPTION

The power consumption charge per DC amp includes the recurring charge for engineering, furnishing and installing the 48V DC power plant shared by the ILEC and CLECs including battery and diesel generator back-up. The recurring cost for AC usage per DC amp is shown separately.

COPPER CONNECTIVITY

The monthly recurring cost for connectivity between the CLEC and ILEC is shown for three different transmission bandwidths, Voice Grade (DS-0), DS-1, and DS-3. For DS-1 and DS-3, two alternative cross connects (DCS and DSX) are shown. Cable racks included within the collocation area for copper connectivity, power and entrance fiber are included in the summary sheet under Cage Construction as a monthly recurring cost for Cable Racking.

OPTICAL CONNECTIVITY

The monthly recurring cost for optical connectivity in the physical collocation arrangement between the CLEC and ILEC includes cable racking, cable holes and fiber distribution frame. The non-recurring charge for optical connectivity in the physical collocation summary includes the cost of material and installation (including splicing and testing) of the fiber break-out cable. The cost of the fiber break-out cable is not included in the virtual collocation arrangement since it is installed at the same time as the equipment it serves.

SECURITY

The non-recurring charge for security access cards in the physical collocation arrangement is based on the cost per access card including a maintenance fee, for controlled access by CLEC representatives into the CO. The Central Office Model Layout assumes the CO is equipped with an automated security card reading system. The virtual collocation arrangement includes the cost of a security escort with various response intervals.

ENTRANCE FIBER STRUCTURE

The entrance fiber structure charge reflects the recurring cost per innerduct foot of conduit that supports the entrance fiber between the manhole and cable vault. The cost shown on the summary sheet reflects the negotiated or tariffed rate when available. The cost associated with cable placement in the conduit is included in the entrance fiber non-recurring cost in the summary sheet.

SOFTWARE

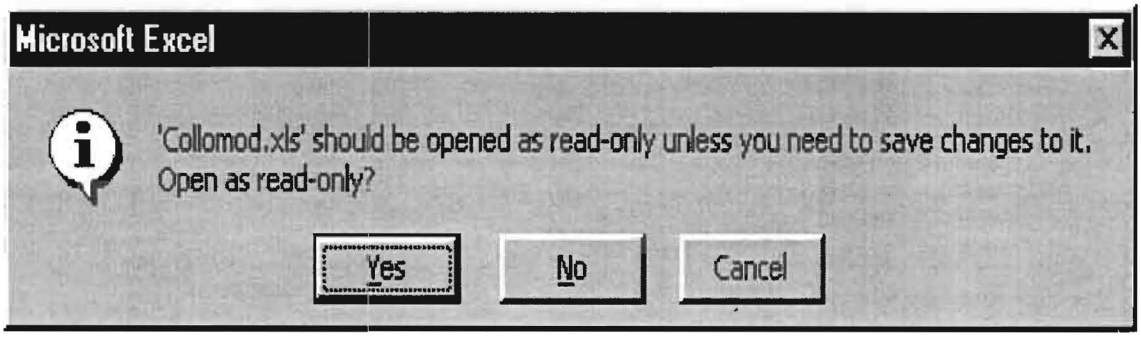
The Cost Model is a Microsoft Excel-based program that has been developed by MCI and AT&T for the purpose of estimating the forward-looking economic costs of physical collocation. The Cost Model's calculations are contained in a single Microsoft Excel 7.0 workbook. Microsoft Excel's auditing tools allow the user to determine relationships between the Cost Model's various inputs and outputs.

SYSTEM REQUIREMENTS

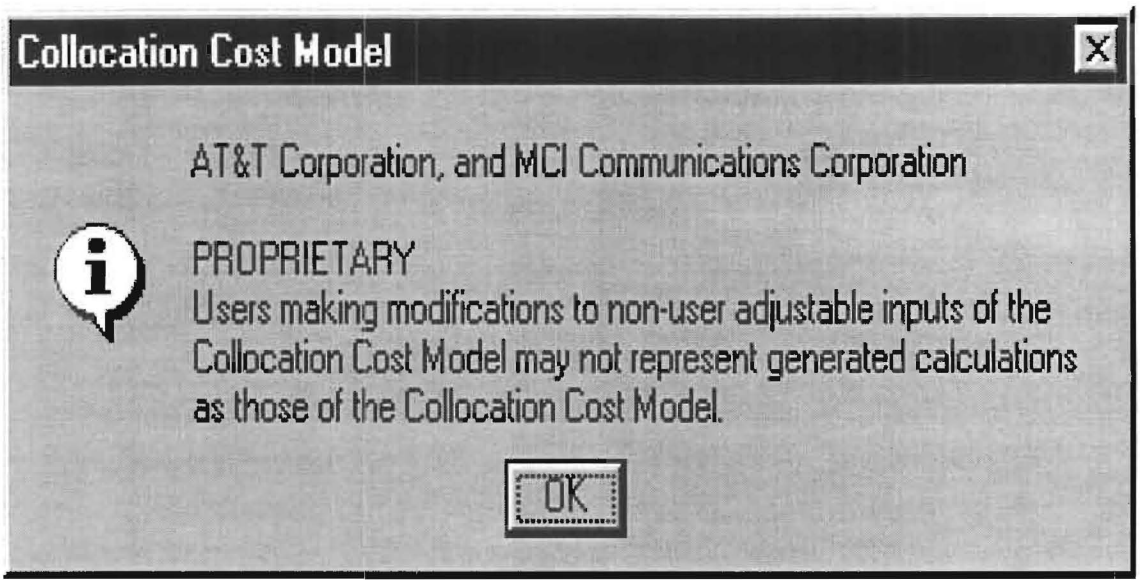
The Cost Model can be run on any personal computer operating with Microsoft Windows 95 and Microsoft Excel 7.0. The Cost Model requires no external data base and is ready for use once copied to the user's hard drive. *See* the Microsoft Windows 95 User's Guide for more information on copying and moving files and how to create folders in which to save your work. *See* the Microsoft Excel 7.0 Users Guide User's Guide for more information on how to open a file, invoke commands, and save a file.

STARTING THE COST MODEL

To begin using the Cost Model, open the file named COLLOMOD.XLS directly from your hard drive or from within Excel. The user is first presented with a dialog box (depicted below) requesting the user to select whether the file should be opened as a read-only file. The user is strongly advised to select yes in order to preserve the integrity of the original file and to avoid overwriting the file contents. Sensitivity and what-if analyses can be completed with quick turnaround - - the user merely saves the workbook with a new name for scenario control.



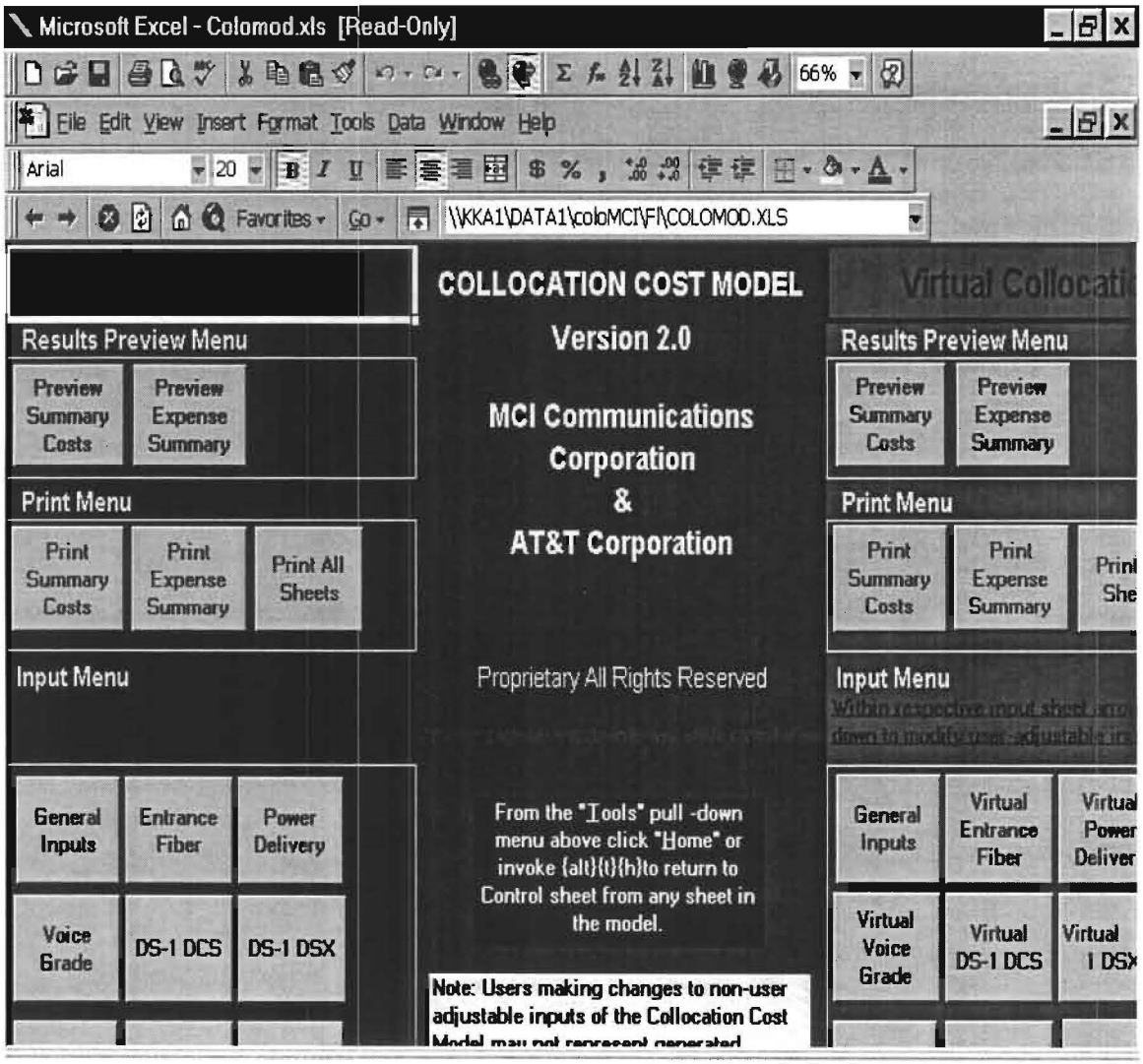
Following the initial dialog box, the user is presented with a second dialog box (depicted below) that indicates the Proprietary status of the Cost Model. The user must acknowledge the scripted message by selecting OK to proceed.



COST MODEL INTERFACE

Next, the user is presented with the Cost Model's Control screen (depicted below), which is the Cost Model's graphical user interface. The Control screen has a series of gray Buttons that provide automated commands to assist the user. The use of programming code and macros allows the Cost Model to run with only limited user intervention. The simplified push-button interface enables the user to either move directly to the various user-adjustable input areas within the different element input sheets, preview results of changes to the Cost Model's user-adjustable inputs, or print pre-defined sheets from the Cost Model.

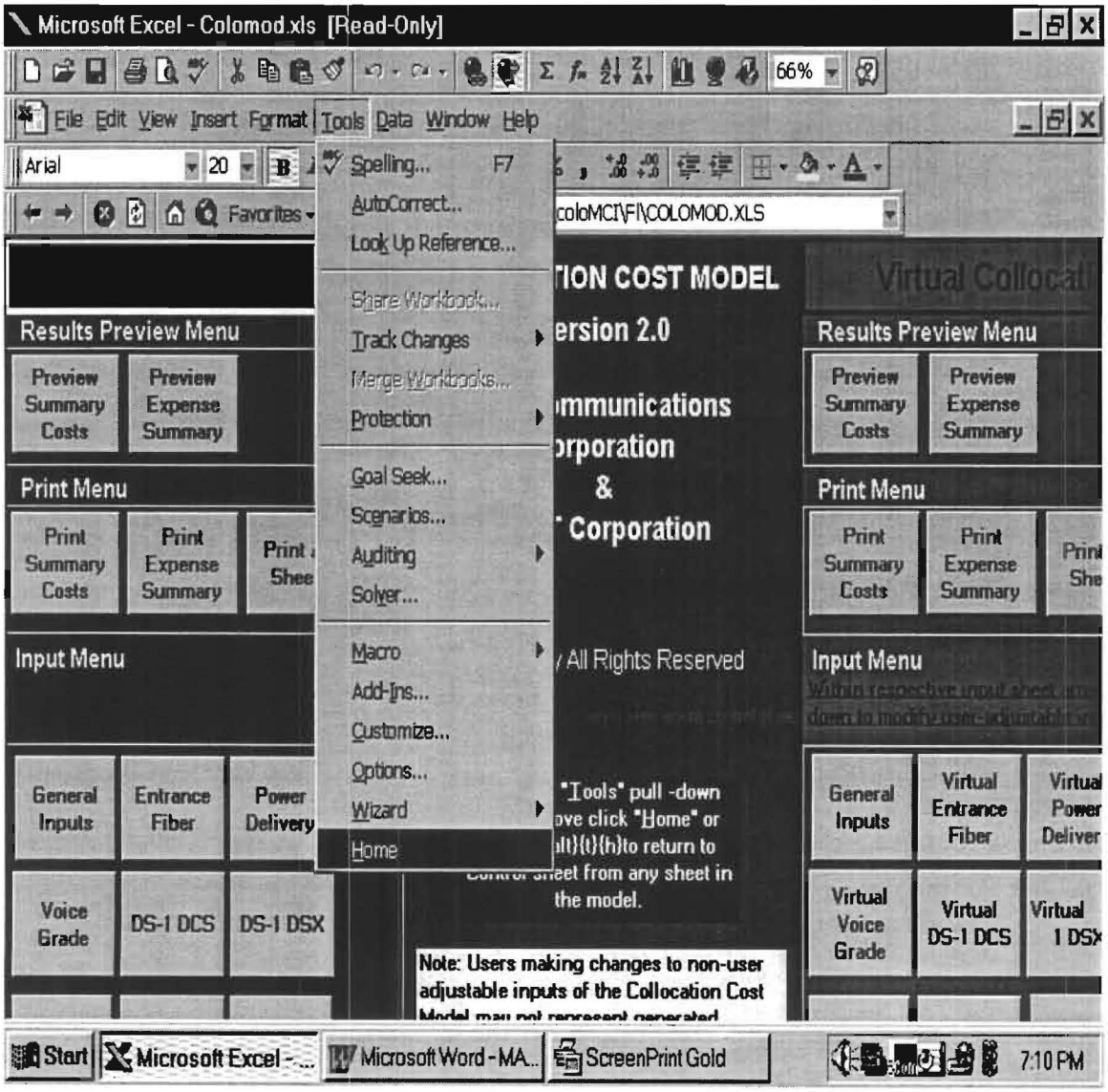
CONTROL SHEET



PROGRAM CONTROL

To return to the Control sheet from any other sheet in the Cost Model, simply click on the Home selection from the Tools pull-down menu from any sheet in the workbook as depicted below or invoke the key strokes {Alt}{T}{H}.

HOME COMMAND TO RETURN TO CONTROL SHEET



ENDING A SESSION

To end a session and save work, select the File pull-down menu and select Save As. Enter a new file name and select the desired folder on the hard drive in which to save the file in the dialog box presented. If the user attempts to close the file or exit the program before saving the file with a new name, Excel will prompt the user, asking if the user wishes to save the changes to the file -- but only if yes was selected at program start-up when the user was confronted with the read-only dialog box. Select yes to save changes and Excel will present the user with a dialog box reminder that the original file is read-only to which the user should select OK. Finally, Excel will present the user with the save as dialog box allowing the user to enter a new file name and to select the desired folder in which to save the file.

Summary of Collocation Cost Model - Virtual Collocation **Florida**
Version 2.0 **SOUTHERN BELL TELEPHONE CO.**

Virtual Collocation	Non-Recurring	Monthly Recurring	Unit (If Not Total)	Remarks
Planning	$4,220.74		Per Request	Manpower Required Per CLEC Request
Land & Buildings		$8.62	Per 1/4 of Rack Floor Area and Common Area	$3.82 Per Sq. Ft. per month Land & Building Cost times Sq. Ft. allocation resulting from 9 Sq. Ft. multiplied by 0.25 =2.25Sq. Ft.
Relay Rack		$2.03	Per 1/4 of Rack	Relay rack charge for 1/4 rack space
Entrance Fiber	$987.39			Cable Installation, Splice, and Pull
		$12.10	Per Cable	Cable Hole, Rack, and Occupancy Charges
Power Delivery		$0.06	Cable Rack A	15" Existing Cable Rack
Power Consumption				
DC Plant		$3.92	Per Amp	BDFB, Batteries, Rectifiers, Generator, etc.
AC Usage		$2.03	Per Amp	Monthly AC Rate Per DC Amp
Voice Grade Circuits		$4.98	Per 100 Ckt	Hole, Rack, and MDF
DS - 1 Circuits				
Connection to DCS		$226.51	Per 28 Ckt	Rack, Hole, and DCS
Connection to DSX		$11.17	Per 28 Ckt	Rack, Hole, and DSX
DS - 3 Circuits				
Connection to DCS		$56.80	Per 1 Ckt	Rack, Hole, and DCS
Connection to DSX		$9.80	Per 1 Ckt	Rack, Hole, and DSX
Optical Circuits		$6.43	Per Cable	Rack, Hole, and DCS
Virtual to Virtual Connection				
Cable Racking for Fiber		$0.19	Per Cable	12" Ladder Rack, 221 Breakout (for 12 fiber optical cable),
Cable Racking for DS1 or DS3		$0.15	Per Cable	20" Ladder Rack, 734 Type or ABAM (for DS1 or DS3 circuit)

Equipment Maintenance and Security Escort

CENTRAL OFFICE TYPE	Initial Charge (Hours)	Subsequent Charge (Hours)		
Staffed and Attended	0.25	0.25	Per Request, Response Time 1 Hour	Equipment Maintenance Labor Rate (NTEC) =$ 41.97 per hour. Security Escort Labor Rate(FMAC) =$ 41.97 per hour.
Staffed and Unattended	4.00	0.25	Per Request, Response Time 4 Hours	Equipment Maintenance Labor Rate (NTEC) =$ 41.97 per hour. Security Escort Labor Rate(FMAC) =$ 41.97 per hour.
Not staffed and Normal Business Day	0.25	0.25	Per Request, Response Time 2 Hours	Equipment Maintenance Labor Rate (NTEC) =$ 41.97 per hour. Security Escort Labor Rate(FMAC) =$ 41.97 per hour.
Not staffed and Non-Normal Business Day	4.00	0.25	Per Request, Response Time 4 Hours	Equipment Maintenance Labor Rate (NTEC) =$ 41.97 per hour. Security Escort Labor Rate(FMAC) =$ 41.97 per hour.

Entrance Fiber Structure Tariff

		Monthly Recurring		
Structure Charge		$0.0156	Per Ft Innerduct	State Specific, Subject to Negotiated/Tariffed Provisions

Summary of Collocation Cost Model - Physical Collocation
Version 2.0

Florida

SOUTHERN BELL TELEPHONE CO.

Cage Construction	Non-Recurring	Monthly Recurring	Unit (If Not Total)	Remarks
Planning	$3,325.43			Manpower Required Per CLEC Request
		$15.13		Manpower for Planning Initial Collocation Building Modifications
Grounding		$4.05		Total Cost of Equipment Grounding
Cage Preparation		$103.52	Per 100 Sq. Ft Cage	Elements involved in the physical construction of the Cage, costed for the 100 Sq. Ft Cage and one fourth of the 150 Sq. Ft Common Area
Land & Buildings		$526.51	Per 100 Sq. Ft Cage	$3.82 Per Sq. Ft per month Land & Building Cost times 137.5 Sq. Ft allocation resulting from 100 Sq. Ft Cage and one fourth of 150 Sq. Ft Common Area.
Cable Racking		$20.66		Total Cost includes 20" Rack at 5' and 20' lengths from Connectivity, 12" Rack at 5' and 20' lengths from Entrance Fiber, and 15"x5' Rack from Power Delivery.
Entrance Fiber	$1,081.43			Cable Installation, Splice, and Pull
		$2.46	Per Cable	Cable Hole, Rack, and Occupancy Charges
Power Delivery	$160.37		Per 40 Amp	Includes 20 Amp A and B Feed, plus 2 Battery Returns
	$209.18		Per 100 Amp	Includes 50 Amp A and B Feed, plus 2 Battery Returns
	$272.63		Per 200 Amp	Includes 100 Amp A and B Feed, plus 2 Battery Returns
Power Consumption				
DC Plant		$3.97	Per Amp	BDFB, Batteries, Rectifiers, Generator, etc.
AC Usage		$2.03	Per Amp	Monthly AC Rate Per DC Amp
Voice Grade Circuits				
Connection to MDF	$879.58		Per 100 Ckt	Cable and Horizontal Terminal strips
		$4.98	Per 100 Ckt	Hole, Rack, and MDF
DS - 1 Circuits				
Connection to DCS	$1,335.66		Per 28 Ckt	Cable
		$226.51	Per 28 Ckt	Rack, Hole, and DCS
Connection to DSX	$1,335.66		Per 28 Ckt	Cable
		$11.17	Per 28 Ckt	Rack, Hole, and DSX
DS - 3 Circuits				
Connection to DCS	$341.31		Per 1 Ckt	Cable
		$56.80	Per 1 Ckt	Rack, Hole, and DCS
Connection to DSX	$341.31		Per 1 Ckt	Cable
		$9.80	Per 1 Ckt	Rack, Hole, and DSX
Optical Circuits				
Connection to FDF	$2,464.06		Per Cable	12 Fiber breakout cable
		$6.43	Per Cable	Rack, Hole, and DCS

Security Access	Non-Recurring			
Security Access Cards	$87.16		Per Request	Request assumes 5 Security Access Cards at $15 per card.

Entrance Fiber Structure Tariff				
		Monthly Recurring		
Structure Charge		$0.0156	Per Ft Innerduct	State Specific, Subject to Negotiated/Tariffed Provisions