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RECORDS AND REPORTING

August 3, 1998

Mrs. Blanca S. Bayó
Director, Division of Records and Reporting
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, FL 32399-0850

Re: Docket No. 980696-TP (HB4785) Universal Service

Dear Ms. Bayó:

Enclosed is an original and fifteen copies of BellSouth Telecommunications, Inc.'s Direct Testimony of Dr. Randall S. Billingsley, Dr. Robert M. Bowman, D. Daonne Caldwell, G. David Cunningham, Dr. Keven Duffy-Deno and Petor F. Martin, which we ask that you file in the captioned matter.

A copy of this letter is enclosed. Please mark it to indicate that the original was filed and return the copy to me. Copies have been served to the parties shown on the attached Certificate of Service.

RECEIVED & FILED

FPSC-BUREAU OF RECORDS

Sincerely,

Nancy B. White

Nancy B. White

NBW/vf

cc: All parties of record
A. M. Lombardo
R. G. Beatty
William J. Ellenberg II

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EAG ___
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Billingsley
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Bowman
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Caldwell
DOCUMENT NUMBER-DATE 08177 AUG-3 98 FPSC-RECORDS/REPORTING

Cunningham
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Duffy-Deno
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Martin
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CERTIFICATE OF SERVICE
DOCKET NO. 980696-TP (HB4785)

I HEREBY CERTIFY that a true and correct copy of the foregoing was served via Federal Express this 3rd day of August, 1998 to the following:

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(+) Protective Agreements

ORIGINAL

BELLSOUTH TELECOMMUNICATIONS, INC.

DIRECT TESTIMONY OF D. DAONNE CALDWELL

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

DOCKET NO. 980696-TP

AUGUST 3, 1998

Q. Please state your name, occupation and address.

A. My name is D. Daonne Caldwell. I am a Director in the Finance Department of BellSouth Telecommunications, Inc. (hereinafter referred to as "BellSouth" or "the Company"). My area of responsibility relates to economic costs. My business address is 675 W. Peachtree St., N.E., Atlanta, Georgia, 30375.

Q. Please state your professional experience and education related to the issues in this proceeding?

A. I joined South Central Bell in 1976 in the Tupelo, Mississippi, Engineering Department where I was responsible for Outside Plant Planning. In 1983, I transferred to BellSouth Services, Inc. in Birmingham, Alabama, and was responsible for the Centralized Results System Database. I moved to the Pricing and Economics Department in 1984 where I developed methodology for service cost studies until 1986 when I accepted a rotational assignment with Bell Communications Research, Inc. (Bellcore). While at Bellcore, I was responsible for development and instruction of the

Service Cost Studies Curriculum including courses such as "Concepts of Service Cost Studies", "Network Service Costs", "Nonrecurring Costs", and "Cost Studies for New Technologies". In 1990, I returned to BellSouth and was appointed to a position in the cost organization, which is now a part of the Finance Department, with the responsibility of managing the development of cost studies for transport facilities, both loop and interoffice. Since mid-1996, I have been dedicated to reviewing BellSouth's cost methodology and cost study results.

I attended the University of Mississippi, graduating with a Master of Science Degree in mathematics. I have attended numerous Bellcore courses and outside seminars relating to service cost studies and economic principles.

Q. Please state your relevant experience in testifying.

A. I have testified in each of the nine BellSouth states in the local competition dockets, including arbitration dockets and/or generic cost dockets. Additionally, I have testified in Alabama, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina and Tennessee in universal service hearings. My extensive involvement in these dockets has provided me with the opportunity to evaluate numerous cost models and methodologies used by BellSouth and other parties to estimate the cost of providing unbundled network elements and universal service.

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to explain and support the cost inputs used in the Benchmark Cost Proxy Model 3.1 (BCPM 3.1) by BellSouth to develop universal service costs for Florida. Further, I will explain why these inputs are appropriate to use and show why the inputs I recommend produce more realistic results than other parties' inputs. I will also address Issue 4 of Order No. PSC-98-1008-PCO-TP, Issued July 24, 1998.

The universal service cost proxy model selected in this proceeding must accurately determine the cost an efficient carrier would incur in providing universal service to high cost areas in the state of Florida. In this regard, Dr. Duffy-Deno's, Dr. Bowman's and Mr. Martin's testimonies discuss the reasons this Commission should select the BCPM 3.1 as the model to be used to determine the cost of universal service in Florida. As I have stated previously, my testimony explains why BellSouth's inputs, used in conjunction with the BCPM 3.1, enable the Commission to determine the appropriate costs of universal service in Florida.

BellSouth conducted a study utilizing BCPM 3.1 and BellSouth-specific inputs for Florida. The results from that study, supporting documentation and data, and a CD-ROM are submitted as Exhibit DDC-1 attached to this testimony.

Q. What are the appropriate inputs to be used in determining the costs of universal service?

A. In accordance with the Federal Communications Commission's (FCC's) Universal Service Order, only inputs reflective of forward-looking economic costs should be used to determine the costs of providing universal service. Additionally, in order to accurately determine costs representative of providing service in high cost areas in the state of Florida the inputs must be as specific as possible. The inputs contained in Exhibit DDC-1 meet both these criteria; they are forward-looking and they reflect BellSouth's provisioning practices and costs in Florida.

Q. Should Universal Service cost studies be company specific or generic?

A. The cost study approach, i.e. the underlying model used to process the input data, should be generic. A generic cost proxy model determines the costs of a network designed to serve existing customer locations, assuming existing wire center locations, without regard to the specific company serving the area. The model can be used, with the appropriate inputs, to identify the costs an efficient provider would incur to provide universal service in Florida, specifically in the high cost areas of the state. Furthermore, Florida Statutes, Section 364.025 requires the Commission to determine "the total forward-looking cost, based upon the most recent commercially available technology and equipment and generally accepted design and placement principles, of providing basic local telecommunications service on a basis no greater than a wire center basis using a cost proxy model to be selected by the commission...".

Q. Are BellSouth's universal service cost estimates based on national default input values or BellSouth-specific values?

A. In contrast to the model itself, the inputs to the model should be company-specific by territory. For example, BellSouth inputs should be used to calculate universal service costs in BellSouth's territory in Florida. BellSouth is a large, efficient provider of quality telecommunications service in this state and its cost inputs reflect economies of scale and vendor discounts that an efficient provider would be expected to achieve on a going forward basis. Additionally, BellSouth has experience providing service in the high cost areas that are identified by the cost proxy model.

Even though we are dealing with a hypothetical network designed by a cost proxy model, the cost of that network should be as real world as possible. That is, it should reflect the costs of an efficient provider building and operating that network. The inputs used by BellSouth reflect the most accurate view of conditions and experiences that an efficient carrier would experience in providing universal service in BellSouth territory in Florida.

The national default values of both the Hatfield Model and BCPM are not necessarily reflective of the costs of providing service in Florida. Instead, these defaults are designed to represent an average cost across the nation. Since the purpose of this proceeding is to determine the costs of providing service in rural, insular, and high cost areas of Florida, it makes no sense to use only national average inputs which tend to equalize the costs in all areas.

BellSouth has used, whenever possible, Florida-specific cost inputs which reflect the forward-looking cost of providing service in BellSouth territory in Florida. These input values include BellSouth specific costs for cable, structures, switches and other network components of universal service. BellSouth reviewed the BCPM 3.1 default inputs. Defaults which were found to be representative of BellSouth's Florida costs, were used when BellSouth-specific data was not available in the format, or at the level of detail, required by the BCPM 3.1.

We recommend to the Commission that the BCPM 3.1 with the values included in BellSouth's filing be used to determine the cost of universal service for BellSouth's Florida territory.

Q. Please list the categories of inputs for which BellSouth used BellSouth-specific values rather than BCPM 3.1 default values.

A. BellSouth-specific input values were used for the following categories of cost inputs:

Category 1 - contractor costs of placing cable, conduit and poles

Category 2 - sharing percentage associated with structures

Category 3 - cable material and labor unit costs

Category 4 - cable sizing/utilization

Category 5 – drop terminal cost

Category 6 - feeder/distribution interface costs

Category 7 - switch costs

Category 8 - interoffice transport and signaling costs

Category 9 - network interface device and drop costs

Category 10 - land and building loading factors

Category 11 - depreciation lives, survivor curves and net salvage percentages

Category 12 - cost of capital

Category 13 - actual wire center line count

Category 14 - expenses and support assets

Category 15 – taxes

Q. What are the major categories of inputs in BCPM 3.1?

A. Following is a list of major user input groups which significantly impact the BCPM 3.1 cost results. Additionally, the cost category and issue numbers, as designated by the commission order, are indicated in the parentheses for reference.

Network Interface Device (NID) and Drop (Category 9, Issues 4j and 4k)

Terminal Investment (Material plus Engineering and Installation Costs) (Categories 5 and 6, Issue 4n)

Distribution Investment (Material plus Engineering and Installation Costs) (Category 3, Issue 4i)

Copper Feeder Investment (Material plus Engineering and Installation Costs) (Category 3, Issue 4i)

Fiber Feeder Investment (Material plus Engineering and Installation Costs) (Category 3, Issue 4h)

Structure Costs (Category 1, Issues 4d and 4g)

Structure Sharing (Category 2, Issue 4e)

Copper and Fiber Fill Factors (Category 4, Issue 4f)

Digital Loop Carrier (DLC) Investment (Issue 4m)

Interoffice Investment (Category 8, Issues 4q and 4r)

Central Office Switching Investment (Material plus Engineering and Installation Costs and Switch Traffic Characteristics) (Category 7, Issues 4o and 4p)

Expense Factors (Category 14, Issue 4s)

Cost of Capital (Category 12, Issue 4b)

Depreciation Lives (Category 11, Issue 4a)

Q. Are BellSouth's BCPM 3.1 studies and input values reflective of forward-looking costs?

A. Yes. All inputs used by BellSouth are designed to represent forward-looking costs. BellSouth used current material prices, labor costs, and contractor costs that are adjusted by Telephone Plant Indices (TPIs) to reflect 1998-2000 costs. In certain plant accounts, the TPIs add inflation estimates to the costs. However, in other accounts, the TPIs actually result in lower costs when material prices are forecasted to decline in a particular type of telephone plant. The use of BCPM's forward-looking network designs combined with forward-looking 1998-2000 input values, definitely produce forward-looking results.

Q. How were Digital Loop Carrier (Issue 4m) inputs developed?

A. BellSouth's Network experts reviewed the BCPM 3.1 default inputs and found them to be reasonable and reflective of BellSouth's operation in Florida. Additionally, BellSouth does not deploy systems less than 96 lines and therefore, had no data on small systems. Thus, the default inputs were used in this filing.

Q. How were BellSouth's contractor costs and structure sharing percentages inputs (Categories 1 and 2) developed?

A. BellSouth's structure placement costs (contractor costs) for placing conduit, trenching/plowing buried cable, and placing poles are based on an average of the 10 existing BellSouth contracts with outside plant contractors in Florida. These 10 contracts cover the entire BellSouth territory in Florida. BellSouth also used BellSouth-specific inputs from these contracts for the costs for manholes and handholes in Florida.

BellSouth does not have data that identifies the percentage of time associated with each activity in the structure tables. Therefore, BellSouth Network experts reviewed the BCPM defaults. Since these experts found the values to be reasonable and representative of BellSouth's operations in Florida, the defaults were used.

BellSouth used structure sharing percentages that are BellSouth-specific values representative of BellSouth's sharing arrangements in Florida.

BellSouth is a large efficient provider of telecommunications services in Florida. Thus, BellSouth-specific investments and installation costs, as well as structure sharing arrangements reflect economies of scale that an efficient provider would be able to expect to achieve on a going- forward basis.

Q. How were BellSouth's cable costs inputs (Category 3) developed for BCPM 3.1?

A. BellSouth used BellSouth-specific costs for both copper and fiber cable. Material prices for copper and fiber cable were obtained from procurement records that reflect actual BellSouth purchase prices and contractual agreements. As previously explained, future inflation trends (TPIs) were also taken into consideration in order to reflect forward-looking costs. Telephone company engineering and labor costs were derived from BellSouth's Florida in-plant loading factors. In-plant factors convert material prices to a Florida-specific installed investment (less contractor costs that are handled separately in the structure tables of BCPM 3.1). BellSouth-specific cable costs reflect economies of scale and vendor prices that an efficient provider would be able to expect to achieve on a going forward basis.

Q. How was the outside plant mix (Issue 4l) determined for BCPM 3.1?

A. BellSouth analyzed the BCPM 3.1 default values at the wire center level. The distribution between aerial, buried, and underground placement was found to be reasonable. Thus, the BCPM 3.1 defaults were used.

Q. What utilization factors (Category 4) are included in BellSouth's BCPM 3.1 study?

A. Universal service costs should be based on a forward-looking projection of actual utilization. BCPM 3.1 determines the network design required to provide quality service to an area, calculates the cost of that network, and then determines a cost per line based on the number of lines served by the network. Thus, BCPM 3.1 uses an actual, or average, utilization to determine universal service costs. BCPM 3.1 requires a cable sizing factor input which, along with standard cable sizes and number of distribution pairs per housing unit, is used to determine distribution cable requirements. BellSouth used a distribution cable sizing factor of 100% and 2 distribution pairs per housing unit to size distribution cable. These factors are designed to produce a fill representative of BellSouth's projection of actual fill, based on experience over time, for Florida. The feeder cable sizing factor is designed to produce a fill for feeder cable representative of the projection of actual fill of copper feeder plant experienced in Florida over time. The cable sizing factors are located in Exhibit DDC-1 Bates Stamp 000244.

Q. Please explain BellSouth's BCPM 3.1 input values for drop terminal and feeder distribution interface costs (Categories 5 and 6)?

A. BellSouth's drop terminal costs for line sizes below 100 pairs are included as exempt material in the in-plant factors used to develop the installed investments of cable. Therefore, terminal costs are not included in BellSouth's BCPM 3.1 study as a separate input. BellSouth used BellSouth-specific feeder distribution interface costs to reflect BellSouth's costs in Florida. The material prices were obtained from procurement records and were adjusted for inflation. The engineering and labor costs were developed from Florida-specific in-plant factors. As previously explained, the in-plant factor converts material prices to installed investments.

Q. How were BellSouth switch cost inputs (Category 7) developed?

A. BellSouth Florida-specific analyses were used to provide the detailed data for wire centers in the state. State-specific information on calling rates, usage rates, loading factors and host/remote characteristics were used along with company average data and line counts that are consistent with data generated from other BCPM modules. ARMIS data was used for items such as percentages of residence, business, local and toll traffic.

Q. How were BellSouth's interoffice transport and signaling cost inputs (Category 8) developed?

A. Transport costs are determined from the BCPM interoffice transport module. This module incorporates the forward-looking Synchronous Optical Network (SONET) ring architecture in determining network design and subsequent costs. Inputs to this module reflect BellSouth-specific costs for Florida. They include fill factors, SONET material prices, number of nodes on a ring, air-to-route factor, the mix of aerial, underground and buried fiber in the interoffice transport.

Signaling costs are determined in BCPM 3.1 based upon two investments for signaling; investment per line for residence and investment per line for business. Default values were found to be representative of BellSouth's forward-looking signaling costs.

Q. Please describe how network interface device (NID) and drop inputs (Category 9) were developed?

A. BellSouth used BellSouth-specific costs for the material, travel, and installation labor associated with the NID and the drop in BCPM 3.1. These costs are based on material prices for equipment/material and BellSouth's expertise and experience in placing the equipment/material. The costs represent the costs an efficient provider would be able to expect to achieve on a going-forward basis. The model, through internal calculations determines the appropriate drop length.

Q. Did BellSouth use BCPM 3.1 default input values for land and building factors (Category 10)?

A. No. BellSouth-specific land and building loading factors were used which reflect the relationship between equipment investment and its associated land and building investments as they occur in Florida. Since these factors are calculated from BellSouth's accounting records and the projected view of BellSouth's future additions in these accounts, these values reflect land and building costs that an efficient provider would be able to expect to achieve on a going forward basis.

Q. Should forward-looking economic costs reflect prescribed depreciation lives (Category 11)?

A. No. The appropriate lives to use in depreciation calculations in a forward-looking cost study are economic lives, as opposed to prescribed lives. Economic lives reflect the useful, or revenue-producing, life of an item of plant and are appropriate for use in economic cost studies to ensure that costs are recovered over a time period equal to the revenue-producing life of the plant. BellSouth witness David Cunningham is filing direct testimony that provides support for the proposed depreciation parameters used in BellSouth's BCPM 3.1 study. Therefore, BellSouth recommends that the Commission use the projected economic lives and net salvage percentages proposed by BellSouth in its study.

Q. What cost of capital (Category 12) did BellSouth use in the determination of universal service costs?

A. BellSouth used a cost of capital of 11.25% that reflects forward-looking expectations of the debt rate, cost of equity, and debt/equity ratio. BellSouth witness Dr. Randall Billingsley is filing direct testimony that supports these inputs.

Q. Does the BCPM 3.1 meet the criteria of the FCC that requires "wire center line counts should equal actual ILEC wire center line counts" (Category 13)?

A. Yes. BellSouth's filing is based on actual line counts by wire center as of December 31, 1997.

Q. Did BellSouth use default support investments and operating expenses from BCPM 3.1 (Category 14)?

A. No. BellSouth developed BellSouth-specific support investment ratios for input into BCPM 3.1 and also developed BellSouth-specific expenses using 1998-2000 period total regulated expenses.

Q. How does BCPM 3.1 handle expenses?

A. Expenses are handled in BCPM 3.1 in two ways. Certain categories of expenses, including retail expenses, are expressed on a per line basis using 1998 -2000 projected lines. However, the other category of expenses is directly related to investments (e.g., copper cable expenses). These expenses are calculated based on BellSouth plant-specific expense factors specific to Florida.

Q. How did BellSouth determine the expenses for BCPM 3.1?

A. The plant-specific expenses consist mainly of maintenance expenses. These types of expenses are considered to be causally related to investment and are developed from three years of projected expense data relative to the same period projections for investment. The result is an expense per dollar of investment for these plant-specific expense accounts. Non-plant specific expenses, such as Network Operations and

Executive and Planning, are not causally related to investment. These expenses are determined on per line per month basis using projected forward-looking expenses and projected number of lines to derive an expense per line.

Q. What tax factors (Category 15, Issue 4c) did BellSouth use for BCPM 3.1?

A. BellSouth has input Florida-specific tax rates for the following categories; effective federal tax rate, state tax rate, ad valorem, and other taxes (e.g. gross receipts tax).

Q. Please summarize your testimony.

A. BellSouth has entered inputs in BCPM 3.1 that reflect the costs BellSouth will incur to provide universal service in Florida. Costs for structures, cable, and other components of the network reflect BellSouth contract prices with vendors, including discounts provided to BellSouth as a large telecommunications carrier. Installation and engineering costs are based on actual experience by BellSouth network personnel. These inputs are reflective of costs that a large, efficient telecommunications carrier would expect to achieve on a going-forward basis. We therefore recommend to the Commission that the BCPM 3.1 with the input values included in BellSouth's filing be used to determine the cost of universal service in BellSouth's territory in Florida.

Q. Does this conclude your testimony?

A. Yes.

BellSouth Telecommunications, Inc.
FPSC Docket No. 980696-TP
Exhibit DDC-1

Benchmark Cost Proxy Model

Version 3.1

User Manual
PRELIMINARY

Table of Contents

Benchmark Cost Proxy Model
Version 3.1

User Manual – Preliminary

About BCPM

The Benchmark Cost Proxy Model or BCPM is a computer model designed to estimate benchmark costs for providing business and residential basic local telephone service nationwide. It is based in Microsoft Excel with a user interface developed in Visual Basic for Applications.

About this Manual

This manual is intended to help users of BCPM operate the model. It covers how to install the program, view and modify inputs, generate reports, create new configurations, review calculations, print reports, etc. A separate *System Manual* provides system flowcharts, model logic, and changes from earlier versions.

For information regarding BCPM's approach to modeling the telephone network, see the document entitled *Model Methodology*.

Conventions

In this manual you will see different references. Different typefaces will be used separate those items from each other.

`File Names will be in Courier.`
Drop down menus will be set in Arial with the first character underlined.
Text to be typed will in italicized.
BUTTONS ARE CAPITALIZED AND BOLD.

Computer/Software Requirements

In order to install and process BCPM, you must ensure that your computer meets the following minimum computer requirements:

Microsoft Office 97 Professional
Pentium Processor 120 MHz (200 MHz – Recommended)
1 Gigabyte of Hard Drive Space for 52 state files
16 MB RAM (32 MB Recommended)
Microsoft Excel '97 with VB Data Access Objects

Installation

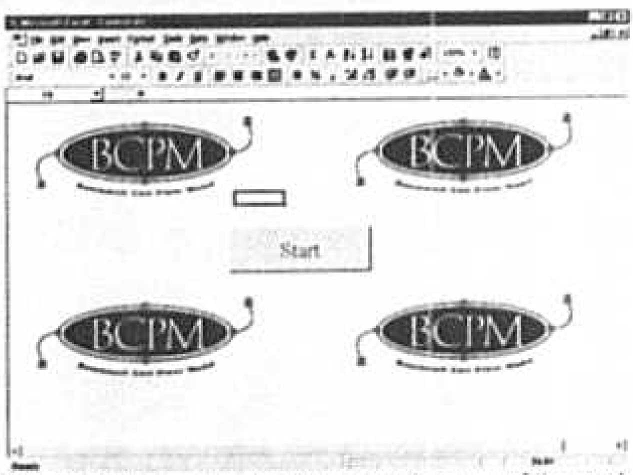
- BellSouth's BCPM 3.1 CD is simple to install. Place the CD in your CDROM drive, open Windows Explorer, and double click on the drive containing the CD. Then, double click on the Install file contained on the CD. Once the installation procedure begins, simply follow instructions to install BCPM 3.1 on your PC.

Web Download

- BCPM 3.1 can also be downloaded from the BCPM web page. However, BellSouth's proposed inputs are only available via the CD provided in this filing.
- Access the BCPM web page at **Error! Bookmark not defined.** to download the model.
- After you select a destination folder, a self-extracting installation file, named `bcpm3install.exe`, will be saved on your hard drive. Double click on it to begin the installation of BCPM.
- The installation program will display the license agreement. Accept it by clicking on the OK button.
- You will be prompted for an installation folder. The default is `C:\BCPM3`.
- After establishing the installation folder, the system will install the model. A progress bar is displayed.
- Once the installation is completed, you can start the model.

Getting Started

To start BCPM, double-click on the `Control.xls` file in the `\bpcm3` folder. Excel '97 will automatically open and display the following screen:



By clicking on the **START** button, you will open the main menu of the model shown below.

There are six buttons on the main menu screen: **EDIT VIEWS**, **INPUTS**, **PROCESS**, **REPORTS**, **REVIEW**, and **QUIT**.

The **EDIT VIEWS** button allows you to select the program modules and data sets used when the model is processed. You can select from the configurations or Views provided, or create a custom View. You also select the states for which you would like results.

The **INPUTS** button allows you to view and modify the global and state-specific data inputs.

The **PROCESS** button allows you to select which modules you would like to process (Loop, Transport, Switching, Signaling and Capcost). It also allows you to confirm the states and View you have selected.

The **REPORTS** button allows you to set report parameters and formats and generate reports.

The **REVIEW** button allows you to examine the calculations performed under the View you have selected or created.

The **QUIT** button returns you to the BCPM **START** screen. Select File, Exit from the Excel menu to end your session.

Edit Views

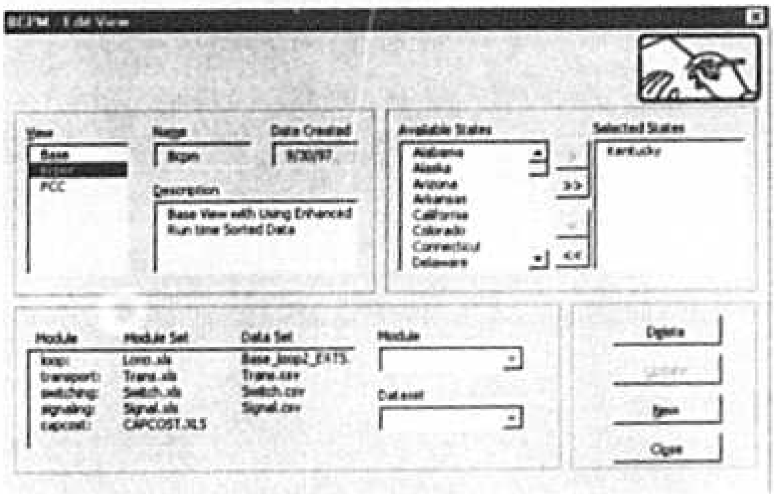
By allowing for various configurations or Views, BCPM allows the user to control the modules and data sets processed by the model. The user can create a custom View or use one of the default Views provided. The default Views are described below:

- BCPM View – BCPM sponsors'[1] default view
- BCPM 18K View – BCPM sponsors' default view incorporating FCC specification for 18K grids
- FCC View - BCPM sponsors' view for FCC depreciation lives and cost of money

[1] BCPM sponsors include BellSouth, Sprint, and US WEST.

- FCC 18K View – BCPM sponsors' view with FCC depreciation lives, cost of money and 18K grid specification

By selecting the **EDIT VIEWS** button from the main dialog box, you can see the module and data sets associated with each of the default Views, as shown below:



The four sections of the **EDIT VIEWS** window are described below:

Selecting Views

The top left window allows you to select a View to process. When you select a View, the date it was created and a description are displayed.

Selecting States

The states that could be processed and those selected are shown in the top right window. You can select a state by highlighting the state name and clicking the ">" button. To ensure all states are available under a particular view, select the ">>" button. To remove one or all of the states from the selected list, use the opposing arrow(s) buttons. Any combination of states can be associated with a particular view.

Modifying View Module or Data Sets

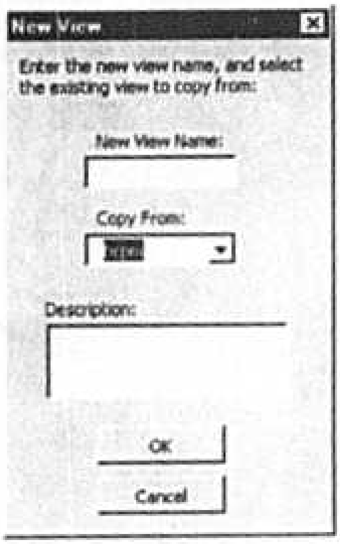
The bottom left window includes the existing setup of the View in table form. To change the module file or data set used, highlight the appropriate module and select the replacement module or data set from the corresponding drop down menus.

Modifying View Files

You can Delete a view, modify an existing view (Update), create a New view or Close in the dialog box in the bottom right window.

If you would like to edit data inputs, make sensitivity runs, or modify modules, it is recommended that you create a new View rather than modify an existing file.

When you click on the New button, you are presented with the following dialog box:

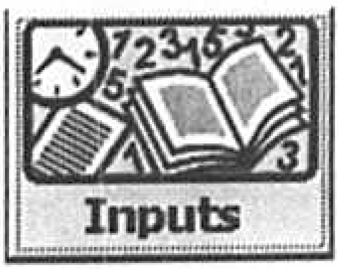


The New View dialog box asks you for a name, the existing view you wish to copy from, and a text description of the view you are creating. After you enter the information, click on the **OK** button and the system will create a new View. Then, you can select it from the View window as described above and modify the module set, data set, or states available for processing, as necessary. When you have completed your modifications, select Update to save your changes under the new View file name.

Once you have created a new View you can then modify inputs.

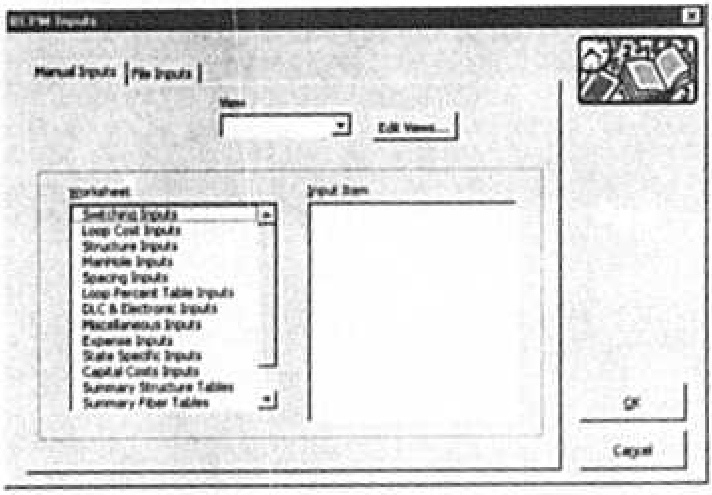
Changing Inputs

To change inputs, click on the **INPUTS** button in the main dialog box.

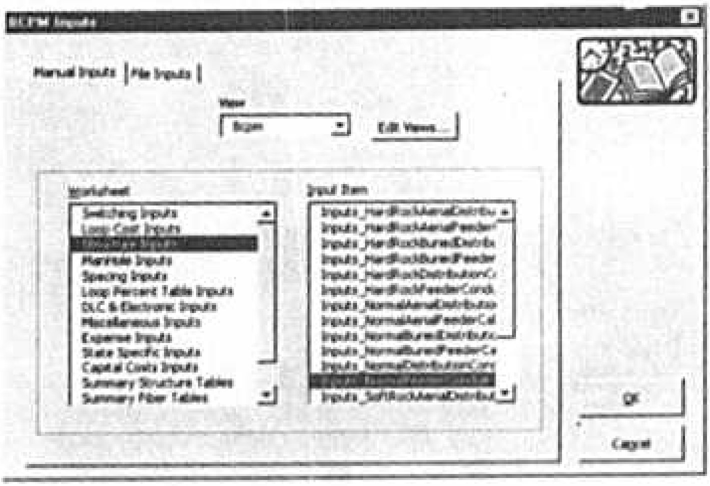


Manual Inputs

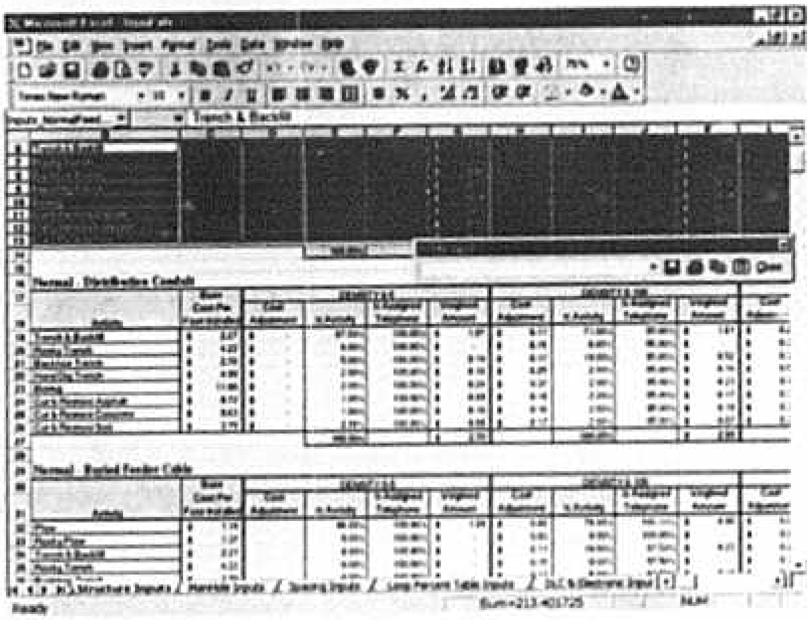
When you click on the **INPUTS** button you will see the Inputs Dialog Window. Click on the Manual Inputs tab on the top of the window. You will then see the Manual Inputs Dialog Window.



First, select the view that you want to edit. Then, in the worksheet box, highlight the type of inputs you would like to modify. A list of the input tables will appear. Select the specific inputs you wish to edit. Below is the screen that would appear if you chose to change the inputs relating to normal aerial cable in the BCPM View:

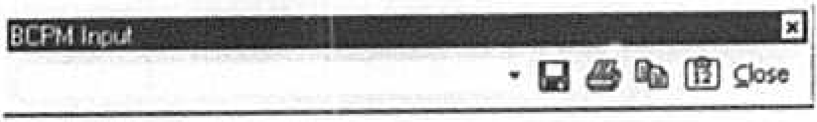


After highlighting the input you wish to change, click on the OK button. The system will run for approximately 30 seconds while it populates the worksheet and displays the appropriate table for editing (shown below).



SPECIAL NOTES

- It is important to notice the toolbar that BCPM 3.1 provides during editing.



- The BCPM Input toolbar allows you to **SAVE**, **PRINT**, **COPY**, **PASTE VALUES** and **Close**.
- Once you have made your data input changes, click on the **SAVE** button on the BCPM bar. **IF YOU DO NOT USE THIS TOOLBAR TO SAVE YOUR CHANGES THEY WILL NOT BE PROPERLY SAVED IN THE PROGRAM FILES.** Do not use the Microsoft Excel toolbar to save your file.
- Only change the items highlighted in blue. The model calculates the numbers in black.
- You may change other inputs in the Excel Workbook that you have opened without going back to the **INPUTS** dialog box. Click on the appropriate tab and scroll to the table you would like to change. Save your modifications using the BCPM Input toolbar. To end your editing session, click **CLOSE** on the BCPM Input toolbar; you will be prompted to save your work as you exit. Once you leave the **INPUTS** screen, click on the Cancel button to return to the main dialog box.
- Do not change the values in the summary tabs at the bottom of the worksheet. The summary tables are calculated by the model and are for viewing purposes only.

File Inputs

The File Inputs tab allows you to create state-specific data input files for line counts and switch investments by wire center. By creating these files, you can override the line counts and switching investments developed by BCPM. They will be used in model calculations regardless of the View that is selected.

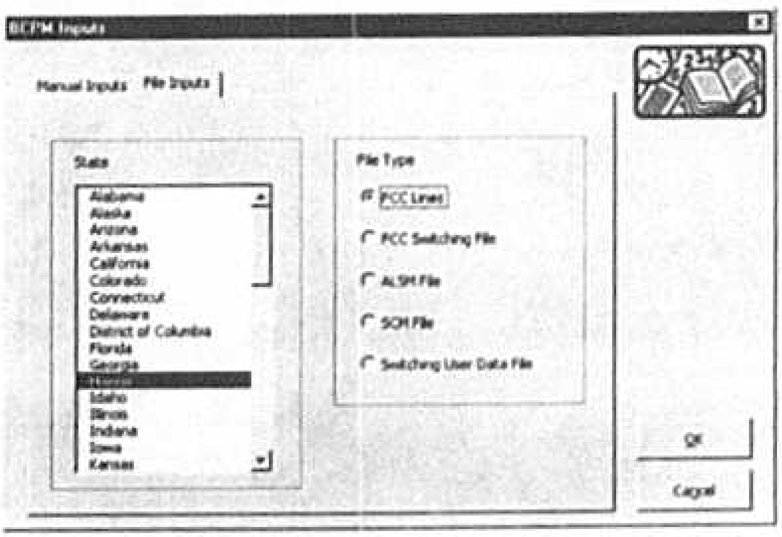
The data input files that you can populate are listed below:

FCC Lines	Includes line counts by wire center in a format matching FCC data requirements. BCPM will adjust grid line estimates at the wire center level to reflect the line counts entered.
FCC Switching File	Worksheet designed to incorporate FCC Switching investments by wire center.
ALSM	Worksheet formatted to allow ALSM (Audited LEC Switching Model) switching investments to be entered by wire center.
SCM	Worksheet formatted to allow SCM (Switching Cost Model) switching investments to be entered by wire center.
Switching User Data	Worksheet designed to allow switching investments from models not listed to be incorporated.

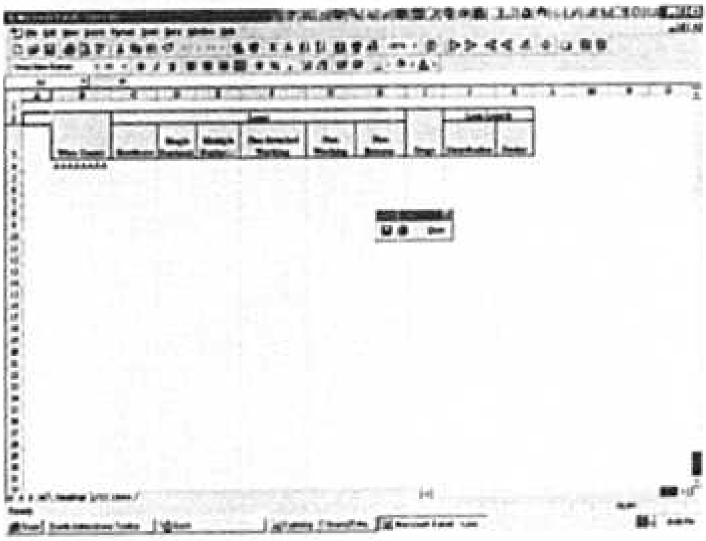
Changing File Inputs - FCC Lines

Below is the screen that is displayed when you click on the File Inputs tab:

To create or change a file, select a state and the type of file you wish to create. BCPM will open



the appropriate worksheet and you can enter the data inputs. The worksheet used for FCC Lines is shown below:



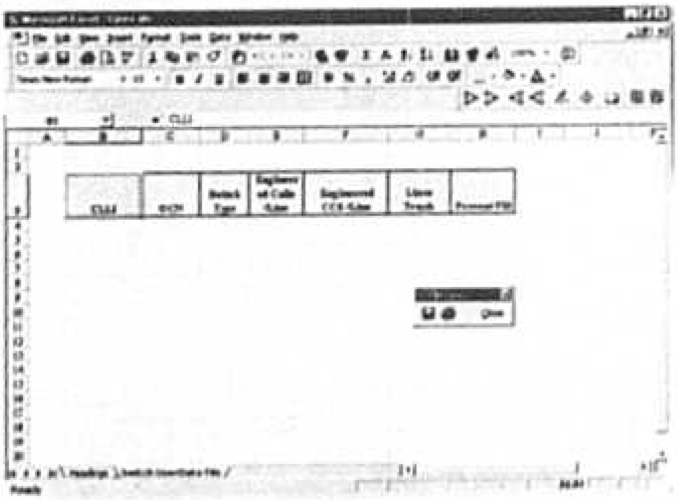
Enter the 8 digit code (not the 11 digit code) for the wire center and the actual lines counts for each column. Use the BCPM toolbar to save your entries.

SPECIAL NOTE

Regardless of the View selected, whenever the FCC Lines file is populated, line estimates will be adjusted at a wire center level to reflect the data entered.

Changing File Inputs - Switching Investments

Below the screen that will appear if you chose to create an alternate file for switching investments:



Once you have entered the switching investments by CLLI code, use the BCPM toolbar to save the file. Now, you can produce results by running the model.

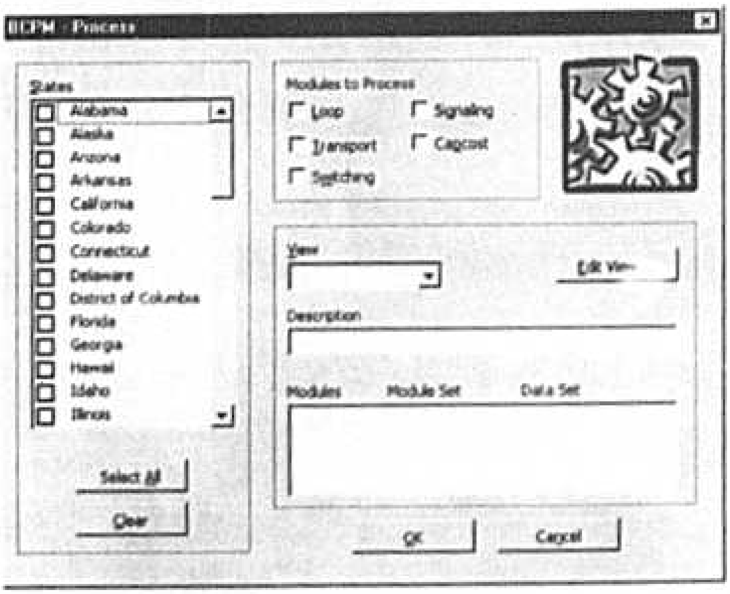
PROCESSING THE MODULES

The **PROCESS** step combines user specific inputs with grid data and BCPM logic to create proxy investment levels.

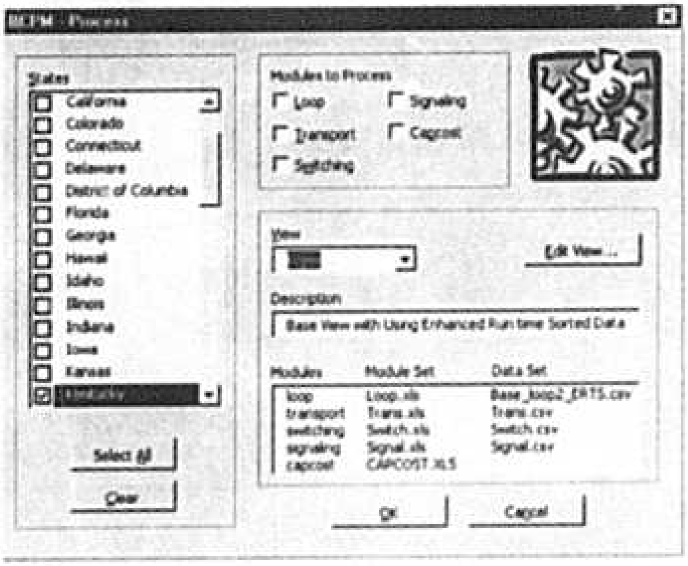
Note: The BCPM has been processed under the BCPM View before you received it. It is not necessary to process again to generate reports for the BCPM View. Select REPORTS to review the results calculated.

To run the model under a different view or with new user inputs, click the **PROCESS** button on the main dialog box (shown below).

The following dialog box will appear:



Select the appropriate View from the drop down menu to populate the **PROCESS** dialog box as shown below:



The View selection will automatically display the states that were associated with that particular view. Select the states you would like to process by clicking on the appropriate check boxes.

The Loop, Transport, and Switching Modules produce network investments. (Signaling investments are incorporated in the Reports Module; a separate module is not yet available.) The Capcost Module develops annual cost factors which are applied to investment in the Reports Module to determine depreciation, cost of money, and taxes. Select the modules you would like to process by selecting the associated check boxes.

After you have selected the states and modules to process, click on the **OK** button. The system will produce results in between 20 minutes to a few hours depending on your hardware setup.

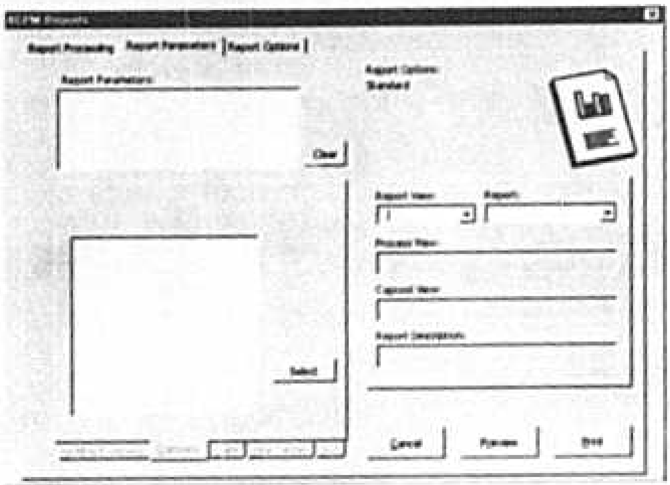
Once this step is complete, you can generate reports.

Reports

In the Reports Module, Signaling investments are added to the investments developed by the Loop, Switching and Transport Modules. To develop the associated monthly costs, the annual cost factors from the Capcost Module are applied and expenses are calculated.

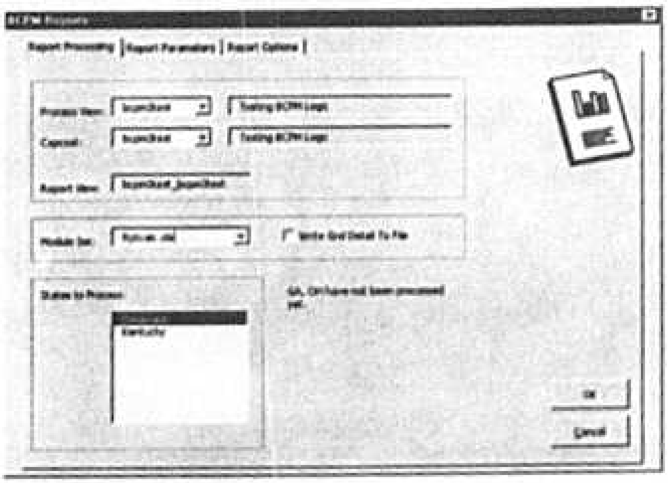
By selecting the **REPORTS** button from the main dialog box, you can chose reports to process, set report parameters, and select report formats.

The Reports dialog box that is displayed includes three tabs as shown below:



Report Processing

First, click on the Report Processing tab to select the View, Capcost Module and Report Module you want to use to calculate monthly costs. The Report Processing tab appears below:



After you select a View, a list of states that have been processed for this View appears. States that have been selected for the View but not yet processed are also indicated. Select the states you would like results for and click the OK button to perform the report calculations. The system will process for approximately 15 – 30 minutes, depending on your computer hardware.

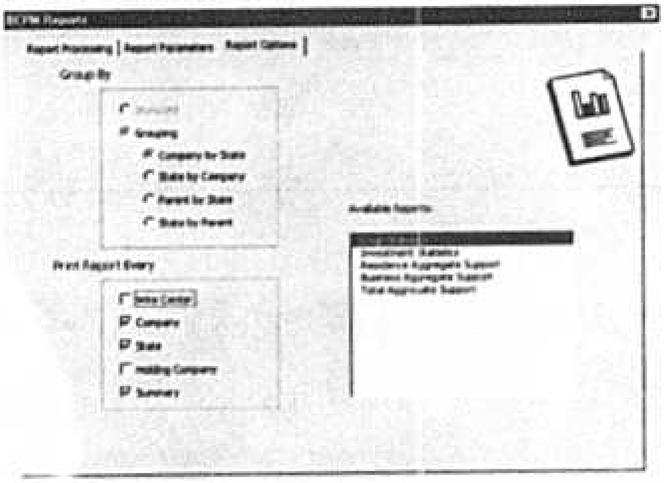
SPECIAL NOTE

You can not produce reports for a state unless the Loop, Transport, Switching, and Capcost Modules have been processed for the selected View under **PROCESS**. When you receive BCPM, the modules will have been processed for the BCPM View so that reports can be viewed or printed immediately. For new or other existing Views, you must follow the instructions under **PROCESS** before you generate reports.

The only states that will appear in the state selection box are those that are currently associated with the View displayed. If you would like to process reports for a state not listed, select cancel, **EDIT VIEWS**, and add the state under Selection for the View you are using. Then **PROCESS** the state before returning to **REPORTS**.

Report Options

Under the Report Options tab, you can indicate the report formats that you would like to view and print under Report Parameters.



You can select the standard grouping of results or customize how the results appear. You can sort results by company by state, by state by company, by parent company by state, or by state by parent company under the Grouping selection.

For Summary and WC_Summary reports, you can select how the report is populated by clicking on the appropriate grouping selection.

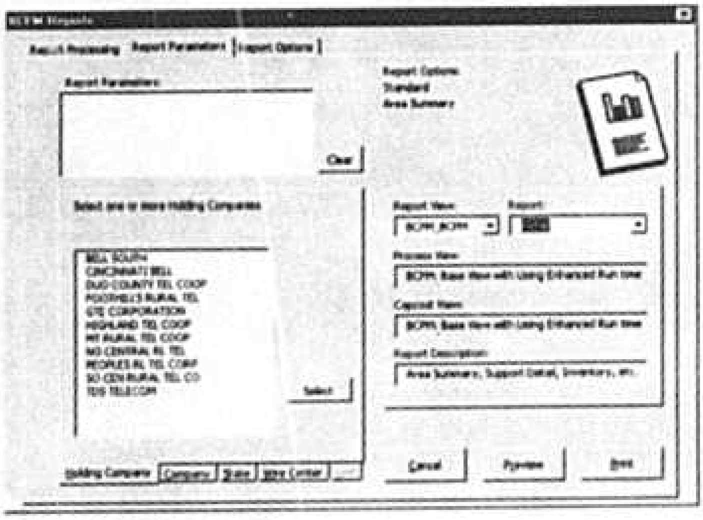
You can indicate the reporting level that you prefer under Print Report Every. This determines how many reports will be printed. For example, if the user selects wire center, a report will be printed for every wire center in the state.

The Available Reports section determines which reports will automatically be printed.

After you have selected the summary report options, click on the Report Parameters tab to preview and/or print reports.

Report Parameters

Next, establish report parameters by completing the Report Parameters tab shown below:



Select the Report View and Report Type to populate this screen. **You may only select report views that you have processed.** The report options are described below:

- Detail – This will create a workbook with Area Summary, Uncapped Analysis, Capped Analysis, Uncapped Density Summary, Capped Density Summary, Uncapped ARMIS Format, Capped ARMIS Format, Household Summary, Inventory and Variables tabs.
- Summary – This will create a summary workbook based on the inputs on the Report Options tab of the reporting module. The report options are group and report breakout settings in Loop Statistic, Investment Statistic, Residence Aggregate Support, Business Aggregate Support, and Total Aggregate Support.
- WC Summary – This will create a wire center summary report with the same parameters as the summary setting.

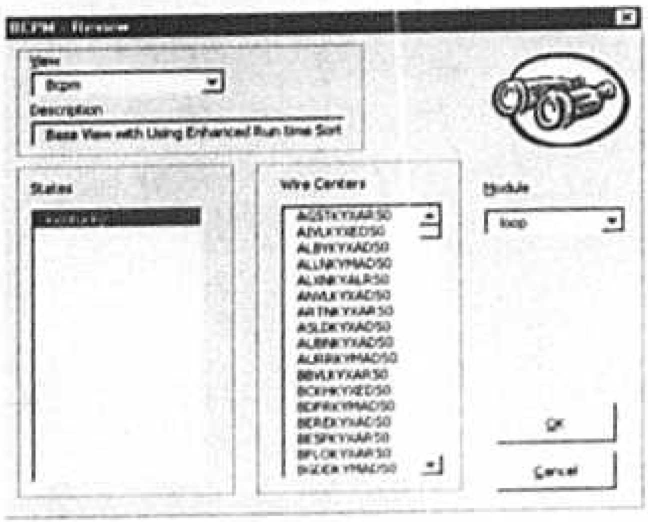
After you select the report view and type, set the report parameters by specifying the state, company, holding company, or the wire center you want results for by highlighting your choice and clicking **SELECT** or by clicking twice on the name of the company, state, etc.

Click Preview to view the model results in a worksheet format. A worksheet will appear and a BCPM toolbar which will enable you to Print, Save As and Close. You can use the drop down menu to select the report you wish to view, print or save.

Review

The review portion of the system is for auditing the module calculations in BCPM. Access this subsystem by click on the **REVIEW** button.

When you click on the **REVIEW** button you will see the Review dialog window.



When you see this screen you must select a View. Then you can select the module you would like to review. The system will work for several seconds while it pulls module data. You can then select the state and the wire center for review. Click on the OK button and the system will present you with the workbook that contains the calculations for your selection. You can then evaluate the calculations used for your View.

Technical Support

If you have any questions about the BCPM, call the INDETEC International Help Desk at 1-800-746-4356.

BELLSOUTH TELECOMMUNICATIONS, INC.

FLORIDA

BENCHMARK COST PROXY MODEL 3.1 (BCPM 3.1)

DOCKET NO. 980696-TP

JULY 31, 1998

BELLSOUTH TELECOMMUNICATIONS, INC.

FLORIDA

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Contents

BELLSOUTH TELECOMMUNICATIONS, INC.

FLORIDA

BENCHMARK COST PROXY MODEL 3.1 (BCPM 3.1)

DOCKET NO. 980696-TP

EXECUTIVE SUMMARY AND OVERVIEW

STATEMENT OF PURPOSE

Provided herein is BellSouth's recommended universal service cost study for Florida, including inputs and outputs of the BCPM 3.1. This study reflects the forward-looking economic costs of providing universal service in BellSouth territory in Florida. It is based on BellSouth-specific cost inputs representative of the forward-looking costs an efficient carrier would incur to provide service in BellSouth's territory.

This filing also contains the BCPM 3.1 model methodology documentation, which includes a description of the model's purpose, operational mechanics, assumptions, inputs and results.

OVERVIEW

Included in this package are the following sections:

- Section 1 — Executive Overview and Summary of Results
- Section 2 — BCPM Model Methodology
- Section 3 — Results
- Section 4 — Inputs

DESCRIPTION OF RESULTS

Section 3 includes results at the statewide average level for BellSouth territory in Florida based on BellSouth proposed investment inputs and financial inputs, including BellSouth proposed economic depreciation lives. Results provided in this package include the BCPM 3.1 Area Wide Summary Report that includes average investment and cost data per line for the BellSouth territory in Florida.

DESCRIPTION OF INPUTS

Section 4 contains a discussion of the inputs and assumptions used by BellSouth in BCPM 3.1 for this filing. An overview of investment inputs is provided as well as descriptions of the sources for the inputs and whether BCPM 3.1 default or BellSouth-specific values were used. Additionally, capital cost and expense inputs are reviewed.

Investment inputs include the following:

- Structures Costs -- Provides outside plant contractor cost for underground, buried and aerial placements of cable. Included are unit contractor costs per foot, estimates of the probabilities of occurrence for each activity, and the percent assigned to the telephone company. Also included are manhole/handhole costs and spacing, pole spacing, guy spacing, etc.
- Cable Costs -- Identifies copper and fiber cable costs for underground, buried and aerial cables. Included are unit material costs, exempt material, sales tax, telco labor and engineering, and any contractor cost not included under the structures costs.
- Outdoor Serving Area Interface (SAI) and Cross-Connect Box Costs -- Costs for outdoor SAIs and cross-connect boxes are shown by size.
- Indoor SAIs -- Costs for indoor SAIs are shown by size.
- Aerial Drop Terminal Costs -- Costs for 6, 12 and 25 pair terminals.
- Buried Drop Terminal Costs -- Costs for 6, 12 and 25 pair buried terminals.
- Drop Costs -- Tables are shown for both aerial and buried drop costs on a per foot basis.
- Network Interface Device (NID) and Protector Costs -- Material costs and placing labor for the NID and protector.
- Digital Loop Carrier (DLC) Costs -- Provides DLC costs used in BCPM 3.1.
- Percent Table Inputs -- Includes the mix of underground, buried and aerial cable by density groups and soil types for fiber and copper. Also included are cable sizing factors used in determining the size cable to place.
- Switch Costs -- Includes switching inputs required to determine switching costs associated with universal service.

- Interoffice Transport Costs - Includes detailed SONET ring architecture inputs for interoffice SONET ring transport.

- Miscellaneous Inputs -- Miscellaneous cost inputs are found in these tables including maximum cable sizes, copper/fiber breakpoint, land and building factors, terrain inputs, and other miscellaneous inputs.

BellSouth's capital cost and expense inputs include the following:

- Annual Capital Cost Inputs -- BellSouth proposed economic life, the tax life, future net salvage and survival curve parameters for each account are provided. Additionally, cost of money components, income tax rates, and depreciation methods are input in the capital cost files.

- Support Ratio Table -- Ratios of investments in support asset accounts to total plant less support plant are input to be used in estimating the amount of general support facilities assignable to basic local service.

- Operating Expenses -- Operating expenses are input as either expenses per line, or as a percentage of investment. Workpapers detailing the development of the expense per line calculations are included in Section 4 of this document.

BCPM MODEL METHODOLOGY

Included in this package is the BCPM 3.1 Model Methodology which provides detailed descriptions of how the inputs are used by the model to determine the cost of providing universal service.

SUMMARY OF RESULTS

The following provides a summary of the statewide average results:

BCPM 3.1 Results:	BST- FLORIDA AVERAGE - UNCAPPED	BST- FLORIDA AVERAGE - CAPPED
Average Loop Length (ft) - BCPM	16,951	16,951
Average Investment per Line – BCPM	$1,309	$1,2[illegible]5
Average Monthly Cost per Line	$31.63	$31.26

Section 2

BCPM 3.1 Model Methodology

Benchmark Cost Proxy Model
Release 3.1

Model Methodology

APRIL 30, 1998 EDITION

Developed by
BellSouth, *INDETEC* International,
Sprint and U S WEST

CONTENTS

APPENDICES

SECTION 1.0

BACKGROUND AND HIGHLIGHTS OF BCPM 3.1

The FCC and State Commissions are at a critical juncture in deciding the appropriate cost proxy model to use for determining Universal Service Funding. The FCC's May 8th, 1997 Universal Service order required states that elect to conduct their own forward-looking cost study as the basis for calculating federal universal service support in their states, to file the cost study with the FCC by February 6, 1998.[1] On December 3, 1997, the FCC extended that date to April 24, 1998, at the request of the National Association of Regulatory and Utility Commissioners (NARUC) and the Utility Commissions of Minnesota, Nebraska, Nevada, Tennessee, Maine and New Mexico[2]. On April 23, 1998, the FCC granted the states an additional extension to May 26, 1998[3]. In the May 8 order the FCC adopted criteria appropriate for determining federal universal service support "to guide the states as they conduct those studies."[4] The FCC indicated in their order that cost studies submitted by the states will be approved only if they meet the FCC criteria. In a February 27, 1998 Public Notice the FCC provided explicit guidelines for demonstrating that cost studies submitted by the states meet the criteria.[5] Section 2.0 outlines the FCC criteria and describes how the enhanced Benchmark Cost Proxy Model (BCPM), Release 3.1, attains each of the 10 criteria.

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[1] FCC Report and Order, "In the Matter of Federal-State Joint Board on Universal Service," CC Docket no. 96-45, released May 8, 1997, paragraph 248 ("Report and Order").

[2] FCC Order, "In the Matter of Federal-State Joint Board on Universal Service, Forward Looking Mechanism for High Cost Support for Non-Rural LECS," DA 97-2538, CC Docket Nos. 96-45 and 97-160, December 3, 1997.

[3] FCC Order, "In the Matter of Federal-State Joint Board on Universal Service, Forward Looking Mechanism for High Cost Support for Non-Rural LECS," DA 98-788, CC Docket Nos. 96-45 and 97-160, April 23, 1998.

[4] Report and Order, paragraph 248.

[5] FCC Public Notice, "State Forward-Looking Cost Studies for Federal Universal Service Support," CC Docket Nos. 96-45 and 97-160, February 27, 1998.

In addition, the FCC concluded in the Order that they anticipated choosing a specific model to use as the platform for developing a forward-looking cost methodology for non-rural carriers by December 31, 1997.[6] This decision has been delayed. However, the FCC still intends to select a complete mechanism, including inputs, by August 1998 with an implementation date of January 1, 1999.

The 1996 Telecommunications Act states that the Federal and State Universal Service programs should ensure virtually ubiquitous access to basic telecommunications service. To support this objective, it is imperative that a cost proxy model locate customers effectively and construct adequate facilities to provide basic service to high cost customers. BCPM 3.1's customer location algorithm appropriately locates customers in rural areas. Furthermore, BCPM 3.1's engineering of outside plant estimates a network and costs that network based on an efficient, forward-looking design.

The BCPM team has incorporated enhancements to BCPM 1.1 in two stages. Using BCPM 1.1 as the base, substantial changes to the customer location and outside plant design modules were first implemented in BCPM 2.0. The current model, BCPM 3.1, includes the customer location and outside plant changes incorporated in BCPM 2.0 and supplements these modules with new switching, transport, capital cost, and expense modules, signaling investment, and a new user interface.

BCPM 1.1 based customer location on Census data at the Census Block Group (CBG) level. BCPM 3.1's customer location algorithm uses housing and business line data at the Census Block (CB) level to more precisely locate customers. On average, there are 30 CBs within a CBG. By overlaying micrograids upon CBs, BCPM 3.1 takes into account the actual road network to more accurately reflect the location of customers within a CB if that CB is larger than the microgrid. This enhances accuracy because customers and rights of way for provisioning telecom cables are most frequently found along roadways. Utilizing all of this data, BCPM 3.1 models clusters of customers where they are indeed clustered, and models sparsely populated areas where customers are in fact dispersed. This is all done while retaining the shape and relative cable design of the wire center territory.

[6] Report and Order, paragraph 245.

BCPM 1.1 assigned CBGs to wire centers based on the centroid, i.e. geographic center, of the CBG. This resulted in a significant number of misassignments of customers to wire centers, as well as misassignments of customers to their respective local exchange carrier. BCPM 3.1's assignment of customers to the appropriate wire center and local exchange carrier is quite accurate. It achieves this accuracy by utilizing wire center boundaries specified by Business Location Research (BLR), and determining the CBs located within that wire center boundary.

BCPM 3.1 integrates more precise information regarding customer location with a customer location algorithm that establishes an optimal grid size based on an efficient network design. Thus, the optimal grid size is determined by adhering to sound engineering practices that reflect forward looking, least cost technology for basic service. Once the ultimate grid size is established, BCPM 3.1 maintains certain features of the loop engineering design in BCPM 1.1. However, significant changes have been made to BCPM 1.1. BCPM 3.1 has abandoned the assumption that all customers are uniformly distributed throughout the CBG. (A discussion of changes from BCPM 1.1 to BCPM 3.1 is included in Appendix C)

The FCC's Further Notice of Proposed Rulemaking (FNPRM) released July 18, 1997 established a process for evaluating the BCPM and Hatfield models with the objective of developing a platform that meets the FCC's specified criteria.[7] As part of the FNPRM process, the FCC staff issued a Public Notice on September 3, 1997 prescribing guidelines regarding switching, transport, and signaling that cost proxy models under consideration should comply with. These guidelines included requirements to "permit individual switches to be identified as host, remote, or stand-alone";[8] "employ separate cost curves for host, remote and stand-alone switches";[9] employ algorithms that include

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[7] FCC Further Notice of Proposed Rulemaking, In the Matter of Federal-State Joint Board on Universal Service, CC Docket No. 97-45 and Forward-Looking Mechanism for High Cost Support for Non-Rural LECs, CC Docket No. 97-160.

[8] FCC Public Notice, "Guidance to Proponents of Cost Models in Universal Service Proceedings: Switching, Interoffice Trunking, Signaling, and Local Tandem Investment," CC Docket Nos. 96-45 and 97-160 released September 3, 1997, page 2.

[9] Ibid., page 3.

switch capacity constraints;[10] and design an interoffice network that accommodates host, remote and stand-alone switches.[11]

The enhanced BCPM 3.1 is in compliance with all aspects of the guidelines proposed by the FCC staff in the September 3rd, Public Notice. The switch module designs a network of host, remote, and stand-alone switches based on the actual in place network and then uses separate cost curves for switch types and individual switch investment categories to develop the forward looking cost per line. The module analyzes input data files to determine whether switch capacity constraints have been exceeded for a wire center, and if so, places an additional switch in that wire center. The transport module designs efficient SONET rings for the modern network designed in the switch module based on characteristics of the actual in place network.

On November 13, 1997, the FCC released a Public Notice on Customer Location and Outside Plant.[12] This notice required model proponents to modify their models to accommodate the new guidelines, to submit their revised models to the FCC, and to provide model cost runs for Florida, Georgia, Maryland, Missouri and Montana by December 11, 1997. In the time since this information was submitted to the FCC, the commission has conducted a number of model tests and discussions with model proponents.

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[10] Ibid., page 4.

[11] Ibid., page 5.

[12] FCC Public Notice, "Guidance To Proponents of Cost Models in Universal Service Proceedings Customer Location and Outside Plant," CC Docket Nos. 96-45 and 97-160, November 13, 1997.

BCPM 3.1 methodology is presented in the following sections:

Customer Location---Section 5.0

Outside Plant---Section 6.0

Switching---Section 7.0

Transport---Section 8.0

Signaling---Section 9.0

Support Plant---Section 10.0

Capital Costs---Section 11.0

Operating Expenses---Section 12.0

Report Module---Section 13.0

SECTION 2.0

BCPM 3.1 Attains the FCC's 10 Criteria

The FCC Universal Service Order invites states to submit universal service cost studies that are consistent with its ten model criteria.[13] At paragraph 206 the FCC Universal Service Order states: "Accordingly, to determine the appropriate level of federal support for service to rural, insular, and high cost areas, we invite states to submit cost studies consistent with the criteria that we prescribe herein and subject to Commission review and approval. State studies must be based on forward-looking economic cost, be consistent with the study used for the state universal service program, and not impede the provision of advanced services."

Paragraph 250 of the FCC Universal Service Order outlines ten criteria that are consistent with the eight criteria set out in the Joint Board recommendation.[14] The ten criteria are presented in italics below. Following each criterion is a brief statement describing how BCPM 3.1 is consistent with the criterion.

(1) The technology assumed in the cost study or model must be the least-cost, most-efficient, and reasonable technology for providing the supported services that is currently being deployed. A model, however, must include the ILECs' wire centers as the center of the loop network and the outside plant should terminate at ILECs' current wire centers. The loop design incorporated into a forward-looking economic cost study or model should not impede the provision of advanced services. For example, loading coils should not be used because they impede the provision of advanced services. We note that the use of loading coils is inconsistent with the Rural Utilities Services guidelines for network deployment by its borrowers. Wire center line counts should equal actual ILEC wire center line counts, and the study's or model's average loop length should reflect the incumbent carrier's actual average loop length.

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[13] FCC Report and Order, In the Matter of Federal-State Joint Board on Universal Service, CC Docket No. 96-45, released May 8, 1997.

[14] See the Majority State Members' Second State High Court Report at pp. 2-6.

BCPM 3.1 satisfies this criterion by incorporating least-cost, most-efficient, and current technology. The BCPM uses forward looking technology including: fiber driven, integrated digital loop carrier systems; efficient copper/fiber cross-over points in feeder to reflect least-cost provision of feeder; digital switching at current network switch nodes; and SONET transport rings. Load coils are not utilized in the Model and the network is engineered to be compatible with advanced services.[15]

BCPM 3.1 utilizes more accurate wire center boundaries provided by Business Location Research (BLR). These wire center boundaries conform to Census Block (CB) boundaries.

(2) A network function or element, such as loop, switching, transport, or signaling, necessary to produce supported services must have an associated cost.

Within BCPM 3.1, each network function has an associated cost. This includes the local loop from the drop to the distribution to the feeder to the switch, with transport signaling, support plant, and the associated capital costs and operating expenses. The algorithms which assure that sufficient plant and equipment are provided are clearly documented and verifiable within the Model software and methodology documentation.

(3) Only long-run forward-looking economic cost may be included. The long-run period used must be a period long enough that all costs may be treated as variable and avoidable. The costs must not be the embedded cost of the facilities, functions, or elements. The study or model, however, must be based upon an examination of the current cost of purchasing facilities and equipment, such as switches and digital loop carriers (rather than list prices).

BCPM 3.1 incorporates the forward-looking cost of purchasing and operating known and proven facilities, equipment, and technologies. While switch (i.e., wire center) locations are assumed to be fixed, no equipment or technology is assumed to be embedded or fixed; all equipment is assumed to be variable and avoidable. Forward-looking costs are based on material prices net of discounts rather than list prices for

[15] For example, maximum copper loop lengths and cable gauges are designed to be compatible with fax and dial-up modems.

equipment and material. The Model does not rely upon embedded costs for facilities, functions or elements.

(4) The rate of return must be either the authorized federal rate of return on interstate services, currently 11.25%, or the state's prescribed rate of return for intrastate services. We conclude that the current federal rate of return is a reasonable rate of return by which to determine forward looking costs. We realize that, with the passage of the 1996 Act, the level of local service competition may increase, and that this competition might increase the ILECs' cost of capital. There are other factors, however, that may mitigate or offset any potential increase in the cost of capital associated with additional competition. For example, until facilities-based competition occurs, the impact of competition on the ILEC's risks associated with the supported services will be minimal because the ILEC's facilities will still be used by competitors using either resale or purchasing access to the ILEC's unbundled network elements. In addition, the cost of debt has decreased since we last set the authorized rate of return. The reduction in the cost of borrowing caused the Common Carrier Bureau to institute a preliminary inquiry as to whether the currently authorized federal rate of return is too high, given the current marketplace cost of equity and debt. We will re-evaluate the cost of capital as needed to ensure that it accurately reflects the market situation for carriers.

BCPM 3.1 allows the user to select their own rate of return, utilize the FCC's recommended rate of return of 11.25%, or run the Model's default rate of return.

(5) Economic lives and future net salvage percentages used in calculating depreciation expense must be within the FCC-authorized range. We agree with those commenters that argue that currently authorized lives should be used because the assets used to provide universal service in rural, insular, and high cost areas are unlikely to face serious competitive threat in the near term. To the extent that competition in the local exchange market changes the economic lives of the plant required to provide universal service, we will re-evaluate our authorized depreciation schedules. We intend shortly to issue a notice of proposed rule making to further examine the Commission's depreciation rules.

BCPM 3.1 allows the user to establish or change economic lives and net salvage percentages by account categories. As discussed previously, BCPM 3.1 includes two sets of inputs. The first set of inputs uses economic lives and future net salvage percentages that are within the FCC-authorized range. The second set uses economic lives and future net salvage percentages potentially user by competitors.

(6) The cost study or model must estimate the cost of providing service for all businesses and households within a geographic region. This includes the provision of multi-line business services, special access, private lines, and multiple residential lines. Such inclusion of multi-line business services and multiple residential lines will permit the cost study or model to reflect the economies of scale associated with the provision of these services.

BCPM 3.1 includes residential and business access lines and makes adjustments for public and special access so that tne network design incorporates the efficiencies and economies of scale that a provider of all basic access services in a given geographic area enjoys.

(7) A reasonable allocation of joint and common costs must be assigned to the cost of supported services. This allocation will ensure that the forward-looking economic cost does not include an unreasonable share of the joint and common costs for non-supported services.

BCPM 3.1 allows the user to input either a common cost factor or expenses on a per line basis. The BCPM Sponsors included a reasonable allocation of joint and common costs in BCPM 3.1.

(8) The cost study or model and all underlying data, formulae, computations, and software associated with the model must be available to all interested parties for review and comment. All underlying data should be verifiable, engineering assumptions reasonable, and outputs plausible.

The user can view all inputs and a large number are easily adjustable by the user. All formulas and algorithms are available to the user and all interested parties for review and comment. The underlying data are verifiable and the engineering assumptions are reasonable and based on actual experience in installing state-of-the-art networks and technology.[16] The current version of BCPM can be downloaded from the BCPM web site, "www.bcpm2.com". In addition, copies of the BCPM Methodology, the Users Manual, a Systems Manual and a Model Input Guide are currently available at the web site.

(9) The cost study or model must include the capability to examine and modify the critical assumptions and engineering principles. These assumptions and principles include, but are not limited to, the cost of capital, depreciation rates, fill factors, input costs, overhead adjustments, retail costs, structure sharing percentages, fiber/copper cross-over points, and terrain factors.

BCPM 3.1 allows the user to examine and modify all of the variables listed in the criterion and many others either though easy to use drop down menus or through direct access to the EXCEL spreadsheets. BCPM 3.1 provides methods to process multiple financial, engineering, investment and expense views for the jurisdiction chosen. This provides the user with a great deal of flexibility in performing multiple scenario analysis.

(10) The cost study or model must deaverage support calculations to the wire center serving area level at least, and if feasible, to even smaller areas such as a Census Block Group, Census Block, or grid cell. We agree with the Joint Board's recommendation that support areas should be smaller than the carrier's service area in order to target efficiently universal service support. Although we agree with the majority of the commenters that smaller support areas better target support, we are concerned that it becomes progressively more difficult to determine accurately where customers are located as the support areas grow smaller. As SBC notes, carriers currently keep records of the number of lines served at each wire center, but do not know which lines are associated with a particular CBG, CB, or grid cell. Carriers, however, would be required to provide verification of customer location when they request support funds from the administrator.

BCPM 3.1 provides estimates of universal service costs at areas as small as variable grids. The BCPM 3.1 relies upon information at the census block level, rather than the much larger census block groups (CBGs). There are typically over 30 CBs per

[16] The underlying data are verifiable to the extent possible, given vendor constraints and the confidential nature of some of the information necessary to reflect genuine current expenditures.

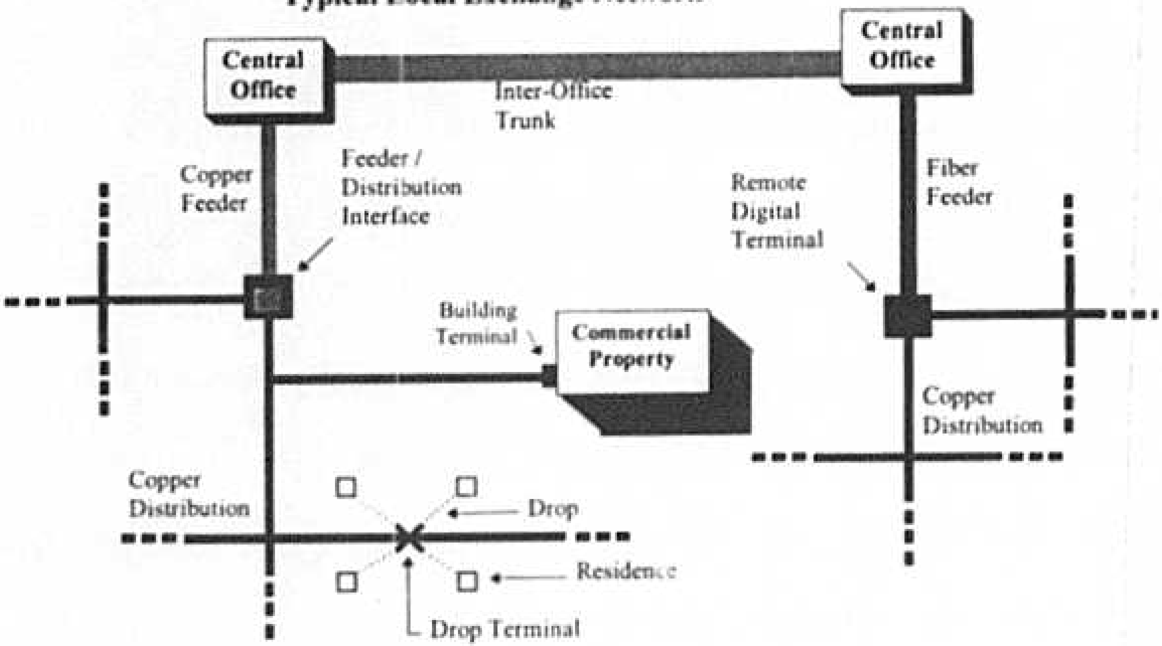
SECTION 3.0

THE NETWORK

3.1 Description of the Local Exchange Network

The following figure depicts the elements of a typical local exchange network.

Typical Local Exchange Network



The public voice grade local exchange network is designed to provide an instantly available (under most circumstances) 3,500 Hertz telecommunications channel between any pair of users attached to the network. Components of the network are designed to meet minimum transmission characteristics for noise, echo return loss, envelope delay distortion, as well as other quantifiable objectives for transmission quality. Many of these minimum transmission standards are met through basic engineering design criteria that specify the standard electrical and transmission characteristics for individual network components and groups of components. The following description traces a call on the public voice grade network from an originating customer premise through the network to terminate the call at a second customer premise.

Before a call can be initiated, a customer must have a telephone set, which is connected to the public voice grade network. The customer's telephone plugs into the wall to wiring also owned by the customer. The wiring in each residence and business premise is connected to the network through a telephone company owned interface device located at the customers' premise. Single family housing units generally use a basic network interface device (NID), typically a small gray box located on the outside of the house, while a large commercial building has a building terminal designed to accommodate terminations for multiple customers. These interface devices connect the public voice grade telephone network to the customer-owned wiring and telephone sets.

Once the customer lifts the phone receiver, call connection to the public telephone network begins. At the point the receiver is lifted, a connection is made to the telephone company switch at the central office. This connection starts at the telephone set, through the inside wire, through the network interface device (NID), which connects to a drop wire. The drop wire consists of two or three pairs of copper wires, which permanently connect the house to a drop terminal. In densely populated areas the drop wires from several residences meet at a drop terminal. The drop terminal is where the drop wires are connected to a larger cable that connects many houses in a similar manner. This cable is called a distribution cable. The distribution cable then connects to a feeder/distribution interface, commonly called an FDI. The FDI connects many distribution cables to a feeder cable. The feeder cable goes to the central office location where it is connected to the telephone switch through a main distribution frame.

The connection to the switch is initiated by the customer lifting the phone receiver. The switch, which is really a large computer, acknowledges the customer action by providing dial tone to the customer, thereby notifying the customer that the switch is ready to receive the telephone number of the party where the call is to be completed. The customer enters the number by "dialing" through the telephone set. The switch interprets the tones or pulses into a terminating location on the network. The switch "looks up" the terminating location in a data base that tells the switch where to physically route the call. In this case, the call is connected to a local inter-office trunk group that connects one central office location to another central office in the local calling area. Call traffic is consolidated and switched at telephone company central offices, which are connected with each other via high capacity trunks (usually optical fiber).

few cases where BCPM 3.1 finds grid Quadrants with copper loops greater than 12,000 and up to 18,000 feet in the distribution network, it uses the Extended CSA (ECSA) design with 24 gauge cable throughout that quadrant. Extended range line cards are used to serve all customers in the distribution area (Grid quadrant) for distribution distances over 13,600 feet.

The typical 12,000 foot loop, along with a loop network design that avoids bridged-tap, also removes capacitance concerns. Avoiding bridged-tap is accomplished by tapering and placing FDIs. The 12,000 foot design, while not including the costs for them, also facilitates the provisioning of Unbundled Network Elements (UNE) including DS1. Additionally, BCPM 3.1 uses digital loop carrier systems for voice grade services rather than analog copper facilities when demand within a grid exceeds the user designated capacity of the largest copper distribution cable. This avoids the typical duct congestion in urban rights of way where utilities and urban services vie for below ground space.

There are two situations where the design rules employed by BCPM result in the placement of Digital Loop Carrier (DLC) equipment. The first, as discussed above, is when the copper loop length would be greater than 12,000 feet. Here, the DLC equipment is placed to allow use of fiber feeder cable. The second situation occurs in areas where distances are relatively short, but population density is high. In this case, it is often more economical to place DLC to than to place the large copper cables that would be needed to serve the number of subscribers.

Cable fills that are found in the BCPM 3.1 tables allow for proper network design. These cable fills allow maintenance operations to cost-effectively deal with defective pairs and administer customer turnover. The default values take into account that a new network is constructed to serve existing households (a snapshot view) with provisions for administrative and repair needs.

BCPM 3.1 designs a network of digital host, remote and stand-alone switches based on the actual in-place network. DMS-100 and 5ESS switches are used in the design process. In addition, the model provides for small switch investment functions, to be used for central offices smaller than a user-changeable line size. Moreover, the user has the ability to specify a switch vendor. Actual data on subscriber calls and usage for business and residence customers are used to design a busy hour grade of service.

The interoffice network uses SONET rings in currently commercially available ring sizes (OC3, OC12 or OC48). Redundancy is provided through "self healing rings" connecting the tandem/host/remote switches.

SECTION 4.0

OVERVIEW OF THE BCPM 3.1 MODEL

4.1 Model Structure

BCPM 3.1 is comprised of a series of modules in functional areas pertinent to the design and costing of a foreword looking telecom network. These modules include:

- Preprocessor Module formats some of the raw input data for further processing, identifies the locations of customers within the wire center, and builds the grid system and feeder plant routing used to design the loop. (Customer Location methodology is discussed in depth in Section 5.0.)
- Outside Plant Module designs and costs the distribution cable system. (Outside Plant methodology is discussed in depth in Section 6.0.)
- Switch Module designs and costs the digital network of host/remote /standalone switches based on the locations of the actual in-place network. (Switch Module methodology is discussed in depth in Section 7.0.)
- Transport Module designs and costs the SONET interoffice transport system. (Transport Module methodology is discussed in depth in Section 8.0.)
- Capital Cost Module develops depreciation, rate of return, and tax factors and applies them to the investment accounts to produce the capital cost. (Capital Cost Module methodology is discussed in depth in Section 11.0.)
- Operating Expense Module determines the annual expense cost attributable to providing universal service. (Operating Expense Module methodology is discussed in depth in Section 12.0.)
- Report Module summarizes the results of the previous modules. (The Report Module is discussed in Section 13.0)

4.2 Model Inputs

For most of the inputs in the Model the user has three options; they can develop their own inputs, accept the default inputs developed by the Model's sponsors, or use a combination of user inputs and model defaults.

For example, BellSouth, Sprint, and U S WEST - the Joint Sponsors of BCPM 3.1, who collectively provide service to over 30 states, have provided an industry-wide composite of current material, installation, and structure prices for individual network components that are used in the Model. This includes the prices for cables, digital loop carrier equipment, switches, feeder/distribution interfaces, manholes, poles, etc. These figures allow BCPM 3.1 to use the widest possible base of data of equipment and installation prices currently paid by LECs.

Additionally, the Joint Sponsors have provided an industry-wide composite of forward-looking operational and overhead expenses by account that are specifically associated with the provision of basic local exchange service. The Operating Expense module allows these forward-looking operational expenses, which are stated on a per line basis, to be adjusted by the user according to individual account. The Joint Sponsors also developed industry-wide, forward-looking cost of capital and depreciation lives by account. These are used in the BCPM 3.1's Capital Cost module and are fully user adjustable.

4.3 Model Flexibility

Finally, BCPM 3.1 provides methods to process multiple investment and expense views across multiple states. This provides the user with a great deal of flexibility in performing multiple scenario analysis.

A summary of the changes from BCPM 1.1 incorporated in BCPM 3.1 is included in Appendix C.

SECTION 5.0

CUSTOMER LOCATION METHODOLOGY

5.1 Introduction

BCPM 3.1's customer location algorithm uses the appropriate granularity of analysis to assure that customers are accurately located and that the cost outputs are representative of the network design necessary to serve those customers. BCPM 3.1's use of actual data to determine the location of customers provides network costs that are more accurately measured, which, in turn, allows efficient targeting of high-cost areas.

BCPM 3.1's customer location algorithm addresses the recognized deficiency of the Census Block Group (CBG) as an engineering unit in rural areas. By going to the finer Census Block (CB) level, BCPM 3.1 reflects the reality of rural areas; that is, that people are not necessarily dispersed equally throughout the CBG. By overlaying wire centers with grids, BCPM 3.1 constructs a network that avoids building to areas where people are unlikely to reside, concentrating instead on road miles where people are more likely to be located.

5.2 BCPM 3.1 Enhancements

BCPM 3.1 employs more precise information regarding customer location than previous proxy models. Its clustering algorithm reflects an efficient network design, given technological constraints of the telephone network.

A previous version of BCPM, BCPM 1.1, based customer location on Census data at the CBG level. BCPM 1.1 assigned CBGs to wire centers based on whether the centroid, i.e. geographic center, of the CBG fell within the wire center boundaries provided by On Target's "Exchange Info Plus" data product. This all or nothing CBG assignment resulted in a significant number of misassignments of customers to wire centers, as well as misassignments of customers to their respective local exchange carrier.

BCPM 3.1 utilizes Census data at the CB level. CBs reflect customer location at a much more granular level than CBGs. This increased level of granularity provides greater assurance of truly locating customers and assigning customers to the proper wire center. Additionally, BCPM 3.1's use of wire center boundaries provided by Business Location Research (BLR) increases the accuracy in assigning customers to their actual serving wire center.

BCPM 3.1 recognizes that telephone plant engineers do not typically build plant on a customer by customer basis. Rather, they plan and build plant based on Carrier Serving Areas (CSAs)[18]. Thus, engineers recognize actual clustering of customers when implementing standard engineering practices that try to maximize the efficient use of plant, minimize the distribution portion of plant, and ensure adequate service quality. One of the major challenges of building a proxy model is clustering customers in a fashion that integrates engineering practices based on this CSA approach.

The BCPM 1.1 and earlier versions, including BCPM 1.0, Benchmark Cost Model 2 (BCM2), and BCM, as well as Hatfield 4.0 and its earlier versions, used the CBG as the unit of engineering area. Our analysis indicates that CBGs have substantial deficiencies as a modeling unit. These deficiencies exist mainly in rural areas. In these sparsely populated areas, CBGs tend to be rather large and odd in shape, and provide no information about where customers are truly located.

To adjust for these deficiencies, the modelers of both BCPM and Hatfield developed various approaches to recognize the actual location of customers. BCPM 1.1 used a road reduction approach that reduced the area engineered to a 500-foot buffer along each side of roads within the CBG. Hatfield 4.0 uses a town clustering approach that assumes a given percentage of rural customers reside in town (typically 85%). Hatfield 4.0 assumes that the customers in town are located in 2 or 4 sub-clusters where customers live on contiguous 3-acre lots. Furthermore, Hatfield 4.0 assumes that the remaining customers (typically 15%) are located 150 feet from a few road cables that emanate from these sub-clusters.

[18] A CSA encompasses the entire design area potentially served from a particular digital loop carrier (DLC) site, including the feeder distribution interface, vertical and horizontal connecting cables, backbone cable and branch cables.

However, neither the BCPM 1.1 nor the Hatfield 4.0 rural approaches captured actual customer location with adequate accuracy. Given this dilemma, the BCPM developers recognized the need to create an innovative approach that could locate accurately customers in all areas. To accomplish this, BCPM 3.1 uses a reformulated geographic entity - the dynamic grid.

The Cost Proxy Model (CPM©) used a 1/100 of a degree longitude and latitude grid. This standardized the geographic unit of measure for modeling, simplified the engineering algorithms, removed the modeling errors from "squaring" CBGs, and allowed the roll-up of the geographic grid entity into almost any entity desired by the user. BCPM 3.1 further enhances the CPM's grid approach by combining it with CSA engineering constraints. The resulting grid unit is dynamic in the sense that this grid varies in size to ensure that the number of customers included in a grid takes into account CSA guidelines[19]. Furthermore, the maximum grid size is constrained so that the limitations of copper distribution are not exceeded.

To illustrate the rural data and the various approaches to locating rural customers, Appendix A, Exhibit 1, provides satellite maps for six random CBGs in the lowest density group, i.e. less than five housing units per square mile. Note the variability in the degree of clustering across these CBGs. Appendix A, Exhibits 2 and 3, provide the comparison of Hatfield Model 4.0's, BCPM 1.1's, and BCPM 3.1's characterization of customer location for two of these six CBGs. Although this is not representative of all rural areas, these areas were randomly selected and seem to demonstrate BCPM 3.1's superiority in locating customers.

5.3 Methodology

The following discussion provides highlights of the methodology employed in generating the appropriate grid configuration associated with a given wire center. In general, a series of reaggregation steps creates ultimate grids of various sizes, consistent with an efficient network design. Each grid's size, cost characteristics, and number of lines is integrally linked to telephone engineering CSA guidelines. In addition, the construction of these

[19] Lucent Technologies Outside Plant Engineering Handbook. Section 3.

grids takes into account the actual road network to more accurately reflect the location of customers within a CB. (Additional detail on this process is provided in Appendix B.)

The customer location process comprises six major steps:

1) Establish Wire Center Boundaries
2) Assign Census Block Demographic Data to Wire Centers
3) Establish Microgrids Within Wire Center Boundaries
4) Assign Census Block Data to Microgrids
5) Aggregate Microgrids to Ultimate Grids
6) Establish Distribution Quadrants

5.3.1 Wire Center Boundaries

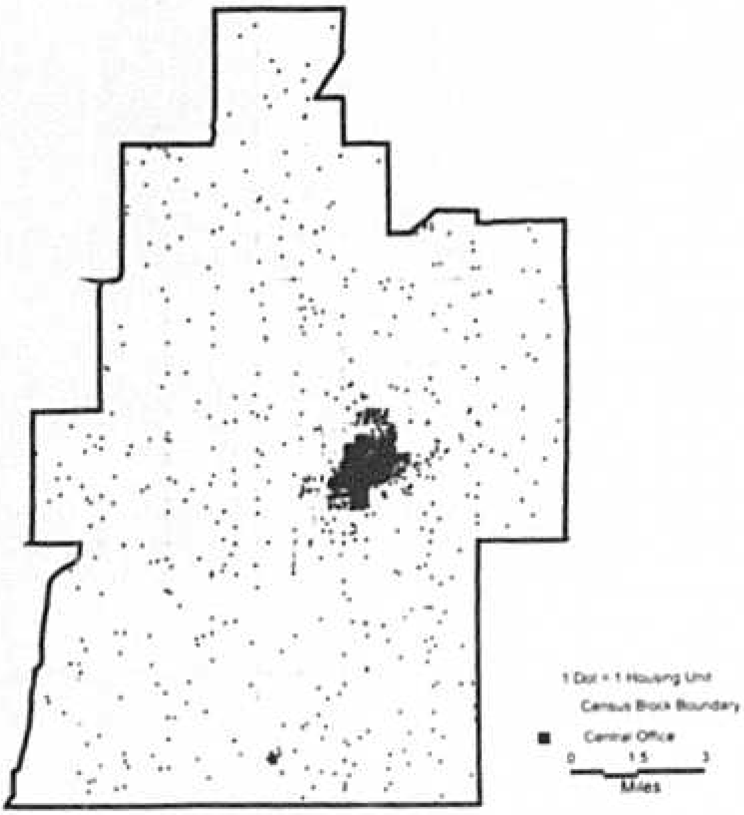
The first step in accurately establishing customer location is the specification of the appropriate wire center boundaries. In BCPM 1.1, wire center boundaries were established based on the aggregate area of CBGs whose centroids were assigned to that particular wire center. In contrast, BCPM 3.1 relies on wire center data obtained from BLR. Appendix A, Exhibit 4, compares actual wire center boundaries with the wire center boundaries of BCPM 1.1 and BCPM 3.1 for an Iowa wire center.

5.3.2 Assign Census Block Data to Wire Centers

The second step is to use the CB level of data that falls within the corresponding wire center boundary. For the occasional CB that crosses wire center boundaries, housing and business data are apportioned to the respective wire centers. If the CB is less than 1/4 of a square mile, the apportionment is based on the relative proportions of land area. If the CB is greater than 1/4 of a square mile, the apportionment is based on the relative proportions of road mileage. Appendix A, Exhibit 5, depicts CBs within the Waukon, Iowa wire center. Figure 5.1 (below) displays CB and Housing Unit Density for the Red Oak, Iowa Wire Center. The black areas at the center of the map are Census Block boundaries so close together as to be indiscernible at the current map scale.

Figure 5.1

Housing Unit Density – Census Blocks
Red Oak, Iowa



The Bureau of the Census establishes CB boundaries based on roads and natural borders such as rivers. The CB data that provides household and housing unit line counts reflects 1990 Census data that have been updated based upon 1995 Census statistics regarding household growth by county. BCPM 3.1 also uses business line data obtained from PNR and Associates (PNR). Although some of the business lines are defined only at the Census Tract and CBG level,[20] PNR has successfully assigned approximately 85%

[20] This is typical of attempts to geocode customer locations based on address data.

of the business customers to specific CBs. Figure 5.2 (below) shows an example of the assignment of CB's, with associated households, to the Red Oak wire center.

Figure 5.2
Example of Assignment of Census Blocks to a
Portion of the Wire Center
Rural Red Oak, Iowa

This diagram displays several Red Oak Census Blocks that have been labeled with the number of housing units each contains.

5.3.3 Establishing Microgrids

It is necessary to establish microgrids so that populated areas can be aggregated appropriately into telephone engineering CSAs. There are two phases of the grid process. The first phase entails assigning CB data to micrograms. "Microgrid" refers to the smallest grid size used in the grid process. A microgrid is 1/200th of a degree latitude and longitude. This corresponds to approximately 1,500 feet by 1,700 feet latitude and longitude.[21] The entire serving wire center is partitioned into micrograms. Thus, each CB within the serving wire center is overlayed with micrograms (unless the entire CB falls within a single microgrid). Smaller CBs, typically located in the denser, urban areas or the town portions of rural exchanges, are aggregated into micrograms while larger CBs located in the outlying portions of the rural areas may span multiple micrograms.

5.3.4 Apportioning Census Block Data to Micrograms

Since household and business line data[22] are assigned at the CB level, CB line data must be apportioned to micrograms when the CBs are larger than their corresponding micrograms. Two approaches are used to apportion this data to the micrograms, depending on the size of the CB. For CBs whose area is less than 1/4 square mile, (2,640 feet by 2,640 feet), encompassing approximately three to four micrograms, household and business line data is apportioned based on the land area of the microgrid used relative to the CB's total area.[23]

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[21] Due to the curvature of the earth, these dimensions vary depending on the latitude and longitude where they are derived. These measurements are used only to give the reader a sense of relative size.

[22] Household data includes housing unit and household information from the Census Bureau. Business line counts are obtained from PNR.

[23] For a microgrid that is fully encompassed by a CB, i.e. 100% of the microgrid's area is encompassed within the CB, the area covered by that one microgrid is (1,500ft. x 1,700 ft) = 2,550,000 sq. ft. If the total area of the CB is 5,100,000 sq. feet, then the fraction of land area of the CB encompassed by that microgrid is(2,550,000sq ft. /5,100,000sq. ft.) = .5 of the area. Thus, 50% of the household and business line data is apportioned to that microgrid.

If only a portion of a microgrid is encompassed by the CB, e.g. 80% of the microgrid is encompassed by the CB, then the area covered by that one microgrid is .8x(1,500ftx1,700ft) = 2,040,000 sq. ft. If the area of the CB is 5,100,000sq. ft., then (2,040,000 sq. ft./5,100,000 sq. ft.) = .40 In this case, .4 or 2/5ths of the household and business line data is apportioned to the microgrid.

For CBs with an area greater than 1/4 square mile, household and business line data are apportioned based on relative road lengths using actual road data obtained from TIGER/Line files [Topologically Integrated Geographic Encoding and Referencing from the US Census Bureau]. That is to say, the line data is apportioned based on the road length contained within a microgrid that traverses that CB, relative to the total road length within that CB. Since roads are used to locate customers, certain roads where customers are unlikely to reside, have been excluded from the road data.[24] To illustrate the apportionment of household and business line data to microgrids based on relative road lengths, assume that the total road length associated with a particular CB is 60 miles and that 20 of those miles traverse a particular microgrid. Since (20 miles / 60 miles) = .333, 1/3 of the household and business line data is associated with that particular microgrid. At the end of phase one of the grid process, the total census housing unit and PNR business line data associated with a wire center have been apportioned to each of the microgrids comprising that serving wire center.

5.3.5 Reaggregating Microgrids into Grids

The fifth phase of the grid process entails aggregating these microgrids into larger grids as appropriate. The purpose of developing variable size grids is to simulate the basic telephone plant engineering units of a CSA. The ultimate size of the larger grids depends upon housing and business line data and technological constraints on the reasonable size of CSAs. In general, the largest ultimate grid size is $1/25^{th}$ of a degree latitude and longitude in size or approximately, 12,000 to 14,000 feet per side.[25] Hereafter, grids $1/25^{th}$ of a degree latitude and longitude are referred to as macrogrids. The macrogrid constrains the maximum copper distribution length from the DLC to the customer to 12,000 feet, in most cases. Occasionally, however, due to placement of the DLC or re-aggregation of the isolated grids (discussed later), the length of a cable from the DLC to the customer may exceed 12,000 feet. In these cases, cable gauge is adjusted from 26 to

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[24] Road data used in BCPM 3.1 exclude all limited access highway segments; all highway and road segments that are in a tunnel or in an underpass; vehicular "trails" and roads passable only by 4 wheel drive vehicles; highway access ramps; ferry crossings; pedestrian walkways and stairways; alleys for service vehicles; and driveways and private roads.

[25] Ultimate grids may exceed this size if isolated grids are combined with grids 12,000 feet by 14,000 feet per side to generate an ultimate grid. (This is discussed later.)

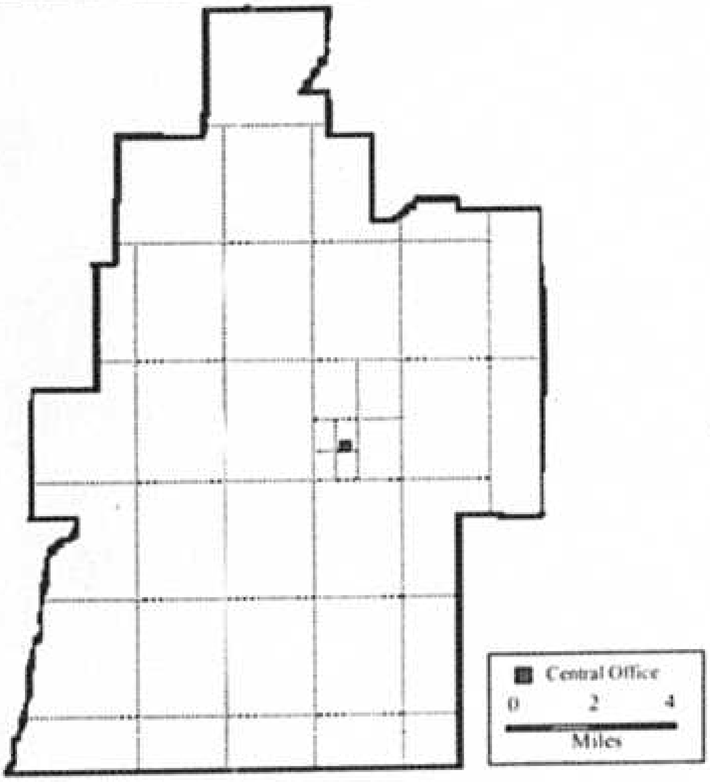
24 and extended range line cards are used to accommodate distribution cable lengths up to 18,000 feet.

At first blush, it may seem reasonable to start with microgrids and expand them as appropriate to satisfy technological constraints. However, such an approach results in a large number of remaining microgrids dispersed among larger grids. To reduce the potential for isolated microgrids, BCPM 3.1 establishes fixed grid boundaries by overlaying macrogrids upon the microgrids. 64 microgrids constitute a macrogrid. These macrogrid boundaries constitute the maximum size grid associated with each respective group of 64 microgrids.

The ultimate grid size utilized essentially reflects the manner in which customers are clustered. Modeling grids that vary in size is tantamount to allowing clusters of customers associated with a particular CSA to vary in density and dispersion.

The algorithm for determining the ultimate grids is actually a multistage process built to satisfy engineering constraints, minimize processing time, and simplify computer code. The following provides the essence of the grid algorithm. (For a more detailed discussion of the general rules for grid aggregation see Appendix B.) The derivation of ultimate grids is essentially an iterative process where partitioning occurs if the number of lines within a grid is too large, or if other technological constraints become binding. The macrogrid is partitioned into smaller grids, if warranted, based on household and business line data associated with the underlying micrografts, and CSA guidelines. The iterative process partitions the macrogrid into four equally sized subgrids. In some instances, these subgrids, which are 1/50th of a degree latitude and longitude in size, become the ultimate size for that composite of microgrids. In other instances, the number of lines within a subgrid is still too large. In those instances, additional sub-partitioning occurs for the subgrids. Additional sub-partitioning continues to occur until all grids satisfy line size and technological constraints. The smallest grid allowed is the 1/200th of a degree latitude and longitude, the microgrid. The resulting ultimate grids have a composite household and business line count equal to the sum of the household and business lines for the associated underlying micrograds. The ultimate grids for Waukon, Iowa are depicted in Appendix A, Exhibit 5. Ultimate grids for Red Oak, Iowa are shown in figure 5.3a (below).

Figure 5.3a
Ultimate Grids - Red Oak, Iowa



It is possible that, after completing this iterative process, small groups of isolated microgrids remain within the macrogrids, that have less than 100 lines associated with each group. Such isolated microgrids do not warrant placement of a CSA within a group. Instead, these small groups of microgrids are aggregated with ultimate grids within the macrogrid in which they reside, that are equal or larger in size, and are located closest to the road centroid of each small group of microgrids.

Partial grids arise from microgrids that intersect the wire center's boundaries and do not lie within a macrogrid. Partial grids with line demand less that 100 and smaller than $1/5^{th}$ of a macrogrid in area, and therefore, not supportive of a CSA for that partial grid, are aggregated with the adjacent macrogrid that constitutes the longest border along that partial grid. The process described above is repeated for each expanded macrogrid.

24 and extended range line cards are used to accommodate distribution cable lengths up to 18,000 feet.

At first blush, it may seem reasonable to start with microgrids and expand them as appropriate to satisfy technological constraints. However, such an approach results in a large number of remaining microgrids dispersed among larger grids. To reduce the potential for isolated micrograds, BCPM 3.1 establishes fixed grid boundaries by overlaying macrogrids upon the micrograds. 64 micrograds constitute a macrogrid. These macrogrid boundaries constitute the maximum size grid associated with each respective group of 64 micrograds.

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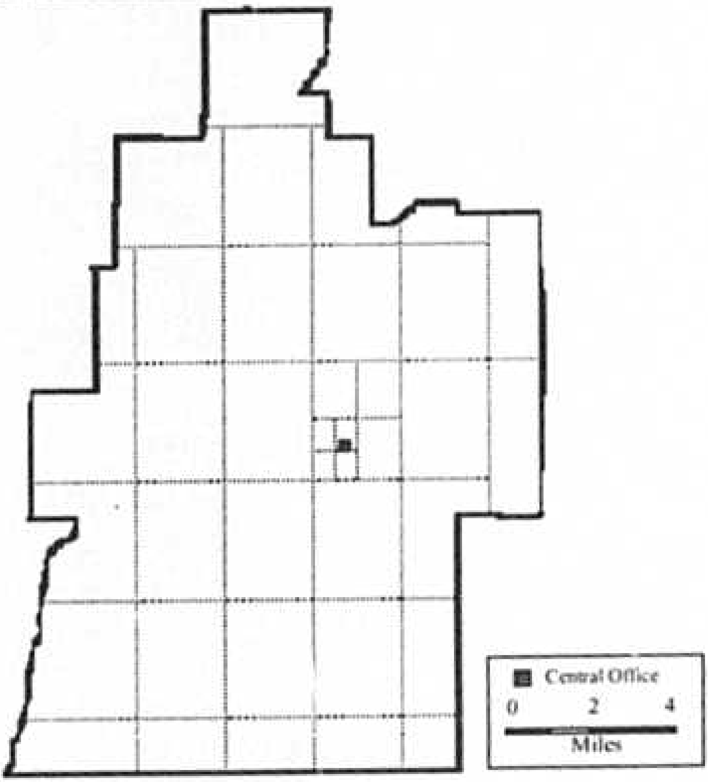


It is possible that, after completing this iterative process, small groups of isolated microgrids remain within the macrogrids, that have less than 100 lines associated with each group. Such isolated microgrids do not warrant placement of a CSA within a group. Instead, these small groups of microgrids are aggregated with ultimate grids within the macrogrid in which they reside, that are equal or larger in size, and are located closest to the road centroid of each small group of microgrids.

Partial grids arise from microgrids that intersect the wire center's boundaries and do not lie within a macrogrid. Partial grids with line demand less that 100 and smaller than 1/5[th] of a macrogrid in area, and therefore not supportive of a CSA for that partial grid, are aggregated with the adjacent macrogrid that constitutes the longest border along that partial grid. The process described above is repeated for each expanded macrogrid.

Figure 5.3b (below) illustrates the census blocks associated with ultimate grids for Red Oak, Iowa, as a result of assigning microgrids to ultimate grids.

Figure 5.3b
Census Blocks and Ultimate Grids
Red Oak, Iowa

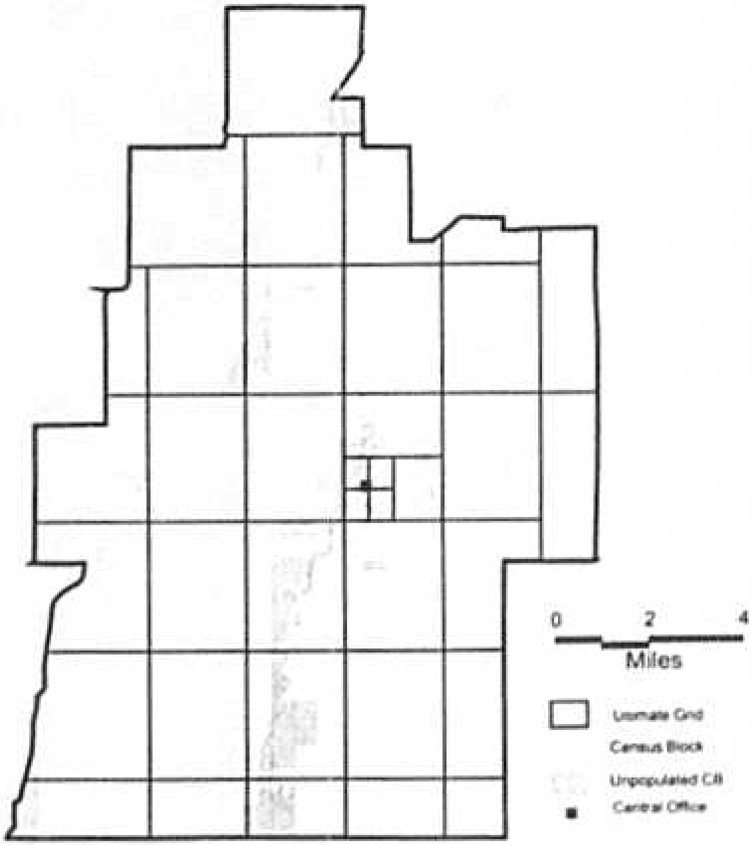
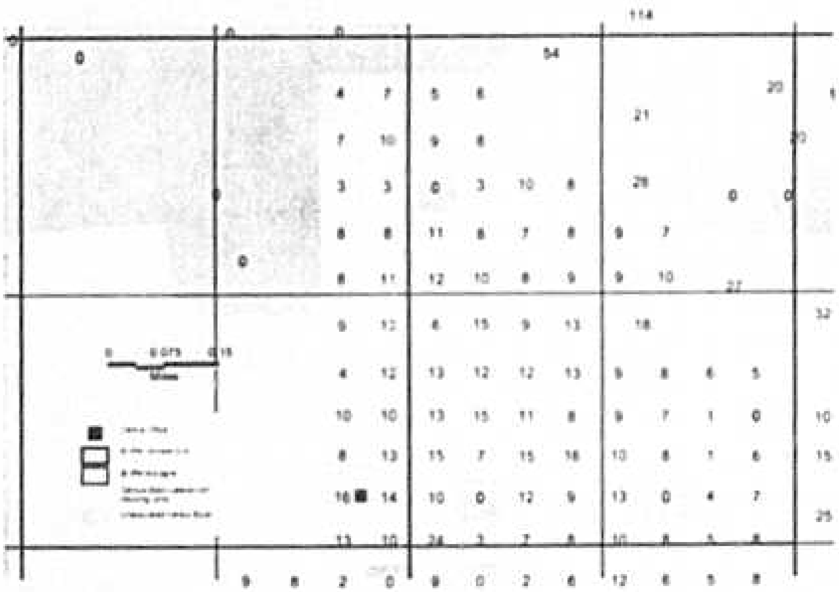


Figure 5.3c is a closer look at the relationships between CBs, microgrids, and ultimate grids. Clearly, the model is assigning or apportioning CB data in a way that consistently creates grids sized to meet CSA guidelines, whether the CBs contain high or low population densities. In the urban center, each microgrid contains numerous CBs, with several microgrids making up an ultimate grid. In the rural area, each ultimate grid contains relatively few CBs, as illustrated by Figure 5.3d.

Figure 5.3c
BCPM Ultimate and Microgrid Size
Urban Red Oak, Iowa

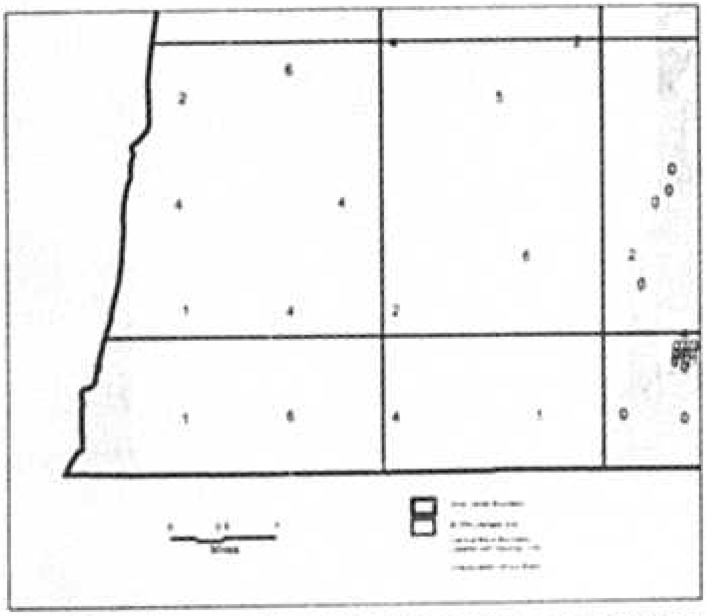
Urban Red Oak



This map displays the size of Census Blocks within the urban center of the Red Oak wire center, relative to micrograms in the same area. This diagram depicts two ultimate grids, each containing four microgrids. Please notice that the microgrids are much larger than the Census Blocks they contain. It should be apparent from this view that most of the urban CBs are directly assigned to the microgrid and do not require use of the allocation process. Furthermore, this association between Census Blocks and microgrids is retained in the final customer location step, establishing the distribution quadrants. This ensures that BCPM places cable to the actual customer locations, rather than moving the customers to some hypothetical distribution cable network.

Figure 5.3d
BCPM Ultimate Grid Size
Rural Red Oak, Iowa

Rural Red Oak



Census Blocks in this rural portion of the Red Oak wire center are smaller than the ultimate grids that contain them. In this rural area with very low density, the ultimate grid is the most relevant unit of measure. This is because typically, only one FDI (co-located with the DLC system) is placed per ultimate grid. Note that at this level many Census Blocks are wholly assigned, not allocated, to their ultimate grids. This ensures that the model maintains an accurate representation of customer location.

5.3.6 Establishing Distribution Quadrants Within Each Grid

Once the ultimate grids have been established, each ultimate grid[26] is segmented into four distribution quadrants. The latitude and longitude coordinates of the distribution quadrants are determined by first establishing the road centroid of the grid.[27] Figure 5.4a (below) displays the road system and road centroids for ultimate grids in Red Oak, Iowa. Distribution quadrants within the ultimate grid are centered about this road centroid.

Figure 5.4a

Road System and Road Centroids
Red Oak, Iowa

[26] Since data is not defined below the microgrid level, the microgrid cannot be segmented into quadrants.

[27] The road centroid is calculated as the average horizontal and vertical point of all roads in the defined area.

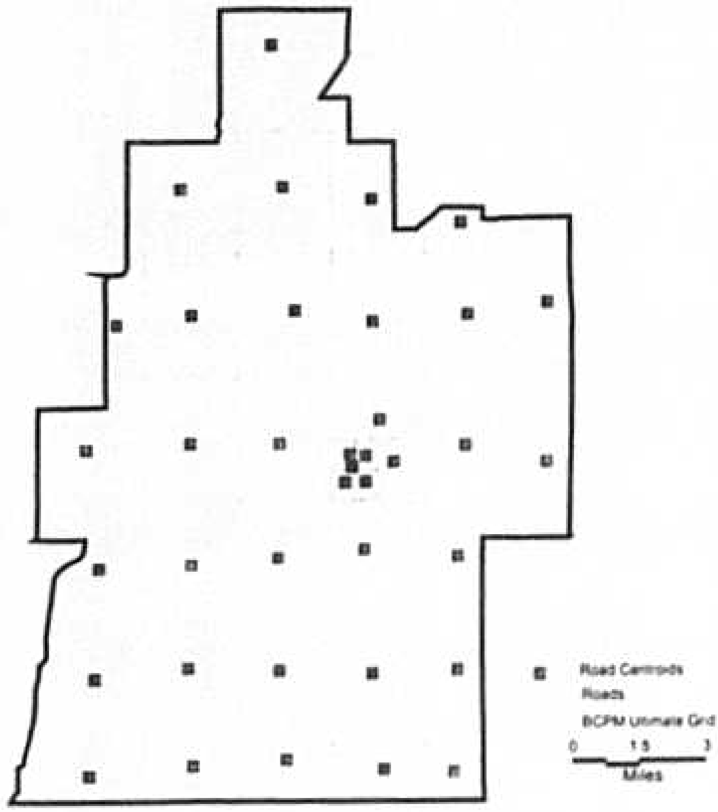
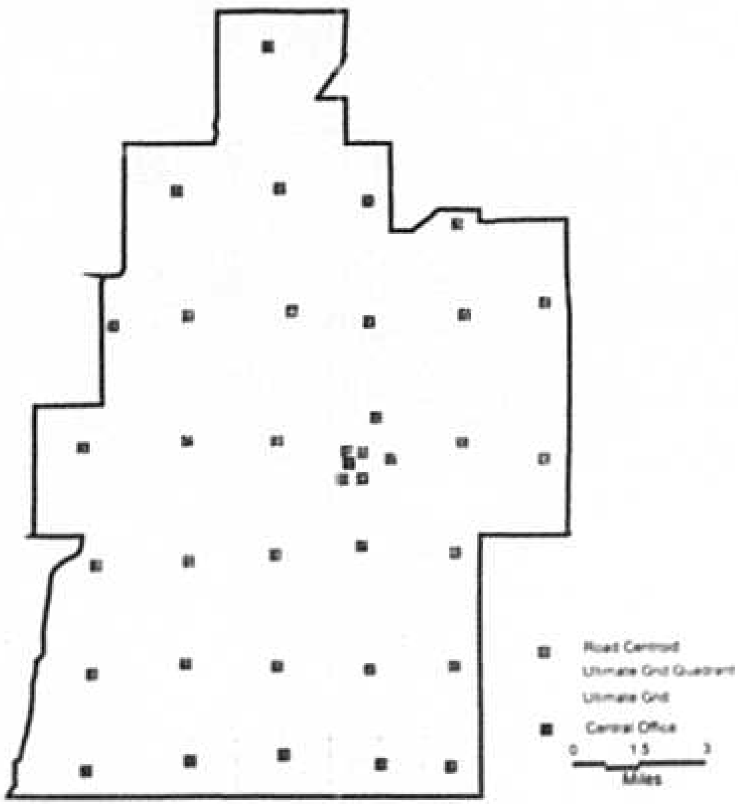

Road Centroids
Roads
BCPM Ultimate Grid
0 1.5 3
Miles

Figure 5.4b (below) shows the resulting distribution quadrants.

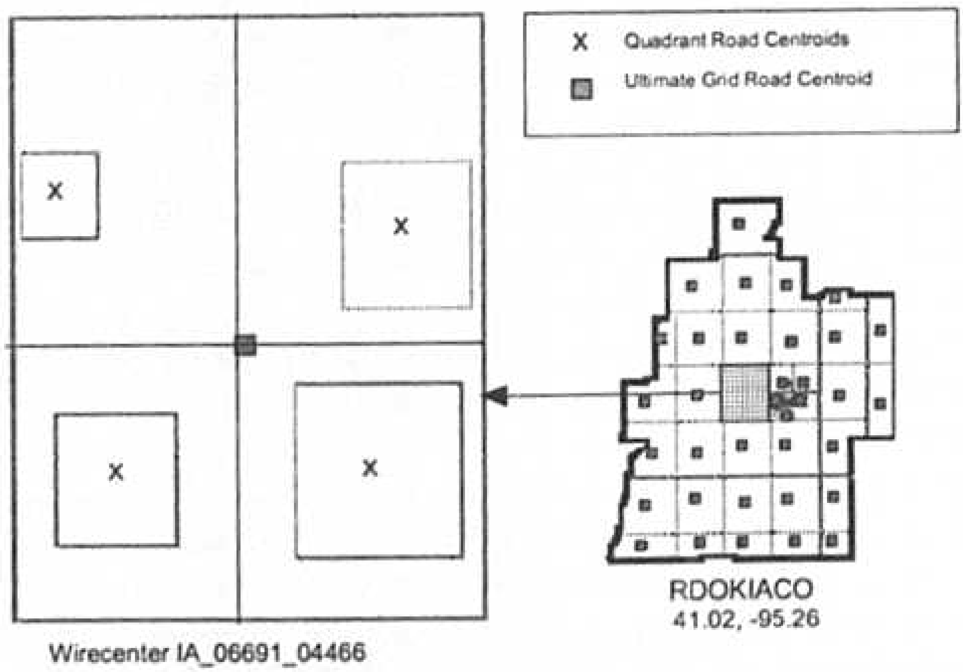
Figure 5.4b

Road Centroids and Distribution Quadrants
Red Oak, Iowa



Within each distribution quadrant, another road centroid is established. If a distribution quadrant does not contain any roads, that distribution quadrant is simply treated as an empty distribution quadrant. For each non-empty distribution quadrant, the total area that falls within a 500-foot buffer along each side of the roads within that distribution quadrant is calculated. The road-reduced area is modeled as a square whose size is equal to the total road buffer area. The road-reduced area can vary in size and location among distribution quadrants within an ultimate grid. The center of each distribution quadrant's square road-reduced area is placed at the road centroid of the distribution quadrant. (See Figure 5.5, below, for an example of quadrants for an ultimate grid in Red Oak, Iowa.) Within each of these road-reduced areas, the customer data, apportioned at the microgrid level for housing units and business lines, is retained at the distribution quadrant level and subsequently passed to the distribution algorithms for cable design.

Figure 5.5
Road Reduced Areas Centered
About the Road Centroids
Red Oak, Iowa



Such an approach provides a reasonable model of the required telecommunications network facilities for two reasons. First, households and businesses typically reside near roads. Centering the road-reduced area about the center of the road network establishes network facilities closer to where customers are located than would the geographic center of the distribution quadrant. Second, rights of way for telecommunications structure generally exist near roadways. This approach reduces requisite network facilities, given customers' actual location.

SECTION 6.0

OUTSIDE PLANT METHODOLOGY

6.1 Overview

The loop module is designed to develop the loop costs associated with providing basic telephone service. BCPM 3.1 integrates more precise information regarding customer location than BCPM 1.1 with a customer location algorithm that establishes an optimal grid size based on an efficient network design.[28] Thus, the optimal grid size is determined by adhering to sound engineering practices that reflect forward looking, least cost technology for providing basic service. The "ultimate grid" is sized to comply with the technical requirements of a Carrier Serving Area (CSA). A CSA consists of a geographic area that can be served by a single digital loop carrier (DLC) site.

While BCPM 3.1 maintains some features of the loop engineering design in BCPM 1.1, the Model incorporates significant loop engineering changes to increase network efficiency. Recall that BCPM 1.1 squared the area encompassed by a CBG. For those CBGs with a density of less than 20 households per square mile, the squared CBG was reduced to a smaller square whose area is equivalent to the area encompassed within a 500 foot road buffer on each side of the roads within those low-density CBGs. BCPM 1.1 designed outside plant based on the assumption that customers are uniformly distributed throughout the road-reduced area.

BCPM 3.1 abandons the assumption in BCPM 1.1 that all customers are uniformly distributed throughout the CBG. BCPM 3.1's customer location algorithm uses housing and business line data at the Census Block (CB) level combined with information regarding the road network to more precisely locate customers. Utilizing all of this data, BCPM 3.1 models clusters of customers where they are indeed clustered and models sparsely populated areas where customers are, in fact, dispersed. This is all done while still retaining the shape and relative cable design of the wire center territory.

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[28] See "Joint Comments of BellSouth Corporation, BellSouth Telecommunications Inc., U S WEST Inc., and Sprint Local Telephone Companies to Further Notice of Proposed Rulemaking Sections III.C.1", CC Docket 96-45 and CC Docket 97-160, filed Sept. 2, 1997.

Major changes to the BCPM 1.1 loop engineering include:

- directing main feeder toward population clusters, where appropriate;
- sharing of subfeeder, where appropriate;
- placing the DLC(s) at the road centroid of the grid;
- creating quadrants within the engineering area;
- running horizontal and vertical cables from the DLC site to each distribution area;
- placing the FDI at the road centroid of the quadrant where appropriate;
- allowing the road-reduced area to vary in size;
- permitting empty quadrants within grids, where appropriate;
- permitting sharing of the FDI between quadrants on either the left or right side;
- permitting co-location of the FDI with the DLC; and
- ensuring that the total cable length within a quadrant does not exceed the total road distance within that quadrant.

6.2 Engineering Standards

The engineering protocols most central to the design of this model include a maximum loop length for each CSA that is less than 12,000 feet. To ensure attainment of this standard, the maximum ultimate grid size is typically constrained to 1/25th of a degree latitude and longitude (approximately 12,000 feet by 14,000 feet). (Section 5.3.3 provides an in-depth discussion of BCPM 3.1's grid design.) The design of the ultimate grids ensures that the maximum copper loop length from the DLC site to the customer for any individual customer should not exceed 18,000 feet. A copper loop greater than 18,000 feet must be loaded or electronically extended at a substantial cost. The FCC clearly stated in its May 8, 1997 Order on Universal Service that no loaded loops are permitted.[29]

These constraints also ensure compliance with standard AT&T/Lucent and US LEC practices covering loop resistance and electrical (dB) loss.

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29 FCC Report and Order, "In the Matter of Federal-State Joint Board on Universal Service," CC Docket No. 96-45, Released May 8, 1997, Paragraph 250, criterion 1 of the FCC's 10 criteria.

6.3 Feeder Design

The first step in designing the network is to create the feeder cable routes. This is done in the preprocessing portion of the modeling. Beginning at the wire center, a maximum of four main feeder[30] routes run directly east, directly north, directly west, and directly south from the wire center to serve four feeder quadrants. These routes run for 10,000 feet. This is based on the assumption that within 10,000 feet, customers are generally located within the perimeter of a town and that the town has some sort of gridded street complex. However, beyond 10,000 feet, the direction of each main feeder is determined by customer concentrations as reflected in the microgrid information data.

If the line count in the center 1/3 of a feeder quadrant is greater than 30% of the total feeder quadrant lines, this feeder remains a single feeder and potentially points to the population centroid of the entire feeder quadrant. The 30% figure is used to determine whether there is enough line demand in the middle to support the economics of a single feeder.

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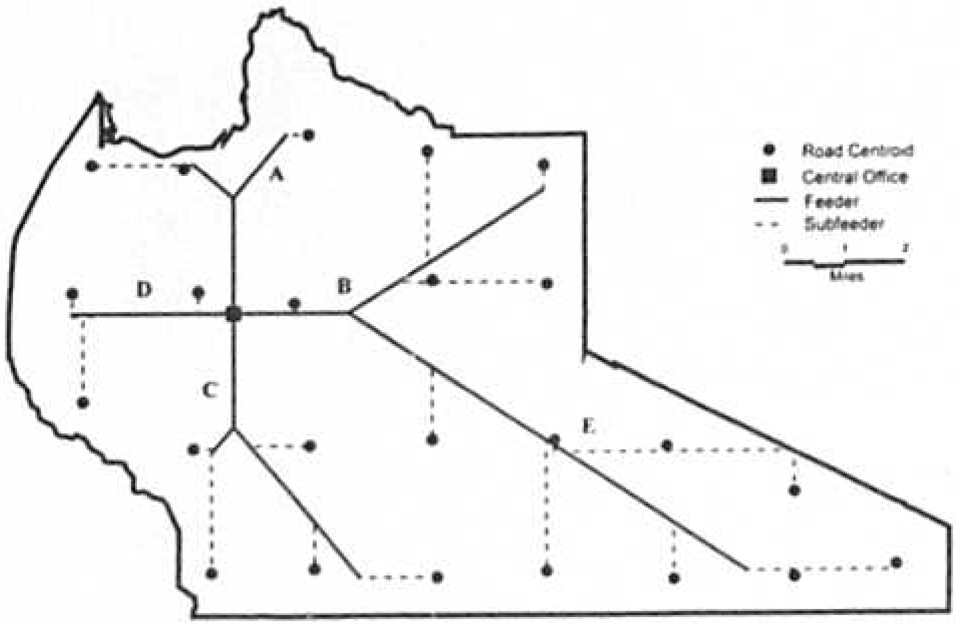
30 There is a requirement for four main feeders. If due to the shape of the Wire center territory four feeders are not necessary, only the required number of feeders will be designed.

Figure 6.1
Feeder Plant
Glenville



If the line count in the center 1/3 of a feeder quadrant is less than 30% of the total feeder quadrant lines, the feeder splits into two main feeders, each potentially pointed at the population centroid in one half of the feeder quadrant. Each portion of the split main feeder is sized according to the number of customers that it serves. This modeling best depicts how a loop network is designed. This breakpoint should capture the need to split the cable to avoid any natural barriers. (An example of a split feeder is shown on the north directed main feeder (A), the east directed main feeder (B), and the south directed main feeder (C) in Figure 6.1). The length of the main feeder(s) is limited to the minimum distance necessary to reach the last subfeeder of an ultimate grid.

Anytime the model logic indicates that the main feeder should be redirected, or split, at the point 10,000 feet from the central office, a test is run to determine if the design produces the least cost network. Total feeder cable length (including feeder, subfeeder and sub feeder part two) for the redirected or split feeder system, potentially pointed to the population centroid, is compared with the total feeder cable length for a design where the main feeder is continued in the original cardinal direction, i.e. due north, south, east or west and subfeeders at right angles to the main. The design with the shortest total feeder cable length is selected.

6.4 Subfeeder Design

From the main feeder, subfeeders branch out toward the individual ultimate grids. Subfeeder is potentially shared by more than one ultimate grid. An example of this sharing is shown as area E in Figure 6.1.

Along a main feeder within 10,000 feet of the wire center, subfeeders may branch off the main feeder every 1/200th of a degree boundary.[31] For a single main feeder, i.e. a main feeder that does not split beyond 10,000 feet from the wire center, subfeeder branches upward or downward (vertically) from the main feeder in east and west feeder quadrants, and branches outward (horizontally) in north and south feeder quadrants. (See the west directed feeder (D) in Figure 6.1)

Along a main feeder beyond 10,000 feet of the wire center, subfeeder branches out at most, once between every 1/25th of a degree boundary. For a split main feeder that angles greater than 22 1/2 degrees from the direction of the original main feeder (away from the wire center), subfeeder emanates vertically upward or downward as appropriate, and horizontally outward away from the wire center, creating a fishbone pattern. For a split main feeder that angles less than 22 1/2 degrees from the original main feeder, subfeeder emanates outside of the subfeeder as explained above (away form the direction

[31] This corresponds to the boundaries of the underlying microgrids, i.e. the smallest grid size possible.

of the original main feeder cardinal line, i.e. due north, south, east or west) and emanates inside towards the cardinal line either horizontally for north and south directed main feeder or vertically for east and west directed main feeder. If the cardinal feeder line has extended from the 10,000 foot point, this interior subfeeder would create a right angle with the original cardinal line[32].

Subfeeder part 2 links subfeeder to the road centroid of an ultimate grid for those ultimate grids whose road centroid does not intersect the subfeeder. Thus, by definition, subfeeder part 2 is not shared by multiple ultimate grids.

A DLC site is established (where loop lengths exceed the copper/fiber breakpoint) within each CSA at the road centroid of the ultimate grid.[33] The number of DLCs placed at the DLC site depends on the number of lines served in that CSA.

If a CSA is served by copper feeder, the cross connect where copper feeder facilities are connected with copper distribution facilities (the feeder/distribution interface (FDI) site) is established at the road centroid for that ultimate grid.

Right and left connecting cables extend from the DLC location to the road centroid of each non-empty distribution quadrant. These connecting cables consist of horizontal connecting cables that extend east and west from the DLC site and vertical connecting cables that vertically connect the horizontal connecting cable to the road centroid of each of the non-empty distribution quadrants. Figure 6.2 shows an example of a grid distribution system with an empty quadrant.

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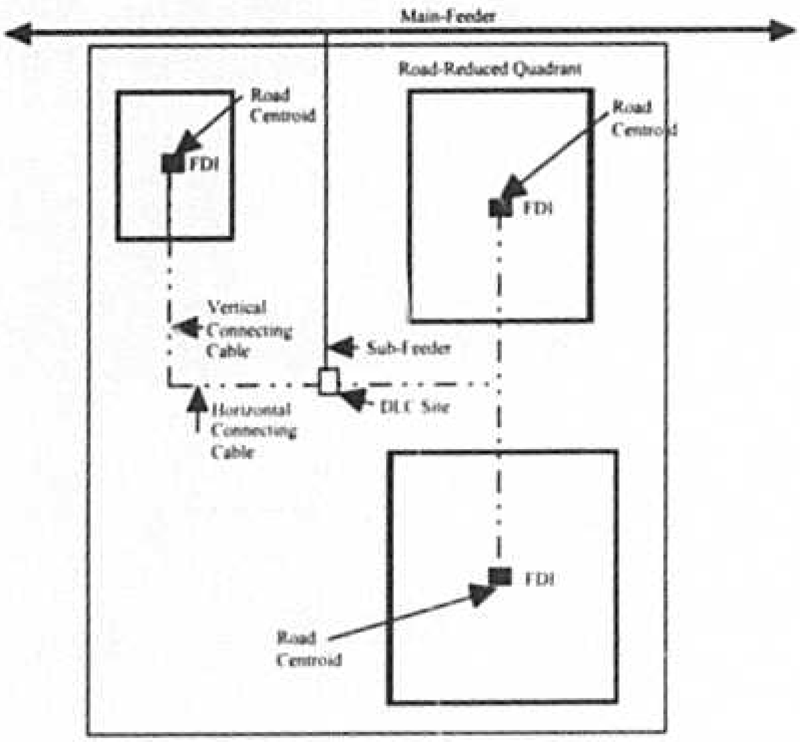
[32] In the case that both split feeders move at angles less that 22 1/2 degrees, the determination of which subfeeder serves grids that lie between the split feeders is made based on the shortest route to the road centroid of the grid.

[33] The road centroid is a point that represents the weighted average of the length of the roads within the defined area.

Figure 6.2
OUTSIDE PLANT DISTRIBUTION
Cabling to Quadrants



For purposes of summarizing plant investments, all cables connecting the DLC to remote FDIs are categorized as feeder, and any facilities that extend beyond the FDI to the customer are categorized as distribution plant.

6.5 Feeder Equipment

The Model allows for two DLC categories, each providing multiple size options of remote and central office terminal size. This permits placement of small DLCs in CSAs that serve a relatively small number of customers. Both large and small DLCs are assumed to be integrated DLC systems. In addition, the Model captures efficiencies garnered from large DLCs where appropriate. The decision to use either a small DLC or a large DLC is based on the number of lines the DLC can serve. Given an engineering fill factor of 90%, a small DLC is placed if the CSA serves less than 216 lines, i.e. 240 times 90%. This engineering fill factor is a user adjustable input.

A typical DLC remote cabinet size for a large DLC, such as the "Litespan-2000", can serve only up to 1,344 lines. BCPM places a second cabinet to complete a 2016 line system if applicable. Whether more DLCs are placed in that CSA depends on whether sound engineering practices call for another DLC or whether it is optimal to divide a grid further, into smaller ultimate grids, each representing a CSA. For example, it is possible for a single CSA to serve 5,000 customers if a large number of customers are located in a single office complex. In this case, multiple DLC cabinets/systems would be installed to provision the 5,000 lines.

6.6 Feeder Cable Requirements

The type of cable used in the feeder system is determined based on the specified copper/fiber breakpoint. The copper/fiber breakpoint is a user adjustable input.[34] The default input for the copper/fiber breakpoint is 12,000 feet. A copper/fiber breakpoint of 12,000 feet requires placing copper in the feeder if the maximum loop length from the wire center to all customers within an ultimate grid is less than 12,000 feet. If the loop length for any customer in the ultimate grid exceeds 12,000 feet, fiber is placed in the feeder to serve all customers in the ultimate grid. For all loops, cable beyond the DLC site is copper.

Feeder cables are sized to accommodate the number of working lines based on total residential, business, and special access lines. The size of feeder cables is based on the number of actual working lines adjusted by a variable engineering fill factor. For example, at an 85% engineering fill factor, a 400 pair cable can accommodate 340 working pairs before increasing the cable size. The default assumes a 75% engineering fill factor for the lowest density zone, an 80% engineering fill factor for the next two lowest density zones, and an 85% engineering fill factor for the remaining six density zones. These engineering fill factors for feeder cable are user adjustable inputs.

The required capacity for a segment of fiber feeder plant is determined in a similar manner. However, large DLC technology and small DLC technology cannot share fiber strands because of different transmission protocols. For large DLC systems, four fibers

[34] The Model allows the user to set the copper/fiber break point between 6,000 feet and 18,000 feet, given 3,000 foot increments.

can carry up to 2,016 voice grade paths. If the segment capacity exceeds this limit, four additional fibers are required for each increment of 2,016 voice grade paths. For small DLC systems, four fibers can carry up to 672 voice grade paths. Like large DLC systems, each additional increment of 672 voice grade paths capacity requires an additional four fibers. The voice grade paths are determined for each technology by summing the lines by Grid utilizing the particular technology and dividing the sum by the electronic fill factor.

The total capacity for a fiber feeder segment is the sum of the required large DLC fiber strands and required small DLC fiber strands. BCPM 3.1 determines the number of maximum size fiber cables and the size of the additional fiber cable to meet the capacity needs of the segment. The fiber feeder cable sizes available in the Model are 12, 18, 24, 36, 48, 60, 72, 96, 144, and 288 strands.

6.7 Distribution Plant Design

With the exception of the ultimate grids that remain microgrids in size, each ultimate grid, or equivalently, a CSA, is divided into four potential distribution quadrants.[35] The ultimate grid is quaded into four distribution quadrants at the road centroid of the ultimate grid which corresponds to the DLC site. Once the distribution quadrant is formed, data on the road network is used to determine the lengths of horizontal and vertical connecting cable and backbone and branch cable. For modeling purposes, a road-reduced area is developed as the area encompassed by a 500 foot buffer along each side of the livable roads (e.g., excluding limited access freeways and underpasses). While the road-reduced area is a simulation of reality, it is easy to conceptualize as a square centered about the road centroid of the distribution quadrant. The road-reduced area is equal to the area encompassed by a 500 foot buffer along each side of the roads within the distribution quadrant.[36] This is shown in Figure 5.5 in Section 5.3.4. No distribution facilities are placed within a distribution quadrant that

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[35] Ultimate grids which are equivalent to a microgrid in size, are treated as a single distribution quadrant. This typically occurs in denser, urban areas.

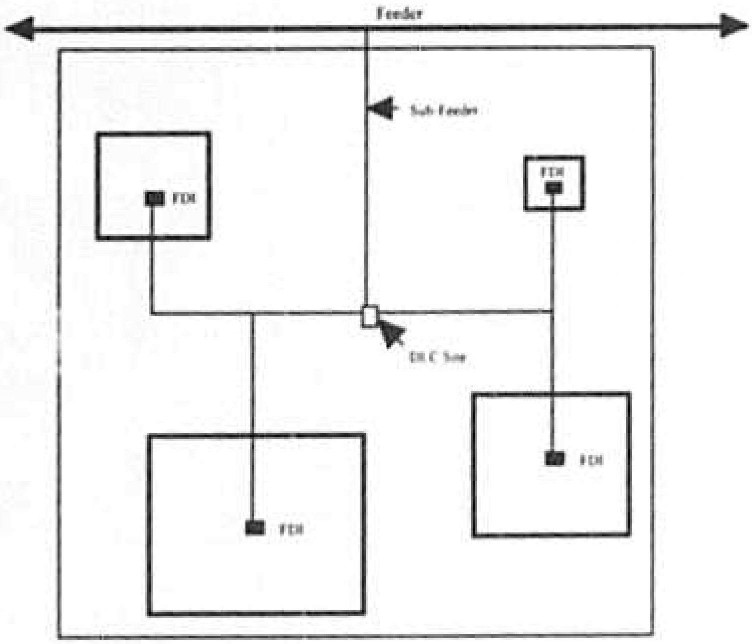
[36] In cases where an ultimate grid remains the size of a microgrid, a 500 foot buffer along the roads within a microgrid typically corresponds to an area that is greater than the area of the microgrid. In such cases, the area is not reduced in size. The Model constrains the road-reduced area so that it does not exceed the area of the microgrid.

does not have any roads, i.e. a non-populated distribution quadrant. The location of the centroid of the road-reduced area (with respect to the road centroid of the ultimate grid itself) determines the distance the horizontal and vertical connecting cables must traverse. The size of the road-reduced area and the number of customers in the distribution quadrant determines the length of the backbone and branch cable.[37] The road-reduced area is not used to locate customers, but as a modeling tool to determine likely cable distances required to serve customers in the distribution quadrant.

In determining the number of FDIs to install in an ultimate grid, the Model reviews the cable sizing used in the Grid. When the distribution cable sizing exceeds 1,200 pairs, the Model places an FDI at the road centroid within each populated distribution quadrant. Thus, the FDI is placed at the center of the road-reduced area. This is shown in Figure 6.3.

[37] The backbone cable is not tapered so as to have the capability to serve areas outside of the stylized square road-reduced area.

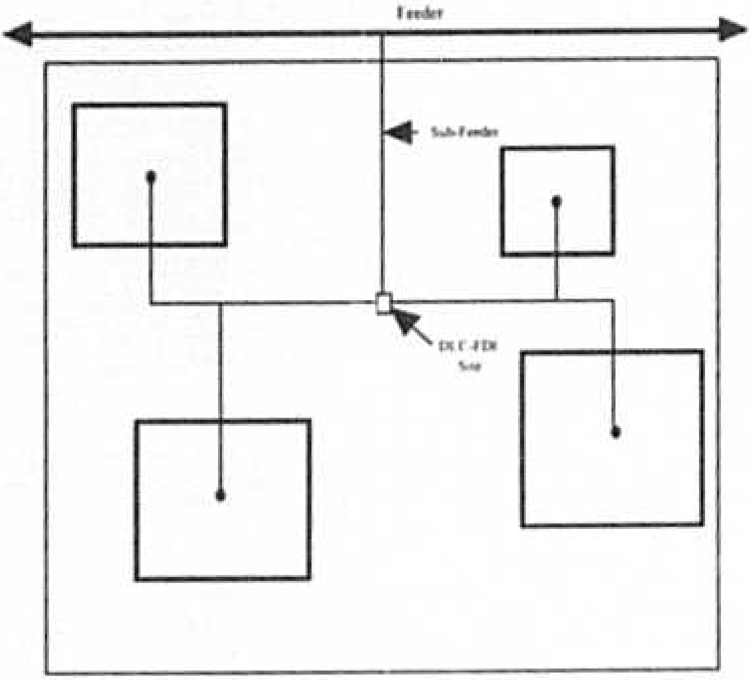
Figure 6.3
OUTSIDE PLANT DISTRIBUTION
FDI Located in each Non-Empty Quadrant
(Total Lines > 1200)



If there are no roads, and therefore, no population located within a particular distribution quadrant, no distribution plant is placed in that distribution quadrant. Horizontal and vertical connecting cable links the DLC to the FDI within non-empty quadrants.

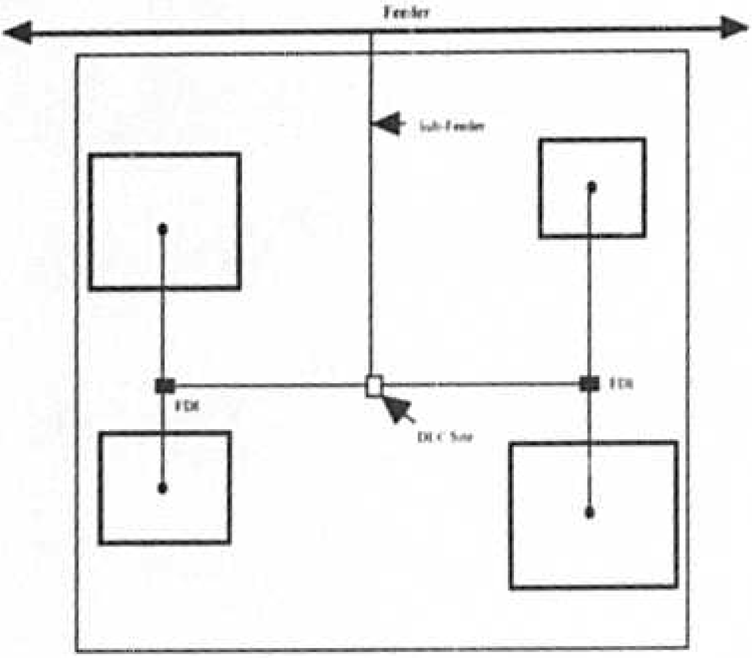
When the distribution cable sizing does not exceed 1,200 pairs, the Model allows for cost savings from placing fewer FDIs. More precisely, for ultimate grids that are served by distribution cables totaling less than 600 pairs, the algorithm essentially computes the cost of placing a single FDI within those ultimate grids. This is tantamount to co-locating the FDI with the DLC. In such cases, horizontal and vertical connecting cable is placed from the ultimate grid road centroid to the road centroid of a non-empty quadrant's road-reduced area. This condition is shown in Figure 6.4.

Figure 6.4
OUTSIDE PLANT DISTRIBUTION
FDI Co-Located with DLC
(Total Lines < 600)



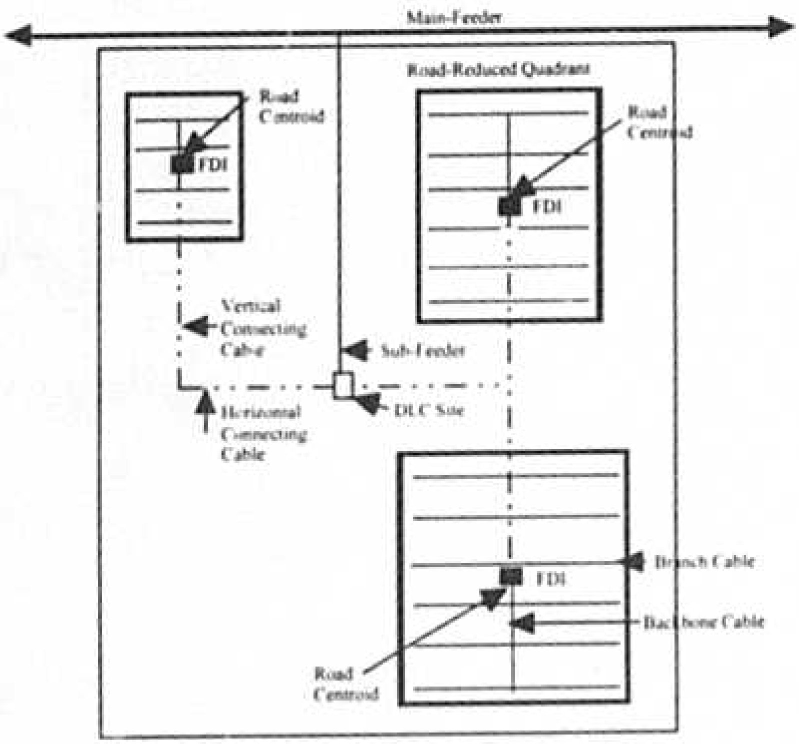
For ultimate grids containing line demand between 600 and 1,200 lines, the algorithm essentially computes the cost of placing two FDIs within those ultimate grids. This is tantamount to the two distribution quadrants located to the right of the DLC site sharing an FDI and the two distribution quadrants to the left of the DLC site sharing an FDI. Horizontal connecting cable connects the DLC to the FDIs and vertical connecting cable links the FDIs to the road centroid of the distribution quadrant. An example of this is displayed on Figure 6.5.

Figure 6.5
OUTSIDE PLANT DISTRIBUTION
FDI Shared by Quadrant to Right and Left of DLC
(Total Lines between 600 and 1200)



The backbone and branch cable distances are calculated using the area of the road-reduced area. While the cables might be placed in a different location, it is easy to think of a backbone cable as emanating up (north) and down (south) from the center of the road-reduced area. Branch cable is placed at 90 degree angles from the backbone cable to each terminal. (See Figure 6.6.) The final piece of distribution cable, the drop, extends from the branch cable to the middle of the customer's lot and is capped at 500 feet. Lot size within a distribution quadrant is based on the distribution quadrant's average lot size, determined by dividing the road-reduced area of the distribution quadrant by the number of locations, i.e. housing unit structures and business locations, within that distribution quadrant. Thus, lot size may vary across distribution quadrants within an ultimate grid.

Figure 6.6
OUTSIDE PLANT DISTRIBUTION



As a reasonableness check on cable requirements, the Model constrains the total length of cables (including the backbone, branch, vertical and horizontal connecting cables) within a distribution quadrant to not exceed the length of the road network in that distribution quadrant.

6.8 Distribution Equipment

Within the Model there are a number of rules that are used to select specific pieces of equipment to be used in the distribution plant. Among those rules with the most impact are:

- Within a grid, if the length of copper from the DLC to the last lot in a quadrant is less than 11,100 feet, 26 gauge cable is used to serve all customers. In those circumstances where the distance from the DLC to the last lot is greater than 11,100 feet, 24 gauge wire is used in all cables to and within the distribution quadrant. Where distances exceed 13,600 feet, extended range plug-ins are installed on lines that exceed 13,600 feet.

- The mix of aerial, buried and underground facilities is determined by terrain[38] and density[39] specific to that grid.[40]
- Terminals
  - Exterior Drop terminals are provided at each point where drops connect to branch cables and are sized for the number of connecting drops.
  - Indoor building terminals are placed on each multi-tenant building and are sized for the number of lines terminated at that location.
  - Different NIDs are used for business and residence locations. One housing is included for each living unit or business location, in addition to one protector and one interface per drop pair terminated.
  - Terminal cost input tables include entries for separate components of the installation process.
- Cables are sized using the following basic rules:
  - Branch cables are sized to the number of pairs for housing units and business locations. (This calculation takes the number of housing units times pairs per housing unit and the greater of actual business pairs per location or business locations times pairs per location.)
  - Each backbone cable is sized to carry 1/2 of the branch cable pairs to the FDI.
  - Cables throughout the feeder system are sized based on the actual number of pairs used from the FDI back to the switch.[41]

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[38] The nature of the terrain, i.e. rocky, sandy, hilly etc. is taken from the State Soil Geography (STATSGO) data based produced by the United States Department of Agriculture, and is defined for each microgrid. In most cases, a single microgrid covers a single terrain type, In the case that more than one type of terrain is covered by a single microgrid, a weighted average of terrain types is captured for the microgrid. Since the slope is one aspect of terrain, changes in slope affect cable length and cost.

[39] The model defines nine density zones based on lines per square mile. In addition to plant mix, density also influences cable fills and placement costs.

[40] More precisely, look up tables are utilized that specify cable mix based on terrain and density.

[41] The number of pairs used is determined by adding the actual number of business pairs to the number of housing units multiplied by a factor that accounts for the number of second lines for each housing unit. The model provides a second line factor on a state level based on ARMIS and NECA data. The user can use the default number, input a different state number, or input individual numbers at the wire center level.

6.9 Distribution Cable Requirements

The Model default inputs assume two pairs for a resident unit and six pairs for a business unit. The number of cable pairs per resident and business unit is a user adjustable input. The Model uses the actual number of business lines if it exceeds the user adjustable line per business location (currently set at 6). Using this design criteria, cables are appropriately sized.

6.10 Loop Length Calculation and Special Considerations

To measure the distance of the loop length the Model adds the following elements:

- •Linear distance of the feeder to the subfeeder;
- •Linear distance of the subfeeder to the subfeeder part 2;
- •Linear distance of the subfeeder part 2 to the DLC;
- •Length of the vertical cable;
- •Length of the horizontal cable;
- •Half the length of the branch cable;
- •Half the length of the backbone cable; and
- •Length of the drop cable.

The Model provides the user with the option of establishing a cap on the maximum loop investment. The cap can be evaluated at a national or wire center level. For example, if the user sets a cap at $10,000, each loop whose investment potentially exceeds $10,000 is capped at $10,000. This cap is a user adjustable input. One reason for providing the option to use a cap on loop investment is to allow for the possibility that regulatory/public policy may limit the maximum investment level per line that universal service funds can support. A second reason for the cap is to allow for technological alternatives, such as a wireless technology, for providing basic service beyond some user specified investment threshold. The Model results are typically provided on both a capped and uncapped basis.

6.11 Terrain

U.S.G.S. and Soil Conservation Service data for four terrain characteristics that impact the structure and placement cost of telephone plant are included as inputs to BCPM 3.1 by CBG and assigned to an ultimate grid. These terrain variables include depth to water table, average slope of the ground, depth to bedrock, hardness of bedrock, and surface soil texture. Combinations of these characteristics determine one of four placement cost levels.

Placement Cost Levels (increasing placement difficulty)

- (Normal) Neither water table depth nor depth to bedrock is within placement depth for copper or fiber cable, *and* surface soil texture does not interfere with plowing.
- Either soft bedrock is within cable placement depth *or* surface soil texture interferes with plowing.
- Hard bedrock is within cable placement depth.
- Water table is within cable placement depth.

When both fiber cable and copper cable are placed together in an underground or buried installation, the fiber placement depth is used to determine the placement difficulty.

6.12 Additional Features in the Model

The Model recognizes conduit and pole structure that is shared with power and cable industries. Sharing of structure rules are located in user adjustable tables. These tables incorporate the flexibility that was introduced in BCPM 1.1. For those unfamiliar with that previous version, the structure sharing inputs allow the user to have greater control over where sharing really takes place. The user can set the amount of sharing on the type of activity incurred such as plowing, rocky plowing, and cable boring.

6.13 Data Input File

All of the work creating the grid system and the feeder route distances is done outside BCPM 3.1 model using a combination of Mapinfo and C+ software. At this point, the data input file is prepared summarizing information about the grid layout and main feeder, subfeeder and subfeeder part 2 design and distances. When the Model is run, the feeder plant is sized, tapered, and the cost determined. The Model then designs, builds, sizes, and assigns costs to the distribution plant.

SECTION 7.0

SWITCHING

7.1 Introduction

The BCPM—Switching Module (BCPM-SM) is designed to develop per line switching investments for Universal Service Fund (USF) applications and to provide the basis for UNE costs. The Model fully supports a forward-looking economic cost methodology, and reflects generally available digital switching technology.

The Module was specifically designed to meet the design goals of the FCC as stated in various Universal Service notices. The goals include:

- Separate identification of host, remote, and standalone switches and calculation of costs specific to each type;
- Acceptance of data such as switch classification, wire center traffic characteristics, and switch investments from multiple sources; and
- Sharing of costs between the host switch and its attendant remote switches to reflect properly the efficiencies of such arrangements.

BCPM-SM includes a number of capabilities to meet these directives. The Model:

- Uses separate cost equations for host, standalone, and remote switches. Allowances are made, to the extent feasible, for the input of user-defined switch equations;
- Provides global data inputs for those study areas where specific data are not available; (All data inputs are available for inspection and can be replaced by the user as desired.)
- Can accept switch investments from several sources; (These sources could be either the Model's internal switch equations, data provided from FCC data requests, or investment results from Audited LEC Switching Models (ALSMs))
- Analyzes input data files to determine whether switch capacity constraints have been exceeded for any wire center, and if so, places an additional switch in that wire center; and

- Determines the realistic portion of each switch attributable to basic telephone service, by means of a process that calculates specific investments for a set of functionally significant investment categories (e.g. the line port.)

7.2. BCPM 3.1 Enhancements

BCPM 3.1 introduces a number of major innovations to the switch cost approach used in BCPM 1.1. The most important changes include:

- The BCPM 1.1 switch curve made no distinction between host and remote switches. BCPM has separate switch models for host, remote, and standalone switches.

- Where BCPM 1.1 estimated a single total switch investment, BCPM 3.1 calculates switching investments for each of several switch functional investment categories, using a separate curve for each category. This allows BCPM 3.1 to accurately identify, for each central office, the portion of investment that supports universal service. In addition, the switch can be accurately partitioned into non-traffic sensitive (Line Port) and traffic sensitive investments. BCPM 1.1 provided a single input that allowed the user to specify the percent of the total switch investment that was local, or universal service.

- BCPM 1.1 switch curves estimated switch functional investments based only on the number of lines in the office. In contrast, BCPM 3.1 uses a variety of inputs including call rates, usage levels, and number of trunks, as well as the number of lines. BCPM 3.1 allows input of usage levels for universal service that can be independent of the usage inputs used to engineer the switch. Usage inputs can be distinguished by residence and business lines if desired. Many data items can be input on a state-specific and/or wire-center specific basis with a "fallback" feature that allows the Model to use the state-level inputs in those cases where wire-center inputs are not available.

- BCPM 1.1 was based upon a sample of switch investments that included DMS-100 and 5ESS switches. The single switch curve, however, made no distinction between the two switches. BCPM 3.1 is also based on the 5ESS and DMS-100 switches and in addition, allows the user to specify a switch vendor, if that information is available.

BCPM 3.1 also provides the user an additional switch curve that reflects the costs for smaller switches.

- The BCPM 1.1 model was developed using responses to a "Best of Breed" data request sent to the LECs. This data request asked for discounted unit investments produced by SCIS runs. The resulting model in essence produced an average discount level for the companies polled. BCPM 3.1 is based on a similar data set produced by the BCPM sponsor companies (BellSouth, Sprint, U S WEST). The sponsor companies provided non-discounted switch investments for use in the switch curve. The investments were produced with SCIS runs, except for the U S WEST investments, which were produced with the Switching Cost Model (SCM).

- BCPM 1.1 used a single means, the switch curve, for estimating wire center switch investments. BCPM 3.1 can use several sources of investments to determine USF costs: the switch regression curve, direct input from an ALSM, or total switch investments from any other source. BCPM 3.1 can partition the investments from other sources by functional investment category, producing accurate estimates of universal service investments by switch.

- BCPM 1.1 did not have an algorithm to limit switch sizes. BCPM 3.1 has the capability to scan the input table to determine whether the capacity constraints for any given wire center have been exceeded. If a wire center has more than a user-defined number of lines, the Model automatically inserts a new switch entity. This overcomes a limitation that caused simple switch curve models to create "switches" with unreasonably large amounts of lines or usage.

7.3 Switching Overview

The modern digital switch is in essence a specialized minicomputer. Like all computers, it has a central processor, interfaces to the outside world, and internal data channels which carry digital messages (in this case telephone calls) from one component to another. To understand the switch costing methodology presented in this document, it is important to first discuss the basic functions and components of a switch.

7.3.1 Switch Functions

Central Office Switches provide the connection between a subscriber's local loop (access line) and the outside world. Modern digital switches can handle voice, data, and video signals as they link telephones, fax machines, and computers together on the public switched network. The functions performed by switches for local service include:

- Line Termination, or local interconnection to an exchange circuit (local loop);
- Line Monitoring, to ensure that requests for service (off hook) are reliably served;
- Usage Call Processing, Routing, and Completion;
- Interconnection to all Telecom carriers;
- Billing and Maintenance; and
- Vertical Services and Features.

7.3.2. Rate Elements Supported by Switching

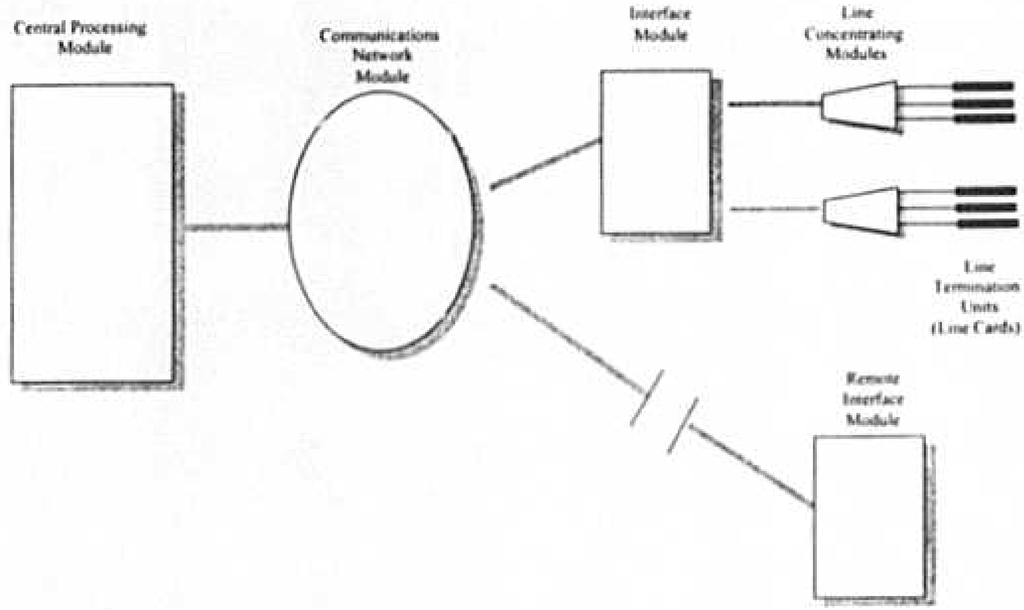
Some of the primary network cost and rate elements supported by central office switches include:

- Line Port,
- Line Usage,
- Trunk Usage,
- Local Tandem Switching (Part of Common Transport),
- Custom Calling, Centrex, and CLASS Features, and
- Signaling (Signaling System 7).

7.3.3. Switch Architecture

Modern digital switches are built in a modular fashion allowing any switch to be configured in a variety of different ways by combining standard components. This permits the switch to be designed efficiently and flexibly, and to grow as needed to support new subscribers and services. The same basic components can be used in different roles. For example, Line Termination Units and Line Concentrator Modules are used in host switches to terminate subscriber lines. When placed in a remote hut and connected to the host switch by umbilical trunks, these components can function as a remote "switch". In many cases, it may be more economical for the telephone company to place such a remote than to install Digital Loop Carrier equipment to serve the same subscribers.

Typical Switch Architecture



The architecture of a modern digital switch can be described generically as having three components: the Central Processing Module, the Communications Network Module, and Interface Modules. These three modules perform, respectively, central control, central call processing, and line termination/supervision. The two most common end office switches in deployment in the U.S. are the Lucent 5ESS® and the Nortel DMS-100®.

7.3.3.1 Interface Module (IM)

The Interface Module (IM), known as the Peripheral Module in the DMS-100® and the Switch Module(SM) in the 5ESS®, contains Line Termination Units or Line Cards, Line Concentrating Modules, and Digital and Analog Trunk interfaces. Line Termination Units provide the dedicated circuit termination between the customer and the network. Line Concentrating Modules bundle or funnel the individual circuits into speech links which connect to the Communication Module. Typically, the IM provides one speech link for every two to six line terminations. Trunk terminations, however, are not concentrated. The IM provides what are known in the industry as the basic BORSCHT functions of the switch:

- Battery,
- Overvoltage (protection from power surges),
- Ringing (power ringing),
- Supervision,
- Coding/Decoding (analog/digital conversion), and
- Hybrid Testing.

Many, but not all, IMs have limited internal call processing capability which allows them to connect calls which originate and terminate within the IM even in the event of a failure in the host switch. In particular, the 5ESS® has microprocessors located within the SMs which enable a large proportion of calls to be handled without the involvement of the central processing unit, or Administration Module. This is not necessarily a superior design feature, but it does have important implications in the development of a valid cost model.

7.3.3.2 Communications Network Module

The Communications Network Module (CNM), also known as the Network Module (NM) in the DMS-100® or the Communications Module in the 5ESS®, is responsible for providing speech links between IMs. It is the core of the time-division-multiplexed switch fabric which efficiently connects and controls all of the major elements of the digital switch. The CNM also transmits the messages which pass between the CPM and IMs to coordinate call processing and administrative functions.

7.3.3.3 Central Processing Module

The Central Processing Module (CPM) comprises the Administrative Module in the 5ESS®, and the Central Control Complex and Input/Output Controllers in the DMS-100®.

The CPM is responsible for the establishment and coordination of connections though the switch. It sets up internal connections between lines for intra-switch calls and between lines and trunks for inter-switch calls. It is the central collection point for billing and performance information and provides interfaces to the external billing and performance monitoring systems. The CPM provides the interface with the SS7 network. Maintenance and administrative functions, such as the establishment of customer service, are controlled here.

In general, the CPM of the DMS-100® is more involved in routine call processing than that of the 5ESS®. In the 5ESS®, most call processing is handled by distributed microprocessors located in the CNM and IMs.

7.4 Switch Model Methodology

7.4.1 Overview Of The Process

Although the process of determining per line switching costs for universal service entails numerous analytical steps, it can be summarized in three major phases.

- First, the Model compiles the switch-specific data inputs to be used for investment development.
- Second, BCPM generates total switch investments by functional category (FCAT) for each switch.
- Third, the Model uses these FCAT investments to generate a Busy Hour unit investment for each basic switch function, based on the subscriber calling and usage rates input into the Model.

Aggregating the costs associated with the requisite switch functions produces the switching investment per line required to provide basic service. For example, Universal Service requires a line port on the switch, usage of the central processing module, line and trunk CCS usage, and SS7 usage. BCPM determines for each of these investment categories what quantity of unit investment, by FCAT, is attributable to universal service. These investment "buckets" are then restated on a per-line basis for universal service.

The following outlines this three step process in greater detail.

7.4.2 Input Development Process

BCPM compiles its Common Language Location Identifier (CLLI)-specific inputs into a single input table that drives all of the investment and cost calculations. The index field that makes each row of data unique is the CLLI. The CLLI, Host CLLI for remotes, Rate Center, and number of working lines are always taken from the "area Raw File" also used by the Loop, Transport and Signaling modules. The switch type (5ESS or DMS), percent line fill, number of calls and CCS per residence and business line, and line to trunk ratio are taken from the User Data file where possible. The User Data file can include these data items for each CLLI. If the User Data file does not include any of these items for a given CLLI, then the Model populates the input table with the corresponding default data value from the State Defaults table.

BCPM allows the user to drive switch total investment calculations and Universal Service support calculations with user inputs for calls per line or usage per line. The Model can be optioned to use a single input parameter for calls per line and a single input parameter for CCS per line. These inputs are taken either from the CLLI-specific data file or state specific defaults. They are the values from which the switch is engineered, and which drive the ALSM investment calculations.

Alternatively, the user can provide assumptions or prescribed values for the number of calls per line (by residence and business) and minutes per call (residence and business). These inputs are provided from local and tolls calls. The Model can use these inputs to estimate total switch investments (using the switch curve) and to develop the Universal Service support investment amounts. It is recommended, however, that engineering inputs be used to estimate the total switch investment. This ensures that the Model produces total switch investments and unit investments that accurately reflect engineering judgment.

Maximum Switch Size--The user can define the maximum switch size by setting limits upon three switch parameters: Number of Lines, Total Busy Hour CCS, and Total Busy Hour Call Attempts. The algorithm determines values for each parameter using the public Input Data accessed by the Model. All three input parameters are based upon separate inputs for residence and business lines. If a wire center exceeds any one of the parameters, then the sub-routine may insert an additional switch or switches and evenly spread out the total line demand at the location among all assigned switches or remotes.

Surrogate Switch Vendor Assignment--If Switch Vendor / Type is included as part of the BCPM Data Input stream, then switches and remotes that do not match the two available options for switches (i.e., 5ESS®, DMS-100®) and remotes are assigned a proportion of each switch vendor type based on state-specific market shares specified by the user. For example, if a 50%/50% share is input as default, then the switch investment for those switches left undefined is a weighted average of 5ESS and DMS-100.

Derived Inputs--BCPM determines whether each switch is a host, remote, or standalone based on the CLLI and Host CLLI fields. If a switch has a Host CLLI, then it is tagged as a remote. If a switch has its CLLI designated as any other switch's host CLLI, then it is tagged as a host. Otherwise, it is tagged as a standalone.

The number of residence lines and business lines is obtained from the BCPM Loop module. Engineered lines are calculated from working lines and the percent fill. The number of trunks is calculated from the line/trunk ratio.

7.4.3 Switch Functional Investment Development Process

The objective of the first phase is to determine the total switch investment (in dollars) associated with each switch functional category, for each CLLI under study. Six switch functional categories have been identified: 1) Processor Related Cost; 2) Line Termination - MDF and Protector; 3) Line Port Cost; 4) Line CCS Usage; 5) Trunk CCS Usage; and 6) SS7. These functional categories are designed specifically to accommodate and be compatible with the extensive modeling work previously performed by companies such as U S WEST and Bellcore.

Functional investments can be developed via three distinct methods. The first method utilizes the BCPM Investment Development Process within BCPM. The second method develops functional investments with an Audited LEC Switching Model (ALSM) that can be input directly into the Model. The third method uses a total switch investment from any other source, such as regulatory reports filed by local exchange carriers. The third method separates the total investment dollars into functional categories based on category percentages developed within the Functional Investment Development Process. BCPM allows the user to incorporate a mixture of functional investments from all three sources within a model run. As a default, BCPM calculates its own functional investments for each CLLI being studied in the run. The user has the option of providing ALSM and/or other investments for each CLLI. Before the universal service investments are computed, the Model chooses the investment source to use for each individual CLLI.

7.4.3.1 BCPM Method

The first approach, The BCPM Investment Development Process, is most appropriate to use when detailed specific switch by switch data is unavailable. The steps in the BCPM Investment Development Process are:

- Data Collection and Regression and
- Functional Investment Development.

The Data Collection and Regression process, which is performed outside of BCPM, results in a set of regression coefficients and equations that form "switch curves" for host, remote, and standalone switches. BCPM takes these switch curves as input and combines them with switch-specific data, such as the number of lines on each switch, to produce the Functional Investment by category for each switch.

7.4.3.1.1 Data Collection and Regression Process (Switch Curve Development)

Initially, BCPM Sponsor Companies provided non-discounted total Functional investments for statistically valid samples of 5ESS® and DMS-100® switches, and their associated remotes, covering a reasonable range of switch sizes and remote sizes.[42] (The data provided includes vendor provided Engineering, Furnished, and Installation, EF&I.) The Sponsor Companies developed these investments by running ALSMs using detailed engineering data for the switches studied. This data includes the total switch investments for each of the Functional Investment categories outlined above.

Each Functional Investment sample is used as a dependent variable in a regression function. Regression analysis entails regressing total switch investment utilizing a set of multiple independent variables, e.g. number of lines, number of trunks, that explain changes in total switch investment. The regression coefficients indicate the dollar change in total switch investment for a one unit increase in the independent variable. For example, if the coefficient on number of lines is 175 this indicates that increasing the number of lines by one causes a $175 increase in total switch investment. Once these coefficients have been estimated, detailed data on these independent variables for specific serving wire centers enable the analyst to estimate the total switch cost associated with that serving wire center.

The dependent variables are regressed against the following independent variables:

- Standalone/Host / Remote Indicator;
- Number of Lines;
- Number of Trunks;
- Busy Hour Calls per Line;
- Busy Hour CCS per Line; and
- Switch / Remote Vendor / Type.

The ALSM runs also collect appropriate information on the switch (data that will be available in the BCPM public data sources) to allow further analysis of additional factors related to the cost of switching. These analyses are discussed in the Switch Cost Refinement section below.

This regression process results in a coefficient matrix of Switch Functional Investments by BCPM Input Data type (e.g., number of lines, CCS per line). This coefficient matrix is supplied as an input table to BCPM. The user can substitute other known relationships for the values in the coefficient matrix table. Caution is advised, however, as the investment results are highly sensitive to some of the coefficient values. The user should thoroughly understand regression analysis and the effect of each coefficient and constant in the table before attempting to substitute values.

7.4.3.1.2 BCPM Investment Development

This process creates the default investment values for the functional investment categories.

Once the regression coefficient table has been developed from the step above, preliminary switch functional investments are developed. The BCPM Input Data values (either user input or flows from other BCPM system modules) for each switch and remote CLLI for the study area are multiplied by their corresponding regression coefficients. Some of these BCPM input data values can be the same as those used to develop the regression coefficients, or can be state or national default values, as available. The detailed steps in developing the investments are:

Calculate Total Investments and Bucket Dollars--The total investment and each bucket investment are calculated by multiplying each category's coefficients by the corresponding switch specific data input. The Model selects the proper set of coefficients (standalone, host, or remote) base on the switch type derived in the input process. For example, a standalone switch investment might be $3m plus $350/line times the number of lines plus $550/trunk times the number of trunks. The Model differentiates between 5ESS and DMS-100 switches by making the switch type a dummy variable. If the switch is a 5ESS, for example, an additive or a credit may be applied to some of the coefficients.

If the switch vendor was left undefined in the user data table, then the Model uses switch market share for the dummy variable. For example, the 5ESS additive for the constant coefficient of the total investment equation might be -$1m. If the switch were undefined and the user had specified a 50% market share for 5ESS, then the additive would be -$1m * 50% or -$0.5m.

The exception to this coefficient process is the SS7 bucket, which is treated as a constant investment based on a global user input.

Adjust Bucket Dollars--The individual bucket estimations, when summed, produce a total investment that is slightly different from the direct total investment estimation. The individual buckets equations tend to be somewhat less precise than the total estimation. Therefore, it is necessary to adjust each bucket share to ensure that the individual buckets sum to the correct total. This is done by dividing the summed bucket total into the estimated total to create an adjustment factor. The adjustment factor is then applied to the individual buckets to bring them into alignment.

Apply Discounts--The final step in BCPM Investment Development is to apply the company-specific discount factors to these investments. The discount factors are based on vendor discount levels supplied to an input table by the model user. The discounts are multiplied by a set of Discount Adjustment Factors that are supplied with the Model to produce an effective discount level by FCAT. The effective discount level by FCAT varies because vendor discounts are applied to material items only. The ratio of material to vendor labor and installation varies by FCAT, hence the difference in effective discounts. The Discount Adjustment Factors are the result of a special study performed by BellSouth. This study compared the average effective discount level by FCAT to the non-discounted investments for a sample of central offices of various sizes. The Discount Adjustment Factors are specific to the switch vendor and type (host/standalone or remote).

7.4.3.2 ALSM Method

The ALSM method can be implemented when detailed switching investment information is available for each specific switch. This is typically the case with larger LECs and is generally the output provided by their respective ALSMs. (This method may typically be used in state specific hearings dealing with UNEs). If this approach is used, the ALSM output is input directly into the Service Specific Investment Process through a special input table. BCPM combines the total switch investments from the ALSM output into the set of BCPM investment buckets. The ALSM investments input should be discounted using company-specific discounts in their development.

7.4.3.3 Small Switch Option

This option allows the model to access a switch curve specifically developed to reflect the costs for small host, standalone, or remote switches.[43] The user can specify thresholds for defining a "small" switch based on line sizes, or can use default values.

7.4.3.4 Other Investment Method

[43] The Switch Curve used in this process was developed by Dr. David Gable of Queens College. It was presented to the FCC by Dr. Gable on August 20, 1997 in a study titled "Estimating the Costs of Switches and Cable Based on Publicly Available Data." The study was based on a regression analysis using data provided by the Rural Utility Service (RUS) for about 136 switches.

This method allows for the input of investments from sources other than BCPM or the ALSMs. A special table is provided for the input of a total switch investment. This investment, as with the others, should be vendor E,F,&I, and should be discounted. The user will need to identify the switch as host, remote, or standalone, and identify the vendor if possible. BCPM separates this total investment into functional investment categories using a percentage of investment by category developed in the BCPM Investment Process. An intermediate calculation in BCPM computes the average bucket shares for that area by Standalone, Host, and Remote switches.

7.4.3.5 Switch Investment Refinement Process

This process selects the appropriate set of switch FCAT investments (BCPM, ALSM, or Other) to be used in the final service investment process. The result is a matrix of validated Total Switch Functional Investments by CLLI code and functional category. If FCC or other data have been supplied via the Other Investment Process, then that data will be selected for each CLLI. If such data have not been input for a CLLI, the Model looks to see whether ALSM data have been supplied, and if so, uses the ALSM data. If none of the alternative data sources has been supplied, the output from the BCPM Functional Investment Process passes through.

7.4.4 Service Specific Investment Development Process

The purpose of the Service Specific Investment Process is to calculate the per unit switching investments for universal service. The switching investments are later combined with other investments, for example transport and signaling investments, to produce a complete cost study for the service or rate element.

7.4.4.1 Unitizing Process

This process breaks the Installed Total Switch Functional Investments down into Unit Switch Functional Investments for each CLLI code. First, the Model sets aside the portion of total FCAT investment that is not related to basic calling. For example, based on the Feature Loading Multiplier, the Model can define that 20% of the Processor Related category investment is related to features. That portion of investment would be excluded from the basis of the Processor Related unit investment. The unitizing is accomplished by dividing each of the total FCAT investments by the capacity constraint relevant to that category:

Functional Category	Divisor (Capacity Constraint)
Processor Related	Number of Busy Hour Calls
Line Termination - MDF & Protector	Number of Lines
Line Termination - Line Port	Number of Lines
Line CCS	Number of Line CCS
Trunk CCS	Number of Local Trunk CCS
SS7	Number of Basic Busy Hour Calls

Each call local placed by a telephone subscriber requires either two or four end-office processor call setups, depending upon whether the call is intra-office or inter-office. If the call is intra-office, then originating and terminating call setups are required. Each inter-office call requires the originating/terminating setups, plus outgoing and incoming setups, for a total of four call setups. The number of Busy Hour Calls per Line is computed by adding the originating, terminating, outgoing, and incoming call setups for each line. Each type of call setup is considered one transaction or "call" for the purpose of this calculation. This number is derived by first computing a weighted number of BH local calls for residence and business. The weighted number of BH toll calls then is computed. The number of originating & terminating call attempts is the total of local and toll calls times two. The number of outgoing/incoming calls is determined by multiplying the local interoffice calls (computed from a default table input percentage) plus the toll calls times two.

The number of Line CCS is computed by multiplying the total residence CCS per line (local and toll) by the number of residence lines and the number of business CCS per line by the number of business lines. The total Trunk CCS is computed by multiplying the calculated number of trunks by the average CCS per trunk, a state default input. The results of the Utilizing Process is a matrix of Unit Functional Switch Investments by CLLI code and functional category.

7.4.4.2 Calculate Universal Service Portion of Investment by Switch

The next step is to determine the total investment attributable to universal service for each switch. This is done by multiplying the FCAT unit investments by the appropriate quantities, as shown:

Functional Category	Multiplier
Processor Related Inv. Per Call	Number of Busy Hour Local Calls per Line (Res & Bus) * Number of Lines
Line Termination - MDF & Protector per Line	1*Number of Lines
Line Termination - Line Port per Line	1*Number of Lines
Line CCS Usage per CCS	Number of Busy Hour Local CCS per Line (Res & Bus) * Number of Lines
Trunk CCS Usage per CCS	Number of Local Trunk CCS per Line (Res & Bus) * Number of Lines
SS7 Inv. Per Outgoing Call	Number of Basic Busy Hour Outgoing Calls per Line (Res & Bus) * Number of Lines

7.4.4.3 Calculate Unit Vendor Investment per Line by Switch

The Model calculates a universal service investment per line by taking the total USF investment from each FCAT and averaging it across either the switch, the rate center, or the host/remote complex, as appropriate. The purpose of this step is to accurately reflect the actual cost characteristics of each unique serving area, while at the same time ensuring that host resources are appropriately shared across each host/remote complex.

Functional Category	Allocation Basis
Processor Related Inv. Per Line	Rate Center
Line Termination - MDF & Protector per Line	CLLI
Line Termination - Line Port per Line	CLLI
Line CCS Usage per Line	CLLI
Trunk CCS Usage per Line	Host/Remote Complex
SS7 Inv. Per Outgoing Line	Host/Remote Complex

The processor investment per line is determined by a three-step process that allocates the host processor investment across all switches on the host/remote complex. The first step is to divide the total USF processor investment for all switches on the complex by the total number of lines on the complex. This produces a host processor investment per line. The second step is to divide the processor investment for each remote switch by its associated number of lines. This produces a remote processor investment for each remote. The final step is to compute the total processor investment per line for each switch. For standalone switches, this is simply the processor investment from step 1. For hosts and remotes in the same rate center, the per line investment is the weighted average of the host investment for the host and the host plus remote investments for each remote. This produces a single processor investment per line for all switches in the rate center. For remotes located outside the host rate center, the processor investment is the sum of the host processor investment per line and the remote processor investment per line.

The trunking and SS7 host office investments must be allocated by complex, since remotes are assumed not to have these facilities and use the trunking and signaling resources of the host. For each complex, BCPM divides the host USF trunking investment by the local trunk usage for all switches on the complex. SS7 investments are handled similarly.

7.4.4.4 Installed Investment Process

The Switch Investment Refinement process results in a number that represents the material cost from the vendor for the switching equipment. To develop the total Installed (working) investment, investment loading factors must be applied to account for the additional activities and equipment necessary to install and support the switch. The factors applied are as follows:

- LEC In-Plant Factor - Telephone company labor and material needed to install the switch;
- Land and Building Factors - Central office floor space required by the switch;
- Power and Common Equipment Factors - Central office power plant equipment and miscellaneous equipment such as racks and bays needed to support the switch; and
- Sales Tax - In many states, sales tax is applicable to the material portion of the switch investment.

The output of this process is a matrix of Installed Unit Switch Functional Investments by CLLI code and functional category.

SECTION 8.0

TRANSPORT

8.1 Introduction

In the Transport Cost Proxy Model (TCPM) module, BCPM 3.1 uses information on existing interoffice traffic routing relationships between remote/host/ tandem switches to develop forward looking transport costs using SONET technology.

TCPM deploys sophisticated optimization algorithms to determine the most efficient ring configuration for a given study area. These optimization algorithms utilize actual data on remote-host-tandem switch homing[44] relationships, V&H coordinates, number of working lines, and access line to trunk ratios (used to derive traffic characteristics). The TCPM module is an extremely flexible Excel spreadsheet model, permitting cost analysis for an area as small as a single exchange or as large as an entire company. The user also has the ability to alter all of the primary transport cost inputs.

The Model develops a cost per line for the entire SONET ring. This cost can then be assigned to individual switches on the ring based on their unique characteristics.

8.2 BCPM 3.1 Enhancements

In its earliest versions, BCPM included only a simple transport multiplier in its analysis of costs to be attributed to supported services. BCPM 3.1 methodology has taken a dramatic step forward by creating a realistic model of the interoffice network based on the actual homing relationships between remotes and hosts, and hosts and tandems. It then develops specific and accurate cost elements based on trunking configurations of specific nodes[45] on the network.

TCPM in BCPM 3.1 has a number of important features. The module:

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[44] Homing relationships summarize current trunking designs between switches for interoffice traffic.

[45] A node is the location of a SONET electronic device on a ring in a central office.

1. Utilizes efficient SONET bandwidth (OC3, OC12, OC48), given the specified host and remote locations, number of access lines, and trunks;
2. Uses only SONET technology that is currently available in the market;
3. Provides one level of redundancy via what is commonly referred to as self-healing rings;[46]
4. Provides a second level of redundancy by using two sets of lines for offices served by a folded ring;[47]
5. Includes a third level of redundancy by providing one extra DS1 for every seven working DS1s on the port side in a central office;
6. Determines the number of rings to be built and the sequences of nodes on the ring;
7. Allows the user to run the Model for a single ring, thereby enabling the user to trace the cost calculations through the logic of the Model;
8. Maps the nodes subtending a particular host or tandem; and
9. Provides the following reports for each ring: a) transport cost results for all of the rings; b) transport configuration of all of the rings; and c) universal service transport cost on a per line basis.

8.3 SONET Overview

Synchronous optical network (SONET) is a set of standards for optical (fiber optic) transmission. It was developed to meet the need for transmission speeds above the T3 level (45 Mbps) and is generally considered the standard choice for transmission devices used with broadband networks. Technologies like T3 are likely to be replaced by new services offered through a SONET platform. By way of comparison, OC-1 can carry over 30 times more data than DS1.

SONET enables more efficient use of installed fiber; it taps the latent capacity already in the network. SONET allows new network configurations, including ring networks, which have a greater degree of survivability than traditional mesh networks.

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[46] If the fiber cable in a "self healing" ring is cut the signals will automatically reverse their direction on the ring.

[47] A folded ring connects an office to a single node on the SONET ring.

8.4 Transport Model Methodology

8.4.1. Model Inputs

To run the Model, three sets of inputs are required. The first includes Local Exchange Routing Guide (LERG) data that specifically identifies and locates the in place switching network. That information includes:

A. Operating Company Number;
B. Local Name of the switch;
C. Eleven digit CLLI code of the switch;
D. V&H coordinates of the switch;
E. CLLI code of the tandem serving the switch;
F. CLLI code of the host for remote offices; and
G. V&H coordinates of the host (if a remote office) or tandem.

The records are sorted to list each host office followed by all of its remote offices, and each tandem followed by each of its subtending offices. (Note: a host office with remotes appears on this list twice, once with its remotes and once with its associated tandem).

The second set of inputs includes those required to set thresholds in the Model. The user may provide these specifications or use the provided default values. The variables include:

1. Maximum number of nodes per ring;
2. Airline miles to route miles factor;
3. Line to trunk factor;
4. Tandem trunk factor;
5. Ratio of Special access lines to switched lines;
6. Size of SONET systems available and the maximum fill factor for each;
7. Number of minutes of traffic per DS1 (assumed);
8. Whether or not route diversity is assumed in the case of a folded (two point) ring;
9. Maximum distance between rings allowed without requiring repeaters;
10. EAS/Exchange percentage of minutes of use;
11. Material Costs;
12. Engineering/Installation Labor costs; and

13. Utilization Factors.

The final set of inputs is the number of access lines served by the switch as determined by the loop module.

8.4.2 Running the Model

8.4.2.1 Building the Rings

The Model begins by creating a forward-looking ring connecting all remotes to their hosts and hosts to their tandems. It assumes that all remote offices are connected to their respective host offices by SONET rings. If there is only one remote, a folded ring is assumed. All host offices are connected to their tandems by SONET rings. A ring with only three nodes is already considered optimized.

The Model designs the rings using a sorting process based on distances between remotes and hosts and sizing the rings based on preset input variables. The algorithm for this process is the following:

A. If there are less than four nodes, including the host, stop. (A ring with only three nodes is by definition optimized.) Move to sizing the ring.
B. Sort the remaining nodes in order of distance from the host.
C. Find the two non-collocated nodes that are nearest to the host.
D. Define a 3 segment ring connecting the host and these two points, (in the attached diagram the host is point A, the other two points are B and C).
E. Find the next nearest node to the host (labeled D in the diagram).
F. Determine the distance from the new point to each current point on the ring (AD, BD and CD).
G. For each segment on the ring, calculate the sum of the distances from the new point to each of the endpoints of that segment, less the length of the segment.
   1. AD + BD - AB
   2. AD + CD - AC
   3. BD + CD - BC
H. Choose the segment with the shortest net distance in step G. In our example, this would be number 2 - segment AC.

I. Replace this segment with two new segments connecting the new node to the end points (so that the ring now goes from A to B to C to D and back to A).

Diagram 1 - Step E

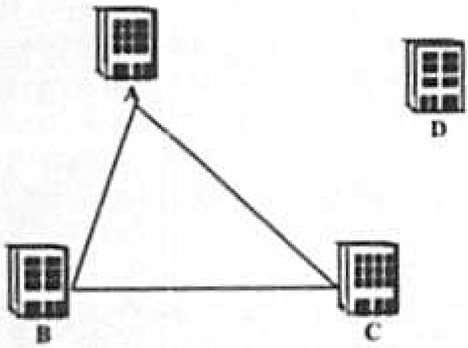


Diagram 2 - Step F

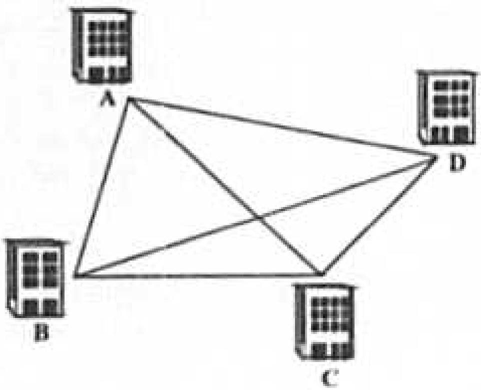
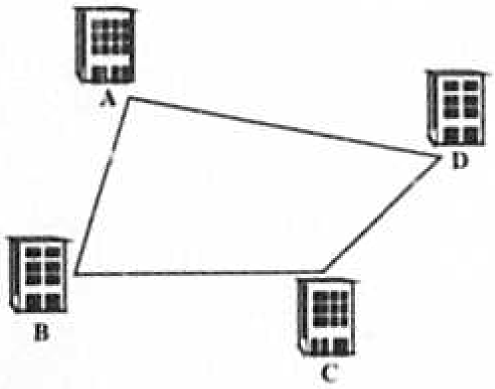


Diagram 3 - Step I



J. If there are more nodes to include, return to step E.

K. If the number of nodes exceeds the user specified maximum:

1. Divide the number of nodes by the maximum and round up to determine the number of rings that are needed.
2. Divide the number of nodes by the number of rings to equalize the rings.
3. Starting at the host, traverse the ring until the number of nodes determined in step 2 has been passed.
4. Replace the next segment with a new segment from the current node back to the host, and a segment from the host to the next node in the sequence.
5. If more than 2 rings, repeat steps 3 and 4 until all rings are built.

8.4.2.2 Sizing the Rings

After the rings are designed, the Model proceeds to determine the appropriate bandwidth required for each of the rings. This process begins by analyzing the number of switched access lines served by the ring. After determining special access circuit needs, it builds the proper number of DS1s and DS0s to accommodate the ring's traffic. A Ring Size Table then finds the capacity of the ring.

For each ring the Model performs the following calculations:

1. Calculate the total number of switched access lines served by the exchange.
2. Divide this number by the line to trunk (or tandem trunk) factor to determine the number of DS0 trunks required.
3. Divide this number by 24 to determine the number of DS1s required.
4. Multiply the number of switched access lines by the special access factor to determine the number of equivalent DS0 trunks required for special access circuits.
5. Divide this number by 24 to determine the number of DS1s required for special access.
6. Add the number of DS0s from steps B and D to get total DS0s.
7. Add the number of DS1s from steps C and E to get total DS1s.
8. Use the Ring Size Table on the control page to determine the minimum size of the ring required to serve these DS1s.
9. Use the Ring Size Table to find the total DS0 capacity of this ring.
10. Divide the total capacity by the required DS0s to determine the fill.

8.4.2.3 Costing the Rings

For each ring, the beginning and endpoints of each segment, the mileage between, the ring size (OC3, OC12 or OC48), and the fill factor are passed to the costing logic. If any of the segments are more than 45 miles, an appropriate number of repeaters is specified.

From the ring characteristics, the costing logic determines the investment required, converts total utilized investment of each type of transmission equipment into a cost per DS1, selects the appropriate mileage elements, and computes the cost per common transport minute.

The following provides additional detail about costing the rings.

For each ring, the beginning and endpoints of each segment, the mileage between, the ring size (OC3, OC12 or OC48), and the fill factor are passed to the costing logic. If any of the segments are more than 45 miles, an appropriate number of repeaters is specified.

The costing logic determines the investment required from the ring characteristics and converts total utilized investment of each type of transmission equipment into a cost per DS1. The appropriate termination equipment components are selected from the following list: Fiber Tip Cable, Fiber Patch Panel, Fiber Optic Terminal, DS3 Card, DS1 Card, OC3 Card, DSX3 Cross Connect, DSX1 Cross Connect Jack Field, Channel Bank, and Channel Bank Card. The following illustrates the termination equipment calculation:

[(Equipment Component Investment * Units Required) / DS1 Capacity] / Utilization Factor * (1+Power Factor) * Annual Charge Factor = Annual Cost Per DS1 by Equipment Component

Based on the ring characteristic, the following mileage equipment components are utilized, as appropriate, within the costing logic associated with the transit cost element: aerial fiber, underground fiber, buried fiber, pole lines and conduit. The following illustrates the mileage equipment calculation:

[(Unit Investment Per Mile * Units Required) / Fiber Utilization Factor] / Terminal Utilization Factor * Annual Charge Factor = Annual Cost Per DS1 by Equipment Component Per Mile

Annual Cost per DS1 by Equipment Component Per Mile * Fiber Mix Ratio = Weighted Annual Cost Per Mile by Equipment Component

Sum all components by the ring size and the result is a weighted annual cost per mile.

The cost per common transport is developed by taking the dedicated DS1 transport cost results and dividing the single termination and transit cost elements by 216,000 minutes. 216,000 minutes of use per DS1 is equal to 9,000 minutes of use per DS0 times 24 voice-grade circuits per DS1.

8.4.3 Results

Results are provided for public switched network common transport on an individual ring basis, recognizing the use of existing LEC wire centers, mileage characteristic, and each ring's specific utilization. The common transport results are utilized in the development of the universal service fund monthly transport cost per line by exchange.

SECTION 9.0

SIGNALING

9.1 Introduction

Signaling costs for use in developing per line investments for BCPM 3.1 are provided through a user input table which reflects the cost of building a modern SS7 network. The input table provides investments for Residence and Business lines for Small, Medium, and Large companies. The signaling cost for a wire center is based on a weighted average of residence and business lines associated with that wire center. Values in the input table are developed by running the BCPM Signaling Cost Proxy Module (SCPM)[45] for portions of the U S WEST territory.

Users have the option to either use the provided default values or input their own values. A Beta version of the SCPM is available at the BCPM web site for users who wish to develop signaling investment figures based on their own network configuration. A future release of BCPM will incorporate the SCPM module into BCPM.

In general, analysis from SCPM data runs indicates that signaling accounts for less than 1/2 of one percent of total per line investment.

9.2 BCPM 3.1 Enhancements

In previous releases of BCPM, a portion of the signaling cost was included in the switch investment. BCPM 3.1's approach for determining signaling costs differs substantially from the method used previously. Values in the BCPM Signaling Input Table are created by analyzing data produced from SCPM. SCPM:

- Creates a two tiered SS7 Signaling network using a combination of user definable inputs and LERG data;
- Uses the existing SS7 signaling network as the basis for the SCPM network;

[45] A detailed discussion of SCPM methodology is included in the November 1997 version of the Benchmark Cost Proxy Model Release 3.0 Model Methodology.

- Uses actual data to develop the octet, millisecond and data dip needs of the network as the foundation elements to determine signaling investment; and
- Takes the octet, millisecond and data dip needs of the network and calculates the proper number of packet switches, on line data bases and signaling links.

SECTION 10.0

SUPPORT PLANT

10.1 Introduction

Once the Model calculates the loop, switching, and interoffice plant (excluding land and building) needed for each Grid, user adjustable investment ratios are used to load in the support investments. Support investment represents those plant items not directly used in the provisioning of basic service.

10.2 Support Investment Methodology

BCPM 3.1 produces estimates of total investment less support investment in the loop module. Land and building investment estimates are generated in the switch module. The remaining investment estimates, i.e. support investments, are provided in the Report Module.

Support investment estimates are derived through the application of support factors, whose values are directly specified by the user. These factors represent the ratio of support investment in various accounts to total investment, less support, land, and building investment. BCPM 3.1 allows the user to specify support factors for three size classifications of companies: small, medium, and large.

The support accounts are as follows:

Network Support:
- 2112 Motor Vehicles
- 2114 Special Purpose Vehicles
- 2115 Garage Work Equipment
- 2116 Other Work Equipment
- Total Network Support = 2112 + 2114 + 2115 + 2116 + 2111 (Land)

General Support:
- 2122 Furniture
- 2123 Office Equipment

2124 General Purpose Computers
Total general Support = 2122 + 2123 + 2124 + 2121 (Buildings)

As an example, consider the default support ratios shown in the following Table . Assuming a total investment of $1 million, land investment of $100,000 and building investment of $250,000 yields the following estimated annual support investment (uncapped).

	Relevant Investment	Support Ratio	Support Investment
2112 Motor Vehicles	$ 1 million	1.34 %	$ 13,400
2114 Special Purpose Vehicles	$ 1 million	0.00 %	$ 0
2115 Garage Work Equipment	$ 1 million	0.04 %	$ 400
2116 Other Work Equipment	$ 1 million	0.93%	$9,300
2111 Land			$100,000
Total Network Support			$123,100
2122 Furniture	$ 1 million	0.30 %	$3,000
2123 Office Equipment	$ 1 million	0.78 %	$7,800
2124 General Purpose Computers	$ 1 million	2.15 %	$21,500
2121 Buildings			$250,000
Total General Support			$282,300

SECTION 11.0

CAPITAL COSTS

11.1 Introduction

The BCPM 3.1 Capital Cost Module develops a series of annual charge factors for Depreciation, Rate of Return and Tax Rates that when applied to individual investment categories developed in other modules, produce capital costs for use in developing Universal Service Fund costs.

11.2 Annual Cost Factors

To develop annual charge factors, BCPM 3.1 includes a powerful yet simple model that allows the user to vary the basic inputs to arrive at the Depreciation, Cost of Capital, and Tax Rates for each account. This account by account process was designed to recognize that all of the major accounts have differing economic lives, salvage values, cost of removal, tax lives, and survival curves, that ultimately lead to distinct capital costs. The module incorporates all of the methodologies that are currently in practice today, including: Deferred taxes, Mid-year, Beginning Year, and End Year placing conventions, Gompertz-Makeham Survival curves, Future Net Salvage Values, Equal Life Group methods, and many others. The module also incorporates separate Cost of Debt and Equity rates, along with the Debt to Equity ratio.

11.3 Applying Cost Factors to Investment Accounts

Once the annual charge factors are developed, they are multiplied by the investment developed in previous modules (account by account) to arrive at yearly capital costs. These yearly amounts are then converted to a monthly amount.

The Annual charge factor categories include:

Rate of Return,
Depreciation,
FIT,
State Taxes, and

Other Taxes.

11.4 User Adjustable Inputs

All of the variables included in the Capital Cost Module are user adjustable. The default values for lives, salvage, and cost of removal are based upon a LEC industry data survey requesting forward looking values. The curve shapes of the survival patterns are provided by the United States Telephone Association (USTA) capital recovery group.

A second set of inputs is provided to comply with the FCC's 10 criteria with respect to rate of return and economic lives.

SECTION 12.0

OPERATING EXPENSES

12.1 Introduction

The estimation of operating expense in BCPM 3.1 is the result of a straightforward application of user-adjustable expense factors. The user can specify values for every expense factor used by BCPM 3.1, whether in the form of expense per dollar of investment or expense per access line. For the most part, these factors are applied directly to investment estimated by the Model as simple multipliers.

12.2 Operating Expense Methodology

BCPM 3.1 allows the user to specify operating expenses as either a per access line amount or as a percent of investment. The Model is flexible so that the user can specify a subset of account operating expenses on a per-line basis with the remainder specified as a percent of investment, according to the user's preferences regarding the appropriate application methodology.

The expense accounts used by BCPM 3.1 are as follows:

Network Support:	6110 Total Network Support
General Support:	6120 Total General Support
CO Switching:	6212 Digital Electronic
CO Transmission:	6232 Circuit Equipment
Information Orig/Term:	6310 Total Information Orig/Term
Cable and Wire Facilities:	6411 Poles
	6421.1 Aerial Copper Cable
	6421.2 Aerial Fiber Cable
	6422.1 Underground Copper Cable
	6422.2 Underground Fiber Cable
	6423.1 Buried Copper Cable
	6423.2 Buried Fiber Cable

	6441 Conduit Systems
Plant Nonspecific Operations:	6510 Other Property, Plant and Equipment
	6530 Total Network Operations
Customer Operations:	6610 Total Marketing
	6620 Total Services
Corporate Operations:	6710 Total Executive and Planning
	6720 Total General and Administrative
Uncollectibles:	6790 Provision for Uncollectibles
Taxes:	7240 Other Operating Taxes

The application of the expense factors is straightforward. If a per-line expense factor is specified, then total operating cost for the relevant account is simply a function of the number of access lines. If a percent-of-investment factor is specified, then total operating expense is a function of investment, usually of that in the relevant account.

As with support factors, BCPM 3.1 allows the user to specify operating expense factors for three size classifications of companies: small, medium, and large. The Model also allows the user to differentiate between operating expenses pertinent to serving business customers and those relevant to serving residential customers.

SECTION 13

REPORT MODULE

13.1 Introduction

The Report Module provides the final step in the process of developing universal service support levels. In the module, cost factors, including depreciation, return and taxes, are combined with operating expenses to generate monthly costs. Monthly costs are then used to calculate universal service support for a given benchmark. These support levels are available at the grid, wire center, company, or state level.

13.2 Report Example

As an example, a state level summary would contain the following information:

Investment Per Line Data (including capped[49] and uncapped annual amounts)
(The following four categories are added to produce the Total Investment)

Loop Investment
\+ Switch Investment
\+ IOF Investment
\+ Other Investment
Total Investment

Expenses Per Month Data (including capped and uncapped amounts)
(The following two categories are added to produce the Total Cost Per Line)

Total Capital Costs Per Line
\+ Total Operating Expenses Per Line
Total Cost Per Line

[49] Grids with Average Loop Investment per line over $10,000 are capped at $10,000 as a default value when invoking the cap on loop investment. The user has the option to set a different cap value at a national level or by entering the cap at the wire center level in the FCC Lines file. The results of that value would be reported here in addition to the uncapped value.

Gross Receipts Tax[50]

Line Data

Average Loop Length in Feet

Lines Above $10K Loop Investment

Number of Households

(The following four categories are added to produce the Total GRID Lines Served)

Number of Residential Lines
\+ Number of Single Business Lines
\+ Multiple Business Lines
\+ Non Switched Lines
Total GRID Lines Served

[50] Since Gross Receipts Tax rates vary substantially from state to state, they are not included in the monthly cost.

BCPM 3.0 Model Methodology

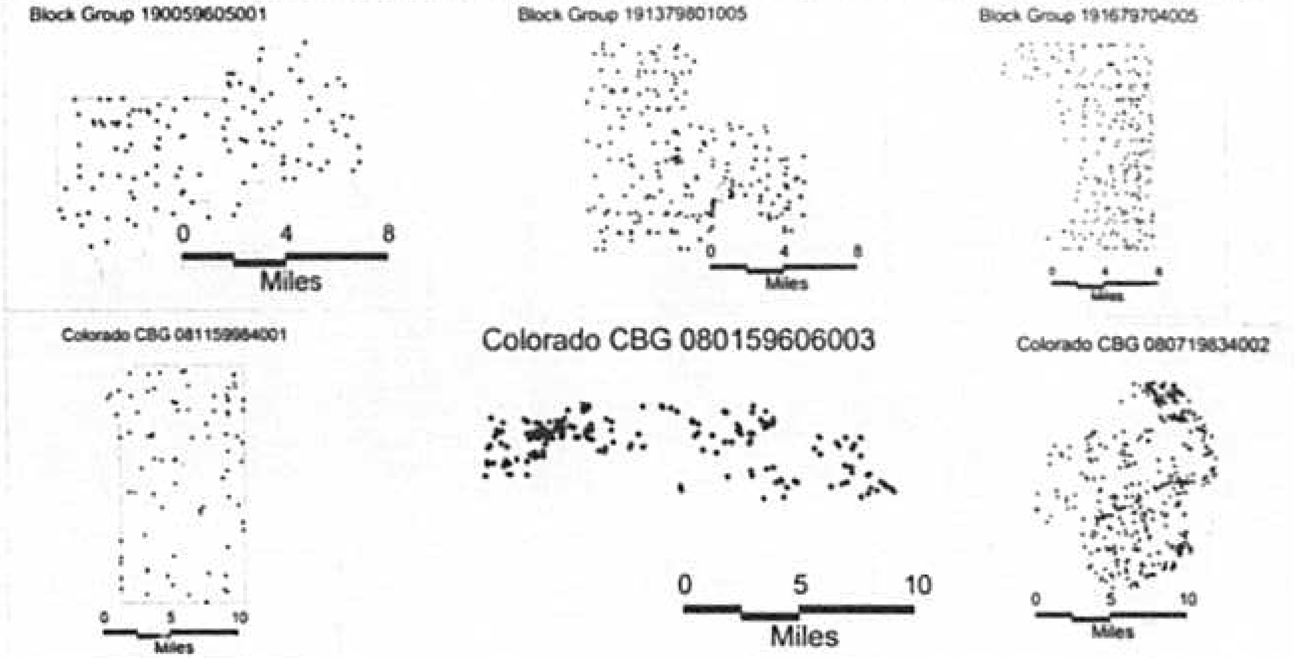
Appendix A

000104

Appendix A Exhibit 1

BCPM Enhanced Customer Location

- Digitized Satellite Map Data for Random CBGs with Density < 5/sqmi



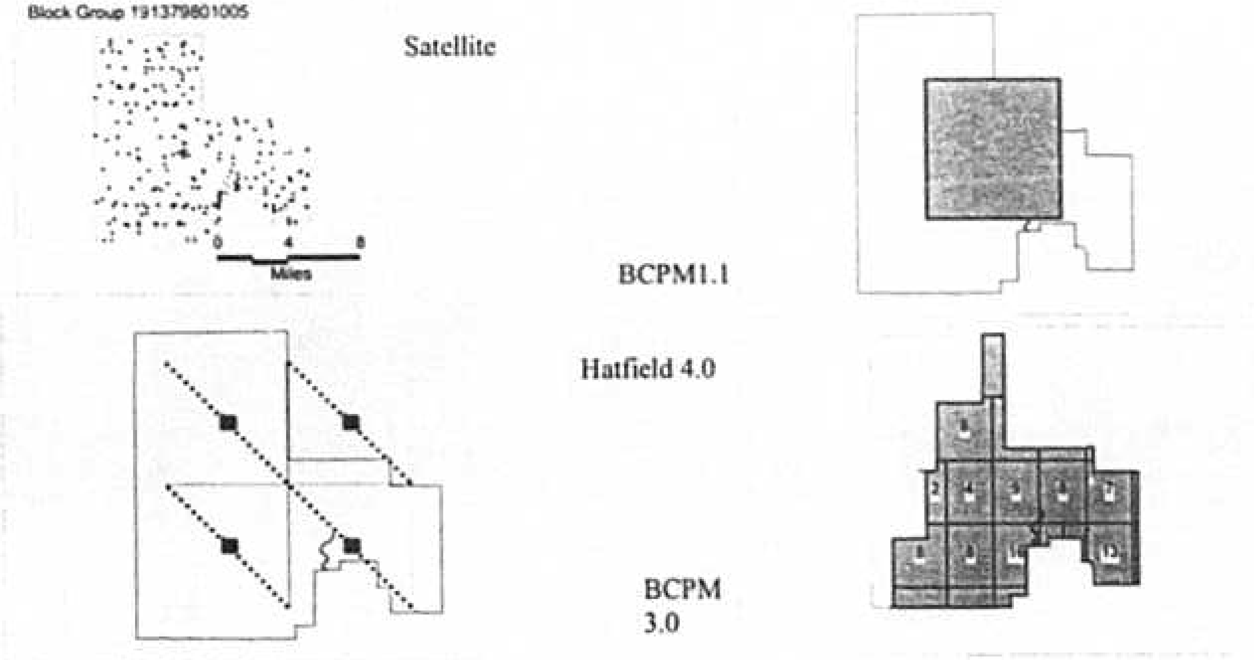
Developed by: Sprint. US WEST BELLSOUTH INDETEC International

Any representation of data is for illustrative purposes only.

Appendix A Exhibit 2

BCPM Enhanced Customer Location

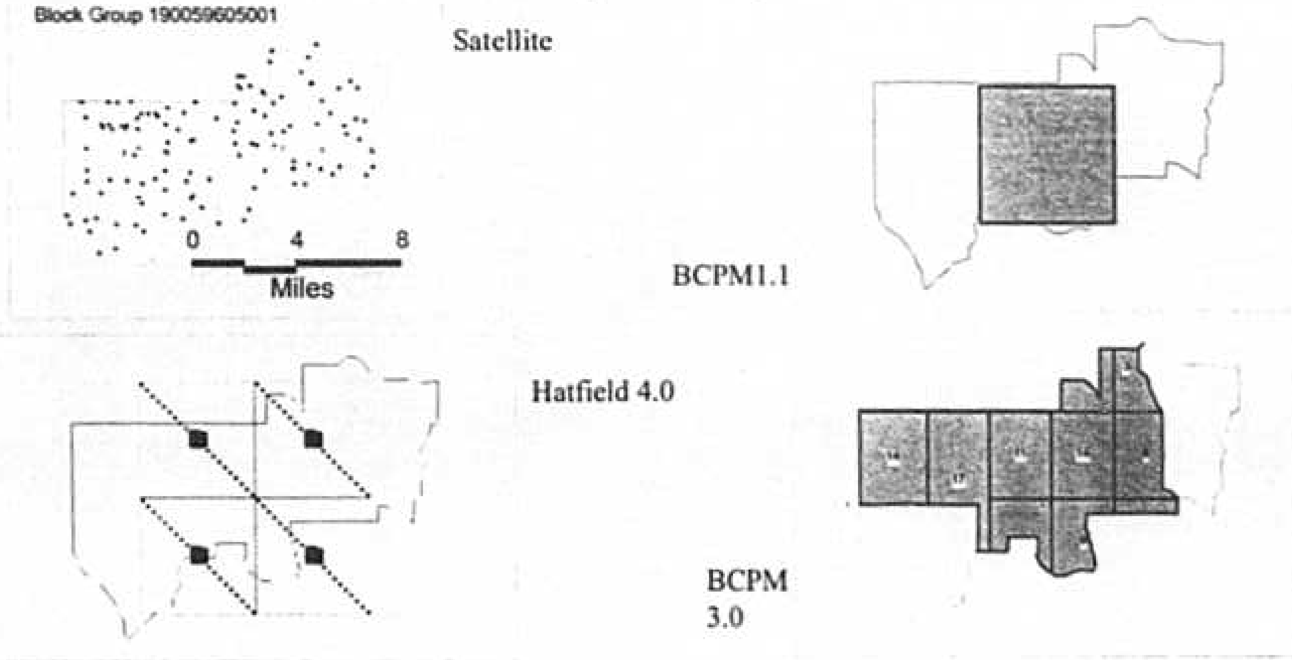
- Comparison of BCPM1.1, HM4.0, And BCPM 3.0



Appendix A Exhibit 3

BCPM Enhanced Customer Location

- Comparison of BCPM1.1, HM4.0, And BCPM 3.0



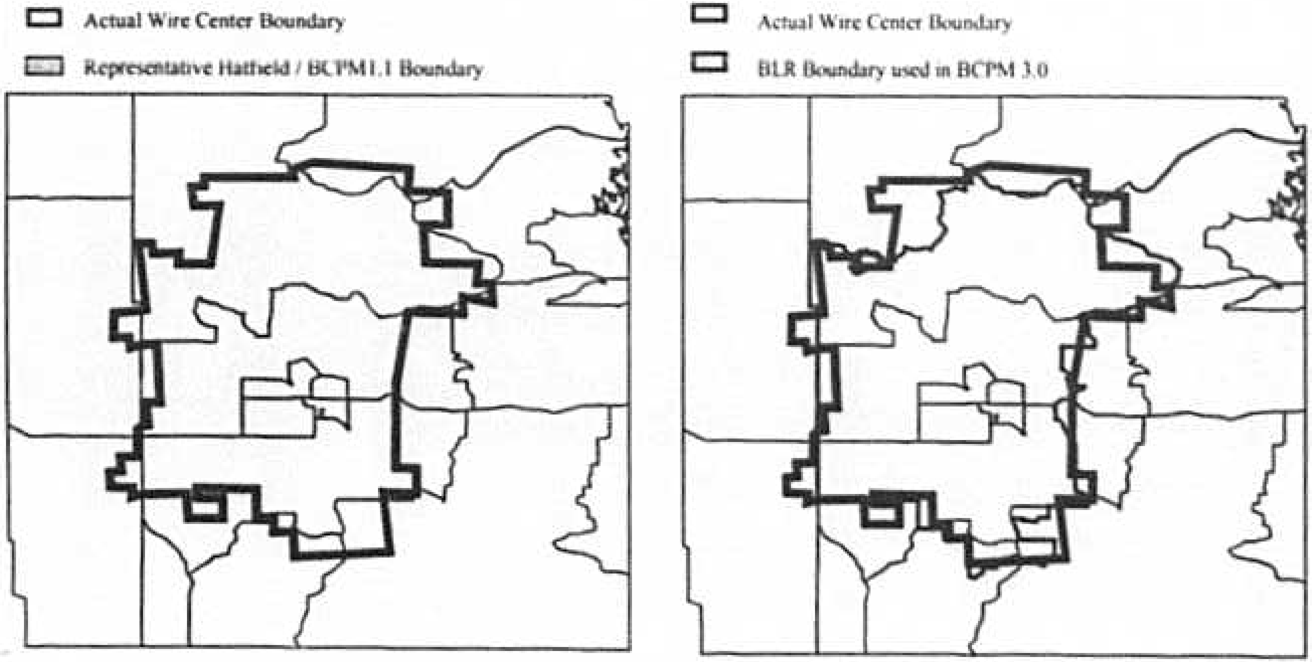
Developed by: Sprint. US WEST BELLSOUTH INDETEC International

Any representation of data is for illustrative purposes only.

Appendix A Exhibit 4

BCPM Enhanced Customer Location

- Improved Wire Centers



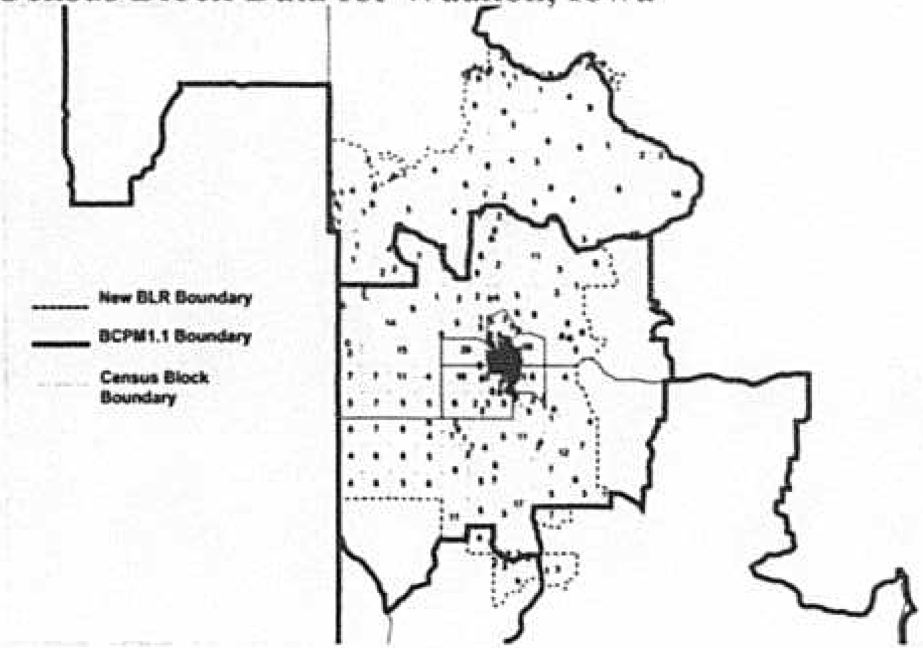
Developed by: Sprint. US WEST BELLSOUTH INDETEC International

Any representation of data is for illustrative purposes only.

Appendix A Exhibit 5

BCPM Enhanced Customer Location

- Finer Level of Input Data
  - Census Block Data for Waukon, Iowa



Appendix A Exhibit 6

BCPM Enhanced Customer Location

- Variable Size Grids for Waukon, Iowa

Developed by: Sprint. USWEST BELLSOUTH INDETEC International

Any representation of data is for illustrative purposes only.

APPENDIX B

BCPM 3.1 DATA SPECIFICATIONS

The following summarizes the data to be provided for the BCPM 3.1 model. This data is provided as a set of comma-separated variable ASCII text files. For each of 50 states (in Alaska, for the Anchorage area only), the District of Columbia, and Puerto Rico, the following 4 files are produced:

- Base Grid File: Fundamental file, containing attributes and measures for each grid
- Wire Center Terrain File: Auxiliary file, containing terrain attributes of the service area
- Wire Center Information File: Cross reference for wire center as a whole
- CBG-to-Grid Equivalence: Cross reference for CBGs in a service area

Also, a single Telephone Companies' File relates each operating company to its parent company.

Each comma-separated variable file presents character fields <u>without</u> surrounding quotation marks. Spaces freely appear in such character fields, but commas and ampersands <u>never</u> do. When either a comma or ampersand appears in the original data, it is be converted to a space in that field in the output file.

Each comma-separated variable file includes, as its first record, the *Field Names* for the file. Those names appear in this paper, each in parentheses after the descriptive name of the field. The *File Names* also appear, each in parentheses after the file's title line in this paper. Each *ss* is the state abbreviation.

<u>Grids and MicroGrids</u>

The fundamental unit of measurement is the *grid cell*, measuring 1/25th of a degree of latitude by 1/25th of a degree of longitude, somewhat less than 15,000 feet on each side. The fundamental unit in building these grids is a *microgrid cell*, 1/8th of a grid cell on each side (therefore 1/200th of a degree on each side), 64 of these forming a full grid cell.

However, locations and clusterings of subscribers sometimes cause the reporting of information for an *effective grid cell* that is some part of a standard grid cell, or even parts of a standard grid cell augmented by a small part of another. Reporting is done per effective grid cell.

<u>Base Grid File (*ssOUT.CSV*)</u>

Each of the 50 state files contains one record per *effective grid cell*. The records appear in the following order, from major to minor, all fields in ascending sequence:

Wire Center CLLI Code
  FDI Code

Each record of a state's Base Grid file contains the following fields, in the order presented here (names in parentheses are the column names in the file):

- **Wire Center Switch CLLI (*SWCLLI*)**: The 11-character code identifying the switch serving this grid cell. The switch and its location are taken from the LERG. The wire center service area is taken from the BLR *Wire Center Premium Package* data files. If more than one switch location serves a wire center service area, each microgrid cell is assigned to the *nearest* switch.

- **Central Latitude of Effective Grid Cell (*CentLat*)**: Latitude of the nominally central point of the effective grid cell, presented as degrees with 4 fractional digits.

- **Central Longitude of Effective Grid Cell (*CentLng*)**: Longitude of the nominally central point of the effective grid cell, presented as degrees with 4 fractional digits.

- **Area of the Effective Grid Cell (*AreaSqMi*)**: The area, presented as square miles with up to 6 fractional digits.

- **Depth To Bedrock in Inches (*RockDepL*)**: Minimum depth to bedrock for the effective grid cell, expressed in inches with up to 2 fractional digits. Terrain information is taken directly from *STATSGO* data. If an effective grid cell spans more than one terrain area as defined by STATSGO, the attributes of the areas are proportionally weighted … This is done for the next five measures as well.

- **Rock Hardness (*RockHard*)**: Predominant rock hardness for the effective grid cell … HARD or SOFT, or blank to indicate neither.

- **Surface Soil Texture (*SurfTex*)**: Predominant surface soil texture in the effective grid cell, an abbreviation of up to 7 characters.

- **Water Table Depth in Feet (*WTDepL*)**: Minimum water table depth for the effective grid cell, expressed in feet with up to 2 fractional digits.

- **Minimum Soil Slope (*SlopeL*)**: Minimum soil slope for the effective grid cell, expressed with 2 fractional digits.

- **Maximum Soil Slope (*SlopeH*)**: Maximum soil slope for the effective grid cell, expressed with 2 fractional digits

- **Number of Business Lines (*BusLines*)**: Count of Business Lines in the effective grid cell. This number is allocated from PNR Business Lines/Firms data, provided principally at the Census Block Level. Where PNR's data was *not* assigned to the Census Block level (about 15% of those records), we have first *allocated* it to the Census Block level, allocating the higher-level lines and firms to Census Blocks that already have business lines, on a basis proportional to the number each constituent Census block already has. This number, for the effective grid cell, is apportioned from the numbers for Census Blocks overlapped by this effective grid cell , in general, on a relative area basis ... but for Census Blocks larger than 1/4 square mile, it is apportioned on a relative road segment length basis.

- **Number of Business Firms (*BusFirms*)**: Count of Business *Firms* from the same source, allocated and apportioned as above.

- **Number of Households (*HHlds*)**: Count of Households in the effective grid cell. The source for this number is the Census Bureau's 1990 figures per Census Block; these numbers are then modified for each Census Block of a county by the Census Bureau's 1995 estimate of population change in that county. This number, for the effective grid cell, is apportioned from the numbers for Census Blocks overlapped by this effective grid cell, in general, on a relative area basis ... but for Census Blocks larger than 1/4 square mile, it is apportioned on a relative road segment length basis.

- **Number of Housing Units (*HUnits*)**: Count of Housing Units in the effective grid cell. The source for this number is the Census Bureau's 1990 figures per Census Block; these numbers are then modified for each Census Block of a county by the Census Bureau's 1995 estimate of population change in that county. This number, for the effective grid cell, is apportioned from the numbers for Census Blocks overlapped by this effective grid cell , in general, on a relative area basis ... but for Census Blocks larger than 1/4 square mile, it is apportioned on a relative road segment length basis.

The following ten fields are subdivision of the above Number of Housing Units, indicating the number of housing units in each of several structure sizes and types; with some tolerance for rounding, these 10 numbers – including their fractional digits – should sum to the Number of Housing Units above. The 10 fields are:

- **Number of Housing Units in Single-Unit Detached Structures (*HU1Det*)**: Units in the traditional standalone house.
- **Number of Housing Units in Single-Unit Attached Structures (*HU1Att*)**: Units that are, for example, garage apartments.
- **Number of Housing Units in Two-Unit Structures (*HU2*)**: Units in a duplex.
- **Number of Housing Units in 3- to 4-Unit Structures (*HU3to4*)**: Units in typical smallest apartment buildings or triplex or quadruplex.
- **Number of Housing Units in 5- to 9-Unit Structures (*HU5to9*)**: Units in typical modest sized apartment buildings.
- **Number of Housing Units in 10- to 19-Unit Structures (*HU10to19*)**: Units in larger apartment buildings.
- **Number of Housing Units in 20- to 49-Unit Structures (*HU20to49*)**: Units in large apartment buildings.
- **Number of Housing Units in 50-or-Greater-Unit Structures (*HU50Plus*)**: Units in very large apartment buildings, typically high-rise.
- **Number of Housing Units that are Mobile Homes (*HUMbl*)**: Mobile home units.
- **Number of Housing Units that are None of the Above (*HUOther*)**: For example, houseboats.

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The record continues with the remaining fields:

- **Latitude of Road Centroid (*RdCentLat*)**: For that center point of road segments of this effective grid cell, this is the latitude (the "Y" value).
- **Longitude of Road Centroid (*RdCentLng*)**: For each effective grid cell, a center point of road segments is calculated. This is the longitude (the "X" value) of that center point.
- **Distance from Switch (*SWDist*)**: Straight-line distance, in feet, of the road centroid of this effective grid cell from the switch that serves this effective grid cell.
- **FDI Code (*FDICode*)**: This 7-character code indicates the path and sequence of the feeder, subfeeder, and any part 2 subfeeder used to reach the road centroid of this effective grid cell. The characters of this code are in the form *qbyydzz* where:
  - *q* indicates the quadrant: 1=East, 2=North, 3=West, 4=South
  - *b* indicates any main feeder splitting: 0=No split, 1=North/East leg, 2=South/West leg
  - *yy* indicates a relative number (01..99) of this subfeeder, in this direction, off its main feeder
  - *d* indicates direction of subfeeder from feeder: 1=East, 2=North, 3=West, 4=South
  - *zz* indicates a relative number (01..99) of this part 2 subfeeder, off this subfeeder … If no part 2 subfeeder, this code is 00

  In addition, where any main feeder *splits*, a "dummy record" appears with Switch CLLI Code, with an FDI Code of ***q*099999**, with a Main Feeder Length of **10000**, with terrain values, and with all other fields zero.
- **Length Along Main Feeder (*MainFdrLen*)**: Distance, in feet, along main feeder from switch to the point at which this effective grid cell's subfeeder comes off the main feeder.
- **Length Along Subfeeder (*SubFdrLen*)**: Distance, in feet, along subfeeder from point at which this effective grid cell's subfeeder leaves main feeder to:
  - If a part 2 subfeeder is used, to the point at which the part 2 subfeeder departs from this subfeeder
  - If *no* part 2 subfeeder is used (e.g., inside 10,000 feet), to the road centroid of the effective grid cell itself
- **Length Along Part 2 Subfeeder (*Pt2FdrLen*)**: If a part 2 subfeeder is used, distance in feet from point at which part 2 subfeeder departs subfeeder to the road centroid of this effective grid cell … If no part 2 subfeeder is used, this number is 0.

Each effective grid cell is further partitioned into four *reporting quadrants*, <u>unless</u> the effective grid cell is only the size of a microgrid cell:

- Upper Left Quadrant (UL)
- Upper Right Quadrant (UR)
- Lower Left Quadrant (LL)
- Lower Right Quadrant (LR)

Each effective grid cell record includes information of all four of these quadrants, in the order specified above. For each of the quadrants, the following information appears, unless the effective grid cell is a *microgrid* cell (1/200th by 1/200th), in which case the full set of numbers is presented as the first (UL) quadrant's data, and the numbers for the remaining quadrants are all zero:

- **Quadrant Number of Housing Units (*UL/UR/LL/LRHUnits*)**
- **Quadrant Number of Households (*UL/UR/LL/LRHHlds*)**
- **Quadrant Number of Business Lines (*UL/UR/LL/LRBusLines*)**
- **Quadrant Road Segment Length (*UL/UR/LL/LRRdSegLen*):** In feet
- **Quadrant Road Reduced Area (*UL/UR/LL/LRRdArea*)**
- **Quadrant Road Centroid Horizontal (X) Distance (*UL/UR/LL/LRRdCHDist*)**: From grid cell road centroid, in feet
- **Quadrant Road Centroid Vertical (Y) Distance (*UL/UR/LL/LRRdCVDist*)**: From grid cell road centroid, in feet

Wire Center Terrain File (ss*WCTRN.CSV*)

There is one record per wire center, in ascending order by wire center switch 11-character CLLI code. The data fields are these:

- **Wire Center Switch CLLI *(SWClli)***: The 11-character code identifying the switch that serves the wire center area.

- **Area of the Service Area *(Area_WC)***: The area, in square miles with fractional digits, of the wire center service area.

- **Depth To Bedrock (Inches) *(Bedrock_Depth_WC)***: Minimum depth to bedrock for the wire center service area, expressed in inches with up to 2 fractional digits.

- **Fraction of Area with HARD Rock *(Rock_Hard_Fr)***: Decimal fraction, 4 fractional digits, indicating portion of wire center service area for which rock hardness is HARD.

- **Fraction of Area with Normal Rock *(Rock_Norm_Fr)***: Decimal fraction, 4 fractional digits, indicating portion of wire center service area for which rock hardness is normal.

- **Fraction of Area with SOFT Rock *(Rock_Soft_Fr)***: Decimal fraction, 4 fractional digits, indicating portion of wire center service area for which rock hardness is SOFT.

- **Surface Soil Texture** ***(Soil_Type_WC)***: Predominant surface soil texture in the wire center service area, an abbreviation of up to 7 characters.

- **Water Table Depth (Feet)** ***(Water_Depth_WC)***: Minimum water table depth for the wire center service area, expressed in feet with up to 2 fractional digits.

- **Minimum Soil Slope** ***(Slope_Min_WC)***: Minimum soil slope for the wire center service area, expressed as degrees with 2 fractional digits.

- **Maximum Soil Slope** ***(Slope_Max_WC)***: Maximum soil slope for the wire center service area, expressed as degrees with 2 fractional digits.

Wire Center Information File ***(ssWCINFO.CSV)***

There is one record per wire center, in ascending order by wire center switch 11-character CLLI code. The data fields are these:

- **Wire Center Switch CLLI** ***(SWClli)***: The 11-character code identifying the wire center and its service area.

- **Operating Company Number** ***(OCN)***: Number of the operating company

- **Operating Company Name** ***(Oper_Company)***: Name of the operating company

- **Central Office Type** ***(Switch_Type)***: Type of the central office (H=Host, R=Remote)

CBG-to-Grid Equivalence File ***(ssAGGBG.CSV)***

There is one record per combination of Census Block Group and effective grid cell that overlays any part of it. These records are in the following order, major to minor, all ascending:

Switch CLLI Code
FDI Code
Census Block Group FIPS Code

Each record contains the following data fields:

- **Switch CLLI Code** ***(SWCLLI)***: 11-character CLLI code identifying the wire center to which this record belongs.

- **Central Latitude of Effective Grid Cell** ***(CentLat)***: Latitude of the nominally central point of the effective grid cell, presented as degrees with 4 fractional digits.

- **Central Longitude of Effective Grid Cell *(CentLong)***: Longitude of the nominally central point of the effective grid cell, presented as degrees with 4 fractional digits.

- **FDI Code *(FDICode)***: FDI Code for the effective grid cell.

- **Census Block Group FIPS Code *(CBG_FIPS)***: Standard code identifying a CBG.

- **Number of Business Lines (*BusLines*)**: Count of Business Lines in the effective grid cell that were allocated from the specified Census Block Group.

- **Number of Business Firms (*BusFirms*)**: Count of Business *Firms* in the effective grid cell that were allocated from the specified Census Block Group.

- **Number of Households (*HHlds*)**: Count of Households in the effective grid cell that were allocated from the specified Census Block Group.

- **Number of Housing Units (*HUnits*)**: Count of Housing Units in the effective grid cell that were allocated from the specified Census Block Group.

Telephone Companies' File (*TELCOS.CSV*)

This file is a single file for the entire country. It is in order by Operating Company Name, ascending. The data fields are:

- **Operating Company Number *(OCN)***: "OCN"

- **Operating Company Name *(Oper_Company)***: Name as it appears in Wire Center Information file.

- **Parent Company Name *(Parent_Company)***: Name of its parent company.

- **Company Size *(Parent_Size)***: (S=Small, M=Medium, L=Large)

APPENDIX B

BCPM 3.1 PROCESSING STEPS

This paper describes the steps in processing BCPM 3.1 data. Processing occurs state-by-state.

Step 1: Create Appropriate Wire Center Service Areas Table

Program: MapBasic **B2WCSA**
Tables/Files Used: ***CDDrive:\\aa\aa*WCSA**, BLR wire center boundaries
Tables/Files Produced: ***basepath\aa\aa*WCSA**, Effective BLR wire center boundaries

This program selects wire center boundaries for which the central office is *within* the state. It sorts them into CLLI-8 ascending order and writes the resulting table to the base directory.

Step 2: Determine Counties Covered by Wire Centers of a State

Program: MapBasic **B2WCCNTY**
Tables/Files Used: ***basepath\aa\aa*WCSA**, wire center boundaries
***basepath*\USCNTYHR**, high resolution county boundaries
Tables/Files Produced: ***basepath\aa\aa*WCCOS.TXT**, ASCII text list of counties required

This program determines the counties covered by a state's wire centers. These will typically be all counties of the subject state, but can also be several counties from one or more adjacent states.

The program considers a county should to be included if at least 2% of that county's area is intersected by the set of wire center boundaries for the state.

The resulting ASCII text file is produced in ascending state/county FIPS code sequence.

Step 3: Determine the Switches for the Wire Center Service Areas

Program: MapBasic **B2WCSWS**
Tables/Files Used: ***basepath\aa\aa*WCSA**, wire center service area boundaries
***basepath*\LERG7U**, all unique switches defined in LERG
Tables/Files Produced: ***basepath\aa\aa*WCSWS**, switches for state wire centers

This program determines the switches that qualify. There may be more than one per wire center boundary. But there *must* be at least one per wire center boundary … if there is not, the program issues an error message.

Invariably, some exceptions, indicated by one or more messages in the message box, must be dealt with manually. This *could* require a further reordering of the ***aa*****WCSWS** table, which must be in WCCLLI/SWCLLI name order.

Step 4: Generate 1/200th Degree Grid Cells for Each Wire Center Service Area

Program: MapBasic **B2WCGRID**
Tables/Files Used: ***basepath\aa\aa*****WCSA**, wire center boundaries
basepath\aa\aa**WCSWS**, wire center switches
Tables/Files Produced: ***basepath\aa\aa*****WCGR**, grid cells for all wire centers of the state
basepath\aa**\B2LOG**, ASCII text log file of errors encountered

The ***aa*****WCGR** table consists of 1/200th degree grid cells as MapInfo regions, each of which is (if necessary) cut to precisely fit within wire center boundaries … thus not all of these regions are true "square" grids.

Each record of this table contains the CLLI code of its wire center, and the latitude and longitude of the numerical centerpoint of the grid cell that is represented by the record.

Mutually distinct parts of the same 1/200th degree grid may appear in different (adjacent) wire centers.

The resultant records are in order by wire center CLLI / switch CLLI (whatever the order of the input ***aa*****WCSWS** table), and within a wire center / switch area, by ascending latitude (major) and ascending longitude (minor).

If MapInfo has an error when cutting the grid cells, a log – **B2aaLOG** – is produced indicating the errors, and the program corrects / fixes those errors.

Step 5: Assign the Minimum Bounding Rectangle for Each Switch's Area

Program: MapBasic **B2SWMBR**
Tables/Files Used: ***basepath\aa\aa*****WCGR,** wire center grid cells
Tables/Files Used/Affected: ***basepath\aa\aa*****WCSWS**, switches for state wire centers

This program determines, from the assigned grid cells, the minimum bounding rectangle (MBR) for the area covered by each of the switches, and updates the switches file with those 4 values.

Step 6: Fully Format the Grid Cell Records

Program: MapBasic **B2FMWCGR**
Tables/Files Used/Affected: ***basepath\aa\aa*WCGR**, grid cells for wire centers

This program just adds all additional columns in the ***aa*WCGR** table required for succeeding processes.

Step 7: Set the Record Number in the *aa*WCGR Records

Program: DOS C-Program **B2RCDNBR**
Tables/Files Used/Affected: ***basepath\aa\aa*WCGR**, wirecenter grids

The two parameters to this program are *StateAbbr* and *BasePath*. The program updates the records in place.

Step 8: Collect the Terrain Data for All States Served by This State's Wire Centers

Program: MapBasic **B2BGTRN**
Tables/Files Used: ***CDdrive:*\CBGSOILS*aa*BGSOILS**, Terrain Data by Block Group
Tables/Files Produced: ***basepath\aa\aa*WCSOIL**, terrain data for all block groups served

This program uses the Stopwatch Maps *State Terrain Data by Census Block Group* product as its source. It copies to a table on hard disk the terrain data for all block groups of all states served by this state's wire centers. That table is used in the next step.

Step 9: Determine Area Overlap of Terrain Data

Program: MapBasic **B2GRTRN**
Tables/Files Used: ***basepath\aa\aa*WCSOIL**, terrain data for all block groups served
Tables/Files Used/Affected: **C:\TEMP\GRBGX**, a temporary table

This program joins information in these two tables, writing it to a temporary table on the local drive **C:\TEMP\GRBGX**. It then ends, often with an *Error Overlaying Objects*.

Step 10: Assign Terrain Data to Each Grid Cell

Program: DOS C-Program **B2GRBG2**
Tables/Files Used: **C:\TEMP\GRBGX**, a temporary table

Tables/Files Used/Affected: ***basepath\aa\aa*WCGR**, wire center grid cells

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This program actually performs the assignment to the grid cells. Run it from the base directory, with two arguments: *StateAbbr* and *BasePath*.

Step 11: Collect the Census Block Boundaries for the State's Wire Centers

Program: MapBasic **B2ALLCBS**
Tables/Files Used: ***basepath\aa\aa*WCCOS.TXT**, ASCII text list of counties required
CDdrive:\CBBY\aa\CBssccc, Census Block Boundary tables on CD
***basepath\aa\aa*WCSA**, wire center service areas
Tables/Files Produced: ***basepath\aa\aa*WCCBS**, Census Block Boundaries for all these WCs

This program uses the list of counties required to direct the operator to mount the one or more CD-ROMs containing the Census Block boundaries for the required counties (some of which may be outside the subject state). It produces a table of all Census Block boundaries within the purview of the subject state's wire centers.

Step 12: Collect the Census Block-Level Housing Data

Program: DOS Batch File **B2CBDEMS.BAT**
DOS C-Program **C:\UTIL\CSVTOTAB.EXE**, plus other utilities
Tables/Files Used: ***basepath*\BXDEMS.DEF**, ASCII text file definition
CDdrive:*\XBLK\BX*ssccc, STF1B extract files
Tables/Files Produced: ***basepath\aa\aa*CBDEMS**, Census Block housing demographics

This batch file, file conversion utility program, and assorted other utility programs generate a table containing, for each occupied Census Block in any county (of any state) touched by one of this state's wire centers, the base housing demographics, including a 3-way distribution of housing units by structure size. At this point, this is unadjusted 1990 Census data.

Step 13: Collect the Block Group-Level Units-in-Structure Distribution Data

Program: MapBasic **B2BGHUS**
Tables/Files Used: ***CDdrive:*\BLOCK\REP*aa*G01**, Claritas BG Units in Structure by State
Tables/Files Produced: ***basepath\aa\aa*BGHUS**, resulting table for all BGs touched by WCs

This program copies the BG-level units-in-structure data, for Block Groups in all states touched by this state's wire centers, to a table, in FIPS order.

Step 14: Apply All Housing Unit Demographics to Census Block Table

Program: MapBasic **B2UPCBHU**

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Tables/Files Used: ***basepath\aa\aa*CBDEMS**, Census Block housing demographics
***basepath\aa\aa*BGHUS**, BG units-in-structure
***basepath*\POPADJ.TXT**, 1995 census adjustment factors by county
Tables/Files Affected: ***basepath\aa\aa*CBS**, Census Blocks table

This program applies the housing unit information from the above tables and file to the Census Blocks.

Step 15: Apply Business Lines/Firms Data to Census Block Table

Program: MapBasic **B2UPCBBU**
Tables/Files Used: ***basepath\aa\aa*WCCOS.TXT**, ASCII text list of all counties touched
***basepath\ss\ss*PNRCB**, CB-level businesses for all states touched
***basepath\ss\ss*PNRBG**, BG-level businesses for all states touched
***basepath\ss\ss*PNRTR**, TR-level businesses for all states touched
Tables/Files Used/Affected: ***basepath\aa\aa*CBS**, Census Blocks table

This program first collects PNR data for all counties touched into work files **C:\TEMP\PNRCB, C:\TEMP\PNRBG,** and **C:\TEMP\PNRTR**, sorted to FIPS order. It then applies that data to the Census Blocks file.

Step 16: Collect the Roads for a State's Wire Centers as MID/MIF Files

Program: DOS Batch File **B2TGRMIF**
DOS C-Program **B2TGRRDS.EXE**, plus other utilities
Tables/Files Used: ***basepath\aa\aa*WCCOS.TXT**, ASCII text list of all counties touched
CDdrive:*\TIGER94*x**ss*\CB*ssccc.xxx, TIGER94 files
Tables/Files Produced: ***basepath\aa\aa*STS*ssccc*.MID/MIF**, importable files per county

This process creates, from TIGER94 CDs, the roads for all counties (in all states) touched by this state's wire centers.

Step 17: Import Roads MID/MIF Files to a MapInfo Table

Program: MapBasic **B2ALLRDS**
Tables/Files Used: ***basepath\aa\aa*WCCOS.TXT**, ASCII text list of all counties touched
***basepath\aa\aa*STS*ssccc*.MID/MIF**, importable files per county
Tables/Files Produced: ***basepath\aa\aa*RDS**, Census Blocks table

This program imports and collects all the above files into a single MapInfo table. When you are satisfied that the process is successful, you may erase the MID/MIF files, and the temporary ***aa*RD0** table.

Step 18: Relate Roads and Census Blocks

Program: DOS C-Program **B2CBRDS**
Tables/Files Used/Affected: ***basepath\aa\aa*RDS**, roads for the entire state
***basepath\aa\aa*CBS**, Census Blocks table

This DOS program (whose two parameters are *StateAbbr* and *BasePath*) determines and posts the total road segment lengths for each Census Block, and tags the Roads records with the WCCLLI code of the Census Block and the indication as to whether the CB is large, small, or empty.

Step 19: Create the Valid Roads Table and the Roads-In-Large-Census-Blocks Table

Program: MapBasic **B2SPLRDS**
Tables/Files Used: ***basepath\aa\aa*RDS**, roads for the entire state
***basepath\aa\aa*CBS**, Census Blocks table
Tables/Files Produced: ***basepath\aa\aa*VLDRDS**, valid roads for state
***basepath\aa\aa*LCBRDS**, roads for state in large Census Blocks

This program creates the two working Roads tables from the original.

Step 20: Determine Area Overlap of Smaller Census Blocks with Grid Cells

Program: MapBasic **B2SCBXGR**
Tables/Files Used: ***basepath\aa\aa*CBS**, Census Blocks table
***basepath\aa\aa*WCGR**, wire center grid cells
Tables/File Produced: ***basepath\aa\aa*SCBxGR**, small Census Block/microgrid join

This program determines the area overlap between microgrid cells and Census Blocks less than 0.25 square miles in size. This relationship will be used in the next step to allocate demographics from those Census Blocks to the overlaid grid cells.

If MapInfo stops this program with an *Error overlaying the objects*, you should save the SCBXGR temporary table as ***basepath\aa\aa*SCBxGR** and end the program.

Step 21: Allocate Demographic Data from Small Census Blocks to Microgrids

Program: DOS C-Program **B2ALLOSM.EXE**
Tables/Files Used: ***basepath\aa\aa*SCBxGR**, small Census Block/microgrid join
***basepath\aa\aa*CBS**, Census Blocks
Tables/Files Affected: ***basepath\aa\aa*WCGR**, wire center grid cells

This program uses the relationships determined above to add area-proportional Census Blocks demographics to the overlaid grid cells.

Step 22: Determine Road Segment Overlap of Larger Census Blocks with Grid Cells

Program: MapBasic **B2LCBXGR**
Tables/Files Used: ***basepath\aa\aa*LCBRDS**, large Census Block road segments
***basepath\aa\aa*WCGR**, wire center grid cells
Tables/File Produced: ***basepath\aa\aa*LCBxGR**, large Census Block road/microgrid join

This program determines the area overlap between microgrid cells and road segments of Census Blocks larger than 0.25 square miles in size. This relationship will be used in the next step to allocate demographics from those Census Blocks to the overlaid grid cells.

If MapInfo stops this program with an *Error overlaying the objects*, you should save the LCBXGR temporary table as ***basepath\aa\aa*LCBxGR** and end the program.

Step 23: Allocate Demographic Data from Large Census Blocks to Microgrids

Program: DOS C-Program **B2ALLOLG.EXE**
Tables/Files Used: ***basepath\aa\aa*LCBxGR**, small Census Block/microgrid join
***basepath\aa\aa*CBS**, Census Blocks
Tables/Files Affected: ***basepath\aa\aa*WCGR**, wire center grid cells

This program uses the relationships determined above to add road-length-proportional Census Blocks demographics to the overlaid grid cells.

Step 24: Calculate Road Information for Micro-grids

Program: MapBasic **B2RDNFO**
Tables/Files Used/Affected: ***basepath\aa\aa*VLDRDS**, Valid Roads table
***basepath\aa\aa*WCGR**, wire center grid cells
Tables Produced: ***basepath\aa\aa*GRxRD**, grid/road table

This program calculates the road centroid, total length of intersecting roads, and the road area for each Micro-grid.

Step 25: Aggregate Micro-grids

Program: DOS C-Program **B2WCAGG**
Tables/Files Used/Affected: ***basepath\aa\aa*WCSWS**, switches for state wire centers
***basepath\aa\aa*WCGR**, wire center grid cells
Tables/Files Produced: ***basepath\aa\aa*AGG**, aggregate grids

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This program aggregates the Micro-grids based on the algorithm described in the BCPM2 Model documentation. For each group of aggregated Micro-grids, a record with a Wire-Center-unique aggregate grid ID and the aggregated values are output to the *aa*AGG table. Additionally, each Micro-grid is tagged with the aggregate grid ID.

Step 26: Calculate Feeder Information for Aggregate Grids

Program: DOS C-Program **B2WCFDR**
Tables/Files Used/Affected: ***basepath*\aa\aaWCSWS**, switches for state wire centers
***basepath*\aa\aaAGG**, aggregate grids
Tables/Files Produced: ***basepath*\aa\aaFNFO**, feeder information

This program calculates the feeder lengths and FDI code for each aggregate grid. The table *aa*FNFO contains main feeder-angle information for each wire center that is necessary for creating MapInfo maps for the feeders.

Step 27: Calculate (and Replace With where Appropriate) Alternate Feeder Routes

Program: DOS C-Program **B2WCFD2**
Tables/Files Used/Affected: ***basepath*\aa\aaWCSWS**, switches for state wire centers
***basepath*\aa\aaAGG**, aggregate grids
***basepath*\aa\aaFNFO**, feeder information

This program calculates the feeder lengths on an unsplit cardinal direction basis and, if this alternate feeder routing is shorter than the previous, substitutes it in the ***aa*FNFO** table.

Step 28: Generate the Primary Output CSV File

Program: MapBasic **B2OUTCSV**
Tables/Files Used/Affected: ***basepath*\aa\aaAGG**, aggregate grids
Tables/Files Produced: ***basepath*\aa\aaOUT.CSV**, primary comma-separated variables file
***basepath*\aa\aaOUTZ.CSV**, empty records of the above file

This program sorts the AGG table into FDI Code within Switch CLLI. It generates the CSV file, creating where necessary a special record to reflect the split of a main feeder at 10,000 feet.

Step 29: Generate the Wire Center Terrain Information

Program: DOS C-Program **B2WCTRN**
Tables/Files Used/Affected: ***basepath*\aa\aaWCGR**, micro-grids
Tables/Files Produced: ***basepath*\aa\aaWCTRN**, summarized terrain table

This program summarizes the terrain data from the microgrids of a WC service area. Its two command-line arguments are *StateAbbr* and *BasePath*.

Step 30: Generate the Wire Center Terrain Output CSV

Program: MapBasic **B2TRNCSV**
Tables/Files Used/Affected: ***basepath\aa\aa*WCTRN**, summarized terrain table
Tables/Files Produced: ***basepath\aa\aa*WCTRN.CSV**, comma-separated variables file

This program generates the record for each switch, in switch CLLI order, summarizing the terrain characteristics of the service area.

Step 31: Generate the Wire Center Info CSV File

Program: MapBasic **B2INFCSV**
Tables/Files Used/Affected: ***basepath\aa\aa*WCSWS**, switches in wire centers
***basepath*\TELCOS**, all telephone companies' file
Tables/Files Produced: ***basepath\aa\aa*WCINF.CSV**, comma-separated variables file

This program generates the record for each switch, in switch CLLI order, summarizing the ownership characteristics of the service area.

Postlude:

We ZIP the two files ***aa*OUT.CSV** and ***aa*OUTZ.CSV** into ***aa*OUT.ZIP**. We ZIP the two files ***aa*WCTRN.CSV** and ***aa*WCINF.CSV** into ***aa*WC.ZIP**. We then FTP these to the INDETEC FTP site.

APPENDIX B

BCPM 3.1 GRID AGGREGATION: GENERAL RULES

Terminology:

The following terms are used in the grid aggregation rules:

Grid	=	1/25 degree Latitude/Longitude Grid
1/4Grid	=	1/50 degree Latitude/Longitude Grid
1/16Grid	=	1/100 degree Latitude/Longitude Grid
1/64Grid	=	1/200 degree Latitude/Longitude Grid

General Rules

If any grid has <1000 Household Units (HU) then output;

Of remaining data,
If any 1/64 grid > 400 HU then do:
    If Grid - 1/64 grid < 400 HU then Output Grid;
    Else If 1/4Grid - 1/64 grid < 400 HU then Output 1/4Grid;
    Else If 1/16 Grid - 1/64 grid < 400 HU then Output 1/16Grid;
    Else Output 1/64Grids (all 4);

Of remaining data
If any 1/16 grid > 400 HU then do:
    If Grid - 1/16 grid < 400 HU then Output Grid;
    Else If 1/4Grid - 1/16 grid < 400 HU then Output 1/4Grid;
    Else Output 1/16Grids (remaining 4);

Of remaining data
If any 1/4 grid > 400 HU then do:
    If Grid - 1/4 grid < 400 HU then Output Grid;
    Else Output 1/4Grids (Remaining 4);

Clean up

If any record has < 100 then Merge with horizontal or vertical similar Grid of equal or larger size to which the road centroid leans.
Partial grids less than 1/5 of a large grid will be aggregated back in (as long as line count is less than 100) to the grid along the longest edge.

APPENDIX C

SUMMARY OF MAJOR CHANGES FROM BCPM 1.1 TO BCPM 3.1

I. CUSTOMER LOCATION

Customer Line Data: Housing Units Per Structure

BCPM 1.1--Used a national average based on Census data for number of housing units per structure per Census Block Group (CBG).

BCPM 3.1--Uses census data for housing units per structure at the Census Block (CB) level for each CB.

Customer Line Data: Business

BCPM 1.1--Estimated the number of business lines at the CBG level by using Dunn and Bradstreet data on the number of employees by CBG and industry reports of business lines by state.

BCPM 3.1--Uses PNR and Associates (PNR) data of actual business lines. Approximately 85% of business customers can be assigned to the CB level.

Method For Assigning Customers To Wire Centers

BCPM 1.1 --Assigned customers within a CBG to a wire center if the centroid (geographic center) of the CBG fell within the wire center boundaries provided by On Target's "Exchange Info Plus" data product. Wire Center boundaries were subsequently established by aggregating the area encompassed by CBGs whose centroids were assigned to the respective wire center.

BCPM 3.1—Uses Business Location Research (BLR) data to establish wire center boundaries. These are typically defined at the CB level.

Unit of Engineering

BCPM 1.1--Used the CBG as the unit of engineering. The size of a CBG is based on population and geography.

BCPM 3.1--Simulates basic telephone plant engineering units by using dynamic grids that vary in size within a wire center. The "ultimate grid" is sized to comport with Carrier Serving Area (CSA) and Distribution Area engineering guidelines. Ultimate grids are constructed by first establishing micrograms (approximately 1,500 feet by 1,700 feet, longitude and latitude) and then reaggregating the microgrids into larger grids as appropriate. In general, the maximum grid size allowed is 12,000 feet by 14,000 feet.[51]

Locating Customers Within the Wire Center

BCPM 1.1—Squared the area of the CBG about the geographic center of the CBG. For CBGs with less than 20 households per square mile, the area of this square was reduced to a square whose area is equal to a 500-foot buffer along each side of the roads within a CBG. For all CBGs, customers were uniformly distributed throughout the squared CBG.

BCPM 3.1—Uses road network data to place customers within a CB into the appropriate microgrids for those CBs that span multiple microgrids. Data regarding housing and business lines is retained at the microgrid level subsequent to determining the ultimate grid size. The ultimate grid is quaded about the road centroid of the ultimate grid, which also corresponds to the Digital Loop Carrier (DLC) site. Customers, assigned to microgrids within particular distribution quadrants, are subsequently placed uniformly in Road Reduced Areas. These Road Reduced Areas are centered about the road centroid of the distribution quadrant and sized as a square whose area is equal to the area encompassed by a 500-foot road buffer along each side of the roads contained within the distribution quadrant.

[51] The size of the macrogrid may be expanded when partial grids along the wire center boundaries are combined with adjacent macrogrids.

Number of Households Used as Base Line For Calculation of Subsidy

BCPM 1.1—Based the calculation of the subsidy on the number of households. If the user chose to input line counts for each switch and the line count was less than the number of households, the model still calculated the subsidy based on the number of households. This resulted in a subsidy that was greater than the cost to install plant to serve the requisite number of lines.

BCPM 3.1—The model selects the fewer of either Households or total Residential lines as the basis of the calculation of the subsidy.

II. OUTSIDE PLANT

Design of the Main Feeders

BCPM 1.1—Placed main feeder directly north, south, east and west from the wire center until no longer needed to support a CBG.

BCPM 3.1—Places main feeder directly north, south, east and west from the wire center for 10,000 feet. Beyond this point, the model tests two designs.
The first design directs main feeder to the main population concentration in the feeder quadrant that it serves, using the following rules:

- If the line count in the center 1/3 of the feeder quadrant is greater than 30% of the total feeder quadrant lines, the feeder remains a single feeder and points at the population centroid of the total section.
- If the line count in the center 1/3 of a feeder quadrant is less than 30% of the feeder quadrant lines, the feeder splits into two main feeders each pointed at the population centroid in one half of the feeder quadrant.

The second design continues to extend the feeder directly in the original cardinal direction, i.e. due north, south, east or west. The design that uses the least feeder cable (including feeder, subfeeder, and subfeeder part two) is selected.

Sharing of Subfeeder

BCPM 1.1—Placed subfeeder to each CBG. BCPM 1.1 did not permit sharing of subfeeder among CBGs assigned to the same wire center.

BCPM 3.1—Shares subfeeder among ultimate grids within a wire center when it is cost effective to do so.

Establishing the DLC Site

BCPM 1.1—Established the DLC site at the geographic center of the CBG for those CBGs that needed only one DLC site. Multiple DLC sites were established in CBGs that exceeded the 12,000-foot (default) constraint on copper loop length from the DLC to the customer. In such cases, DLC sites were established in locations that ensured that the 12,000-foot constraint on copper loop length from the respective DLC to the customer was not exceeded. (The 12,000-foot constraint was a user adjustable input.)

BCPM 3.1—Establishes the DLC site at the road centroid of the ultimate grid. More than one DLC may be placed at this site if necessary, due to line requirements.

Placement of the Feeder Distribution Interface (FDI)

BCPM 1.1—Always co-located the FDI with the DLC. BCPM 1.1 allowed for placement of more than one FDI, if necessary, due to line requirements, at the DLC site.

BCPM 3.1—Provides for the following three options for placement of the FDI(s) based on line counts: 1) co-locate the FDI with the DLC; 2) share an FDI between Distribution Areas located to the right of the DLC and share an FDI between Distribution Areas located to the left of the DLC; and 3) place an FDI at the center of the Distribution Area, which corresponds to the road centroid of the distribution quadrant, for each non-empty quadrant.

Cable Design from the DLC to the Customer

BCPM 1.1—Placed horizontal distribution cable and from that placed "legs" to remote terminals from which drop cable was placed to the customer.

BCPM 3.1--Places horizontal connecting cable from the DLC site to connect to vertical connecting cable that runs to the geographic center of each Distribution Area. A backbone cable runs vertically through the center of the Distribution Area. Branch cables emanate from the backbone cable, and drop cables run from remote terminals placed along the branch cable.

Loop Length

BCPM 1.1--Used a default value of 12,000 feet to constrain the copper loop length from the DLC to the customer. (This was a user adjustable input.)

BCPM 3.1—Tends to limit average copper loop lengths from the DLC to the customer by generally limiting the maximum ultimate grid size to 12,000 feet by 14,000 feet, latitude and longitude. If copper loop lengths from the DLC to the customer exceed 12,000 feet, the cable gauge is reduced to 24 gauge cable and extended range plug-ins are installed on loops extending beyond 13,600 feet. The ultimate grids are designed such that copper loop lengths from the DLC to the customer are unlikely to exceed 18,000 feet.

Model cap on Total Cable Length

BCPM 1.1—Did not provide for a constraint on cable length within the CBG subfeeder and Distribution Areas.

BCPM 3.1—Caps the distribution quadrant total cable length so that it does not exceed the total road distance within the distribution quadrant.

Density Zones

BCPM 1.1--Used seven density zones.

BCPM 3.1--Uses nine density zones to facilitate comparison of BCPM results with the Hatfield Model.

III. SWITCHING

Differentiating Switch Functions

BCPM 1.1--The switch curve made no distinction between host and remote switches.

BCPM 3.1--Uses separate switch models for host, remote, and stand-alone switches.

Investment Approach

BCPM 1.1--Estimated a single total switch investment.

BCPM 3.1--Calculates switching investments for each of several switch functional investment categories, using a separate curve for each category. In addition, the switch can be partitioned accurately into non-traffic sensitive (Line Port) and traffic sensitive investments.

Determining Universal Service Impact

BCPM 1.1--Provided a single input that allowed the user to specify the percent of the total switch investment that is associated with basic service.

BCPM 3.1—Identifies accurately the portion of investment that supports universal service for each central office by using a separate curve for individual switch functional investment categories.

Usage Related Inputs

BCPM 1.1--Switch curves estimated switch functional investments based only on the number of lines in the office.

BCPM 3.1--Uses a variety of inputs including call rates, usage levels, number of trunks, as well as the number of lines. BCPM 3.1 allows input of usage levels for universal service that can be independent of the usage inputs used to engineer the switch. Usage inputs can be distinguished by residence and business lines if desired. Most data items can be input on a state-specific and/or wire-center specific basis with a "fallback" feature that allows the Model to use the state-level inputs in those cases where wire-center inputs are not available.

Switch Type

BCPM 1.1—Was based on a sample of switch investments that included DMS-100 and 5ESS switches. The single switch curve, however, made no distinction between the two switches.

BCPM 3.1--Is also based on the 5ESS and DMS-100, and additionally, allows the user to specify a switch vendor, if that information is available.

Input Values

BCPM 1.1--Used responses to a data request sent to the LECs. This data request asked for discounted unit investments produced by SCIS runs. The resulting model, in essence, produced an average discount level for the companies polled.

BCPM 3.1--Is based on a similar data set produced by the BCPM sponsor companies (BellSouth, Sprint, U S West). The sponsor companies provided non-discounted switch investments for use in the switch curve. The investments are produced with SCIS runs, except for the U S West investments, which are produced using the Switching Cost Model (SCM).

Method to Estimate Investment

BCPM 1.1--Used a single means, the switch curve, for estimating wire center switch investments.

BCPM 3.1--Can use several sources of investments to determine USF costs: the switch regression curve, direct input from an ALSM, or total switch investments from any other source. BCPM 3.1 partitions the investments from other sources by functional investment category, producing accurate estimates of universal service investments by switch.

Limiting Switch Size

BCPM 1.1--Did not have an algorithm to limit switch sizes. That caused simple switch curve models to create "switches" with unreasonably large amounts of lines or usage.

BCPM 3.1--Has the capability to scan the input table to determine whether the capacity constraints for any given wire center have been exceeded. For example, if a wire center has more than a user-defined number of lines, the Model automatically inserts a new CLLI and a new switch entity.

Switch Categories

BCPM 1.1—Modeled only medium and large switches.

BCPM 3.1—The switching module includes large, medium and small switches. For small switches the user can enter fixed and variable costs, discounts, and breakpoints or can use the model default values.

IV. TRANSPORT

Approach to Interoffice Costs

BCPM 1.1--Transport was calculated as approximately 3% of switching investment.

BCPM 3.1--Creates a realistic model of the interoffice network based on the actual homing relationships between remotes and hosts, and hosts and tandems. It develops specific and accurate cost elements for efficient SONET bandwidth based on trunking configurations of specific nodes on the network.

Transport Redundancy

BCPM 1.1--Did not consider transport redundancy.

BCPM 3.1--Provides one level of redundancy via what is commonly referred to as "self-healing" rings.[52] Provides a second level of redundancy by using two sets of lines for offices served by a folded ring.[53] Includes a third level of redundancy by providing one extra DS1 for every seven working DS1s on the port side in a central office.

Level of Analysis for Transport

BCPM 1.1--Did not provide an analysis of Transport costs.

BCPM 3.1--Allows the user to run the model for a single ring, thereby enabling the user to trace the cost calculations through the logic of the Model.

Reports on Transport

BCPM 1.1--Did not provide reports on transport.

BCPM 3.1--Provides reports for each ring. Includes transport cost results for all of the rings, transport configuration of all of the rings, and universal service transport cost on a per line basis.

V. SIGNALING COSTS

Approach to Signaling Costs

BCPM 1.1-- Contained no explicit provision for signaling costs. The only costs associated with signaling are those included in the switching investment.

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[52] If the fiber cable in a "self healing" ring is cut, the signals will automatically reverse their direction on the ring.

[53] A folded ring connects a small office to a single node on the SONET ring.

BCPM 3.1--Calculates signaling costs through an input table that includes per line investment. Investment figures are provided for residence and business lines in large, medium, and small companies. Investment amounts are calculated by using the Signaling Cost Proxy Model (SCPM) which:

- Creates a two tiered SS7 Signaling network using a combination of user definable inputs and LERG data;
- Uses the existing SS7 signaling network as the basis for the SCPM network;
- Uses actual data to develop the octet, millisecond and data dip needs of the network as the foundation elements to determine signaling investment; and
- Builds and costs the proper number of packet switches, on line data bases and signaling links by analyzing the octet, millisecond and data dip needs of the network.

The user can accept the default value or input the per line values. SCPM is available from the BCPM Web Site for the user to develop per line investments using their own cost data.

APPENDIX D

SWITCH CURVE METHODOLOGY

Introduction to Regression Analysis

The purpose of regression analysis is to determine, from a number of observations or measurements, whether there is a relationship between two or more variables. For example, we can use regression tools to tell us whether there is a relationship between the number of lines terminated on a central office switch and the total dollar investment in such a switch. While many people familiar with the equipment in question can say intuitively that there is such a relationship, regression analysis allows us to measure both the strength of that relationship and its magnitude.

The output of the linear regression modeling process is a set of equations, constants, and coefficients that can be used to estimate the value of the dependent variable based on the value of the independent variable. The concept of the regression coefficient is critical to understanding the operation of the BCPM switch module, as we will see later. The set of switching regression coefficients that result from this analysis is commonly known as the "switch curve".

In the case of a central office switch there is an independent variable, the number of lines, and a dependent variable, the total investment. Simple linear regression is a technique for determining how much a change in the number of lines will affect the dependent variable, total investment. The linear regression process allows an analyst to estimate the coefficients (a & b) of the following algebraic functional form:

$$Y = a + bX$$

Where:

Y = the total dollar investment

a = a constant investment amount

b = an incremental investment per line

X = the number of lines

For example, assume that a is $300,000, b is $175 and X is 10,000. Using the algebraic model, we can estimate that the total investment for a 10,000 line central office is $2,050,000.

Because regression analysis is a statistical technique, the investment amount calculated is an estimate. Hence, there will be some degree of error associated with the estimate as compared with the observed investment. The difference between the "predicted" investment and the actual investment is called the prediction error. The prediction error is minimized through the selection of the appropriate algebraic functional form (i.e., one that produces the best "fit" to the actual observed values).

A measure of how well the specified equation fits the data is the coefficient of correlation, or R^2. The coefficient of correlation is the percentage of variability in Y that is explained by the variables in the model and ranges between 0 and 1. The closer the R^2 is to 1.0, the better the model explains the variability in Y. Typically, the analyst will consider a number of independent variables in the formulation of a regression model, and eliminate those that do not significantly add to the predictive power of the model.

The above equation format also allows for the use of a variable to modify the constant coefficient (a). This "dummy variable", as it is known, can be used to differentiate between switch types. For example, if we believe that switch 1 and switch 2, from different vendors, have different fixed investments, we can make the switch vendor an input variable and have the model produce different constant investments based on the switch vendor selected. This technique is used in the BCPM switch model.[54]

[54] The dummy variable has a value of 0 if the switch is a Nortel DMS-100, and 1 if the switch is a Lucent 5ESS. This allows the model to produce a modifier to the coefficient that represents the incremental investment difference between a 5ESS and a DMS-100. Later, when the model is used to estimate investments, the dummy variable is applied to the coefficient, producing different estimates for the two switches.

While we have discussed regression in terms of a simple linear function, multiple linear regression is also commonly used. Multiple linear regression uses more than one independent variable to explain the dependent variable. Regression models producing curved lines can also be created. For example, the equation to be estimated can have the root or the square of an independent variable instead of the variable itself.

Functional Investment Category (FCAT) Rationale

A key design goal for the BCPM switch model was the ability to compute with specificity the incremental investments needed for universal service and unbundled network elements (UNEs). Previous proxy models, because they produced only a single investment number for the entire switch, were unable to calculate these investments without arbitrary and unsupportable allocations. For example, engineering studies and models can precisely quantify the investment in non-traffic sensitive equipment that is needed to provide a line port on the switch. This line port investment is a both a primary UNE and a key element of universal service. Accurate determination of this investment is critical to both UNE pricing and calculation of universal service support. Previous proxy models could do no better than assign an arbitrary percentage of switch investment to the line port. The problem was exacerbated by the fact that the percentage of the switch investment attributable to the port could vary upwards of 100% depending on the switch vendor and switch size.

BCPM solves this problem by directly estimating switch investments in six separate functional investment categories. The number of categories was kept as small as possible for simplicity while still providing enough granularity to perform meaningful UNE and universal service studies. A further challenge was to create a set of categories that could integrate investment data from the two Audited LEC Switching Models (ALSMs), SCIS and SCM. After careful analysis of the ALSMs, the BCPM Sponsors arrived at the following functional investment categories:

- **Processor Related:** This category includes both the SCIS Getting Started and EPHC primitives, and the equivalent equipment investments from SCM. The group agreed that switch peripheral processors should be placed here.
- **Line Termination** - MDF & Protector: This category is identified separately because these items form a discrete UNE in many states. Includes the Outside Plant block, Central Office block, protector frame, and protector block.
- **Line Port** - line cards and associated equipment.
- **Line CCS** - includes Umbilical Trunk CCS.
- **Trunk CCS.**
- **SS7** - Service Switching Point (SSP) equipment.

The BCPM sponsors created mapping processes to combine and cross-reference the detailed investment outputs from SCIS and SCM into this set of six categories.

Although the model was created using SCIS and SCM investments, future switch curves could be developed using any engineering-based model that produces investments for the above functional categories. These additional investments could be used as additional samples in the switch curve development or as alternatives to the ALSM data.

The BCPM sponsors chose to develop the regression model using the Lucent 5ESS and Nortel DMS-100 switches. These two switches are the predominant switches for large LECs today and are expected to be so for the foreseeable future in the United States. Discussions with the sponsor companies' engineering subject matter experts indicate that few placements of small standalone switches, such as the Nortel DMS-10 are expected in the future. Most small exchanges will be served by 5ESS or DMS remotes.

Switch Curve Development

Regression Model Conceptualization

The switching regression model included a separate investment equation for each of the six switch functional investment categories. In addition, an overall total investment equation was needed to ensure that the individual bucket equations reconciled back to a reasonable total.

Data Collection

The BCPM sponsor companies (BellSouth, Sprint, and US WEST), performed ALSM model runs for more than 1,700 central office switches and compiled the inputs and results using the mapping process described above. The ALSM runs were either performed with a zero discount level, or discounts were mathematically eliminated from the results. This ensured that the effect of possible discount differences between the companies was eliminated, and makes the regression results applicable for any company with the input of appropriate discounts into BCPM. Since the sample size was relatively large, some outliers in terms of input data (number of lines) were eliminated. Switches that had no lines in the input data were eliminated. Hosts and Standalones with no trunks were eliminated.

Table 1 - Switch Sample

	Number of Samples	Maximum Line Size	Minimum Line Size
Standalone	511	95,733	1,621
Host	314	76,112	1,017
Remote	868	12,794	209

The process of creating a regression model and testing it with real-world data was repeated several times with different combinations of variables and coefficients until a robust and statistically sound model was produced. Any independent variables that did not contribute to the ability of the model to predict total category investment were eliminated. The independent variables that were used in the final version of the model were as follows:

- Total Lines
- Calls per Line
- Trunks
- 5ESS Indicator (0 or1)

A variable measuring CCS per line was found to be statistically insignificant in the model and was eliminated. However, this input was left in BCPM with a zero value in case future regression models require it.

The following independent variables were created from the existing data:

- 5E Indicator * Total Lines
- 5E Indicator * Trunks

These variables allow for differentiation in cost characteristics between the Lucent and Nortel switches.

Analysis of Regression Results

The estimated investment category equations are shown in Table 2 for stand alone switches, in Table 3 for host switches, and in Table 4 for remote switches. Each set of investment category equations was estimated jointly to take advantage of cross equation information.

Table 2. Stand Alone Switches: Estimated Investment Category Equations

Independent Variable	Total Investment	Processor	Line Term	Line Port	Line CCS	Trunk CCS
Lines	358.74	18.46	15.74	157.96	132.74	
	(73.49)	(9.82)	(122.50)	(64.49)	(43.08)	
Trunks	314.64					522.64
	(15.73)					(148.10)
Calls	822,200	419,110				
	(33.24)	(18.18)				
5E Dummy	-220,880	-398,550			-162,030	
	(-1.56)	(-6.49)			(-1.48)	
5E Dummy*Lines	-57.44	37.74		-105.64	45.47	
	(-9.23)	(16.83)		(-37.33)	(10.15)	
5E Dummy*Trunks						-243.34
						(-60.64)
Constant		1,194,100				
		(17.49)				
R^2	0.93	0.81	0.91	0.89	0.89	0.96

Notes: t-values in parentheses under estimated coefficients[55]. SS7 investment category treated as residual.

[55] The t-value is used to determine whether the coefficients are statistically significant, that is, the likelihood that the coefficient is actually something other than zero. The critical value for this large sample size and a 95% confidence level is 1.960. Therefore, for any coefficient whose t-value is greater than 1.960 we can assume with 95% confidence that the coefficient does differ significantly from zero.

Table 3. Host Switches: Estimated Investment Category Equations

Independent Variable	Total Investment	Processor	Line Term	Line Port	Line CCS	Trunk CCS
Lines	341.87	5.98	16.57	164.12	129.36	
	(51.45)	(2.15)	(97.35)	(54.21)	(39.04)	
Trunks	481.45					562.24
	(20.99)					(69.62)
Calls	1,062,100	486,620				
	(26.68)	(13.54)				
5E Dummy	-604,800	-851,270			122,110	
	(-3.081)	(-10.02)			(0.88)	
5E Dummy*Lines	-71.64	45.83		-114.89	38.40	
	(-7.94)	(12.77)		(-30.70)	(6.69)	
5E Dummy*Trunks						-255.03
						(-23.90)
Constant		1,404,600				
		(16.38)				
R^2	0.90	0.65	0.97	0.91	0.88	0.91

Notes: t-values in parentheses under estimated coefficients. SS7 investment category treated as residual.

Table 4. Remote Switches: Estimated Investment Category Equations

Independent Variable	Total Investment	Processor	Line Term	Line Port	Line CCS
Lines	395.02	25.53	22.04	217.86	136.43
	(125.10)	(10.64)	(125.70)	(93.35)	(46.89)
Calls	138,340	124,620			
	(38.16)	(40.22)			
5E Dummy	296,350	154,810	34,490		134,090
	(20.14)	(15.59)	(39.49)		(13.09)
5E Dummy*Lines	-118.60	14.97	-10.59	-154.85	25.60
	(-25.72)	(4.64)	(-36.25)	(-50.10)	(5.85)
R^2	0.93	0.65	0.87	0.92	0.74
Notes: t-values in parentheses under estimated coefficients.					

BCPM 3.0 Switch Curve Application

BCPM calculates the universal service switch investments in two major steps. The Switch Functional Investment Development Process computes the total discounted switch investment, by functional investment category, for each wire center in the study (Figure 1). The model can use category investments generated internally (through the switch regression model), externally (for example, from an ALSM), or from a combination of sources. The second step, the Service Specific Investment Process, calculates the per unit switching investments for universal service (Figure 2).

As Figure 1 shows, the regression coefficient table, or switch curve, that results from the regression analysis is an *input* to the Switch Functional Investment Development Process (Figure 1), within BCPM. BCPM users can easily examine and modify the regression coefficients by selecting the "Inputs" button in the program. The BCPM sponsors recommend, however, that the coefficients should only be changed as a result of a thorough and statistically validated regression analysis.

Estimating Switch Investments

The Switch Functional Investment Development Process applies the switch regression coefficients in the following manner:

Compile Input Data

In addition to the switch curve coefficients, the model compiles other inputs (independent variables) to the investment estimation including:

- standalone/host/remote status of each wire center
- switch vendor (or Lucent/Nortel market share) for each wire center
- number of switches at each wire center
- number of engineered lines per switch at each wire center
- number of engineered trunks per switch at each wire center
- usage and traffic characteristics
- busy hour calls per line
- busy hour CCS per line

Complete descriptions of these inputs, their development and default values can be found in the *BCPM 3.0 Model Methodology* and the *BCPM 3.0 Switching Inputs* documents located on the BCPM 3.0 CD-ROM.

Estimate Standalone and Host Investments

The regression model estimates investments for the total switch, as well as the line port, processor-related, line CCS, MDF, and trunk CCS functional categories. The SS7 bucket is treated as the residual term in the switch estimation, and is forced to a value input by the user.[56] BCPM is supplied with default inputs of $150,000 for the DMS-100 and $300,000 for the 5ESS (non-discounted) for the SS7 equipment.

Use of the total investment equation for a "true-up" eliminates the possibility of a large cumulative error in the total investment that could be generated by adding together individual bucket estimations.

The steps in the host/standalone investment estimation process are as follows:

1. Estimate total switch investment using the regression coefficients.
2. Estimate the category investments using the regression coefficients: Port, Processor, Line CCS, MDF, and Trunk CCS.
3. Input SS7 residual category investment (from Global Defaults worksheet).
4. Calculate "adjustment ratio": (estimated total inv. – SS7 inv.) / (sum of estimated category inv. – SS7 inv.).
5. Multiply estimated category investment by the "adjustment ratio" to yield adjusted category investment.[57]

Estimate Remote Investments

BCPM assumes that no direct trunking takes place from remotes, hence the lack of a trunk term. SS7 equipment is likewise normally placed in hosts or standalones only.

[56] SS7 investment was treated as a residual since there was little variation across the switch types in the data sample used for the regression analysis.

[57] The purpose of steps 4 and 5 is to simply to "true up" the sum of the category investments by reconciling the sum with estimated total investment.

The steps in the remote investment process are as follows:

1. Estimate total switch investment using the regression coefficients.
2. Estimate the category investments: Port, Processor, Line CCS, and MDF.
3. Calculate "adjustment ratio": (estimated total inv.) / (sum of estimated bucket inv.).
4. Multiply estimated bucket inv. by the "adjustment ratio" to yield adjusted bucket investment.[58]

A test of this category investment estimation process is to determine the degree of prediction error; that is, the extent to which, on average, each estimated category investment differs from the actual investment. Table 5 presents these prediction errors. As indicated in Table 5, the prediction error is consistently very low and never exceeds 5%.

Table 5. Functional Category Investment Process Prediction Error.

	Total Investment	Processor	Line Term	Line Port	Line CCS	Trunk CCS	SS7
Stand Alone	-0.95 %	-1.59 %	-0.06 %	0.55 %	-1.16 %	-1.37 %	-2.26 %
Host	-1.18 %	-2.65 %	-3.34 %	-1.43 %	0.84 %	-2.25 %	-1.22 %
Remote	-1.97 %	-0.84 %	-1.67 %	-4.42 %	-0.95 %	NA	NA

Switch Curve Estimation Completed

The BCPM switch investments by functional category are now passed to the discounting module, which calculates the discounted investments (Figure 1, step 1.3). The discounted investments are then passed to the investment selection process (Figure 1, step 1.4).

[58] Since line termination investment does vary across the switches in the sample used in the regression analysis, an equation explaining such investment can be estimated. Hence, there is no "residual" investment category for remote switches.

Figure 1: BCPM Switch Functional Investment
Development Process

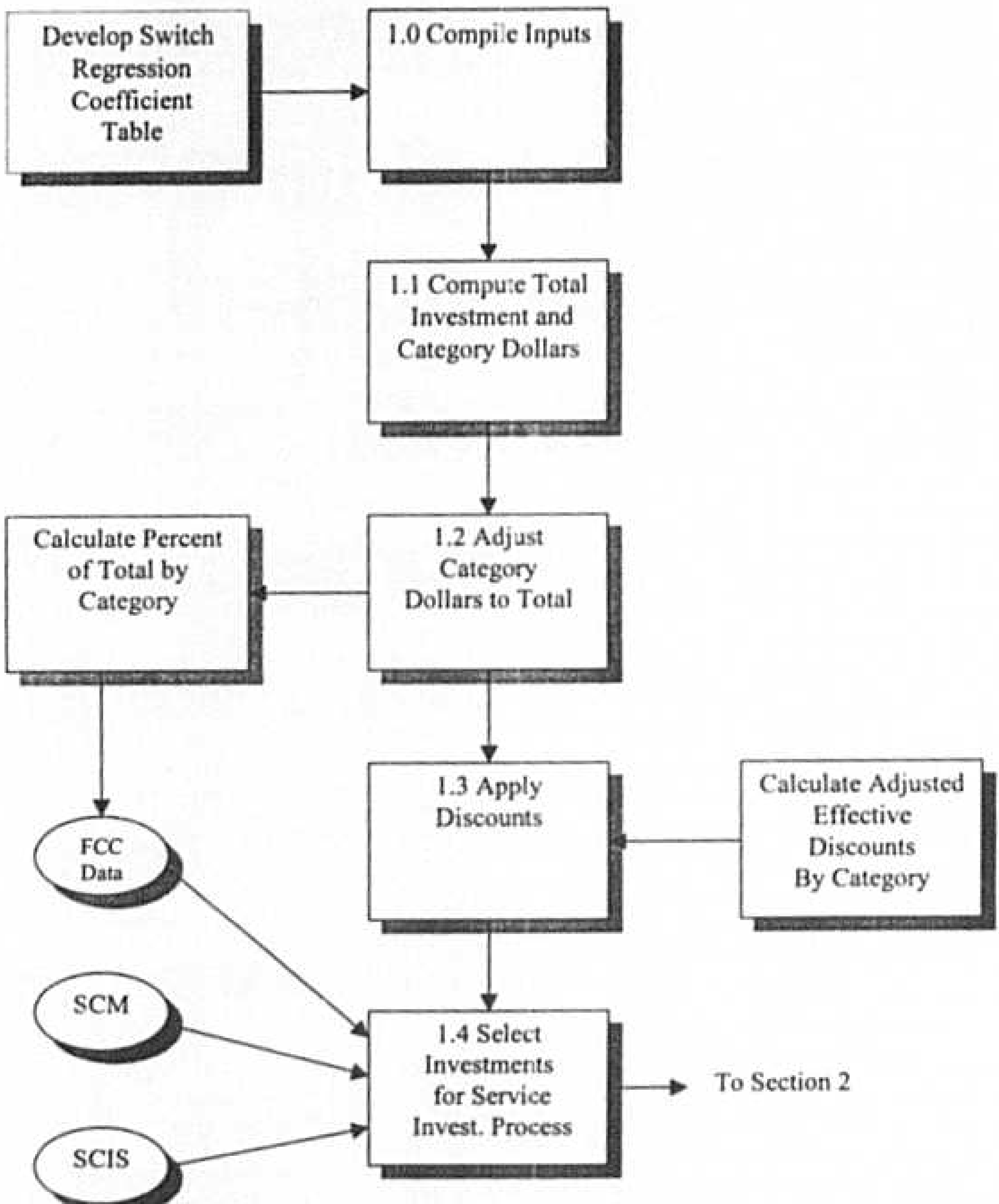
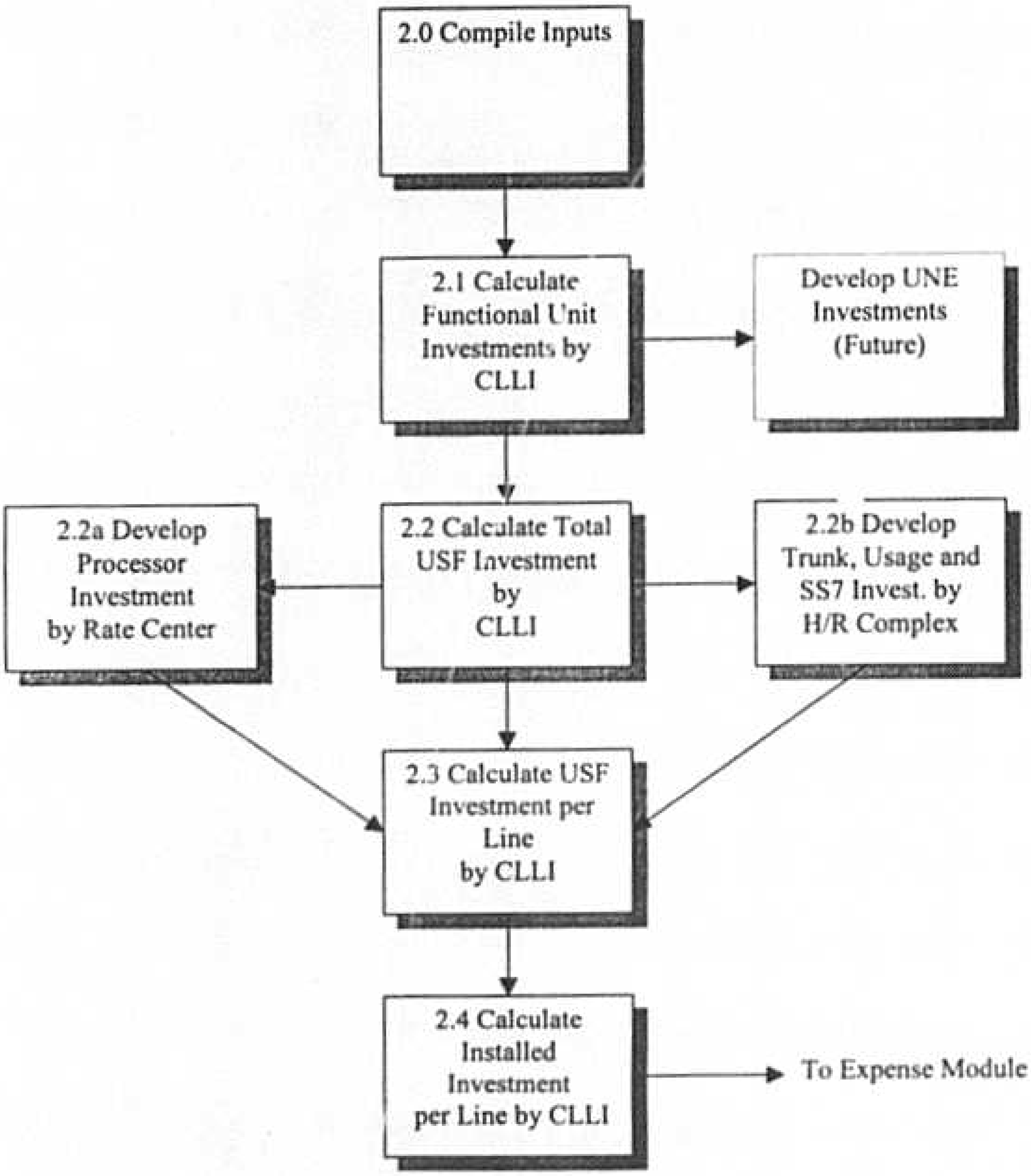


Figure 2: Service Specific Investment Development Process



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Section 3

BellSouth -- BCPM 3.1 Results

Benchmark Cost Proxy Model Results

Area Wide Summary Report

TOTAL SUMMARY
BELL SOUTH
FLORIDA
WIRE CENTERS [196]

Investment Per Line Data	Uncapped Annual Amount		Capped1 Annual Amount	
Loop Investment	$	997	$	974
Switch Investment	$	229	$	229
IOF Investment	$	4	$	4
Other Investment	$	93	$	92
Total Investment	$	1,324	$	1,300

Expense Per Month Data				
Total Capital Cost per Line	$	20.00	$	19.66
Total Operating Expense per Line	$	11.51	$	11.48
Total Cost per Line	$	31.51	$	31.14
Gross Receipts Tax2	$	0.39	$	0.38

Line Data	
Average Loop Length in Feet	16,951
Lines Above $4K Loop Investment	19,493
Number of Households	3,263,916
Number of Residential Lines	4,276,794
Number of Single Business Lines	118,958
Multiple Business Lines	1,834,301
Non Switched Lines	214,476
Total GRID Lines Served	6,444,529

1 GRIDs with Average Loop Investment per line over $4,350 are capped at $4,350.
2 Application varies so much on a state by state basis, it is not included in the Monthly Cost.

Assumptions:
[GRID] E:\BCPM3.1FL\RESULTS\FLECON2_FLECON2_GRID_REPORT.CSV
PROCESSING - FLECON2 : CAPCOST - FLECON2

Section 4

BellSouth -- Proposed BCPM 3.1 Inputs

BELLSOUTH TELECOMMUNICATIONS, INC.

FLORIDA

BENCHMARK COST PROXY MODEL 3.1 (BCPM 3.1)

DOCKET NO. 980696-TP

MODEL INPUTS AND ASSUMPTIONS

Introduction

The Benchmark Cost Proxy Model (BCPM 3.1) includes default values based on nation-wide experiences of several different companies. However, rather than using default input values, BellSouth has used BellSouth Florida-specific values for the major cost inputs including structure costs, cable costs, drop costs, switching costs, interoffice transport costs, serving area interfaces, and other components of the network. In certain instances, the BCPM may require inputs at a level of detail (e.g., mix of plant by soil type and population density) at which BellSouth-specific data is not available. In such instances, BellSouth has reviewed those inputs and determined that the default values are representative of the forward-looking costs expected to be incurred by BellSouth in Florida. The following discussion describes, by major category of input, whether default input values or BellSouth values were used.

INVESTMENT INPUTS

Structures

The structures input tables include the costs of placing conduit for underground cable, the contractor labor and engineering costs associated with placing buried cable, and the costs of placing poles, anchors and guys. Specific inputs required include the per foot unit costs, the percentage of time specific activities occur, and the percentage of the structures costs assigned to the telephone carrier. BellSouth used the default percentage of time each activity is expected to occur since these percentages are consistent with BellSouth subject matter expert estimates, but used BellSouth Florida-specific unit costs per foot as well as BellSouth Florida-specific structure sharing percentages to reflect values representative of BellSouth's costs in Florida. BellSouth's structure unit costs are based on a review of the ten outside plant contractor master contracts BellSouth uses in Florida.

Cable

BellSouth Florida-specific cable costs for both copper and fiber cable were used. Material prices for copper and fiber cable were obtained from Property and Procurement Services Management (PPSM) reflecting actual purchase prices paid by BellSouth. Telephone company engineering and labor costs, derived from BellSouth's in-plant loading factors, and levelized inflation factors were used to convert the current material prices to a forward-looking installed investment (less contractor costs which are handled separately in the Structures tables of BCPM 3.1).

Drop Terminals
The study reflects the fact that all terminals of size less than 100 pair are treated as exempt material in BellSouth and are included in cable costs via the in-plant factor for the cable costs. Therefore, terminal costs less than 100 pair are shown with zero cost in the BCPM input tables.

Feeder Distribution Interface
BellSouth-specific feeder distribution interface costs for Florida are used. The material prices are obtained from PPSM records of actual purchases by BellSouth. Engineering and labor costs were developed from in-plant factors.

Digital Loop Carrier (DLC)
BellSouth does not use all DLC system sizes available in BCPM 3.1. Therefore, the default values in BCPM 3.1 for DLC were reviewed by BellSouth experts and determined to be representative of the costs BellSouth would incur in Florida to provide integrated DLC in the various system sizes designed by the model.

Central Office Switch
The switch module in BCPM 3.1 includes many BellSouth Florida-specific switch inputs. Additionally, the switch regression curves used in BCPM are based heavily upon BellSouth's switch costs.

Interoffice Transport
The interoffice transport module in BCPM 3.1 is based on BellSouth Florida-specific transport costs.

Signaling
Default values in BCPM 3.1 for signaling investments were reviewed by BellSouth experts and determined to be representative of BellSouth's costs.

Conduit / Manhole
The handholes, manholes and conduit costs per duct foot in BCPM 3.1 are based on BellSouth-specific values taken from the master outside plant contracts.

Plant Mix
Since actual BellSouth data on plant mix is not available by soil type and population density, BellSouth used the default values for the mix of copper distribution, copper feeder and fiber cable by placing type (aerial, buried, underground). These default values reflect a reasonable approximation of the variations in plant type expected by BellSouth as soil type and density vary.

Density Fill (Utilization)
BellSouth uses the default cable sizing factor of 100% for distribution cable. This factor, when combined with the input value of 2 distribution pairs per housing unit, is designed to yield an actual fill representative of BellSouth's projected fill for distribution cable. The copper feeder cable sizing factor is designed to produce a fill equal to the

projected fill for BellSouth's feeder cable in Florida. The values input to BCPM 3.1 for cable sizing do not reflect actual fill of the cable. These factors are used to determine the appropriate cable sizes to be deployed.

CAPITAL COST AND EXPENSE INPUTS

Depreciation
BellSouth's proposed economic life and future net salvage percentage for each category of plant is used to determine depreciation expense in BCPM 3.1.

Financial Data
BellSouth used a rate of return of 11.25%. Additionally, BellSouth used Florida's gross receipts and ad valorem tax rates.

Support Assets
BellSouth developed BellSouth-specific support investment ratios for input into BCPM 3.1 using forward-looking 1998-2000 projected investments. Support assets are determined in BCPM based upon ratios of support asset account investments relative to network plant investment.

Expenses
BellSouth developed BellSouth-specific expenses per line (or expenses as a percent of investment) using forward looking period expenses. Expenses developed on a per line basis were based on projected forward looking 1998–2000 expenses and average 1998-2000 projected total physical lines to develop forward-looking expenses on a per line basis. Other expenses are expressed as a percentage of investment (e.g., COE digital switching plant-specific expenses as a percentage of COE digital switching investment) using forward looking 1998-2000 projected data. These forward-looking plant-specific expense factors are the same factors used in BellSouth's TSLRIC cost studies submitted July 31, 1998 in Florida 980000A-SP: Undocketed Special project: Fair and Reasonable Rates.

The table on the following page shows the development of the expenses expressed on a per line basis.

BELLSOUTH EXPENSES PER LINE

Description	1998-2000 Expenses	Total Physical Lines	Annual Expenses Per Line	Monthly Expenses Per Line	% Attributed to Basic Service (See Note 1)	Basic Local Svc Mo. Expenses Per Line
a	b	c	d	e	f	g
Network Support	$ 10,755,204.45	25,212,407	$0.43	$0.04	73.54%	$0.026
General Support	$ 568,701,312.45	25,212,407	$22.56	$1.88	76.85%	$1.445
IOT	$ 129,608,964.35	25,212,407	$5.14	$0.43	85.74%	$0.367
Other Property Plant	$ 9,580,706.59	25,212,407	$0.38	$0.03	79.83%	$0.025
Network Operations	$ 851,910,305.53	25,212,407	$33.79	$2.82	79.86%	$2.249
Marketing	$ 598,586,850.80	25,212,407	$23.74	$1.98	86.25%	$1.706
Services	$ 1,078,993,062.82	25,212,407	$42.80	$3.57	12.94%	$0.461
Executive & Planning	$ 45,153,642.12	25,212,407	$1.79	$0.15	65.56%	$0.098
General & Admin	$ 1,123,983,530.84	25,212,407	$44.58	$3.72	65.54%	$2.435
Uncollectibles	$159,801,000	25,212,407	$6.34	$0.53	61.34%	$0.324
Total Expenses	$4,577,074,580	25,212,407	$181.54	$15.13		$9.136

Note 1: Percentages attributable to Basic Local Service developed on Workpaper B.

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DEVELOPMENT OF EXPENSE PERCENTAGES ASSIGNED TO UNIVERSAL SERVICE

BellSouth Telecommunications, Inc. -BellSouth

1997

Ln	Account	Description	ARMIS 43-03 Total Reg (A)	ARMIS 43-04 Reference	ARMIS 43-04 Interstate Com. Ln (B)	ARMIS 43-04 Interstate Local Sw (C)	Derived Universal Service Amounts Com. Ln (D) D = B / 25	Derived Universal Service Amounts Local Sw (E) SEE NOTE 1	Derived Universal Service Amounts Total (F) F = D + E	Percent Univ. Svc (G) G = F / A
	Expense Data									
1	6110	Network Support Expense	10,144,000	Ln. 5000	1,489,000	229,000	5,956,000	1,504,395	7,460,395	73.54%
2	6120	General Support Expense	550,079,000	Ln. 5010	86,242,000	12,167,000	344,968,000	77,757,443	422,725,443	76.85%
3	6310	Information Orig/Term Expense	136,186,000	Ln. 5050	29,191,000	0	116,764,000	0	116,764,000	85.74%
4	6510	Other Property & Plant Exp	9,039,000	Ln. 6000	1,485,000	190,000	5,940,000	1,275,447	7,215,447	79.83%
5	6530	Network Operations	894,229,000	Ln. 6010	145,811,000	20,506,000	583,244,000	130,878,673	714,122,673	79.86%
6	6610	Marketing Expense	545,352,000	Ln. 7000	95,567,000	14,006,000	382,268,000	88,080,249	470,348,249	86.25%
7	6620	Services Expense	1,051,159,000	Ln. 7310	30,242,000	2,353,000	120,968,000	15,012,686	135,980,686	12.94%
8	6710	Executive and Planning Exp	49,047,000	Dist. Ln. 7334 on total	6,717,641	830,963	26,870,564	5,282,765	32,153,329	65.56%
9	6720	General & Administrative Exp	1,217,283,000	Dist. Ln. 7334 on total	166,617,359	20,935,037	666,469,436	131,390,775	797,860,211	65.54%
10		Total Corp. Oper. Exp	1,266,330,000	Ln. 7334	173,335,000	21,766,000				
11	6790	Uncollectibles	159,801,000						98,014,420	61.34%
12		Total Expenses	4,622,319,000		563,362,000	71,217,000	2,253,448,000	451,182,434	2,802,644,854	60.63%
13										
14		Basic Local Service Revenues (Regulated)		8,657,516,000						
15		Total Operating Revenues (Regulated)		14,115,063,000						
16		% Basic Service to Total		61.34%						
17		Basic Local Svc Uncollectibles		98,014,420						

NOTE 1: Expenses associated with local switching are developed by taking the local switching expenses from ARMIS (column C) for each state, divided by the interstate Dial Equipment Minutes (DEM), multiplied by the local DEM. The results for all nine BellSouth states are summed and shown in Column E.

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Manual Inputs

Global Inputs		
SS7_5ESS	300,000.00	SS7 Investment - 5ESS
SS7_DMS	150,000.00	SS7 Investment - DMS
Engineering_Option	D	Default Engineered CCS and Calls per Line
USF_Option	D	Calculation of USF Investment per Line
HB_Mult	2	"Heavy Business" Loading Multiplier
Min_Mult	1.2	Minimum Loading Multiplier
Bus_Pen_Rat	0.3	Business Penetration Ratio
ExcessCCS_Option	L	Include Reserved CCS Investment in Line Port or Usage?
LT_MDF_Prot_USF_Pct	100%	Portion of line protector and MDF attributable to USF.
Line_Port_USF_Pct	100%	Portion of Line port attributable to USF.
LineCapConstraint	80,000	Line Capacity Constraint
CCSCapConstraint	1,800,000	CCS Capacity Constraint
CallsCapConstraint	600,000	Calls Capacity Constraint
Loc_TDM_Calls	0.98	Direct Routed Fraction of Local Interoffice Traffic
S_Threshold	4000	Small Office Standalone Threshold
H_Threshold	3500	Small Office Host Threshold
R_Threshold	500	Small Office Remote Threshold

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SWDiscAdjFactorTable

Switch Type:	Processor	MDF & Protector	Line Port	Line CCS	Trunk CCS	SS7
5EH	0.9322	0.6171	0.9301	0.9561	0.9715	0.9931
5ER	0.7959	0.6171	0.9483	0.9630	0.9935	NA
DMSH	0.9769	0.6171	0.9905	0.9685	0.9806	0.9782
DMSR	0.9254	0.6171	0.9980	0.9791	NA	NA

Partitioning Percentages for Small Switches

	Processor	Line Port	Line CCS	Trunk CCS	MDF/Prot	SS7
Standalone	31%	23%	33%	6.17E-02	4.58E-02	2.36E-02
Host	19%	28%	39%	7.92E-02	5.70E-02	1.05E-02
Remote	33%	28%	34%	0%	5.91E-02	0%

Vendor Discounts for Small Switches

	Vendor 1	Vendor 2	Vendor 3
Effective Discount	0.00%	0.00%	0.00%

Investment Parameters for Small Switches

		Vendor 1	Vendor 2	Vendor 3
Standalone	Fixed Investment per Switch	$ 589,262.60	$ -	$ -
	Investment per Line	$ 42.69	$ -	$ -
Host	Fixed Investment per Switch	$ 589,262.60	$ -	$ -
	Investment per Line	$ 42.69	$ -	$ -
Remote	Fixed Investment per Switch	$ 54,269.76	$ -	$ -
	Investment per Line	$ 144.58	$ -	$ -

SWStateDefaultInputs

State	ARMIS Percent Local Calls	ARMIS Percent Toll Calls	ARMIS Percent Residence Lines	ARMIS Percent Business Lines	Default EngineeredCalls/Line	Default EngineeredCCS/Line
AL	90%	10%	74.68%	25.32%	2.5	3.60
AK	81%	19%	67.45%	32.55%	2.5	3.60
AZ	89%	11%	73.23%	26.77%	2.5	3.60
AR	83%	17%	73.39%	26.61%	2.5	3.60
CA	73%	27%	63.99%	36.01%	2.5	3.60
CO	88%	12%	69.72%	30.28%	2.5	3.60
CT	77%	23%	69.19%	30.81%	2.5	3.60
DE	84%	16%	65.00%	35.00%	2.5	3.60
DC	91%	8.91E-02	31.78%	68.22%	2.5	3.60
FL	88%	12%	69.36%	30.64%	2.46	3.24
GA	90%	10%	66.54%	33.46%	2.5	3.60
HI	89%	11%	66.88%	33.12%	2.5	3.60
ID	82%	18%	73.30%	26.70%	2.5	3.60
IL	87%	13%	63.72%	36.28%	2.5	3.60
IN	84%	16%	70.14%	29.86%	2.5	3.60
IA	84%	16%	75.63%	24.37%	2.5	3.60
KS	85%	15%	69.98%	30.02%	2.5	3.60
KY	87%	13%	75.13%	24.87%	2.5	3.60
LA	93%	7.20E-02	73.45%	26.55%	2.5	3.60
ME	43%	57%	59.69%	40.31%	2.5	3.60
MD	88%	12%	64.99%	35.01%	2.5	3.60
MA	44%	56%	50.96%	49.04%	2.5	3.60
MI	84%	16%	67.78%	32.22%	2.5	3.60
MN	90%	9.64E-02	69.09%	30.91%	2.5	3.60
MS	90%	9.71E-02	74.61%	25.39%	2.5	3.60
MO	87%	13%	71.49%	28.51%	2.5	3.60
MT	84%	16%	73.68%	26.32%	2.5	3.60
NE	85%	15%	71.58%	28.42%	2.5	3.60
NV	84%	16%	66.53%	33.47%	2.5	3.60
NH	43%	57%	55.28%	44.72%	2.5	3.60
NJ	72%	28%	66.28%	33.72%	2.5	3.60
NM	87%	13%	74.49%	25.51%	2.5	3.60
NY	85%	15%	65.66%	34.34%	2.5	3.60
NC	84%	16%	71.10%	28.90%	2.5	3.60
ND	86%	14%	73.79%	26.21%	2.5	3.60
OH	87%	13%	71.17%	28.83%	2.5	3.60
OK	87%	13%	71.99%	28.01%	2.5	3.60
OR	84%	16%	71.07%	28.93%	2.5	3.60
PA	84%	16%	68.11%	31.89%	2.5	3.60
PR	81%	19%	67.45%	32.55%	2.5	3.60
RI	81%	19%	71.09%	28.91%	2.5	3.60
SC	88%	12%	72.25%	27.75%	2.5	3.60
SD	84%	16%	71.80%	28.20%	2.5	3.60
TN	91%	9.25E-02	72.99%	27.01%	2.5	3.60
TX	86%	14%	67.89%	32.11%	2.5	3.60
UT	89%	11%	71.09%	28.91%	2.5	3.60
VT	79%	21%	70.21%	29.79%	2.5	3.60
VA	85%	15%	65.62%	34.38%	2.5	3.60
WA	84%	16%	71.14%	28.86%	2.5	3.60
WV	89%	11%	76.00%	24.00%	2.5	3.60
WI	84%	16%	69.67%	30.33%	2.5	3.60

SWStateDefaultInputs								
State	number of busy hour local/EAS calls per residence line	number of busy hour local/EAS calls per business line	number of busy hour toll calls per residence line	number of busy hour toll calls per business line	number of local/EAS Minutes per call per residence line	number of local/EAS Minutes per call per business line	number of toll Minutes per call per residence line	number of toll Minutes per call per business line
AL								
AK								
AZ								
AR								
CA								
CO								
CT								
DE								
DC								
FL	2.17	2.17	0.29	0.29	2.20	2.20	2.20	2.20
GA								
HI								
ID								
IL								
IN								
IA								
KS								
KY								
LA								
ME								
MD								
MA								
MI								
MN								
MS								
MO								
MT								
NE								
NV								
NH								
NJ								
NM								
NY								
NC								
ND								
OH								
OK								
OR								
PA								
PR								
RI								
SC								
SD								
TN								
TX								
UT								
VT								
VA								
WA								
WV								
WI								

SWStateDefaultInputs

	Calculated	Calculated						
State	Calculated Engineered Calls/Line	Calculated Engineered CCS/Line	Land Loading	Building Loading	Telco E&I Factor	Common Equipment & Power Factor	Percent of local calls that are interoffice	ABSBH CCS/Trunk
AL	-	-	0.0117	0.0738	0.0577	0.0682	60%	28.8
AK	-	-	0.0117	0.0738	0.0577	0.0682	60%	28.8
AZ	-	-	0.0117	0.0738	0.0577	0.0682	60%	28.8
AR	-	-	0.0117	0.0738	0.0577	0.0682	60%	28.8
CA	-	-	0.0117	0.0738	0.0577	0.0682	60%	28.8
CO	-	-	0.0117	0.0738	0.0577	0.0682	60%	28.8
CT	-	-	0.0117	0.0738	0.0577	0.0682	60%	28.8
DE	-	-	0.0117	0.0738	0.0577	0.0682	60%	28.8
DC	-	-	0.0117	0.0738	0.0577	0.0682	60%	28.8
FL	2.46	3.24	0.0099	0.1473	0.0870	0.0992	74%	28.8
GA	-	-	0.0117	0.0738	0.0577	0.0682	60%	28.8
HI	-	-	0.0117	0.0738	0.0577	0.0682	60%	28.8
ID	-	-	0.0117	0.0738	0.0577	0.0682	60%	28.8
IL	-	-	0.0117	0.0738	0.0577	0.0682	60%	28.8
IN	-	-	0.0117	0.0738	0.0577	0.0682	60%	28.8
IA	-	-	0.0117	0.0738	0.0577	0.0682	60%	28.8
KS	-	-	0.0117	0.0738	0.0577	0.0682	60%	28.8
KY	-	-	0.0117	0.0738	0.0577	0.0682	60%	28.8
LA	-	-	0.0117	0.0738	0.0577	0.0682	60%	28.8
ME	-	-	0.0117	0.0738	0.0577	0.0682	60%	28.8
MD	-	-	0.0117	0.0738	0.0577	0.0682	60%	28.8
MA	-	-	0.0117	0.0738	0.0577	0.0682	60%	28.8
MI	-	-	0.0117	0.0738	0.0577	0.0682	60%	28.8
MN	-	-	0.0117	0.0738	0.0577	0.0682	60%	28.8
MS	-	-	0.0117	0.0738	0.0577	0.0682	60%	28.8
MO	-	-	0.0117	0.0738	0.0577	0.0682	60%	28.8
MT	-	-	0.0117	0.0738	0.0577	0.0682	60%	28.8
NE	-	-	0.0117	0.0738	0.0577	0.0682	60%	28.8
NV	-	-	0.0117	0.0738	0.0577	0.0682	60%	28.8
NH	-	-	0.0117	0.0738	0.0577	0.0682	60%	28.8
NJ	-	-	0.0117	0.0738	0.0577	0.0682	60%	28.8
NM	-	-	0.0117	0.0738	0.0577	0.0682	60%	28.8
NY	-	-	0.0117	0.0738	0.0577	0.0682	60%	28.8
NC	-	-	0.0117	0.0738	0.0577	0.0682	60%	28.8
ND	-	-	0.0117	0.0738	0.0577	0.0682	60%	28.8
OH	-	-	0.0117	0.0738	0.0577	0.0682	60%	28.8
OK	-	-	0.0117	0.0738	0.0577	0.0682	60%	28.8
OR	-	-	0.0117	0.0738	0.0577	0.0682	60%	28.8
PA	-	-	0.0117	0.0738	0.0577	0.0682	60%	28.8
PR	-	-	0.0117	0.0738	0.0577	0.0682	60%	28.8
RI	-	-	0.0117	0.0738	0.0577	0.0682	60%	28.8
SC	-	-	0.0117	0.0738	0.0577	0.0682	60%	28.8
SD	-	-	0.0117	0.0738	0.0577	0.0682	60%	28.8
TN	-	-	0.0117	0.0738	0.0577	0.0682	60%	28.8
TX	-	-	0.0117	0.0738	0.0577	0.0682	60%	28.8
UT	-	-	0.0117	0.0738	0.0577	0.0682	60%	28.8
VT	-	-	0.0117	0.0738	0.0577	0.0682	60%	28.8
VA	-	-	0.0117	0.0738	0.0577	0.0682	60%	28.8
WA	-	-	0.0117	0.0738	0.0577	0.0682	60%	28.8
WV	-	-	0.0117	0.0738	0.0577	0.0682	60%	28.8
WI	-	-	0.0117	0.0738	0.0577	0.0682	60%	28.8
	-	-						

SWStateDefaultInputs

State		Feature Calls/ Total Calls	SS7 Usage Attributable to Basic Calls	Line /Trunk Ratio	Switch Percent Line Fill	5ESS Share	DMS Share
AL		30%	25%	14	90%	50%	50%
AK		30%	25%	14	90%	50%	50%
AZ		30%	25%	14	90%	50%	50%
AR		30%	25%	14	90%	50%	50%
CA		30%	25%	14	90%	50%	50%
CO		30%	25%	14	90%	50%	50%
CT		30%	25%	14	90%	50%	50%
DE		30%	25%	14	90%	50%	50%
DC		30%	25%	14	90%	50%	50%
FL		30%	25%	14	85%	69%	31%
GA		30%	25%	14	90%	50%	50%
HI		30%	25%	14	90%	50%	50%
ID		30%	25%	14	90%	50%	50%
IL		30%	25%	14	90%	50%	50%
IN		30%	25%	14	90%	50%	50%
IA		30%	25%	14	90%	50%	50%
KS		30%	25%	14	90%	50%	50%
KY		30%	25%	14	90%	50%	50%
LA		30%	25%	14	90%	50%	50%
ME		30%	25%	14	90%	50%	50%
MD		30%	25%	14	90%	50%	50%
MA		30%	25%	14	90%	50%	50%
MI		30%	25%	14	90%	50%	50%
MN		30%	25%	14	90%	50%	50%
MS		30%	25%	14	90%	50%	50%
MO		30%	25%	14	90%	50%	50%
MT		30%	25%	14	90%	50%	50%
NE		30%	25%	14	90%	50%	50%
NV		30%	25%	14	90%	50%	50%
NH		30%	25%	14	90%	50%	50%
NJ		30%	25%	14	90%	50%	50%
NM		30%	25%	14	90%	50%	50%
NY		30%	25%	14	90%	50%	50%
NC		30%	25%	14	90%	50%	50%
ND		30%	25%	14	90%	50%	50%
OH		30%	25%	14	90%	50%	50%
OK		30%	25%	14	90%	50%	50%
OR		30%	25%	14	90%	50%	50%
PA		30%	25%	14	90%	50%	50%
PR		30%	25%	14	90%	50%	50%
RI		30%	25%	14	90%	50%	50%
SC		30%	25%	14	90%	50%	50%
SD		30%	25%	14	90%	50%	50%
TN		30%	25%	14	90%	50%	50%
TX		30%	25%	14	90%	50%	50%
UT		30%	25%	14	90%	50%	50%
VT		30%	25%	14	90%	50%	50%
VA		30%	25%	14	90%	50%	50%
WA		30%	25%	14	90%	50%	50%
WV		30%	25%	14	90%	50%	50%
WI		30%	25%	14	90%	50%	50%

SWStateDefaultInputs

State	Call Completion Fraction	Reserve CCS $/Ln: 5E/5S Host/ Standalone (Discounted)	Reserve CCS $/Ln: 5ESS Remote (Discounted)	Reserve CCS $/Ln: DMS Host/ Standalone (Discounted)
AL	0.7			
AK	0.7			
AZ	0.7			
AR	0.7			
CA	0.7			
CO	0.7			
CT	0.7			
DE	0.7			
DC	0.7			
FL	0.741	53.88	57.64	99.35
GA	0.7			
HI	0.7			
ID	0.7			
IL	0.7			
IN	0.7			
IA	0.7			
KS	0.7			
KY	0.7			
LA	0.7			
ME	0.7			
MD	0.7			
MA	0.7			
MI	0.7			
MN	0.7			
MS	0.7			
MO	0.7			
MT	0.7			
NE	0.7			
NV	0.7			
NH	0.7			
NJ	0.7			
NM	0.7			
NY	0.7			
NC	0.7			
ND	0.7			
OH	0.7			
OK	0.7			
OR	0.7			
PA	0.7			
PR	0.7			
RI	0.7			
SC	0.7			
SD	0.7			
TN	0.7			
TX	0.7			
UT	0.7			
VT	0.7			
VA	0.7			
WA	0.7			
WV	0.7			
WI	0.7			

SWStateDefaultInputs

State	Reserve CCS $/Ln: DMS Remote (Discounted)	Small Switch Vendor 1 Share	Small Switch Vendor 2 Share	Small Switch Vendor 3 Share
AL		1	0	0
AK		1	0	0
AZ		1	0	0
AR		1	0	0
CA		1	0	0
CO		1	0	0
CT		1	0	0
DE		1	0	0
DC		1	0	0
FL	25.25	0	0	0
GA		1	0	0
HI		1	0	0
ID		1	0	0
IL		1	0	0
IN		1	0	0
IA		1	0	0
KS		1	0	0
KY		1	0	0
LA		1	0	0
ME		1	0	0
MD		1	0	0
MA		1	0	0
MI		1	0	0
MN		1	0	0
MS		1	0	0
MO		1	0	0
MT		1	0	0
NE		1	0	0
NV		1	0	0
NH		1	0	0
NJ		1	0	0
NM		1	0	0
NY		1	0	0
NC		1	0	0
ND		1	0	0
OH		1	0	0
OK		1	0	0
OR		1	0	0
PA		1	0	0
PR		1	0	0
RI		1	0	0
SC		1	0	0
SD		1	0	0
TN		1	0	0
TX		1	0	0
UT		1	0	0
VT		1	0	0
VA		1	0	0
WA		1	0	0
WV		1	0	0
WI		1	0	0

	A	B	C	D	E	F	G	H	I
1									
2									
3	**Switch Type Variable**	**Total Lines**	**Trunks**	**Calls**	**Line CCS**	**5EII/5ER**	**5EII*Total Lines/5ER*Total Lines**	**5EII*Trunks**	**Constant**
4									
5	**StandAloneCoefficients**								
6	Total Inv	358.74	314.64	822,200	0	-220,880	-57.44	0	0
7	Port	157.96	0	0	0	0	-105.64	0	0
8	Line CCS	132.74	0	0	0	-162,030	45.47	0	0
9	Processor	18.46	0	419,110	0	-398,550	37.74	0	1,194,100
10	Trk CCS	0.00	522.64	0	0	0	0.00	-243.34	0
11	MDF	15.74	0	0	0	0	0.00	0	0
12	SS7 Share	--- residual ---							
13									
14	**HostCoefficients**								
15	Total Inv	341.87	481.45	1,062,100	0	-604,800	-71.64	0	0
16	Port	164.12	0	0	0	0	-114.89	0	0
17	Line CCS	129.36	0	0	0	122,110	38.40	0	0
18	Processor	5.98	0	486,620	0	-851,270	45.83	0	1,404,600
19	Trk CCS	0.00	562.24	0	0	0	0.00	-255.03	0
20	MDF	16.57	0	0	0	0	0.00	0	0
21	SS7 Share	--- residual ---							
22									
23	**RemoteCoeficients**								
24	Total Inv	395.02	0	138,340	0	296,350	-118.60	0.00	0
25	Port	217.86	0	0	0	0	-154.85	0.00	0
26	Line CCS	136.43	0	0	0	134,090	25.60	0.00	0
27	Processor	25.53	0	124,620	0	154,810	14.97	0.00	0
28	MDF	22.04	0	0	0	34,490	-10.59	0.00	0

000169

SignalingInvestments

	Company Size		
	Small	Medium	Large
Res	$ 5.11	$ 5.11	$ 5.11
Bus	$ 9.93	$ 9.93	$ 9.93

Drop, NID, Protector Costs

Buried Drop Costs

	FIXED COSTS						DENSITY 0-5		DENSITY 6-100	
Size	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
1	$ 0.12			$ 0.58				$ 0.70		$ 0.70

Aerial Drop Costs

	FIXED COSTS						DENSITY 0-5		DENSITY 6-100	
Size	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
1	$ 0.07			$ 0.19				$ 0.26		$ 0.26

Residence Costs

	FIXED COSTS						DENSITY 0-5		DENSITY 6-100	
Size	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
NID	$ 7.80	$ -	$ -	$ 24.26				$ 32.06		$ 32.06
Protector	$ 3.36	$ -	$ -	$ 8.15				$ 11.51		$ 11.51
Interface	$ 4.89	$ -	$ -	$ 8.15				$ 13.04		$ 13.04

000171

Business Costs

	FIXED COSTS						DENSITY 0-5		DENSITY 6-100	
Size	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
NID	$ 7.80	$ -	$ -	$ 24.26				$ 32.06		$ 32.06
Protector	$ 3.36	$ -	$ -	$ 8.15				$ 11.51		$ 11.51
Interface	$ 4.89	$ -	$ -	$ 8.15				$ 13.04		$ 13.04

BCPM Loop Cost Inputs

Drop, NID, Protector Costs

Buried Drop Costs

	FIXED COSTS						DENSITY 101-200		DENSITY 201-650	
Size	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
1	$ 0.12			$ 0.58				$ 0.70		$ 0.70

Aerial Drop Costs

	FIXED COSTS						DENSITY 101-200		DENSITY 201-650	
Size	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
1	$ 0.07			$ 0.19				$ 0.26		$ 0.26

Residence Costs

	FIXED COSTS						DENSITY 101-200		DENSITY 201-650	
Size	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
NID	$ 7.80	$ -	$ -	$ 24.26				$ 32.06		$ 32.06
Protector	$ 3.36	$ -	$ -	$ 8.15				$ 11.51		$ 11.51
Interface	$ 4.89	$ -	$ -	$ 8.15				$ 13.04		$ 13.04

Business Costs

	FIXED COSTS						DENSITY 101-200		DENSITY 201-650	
Size	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
NID	$ 7.80	$ -	$ -	$ 24.26				$ 32.06		$ 32.06
Protector	$ 3.36	$ -	$ -	$ 8.15				$ 11.51		$ 11.51
Interface	$ 4.89	$ -	$ -	$ 8.15				$ 13.04		$ 13.04

000172

BCPM Loop Cost Inputs

Drop, NID, Protector Costs

Buried Drop Costs

	FIXED COSTS						DENSITY 651-850		DENSITY 851-2550	
Size	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
1	$ 0.12			$ 0.58				$ 0.70		$ 0.70

Aerial Drop Costs

	FIXED COSTS						DENSITY 651-850		DENSITY 851-2550	
Size	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
1	$ 0.07			$ 0.19				$ 0.26		$ 0.26

000173

Residence Costs

	FIXED COSTS						DENSITY 651-850		DENSITY 851-2550	
Size	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
NID	$ 7.80	$ -	$ -	$ 24.26				$ 32.06		$ 32.06
Protector	$ 3.36	$ -	$ -	$ 8.15				$ 11.51		$ 11.51
Interface	$ 4.89	$ -	$ -	$ 8.15				$ 13.04		$ 13.04

Business Costs

	FIXED COSTS						DENSITY 651-850		DENSITY 851-2550	
Size	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
NID	$ 7.80	$ -	$ -	$ 24.26				$ 32.06		$ 32.06
Protector	$ 3.36	$ -	$ -	$ 8.15				$ 11.51		$ 11.51
Interface	$ 4.89	$ -	$ -	$ 8.15				$ 13.04		$ 13.04

000174

Drop, NID, Protector Costs

Buried Drop Costs

	FIXED COSTS						DENSITY 2551-5000		DENSITY 5001-10000	
Size	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
1	$ 0.12			$ 0.58				$ 0.70		$ 0.70

Aerial Drop Costs

	FIXED COSTS						DENSITY 2551-5000		DENSITY 5001-10000	
Size	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
1	$ 0.07			$ 0.19				$ 0.26		$ 0.26

Residence Costs

	FIXED COSTS						DENSITY 2551-5000		DENSITY 5001-10000	
Size	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
NID	$ 7.80	$ -	$ -	$ 24.26				$ 32.06		$ 32.06
Protector	$ 3.36	$ -	$ -	$ 8.15				$ 11.51		$ 11.51
Interface	$ 4.89	$ -	$ -	$ 8.15				$ 13.04		$ 13.04

Business Costs

	FIXED COSTS						DENSITY 2551-5000		DENSITY 5001-10000	
Size	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
NID	$ 7.80	$ -	$ -	$ 24.26				$ 32.06		$ 32.06
Protector	$ 3.36	$ -	$ -	$ 8.15				$ 11.51		$ 11.51
Interface	$ 4.89	$ -	$ -	$ 8.15				$ 13.04		$ 13.04

000175

Drop, NID, Protector Costs

Buried Drop Costs

	FIXED COSTS						DENSITY >1000	
Size	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total
1	$ 0.12			$ 0.58				$ 0.70

Aerial Drop Costs

	FIXED COSTS						DENSITY >1000	
Size	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total
1	$ 0.07			$ 0.19				$ 0.26

Residence Costs

	FIXED COSTS						DENSITY >1000	
Size	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total
NID	$ 7.80	$ -	$ -	$ 24.26				$ 32.06
Protector	$ 3.36	$ -	$ -	$ 8.15				$ 11.51
Interface	$ 4.89	$ -	$ -	$ 8.15				$ 13.04

Business Costs

	FIXED COSTS						DENSITY >1000	
Size	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total
NID	$ 7.80	$ -	$ -	$ 24.26				$ 32.06
Protector	$ 3.36	$ -	$ -	$ 8.15				$ 11.51
Interface	$ 4.89	$ -	$ -	$ 8.15				$ 13.04

BCPM Loop Cost Inputs

000176

Fiber Costs

Fiber - Underground

Size	FIXED COSTS						DENSITY 0-5		DENSITY 6-100	
	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
288	$ 8.25	$ 1.83	$ 0.50	$ 3.76	$ 0.73	$ 0.75		$ 15.82		$ 15.82
144	$ 4.17	$ 0.92	$ 0.25	$ 1.90	$ 0.37	$ 0.38		$ 8.00		$ 8.00
96	$ 2.88	$ 0.64	$ 0.17	$ 1.31	$ 0.26	$ 0.26		$ 5.52		$ 5.52
72	$ 2.23	$ 0.49	$ 0.13	$ 1.02	$ 0.20	$ 0.20		$ 4.28		$ 4.28
60	$ 1.86	$ 0.41	$ 0.11	$ 0.85	$ 0.16	$ 0.17		$ 3.56		$ 3.56
48	$ 1.55	$ 0.34	$ 0.09	$ 0.71	$ 0.14	$ 0.14		$ 2.97		$ 2.97
36	$ 1.09	$ 0.24	$ 0.07	$ 0.50	$ 0.10	$ 0.10		$ 2.08		$ 2.08
24	$ 0.86	$ 0.19	$ 0.05	$ 0.39	$ 0.08	$ 0.08		$ 1.65		$ 1.65
18	$ 0.65	$ 0.14	$ 0.04	$ 0.30	$ 0.06	$ 0.06		$ 1.24		$ 1.24
12	$ 0.57	$ 0.13	$ 0.03	$ 0.26	$ 0.05	$ 0.05		$ 1.10		$ 1.10

Fiber - Buried

Size	FIXED COSTS						DENSITY 0-5		DENSITY 6-100	
	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
288	$ 8.59	$ 2.71	$ 0.52	$ 5.96	$ -	$ 1.28		$ 19.06		$ 19.06
144	$ 4.34	$ 1.37	$ 0.26	$ 3.01	$ -	$ 0.65		$ 9.63		$ 9.63
96	$ 3.00	$ 0.95	$ 0.18	$ 2.08	$ -	$ 0.45		$ 6.65		$ 6.65
72	$ 2.32	$ 0.73	$ 0.14	$ 1.61	$ -	$ 0.35		$ 5.15		$ 5.15
60	$ 1.94	$ 0.61	$ 0.12	$ 1.34	$ -	$ 0.29		$ 4.29		$ 4.29
48	$ 1.62	$ 0.51	$ 0.10	$ 1.12	$ -	$ 0.24		$ 3.58		$ 3.58
36	$ 1.13	$ 0.36	$ 0.07	$ 0.78	$ -	$ 0.17		$ 2.51		$ 2.51
24	$ 0.90	$ 0.28	$ 0.05	$ 0.62	$ -	$ 0.13		$ 1.99		$ 1.99
18	$ 0.67	$ 0.21	$ 0.04	$ 0.47	$ -	$ 0.10		$ 1.50		$ 1.50
12	$ 0.60	$ 0.19	$ 0.04	$ 0.41	$ -	$ 0.09		$ 1.32		$ 1.32

Fiber - Aerial

Size	FIXED COSTS						DENSITY 0-5		DENSITY 6-100	
	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
288	$ 8.38	$ 2.89	$ 0.50	$ 6.12	$ 1.09	$ 0.73		$ 19.70		$ 19.70
144	$ 4.24	$ 1.46	$ 0.25	$ 3.09	$ 0.55	$ 0.37		$ 9.96		$ 9.96
96	$ 2.93	$ 1.01	$ 0.18	$ 2.14	$ 0.38	$ 0.25		$ 6.88		$ 6.88
72	$ 2.27	$ 0.78	$ 0.14	$ 1.66	$ 0.29	$ 0.20		$ 5.33		$ 5.33
60	$ 1.89	$ 0.65	$ 0.11	$ 1.38	$ 0.25	$ 0.16		$ 4.44		$ 4.44
48	$ 1.58	$ 0.54	$ 0.09	$ 1.15	$ 0.20	$ 0.14		$ 3.71		$ 3.71
36	$ 1.10	$ 0.38	$ 0.07	$ 0.81	$ 0.14	$ 0.10		$ 2.59		$ 2.59
24	$ 0.88	$ 0.30	$ 0.05	$ 0.64	$ 0.11	$ 0.08		$ 2.06		$ 2.06
18	$ 0.66	$ 0.23	$ 0.04	$ 0.48	$ 0.09	$ 0.06		$ 1.55		$ 1.55
12	$ 0.58	$ 0.20	$ 0.03	$ 0.42	$ 0.08	$ 0.05		$ 1.37		$ 1.37

BCPM Loop Cost Inputs

Fiber Costs

Fiber - Underground

Size	FIXED COSTS						DENSITY 101-200		DENSITY 201-650	
	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
288	$ 8.25	$ 1.83	$ 0.50	$ 3.76	$ 0.73	$ 0.75		$ 15.82		$ 15.82
144	$ 4.17	$ 0.92	$ 0.25	$ 1.90	$ 0.37	$ 0.38		$ 8.00		$ 8.00
96	$ 2.88	$ 0.64	$ 0.17	$ 1.31	$ 0.26	$ 0.26		$ 5.52		$ 5.52
72	$ 2.23	$ 0.49	$ 0.13	$ 1.02	$ 0.20	$ 0.20		$ 4.28		$ 4.28
60	$ 1.86	$ 0.41	$ 0.11	$ 0.85	$ 0.16	$ 0.17		$ 3.56		$ 3.56
48	$ 1.55	$ 0.34	$ 0.09	$ 0.71	$ 0.14	$ 0.14		$ 2.97		$ 2.97
36	$ 1.09	$ 0.24	$ 0.07	$ 0.50	$ 0.10	$ 0.10		$ 2.08		$ 2.08
24	$ 0.86	$ 0.19	$ 0.05	$ 0.39	$ 0.08	$ 0.08		$ 1.65		$ 1.65
18	$ 0.65	$ 0.14	$ 0.04	$ 0.30	$ 0.06	$ 0.06		$ 1.24		$ 1.24
12	$ 0.57	$ 0.13	$ 0.03	$ 0.26	$ 0.05	$ 0.05		$ 1.10		$ 1.10

Fiber - Buried

Size	FIXED COSTS						DENSITY 101-200		DENSITY 201-650	
	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
288	$ 8.59	$ 2.71	$ 0.52	$ 5.96	$ -	$ 1.28		$ 19.06		$ 19.06
144	$ 4.34	$ 1.37	$ 0.26	$ 3.01	$ -	$ 0.65		$ 9.63		$ 9.63
96	$ 3.00	$ 0.95	$ 0.18	$ 2.08	$ -	$ 0.45		$ 6.65		$ 6.65
72	$ 2.32	$ 0.73	$ 0.14	$ 1.61	$ -	$ 0.35		$ 5.15		$ 5.15
60	$ 1.94	$ 0.61	$ 0.12	$ 1.34	$ -	$ 0.29		$ 4.29		$ 4.29
48	$ 1.62	$ 0.51	$ 0.10	$ 1.12	$ -	$ 0.24		$ 3.58		$ 3.58
36	$ 1.13	$ 0.36	$ 0.07	$ 0.78	$ -	$ 0.17		$ 2.51		$ 2.51
24	$ 0.90	$ 0.28	$ 0.05	$ 0.62	$ -	$ 0.13		$ 1.99		$ 1.99
18	$ 0.67	$ 0.21	$ 0.04	$ 0.47	$ -	$ 0.10		$ 1.50		$ 1.50
12	$ 0.60	$ 0.19	$ 0.04	$ 0.41	$ -	$ 0.09		$ 1.32		$ 1.32

000177

Fiber - Aerial

Size	FIXED COSTS						DENSITY 101-200		DENSITY 201-650	
	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
288	$ 8.38	$ 2.89	$ 0.50	$ 6.12	$ 1.09	$ 0.73		$ 19.70		$ 19.70
144	$ 4.24	$ 1.46	$ 0.25	$ 3.09	$ 0.55	$ 0.37		$ 9.96		$ 9.96
96	$ 2.93	$ 1.01	$ 0.18	$ 2.14	$ 0.38	$ 0.25		$ 6.88		$ 6.88
72	$ 2.27	$ 0.78	$ 0.14	$ 1.66	$ 0.29	$ 0.20		$ 5.33		$ 5.33
60	$ 1.89	$ 0.65	$ 0.11	$ 1.38	$ 0.25	$ 0.16		$ 4.44		$ 4.44
48	$ 1.58	$ 0.54	$ 0.09	$ 1.15	$ 0.20	$ 0.14		$ 3.71		$ 3.71
36	$ 1.10	$ 0.38	$ 0.07	$ 0.81	$ 0.14	$ 0.10		$ 2.59		$ 2.59
24	$ 0.88	$ 0.30	$ 0.05	$ 0.64	$ 0.11	$ 0.08		$ 2.06		$ 2.06
18	$ 0.66	$ 0.23	$ 0.04	$ 0.48	$ 0.09	$ 0.06		$ 1.55		$ 1.55
12	$ 0.58	$ 0.20	$ 0.03	$ 0.42	$ 0.08	$ 0.05		$ 1.37		$ 1.37

BCPM Loop Cost Inputs

Fiber Costs

Fiber - Underground

Size	FIXED COSTS						DENSITY 651-850		DENSITY 851-2550	
	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
288	$ 8.25	$ 1.83	$ 0.50	$ 3.76	$ 0.73	$ 0.75		$ 15.82		$ 15.82
144	$ 4.17	$ 0.92	$ 0.25	$ 1.90	$ 0.37	$ 0.38		$ 8.00		$ 8.00
96	$ 2.88	$ 0.64	$ 0.17	$ 1.31	$ 0.26	$ 0.26		$ 5.52		$ 5.52
72	$ 2.23	$ 0.49	$ 0.13	$ 1.02	$ 0.20	$ 0.20		$ 4.28		$ 4.28
60	$ 1.86	$ 0.41	$ 0.11	$ 0.85	$ 0.16	$ 0.17		$ 3.56		$ 3.56
48	$ 1.55	$ 0.34	$ 0.09	$ 0.71	$ 0.14	$ 0.14		$ 2.97		$ 2.97
36	$ 1.09	$ 0.24	$ 0.07	$ 0.50	$ 0.10	$ 0.10		$ 2.08		$ 2.08
24	$ 0.86	$ 0.19	$ 0.05	$ 0.39	$ 0.08	$ 0.08		$ 1.65		$ 1.65
18	$ 0.65	$ 0.14	$ 0.04	$ 0.30	$ 0.06	$ 0.06		$ 1.24		$ 1.24
12	$ 0.57	$ 0.13	$ 0.03	$ 0.26	$ 0.05	$ 0.05		$ 1.10		$ 1.10

Fiber - Buried

Size	FIXED COSTS						DENSITY 651-850		DENSITY 851-2550	
	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
288	$ 8.59	$ 2.71	$ 0.52	$ 5.96	$ -	$ 1.28		$ 19.06		$ 19.06
144	$ 4.34	$ 1.37	$ 0.26	$ 3.01	$ -	$ 0.65		$ 9.63		$ 9.63
96	$ 3.00	$ 0.95	$ 0.18	$ 2.08	$ -	$ 0.45		$ 6.65		$ 6.65
72	$ 2.32	$ 0.73	$ 0.14	$ 1.61	$ -	$ 0.35		$ 5.15		$ 5.15
60	$ 1.94	$ 0.61	$ 0.12	$ 1.34	$ -	$ 0.29		$ 4.29		$ 4.29
48	$ 1.62	$ 0.51	$ 0.10	$ 1.12	$ -	$ 0.24		$ 3.58		$ 3.58
36	$ 1.13	$ 0.36	$ 0.07	$ 0.78	$ -	$ 0.17		$ 2.51		$ 2.51
24	$ 0.90	$ 0.28	$ 0.05	$ 0.62	$ -	$ 0.13		$ 1.99		$ 1.99
18	$ 0.67	$ 0.21	$ 0.04	$ 0.47	$ -	$ 0.10		$ 1.50		$ 1.50
12	$ 0.60	$ 0.19	$ 0.04	$ 0.41	$ -	$ 0.09		$ 1.32		$ 1.32

000178

Fiber - Aerial

Size	FIXED COSTS						DENSITY 651-850		DENSITY 851-2550	
	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
288	$ 8.38	$ 2.89	$ 0.50	$ 6.12	$ 1.09	$ 0.73		$ 19.70		$ 19.70
144	$ 4.24	$ 1.46	$ 0.25	$ 3.09	$ 0.55	$ 0.37		$ 9.96		$ 9.96
96	$ 2.93	$ 1.01	$ 0.18	$ 2.14	$ 0.38	$ 0.25		$ 6.88		$ 6.88
72	$ 2.27	$ 0.78	$ 0.14	$ 1.66	$ 0.29	$ 0.20		$ 5.33		$ 5.33
60	$ 1.89	$ 0.65	$ 0.11	$ 1.38	$ 0.25	$ 0.16		$ 4.44		$ 4.44
48	$ 1.58	$ 0.54	$ 0.09	$ 1.15	$ 0.20	$ 0.14		$ 3.71		$ 3.71
36	$ 1.10	$ 0.38	$ 0.07	$ 0.81	$ 0.14	$ 0.10		$ 2.59		$ 2.59
24	$ 0.88	$ 0.30	$ 0.05	$ 0.64	$ 0.11	$ 0.08		$ 2.06		$ 2.06
18	$ 0.66	$ 0.23	$ 0.04	$ 0.48	$ 0.09	$ 0.06		$ 1.55		$ 1.55
12	$ 0.58	$ 0.20	$ 0.03	$ 0.42	$ 0.08	$ 0.05		$ 1.37		$ 1.37

BCPM Loop Cost Inputs

000179

Fiber Costs

Fiber - Underground

Size	FIXED COSTS						DENSITY 2551-5000		DENSITY 5001-10000	
	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
288	$ 8.25	$ 1.83	$ 0.50	$ 3.76	$ 0.73	$ 0.75		$ 15.82		$ 15.82
144	$ 4.17	$ 0.92	$ 0.25	$ 1.90	$ 0.37	$ 0.38		$ 8.00		$ 8.00
96	$ 2.88	$ 0.64	$ 0.17	$ 1.31	$ 0.26	$ 0.26		$ 5.52		$ 5.52
72	$ 2.23	$ 0.49	$ 0.13	$ 1.02	$ 0.20	$ 0.20		$ 4.28		$ 4.28
60	$ 1.86	$ 0.41	$ 0.11	$ 0.85	$ 0.16	$ 0.17		$ 3.56		$ 3.56
48	$ 1.55	$ 0.34	$ 0.09	$ 0.71	$ 0.14	$ 0.14		$ 2.97		$ 2.97
36	$ 1.09	$ 0.24	$ 0.07	$ 0.50	$ 0.10	$ 0.10		$ 2.08		$ 2.08
24	$ 0.86	$ 0.19	$ 0.05	$ 0.39	$ 0.08	$ 0.08		$ 1.65		$ 1.65
18	$ 0.65	$ 0.14	$ 0.04	$ 0.30	$ 0.06	$ 0.06		$ 1.24		$ 1.24
12	$ 0.57	$ 0.13	$ 0.03	$ 0.26	$ 0.05	$ 0.05		$ 1.10		$ 1.10

Fiber - Buried

Size	FIXED COSTS						DENSITY 2551-5000		DENSITY 5001-10000	
	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
288	$ 8.59	$ 2.71	$ 0.52	$ 5.96	$ -	$ 1.28		$ 19.06		$ 19.06
144	$ 4.34	$ 1.37	$ 0.26	$ 3.01	$ -	$ 0.65		$ 9.63		$ 9.63
96	$ 3.00	$ 0.95	$ 0.18	$ 2.08	$ -	$ 0.45		$ 6.65		$ 6.65
72	$ 2.32	$ 0.73	$ 0.14	$ 1.61	$ -	$ 0.35		$ 5.15		$ 5.15
60	$ 1.94	$ 0.61	$ 0.12	$ 1.34	$ -	$ 0.29		$ 4.29		$ 4.29
48	$ 1.62	$ 0.51	$ 0.10	$ 1.12	$ -	$ 0.24		$ 3.58		$ 3.58
36	$ 1.13	$ 0.36	$ 0.07	$ 0.78	$ -	$ 0.17		$ 2.51		$ 2.51
24	$ 0.90	$ 0.28	$ 0.05	$ 0.62	$ -	$ 0.13		$ 1.99		$ 1.99
18	$ 0.67	$ 0.21	$ 0.04	$ 0.47	$ -	$ 0.10		$ 1.50		$ 1.50
12	$ 0.60	$ 0.19	$ 0.04	$ 0.41	$ -	$ 0.09		$ 1.32		$ 1.32

Fiber - Aerial

Size	FIXED COSTS						DENSITY 2551-5000		DENSITY 5001-10000	
	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
288	$ 8.38	$ 2.89	$ 0.50	$ 6.12	$ 1.09	$ 0.73		$ 19.70		$ 19.70
144	$ 4.24	$ 1.46	$ 0.25	$ 3.09	$ 0.55	$ 0.37		$ 9.96		$ 9.96
96	$ 2.93	$ 1.01	$ 0.18	$ 2.14	$ 0.38	$ 0.25		$ 6.88		$ 6.88
72	$ 2.27	$ 0.78	$ 0.14	$ 1.66	$ 0.29	$ 0.20		$ 5.33		$ 5.33
60	$ 1.89	$ 0.65	$ 0.11	$ 1.38	$ 0.25	$ 0.16		$ 4.44		$ 4.44
48	$ 1.58	$ 0.54	$ 0.09	$ 1.15	$ 0.20	$ 0.14		$ 3.71		$ 3.71
36	$ 1.10	$ 0.38	$ 0.07	$ 0.81	$ 0.14	$ 0.10		$ 2.59		$ 2.59
24	$ 0.88	$ 0.30	$ 0.05	$ 0.64	$ 0.11	$ 0.08		$ 2.06		$ 2.06
18	$ 0.66	$ 0.23	$ 0.04	$ 0.48	$ 0.09	$ 0.06		$ 1.55		$ 1.55
12	$ 0.58	$ 0.20	$ 0.03	$ 0.42	$ 0.08	$ 0.05		$ 1.37		$ 1.37

BCPM Loop Cost Inputs

Fiber Costs

Fiber - Underground

Size	FIXED COSTS												DENSITY >1000		
	Material Cost		Exempt Mat'l		Tax		Telco		Contract		Engineering		Adjustment	Total	
288	$	8.25	$	1.83	$	0.50	$	3.76	$	0.73	$	0.75		$	15.82
144	$	4.17	$	0.92	$	0.25	$	1.90	$	0.37	$	0.38		$	8.00
96	$	2.88	$	0.64	$	0.17	$	1.31	$	0.26	$	0.26		$	5.52
72	$	2.23	$	0.49	$	0.13	$	1.02	$	0.20	$	0.20		$	4.28
60	$	1.86	$	0.41	$	0.11	$	0.85	$	0.16	$	0.17		$	3.56
48	$	1.55	$	0.34	$	0.09	$	0.71	$	0.14	$	0.14		$	2.97
36	$	1.09	$	0.24	$	0.07	$	0.50	$	0.10	$	0.10		$	2.08
24	$	0.86	$	0.19	$	0.05	$	0.39	$	0.08	$	0.08		$	1.65
18	$	0.65	$	0.14	$	0.04	$	0.30	$	0.06	$	0.06		$	1.24
12	$	0.57	$	0.13	$	0.03	$	0.26	$	0.05	$	0.05		$	1.10

Fiber - Buried

Size	FIXED COSTS												DENSITY >1000		
	Material Cost		Exempt Mat'l		Tax		Telco		Contract		Engineering		Adjustment	Total	
288	$	8.59	$	2.71	$	0.52	$	5.96	$	-	$	1.28		$	19.06
144	$	4.34	$	1.37	$	0.26	$	3.01	$	-	$	0.65		$	9.63
96	$	3.00	$	0.95	$	0.18	$	2.08	$	-	$	0.45		$	6.65
72	$	2.32	$	0.73	$	0.14	$	1.61	$	-	$	0.35		$	5.15
60	$	1.94	$	0.61	$	0.12	$	1.34	$	-	$	0.29		$	4.29
48	$	1.62	$	0.51	$	0.10	$	1.12	$	-	$	0.24		$	3.58
36	$	1.13	$	0.36	$	0.07	$	0.78	$	-	$	0.17		$	2.51
24	$	0.90	$	0.28	$	0.05	$	0.62	$	-	$	0.13		$	1.99
18	$	0.67	$	0.21	$	0.04	$	0.47	$	-	$	0.10		$	1.50
12	$	0.60	$	0.19	$	0.04	$	0.41	$	-	$	0.09		$	1.32

Fiber - Aerial

Size	FIXED COSTS												DENSITY >1000		
	Material Cost		Exempt Mat'l		Tax		Telco		Contract		Engineering		Adjustment	Total	
288	$	8.38	$	2.89	$	0.50	$	6.12	$	1.09	$	0.73		$	19.70
144	$	4.24	$	1.46	$	0.25	$	3.09	$	0.55	$	0.37		$	9.96
96	$	2.93	$	1.01	$	0.18	$	2.14	$	0.38	$	0.25		$	6.88
72	$	2.27	$	0.78	$	0.14	$	1.66	$	0.29	$	0.20		$	5.33
60	$	1.89	$	0.65	$	0.11	$	1.38	$	0.25	$	0.16		$	4.44
48	$	1.58	$	0.54	$	0.09	$	1.15	$	0.20	$	0.14		$	3.71
36	$	1.10	$	0.38	$	0.07	$	0.81	$	0.14	$	0.10		$	2.59
24	$	0.88	$	0.30	$	0.05	$	0.64	$	0.11	$	0.08		$	2.06
18	$	0.66	$	0.23	$	0.04	$	0.48	$	0.09	$	0.06		$	1.55
12	$	0.58	$	0.20	$	0.03	$	0.42	$	0.08	$	0.05		$	1.37

000180

BCPM Loop Cost Inputs

Cable Costs

24 Gauge Cable - Underground Copper

Size	FIXED COSTS						DENSITY 0-5		DENSITY 6-100	
	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
4200	$ 21.09	$ 18.21	$ 1.27	$ 40.18	$ 8.58	$ 5.89		$ 95.21		$ 95.21
3600	$ 18.08	$ 15.60	$ 1.08	$ 34.44	$ 7.35	$ 5.05		$ 81.61		$ 81.61
3000	$ 15.06	$ 13.00	$ 0.90	$ 28.70	$ 6.13	$ 4.21		$ 68.01		$ 68.01
2400	$ 12.05	$ 10.40	$ 0.72	$ 22.96	$ 4.90	$ 3.37		$ 54.41		$ 54.41
2100	$ 10.61	$ 9.16	$ 0.64	$ 20.22	$ 4.32	$ 2.97		$ 47.91		$ 47.91
1800	$ 9.38	$ 8.10	$ 0.56	$ 17.87	$ 3.82	$ 2.62		$ 42.35		$ 42.35
1200	$ 6.24	$ 5.39	$ 0.37	$ 11.89	$ 2.54	$ 1.74		$ 28.19		$ 28.19
900	$ 6.52	$ 5.63	$ 0.39	$ 12.43	$ 2.65	$ 1.82		$ 29.45		$ 29.45
600	$ 3.25	$ 2.81	$ 0.20	$ 6.19	$ 1.32	$ 0.91		$ 14.68		$ 14.68
400	$ 2.17	$ 1.87	$ 0.13	$ 4.13	$ 0.88	$ 0.61		$ 9.78		$ 9.78
300	$ 1.63	$ 1.40	$ 0.10	$ 3.10	$ 0.66	$ 0.45		$ 7.34		$ 7.34
200	$ 1.08	$ 0.94	$ 0.07	$ 2.06	$ 0.44	$ 0.30		$ 4.89		$ 4.89
100	$ 0.54	$ 0.47	$ 0.03	$ 1.03	$ 0.22	$ 0.15		$ 2.45		$ 2.45
50	$ 0.27	$ 0.23	$ 0.02	$ 0.52	$ 0.11	$ 0.08		$ 1.22		$ 1.22
25	$ 0.14	$ 0.12	$ 0.01	$ 0.26	$ 0.06	$ 0.04		$ 0.61		$ 0.61
18	$ 0.14	$ 0.12	$ 0.01	$ 0.26	$ 0.06	$ 0.04		$ 0.61		$ 0.61
12	$ 0.14	$ 0.12	$ 0.01	$ 0.26	$ 0.06	$ 0.04		$ 0.61		$ 0.61

24 Gauge Cable - Dual Sheath "Filled" Buried Copper

Size	FIXED COSTS						DENSITY 0-5		DENSITY 6-100	
	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
4200	$ 23.26	$ 13.32	$ 1.40	$ 34.64	$ -	$ 10.55		$ 83.16		$ 83.16
3600	$ 19.93	$ 11.42	$ 1.20	$ 29.69	$ -	$ 9.04		$ 71.28		$ 71.28
3000	$ 16.61	$ 9.52	$ 1.00	$ 24.74	$ -	$ 7.53		$ 59.40		$ 59.40
2400	$ 13.29	$ 7.61	$ 0.80	$ 19.79	$ -	$ 6.03		$ 47.52		$ 47.52
2100	$ 11.63	$ 6.66	$ 0.70	$ 17.32	$ -	$ 5.27		$ 41.58		$ 41.58
1800	$ 9.97	$ 5.71	$ 0.60	$ 14.84	$ -	$ 4.52		$ 35.64		$ 35.64
1200	$ 6.64	$ 3.80	$ 0.40	$ 9.89	$ -	$ 3.01		$ 23.73		$ 23.73
900	$ 4.99	$ 2.86	$ 0.30	$ 7.44	$ -	$ 2.26		$ 17.86		$ 17.86
600	$ 3.36	$ 1.92	$ 0.20	$ 5.00	$ -	$ 1.52		$ 12.02		$ 12.02
400	$ 2.32	$ 1.33	$ 0.14	$ 3.46	$ -	$ 1.05		$ 8.30		$ 8.30
300	$ 1.86	$ 1.07	$ 0.11	$ 2.77	$ -	$ 0.84		$ 6.66		$ 6.66
200	$ 1.22	$ 0.70	$ 0.07	$ 1.81	$ -	$ 0.55		$ 4.35		$ 4.35
100	$ 0.65	$ 0.37	$ 0.04	$ 0.96	$ -	$ 0.29		$ 2.31		$ 2.31
50	$ 0.36	$ 0.21	$ 0.02	$ 0.54	$ -	$ 0.17		$ 1.30		$ 1.30
25	$ 0.22	$ 0.13	$ 0.01	$ 0.33	$ -	$ 0.10		$ 0.78		$ 0.78
18	$ 0.22	$ 0.13	$ 0.01	$ 0.33	$ -	$ 0.10		$ 0.78		$ 0.78
12	$ 0.22	$ 0.13	$ 0.01	$ 0.33	$ -	$ 0.10		$ 0.78		$ 0.78

Cable Costs

24 Gauge Cable - Underground Copper

Size	FIXED COSTS						DENSITY 101-200		DENSITY 201-650	
	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
4200	$ 21.09	$ 18.21	$ 1.27	$ 40.18	$ 8.58	$ 5.89		$ 95.21		$ 95.21
3600	$ 18.08	$ 15.60	$ 1.08	$ 34.44	$ 7.35	$ 5.05		$ 81.61		$ 81.61
3000	$ 15.06	$ 13.00	$ 0.90	$ 28.70	$ 6.13	$ 4.21		$ 68.01		$ 68.01
2400	$ 12.05	$ 10.40	$ 0.72	$ 22.96	$ 4.90	$ 3.37		$ 54.41		$ 54.41
2100	$ 10.61	$ 9.16	$ 0.64	$ 20.22	$ 4.32	$ 2.97		$ 47.91		$ 47.91
1800	$ 9.38	$ 8.10	$ 0.56	$ 17.87	$ 3.82	$ 2.62		$ 42.35		$ 42.35
1200	$ 6.24	$ 5.39	$ 0.37	$ 11.89	$ 2.54	$ 1.74		$ 28.19		$ 28.19
900	$ 6.52	$ 5.63	$ 0.39	$ 12.43	$ 2.65	$ 1.82		$ 29.45		$ 29.45
600	$ 3.25	$ 2.81	$ 0.20	$ 6.19	$ 1.32	$ 0.91		$ 14.68		$ 14.68
400	$ 2.17	$ 1.87	$ 0.13	$ 4.13	$ 0.88	$ 0.61		$ 9.78		$ 9.78
300	$ 1.63	$ 1.40	$ 0.10	$ 3.10	$ 0.66	$ 0.45		$ 7.34		$ 7.34
200	$ 1.08	$ 0.94	$ 0.07	$ 2.06	$ 0.44	$ 0.30		$ 4.89		$ 4.89
100	$ 0.54	$ 0.47	$ 0.03	$ 1.03	$ 0.22	$ 0.15		$ 2.45		$ 2.45
50	$ 0.27	$ 0.23	$ 0.02	$ 0.52	$ 0.11	$ 0.08		$ 1.22		$ 1.22
25	$ 0.14	$ 0.12	$ 0.01	$ 0.26	$ 0.06	$ 0.04		$ 0.61		$ 0.61
18	$ 0.14	$ 0.12	$ 0.01	$ 0.26	$ 0.06	$ 0.04		$ 0.61		$ 0.61
12	$ 0.14	$ 0.12	$ 0.01	$ 0.26	$ 0.06	$ 0.04		$ 0.61		$ 0.61

24 Gauge Cable - Dual Sheath "Filled" Buried Copper

Size	FIXED COSTS						DENSITY 101-200		DENSITY 201-650	
	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
4200	$ 23.26	$ 13.32	$ 1.40	$ 34.64	$ -	$ 10.55		$ 83.16		$ 83.16
3600	$ 19.93	$ 11.42	$ 1.20	$ 29.69	$ -	$ 9.04		$ 71.28		$ 71.28
3000	$ 16.61	$ 9.52	$ 1.00	$ 24.74	$ -	$ 7.53		$ 59.40		$ 59.40
2400	$ 13.29	$ 7.61	$ 0.80	$ 19.79	$ -	$ 6.03		$ 47.52		$ 47.52
2100	$ 11.63	$ 6.66	$ 0.70	$ 17.32	$ -	$ 5.27		$ 41.58		$ 41.58
1800	$ 9.97	$ 5.71	$ 0.60	$ 14.84	$ -	$ 4.52		$ 35.64		$ 35.64
1200	$ 6.64	$ 3.80	$ 0.40	$ 9.89	$ -	$ 3.01		$ 23.73		$ 23.73
900	$ 4.99	$ 2.86	$ 0.30	$ 7.44	$ -	$ 2.26		$ 17.86		$ 17.86
600	$ 3.36	$ 1.92	$ 0.20	$ 5.00	$ -	$ 1.52		$ 12.02		$ 12.02
400	$ 2.32	$ 1.33	$ 0.14	$ 3.46	$ -	$ 1.05		$ 8.30		$ 8.30
300	$ 1.86	$ 1.07	$ 0.11	$ 2.77	$ -	$ 0.84		$ 6.66		$ 6.66
200	$ 1.22	$ 0.70	$ 0.07	$ 1.81	$ -	$ 0.55		$ 4.35		$ 4.35
100	$ 0.65	$ 0.37	$ 0.04	$ 0.96	$ -	$ 0.29		$ 2.31		$ 2.31
50	$ 0.36	$ 0.21	$ 0.02	$ 0.54	$ -	$ 0.17		$ 1.30		$ 1.30
25	$ 0.22	$ 0.13	$ 0.01	$ 0.33	$ -	$ 0.10		$ 0.78		$ 0.78
18	$ 0.22	$ 0.13	$ 0.01	$ 0.33	$ -	$ 0.10		$ 0.78		$ 0.78
12	$ 0.22	$ 0.13	$ 0.01	$ 0.33	$ -	$ 0.10		$ 0.78		$ 0.78

Cable Costs

24 Gauge Cable - Underground Copper

Size	FIXED COSTS						DENSITY 651-850		DENSITY 851-2550	
	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
4200	$ 21.09	$ 18.21	$ 1.27	$ 40.18	$ 8.58	$ 5.89		$ 95.21		$ 95.21
3600	$ 18.08	$ 15.60	$ 1.08	$ 34.44	$ 7.35	$ 5.05		$ 81.61		$ 81.61
3000	$ 15.06	$ 13.00	$ 0.90	$ 28.70	$ 6.13	$ 4.21		$ 68.01		$ 68.01
2400	$ 12.05	$ 10.40	$ 0.72	$ 22.96	$ 4.90	$ 3.37		$ 54.41		$ 54.41
2100	$ 10.61	$ 9.16	$ 0.64	$ 20.22	$ 4.32	$ 2.97		$ 47.91		$ 47.91
1800	$ 9.38	$ 8.10	$ 0.56	$ 17.87	$ 3.82	$ 2.62		$ 42.35		$ 42.35
1200	$ 6.24	$ 5.39	$ 0.37	$ 11.89	$ 2.54	$ 1.74		$ 28.19		$ 28.19
900	$ 6.52	$ 5.63	$ 0.39	$ 12.43	$ 2.65	$ 1.82		$ 29.45		$ 29.45
600	$ 3.25	$ 2.81	$ 0.20	$ 6.19	$ 1.32	$ 0.91		$ 14.68		$ 14.68
400	$ 2.17	$ 1.87	$ 0.13	$ 4.13	$ 0.88	$ 0.61		$ 9.78		$ 9.78
300	$ 1.63	$ 1.40	$ 0.10	$ 3.10	$ 0.66	$ 0.45		$ 7.34		$ 7.34
200	$ 1.08	$ 0.94	$ 0.07	$ 2.06	$ 0.44	$ 0.30		$ 4.89		$ 4.89
100	$ 0.54	$ 0.47	$ 0.03	$ 1.03	$ 0.22	$ 0.15		$ 2.45		$ 2.45
50	$ 0.27	$ 0.23	$ 0.02	$ 0.52	$ 0.11	$ 0.08		$ 1.22		$ 1.22
25	$ 0.14	$ 0.12	$ 0.01	$ 0.26	$ 0.06	$ 0.04		$ 0.61		$ 0.61
18	$ 0.14	$ 0.12	$ 0.01	$ 0.26	$ 0.06	$ 0.04		$ 0.61		$ 0.61
12	$ 0.14	$ 0.12	$ 0.01	$ 0.26	$ 0.06	$ 0.04		$ 0.61		$ 0.61

24 Gauge Cable - Dual Sheath "Filled" Buried Copper

Size	FIXED COSTS						DENSITY 651-850		DENSITY 851-2550	
	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
4200	$ 23.26	$ 13.32	$ 1.40	$ 34.64	$ -	$ 10.55		$ 83.16		$ 83.16
3600	$ 19.93	$ 11.42	$ 1.20	$ 29.69	$ -	$ 9.04		$ 71.28		$ 71.28
3000	$ 16.61	$ 9.52	$ 1.00	$ 24.74	$ -	$ 7.53		$ 59.40		$ 59.40
2400	$ 13.29	$ 7.61	$ 0.80	$ 19.79	$ -	$ 6.03		$ 47.52		$ 47.52
2100	$ 11.63	$ 6.66	$ 0.70	$ 17.32	$ -	$ 5.27		$ 41.58		$ 41.58
1800	$ 9.97	$ 5.71	$ 0.60	$ 14.84	$ -	$ 4.52		$ 35.64		$ 35.64
1200	$ 6.64	$ 3.80	$ 0.40	$ 9.89	$ -	$ 3.01		$ 23.73		$ 23.73
900	$ 4.99	$ 2.86	$ 0.30	$ 7.44	$ -	$ 2.26		$ 17.86		$ 17.86
600	$ 3.36	$ 1.92	$ 0.20	$ 5.00	$ -	$ 1.52		$ 12.02		$ 12.02
400	$ 2.32	$ 1.33	$ 0.14	$ 3.46	$ -	$ 1.05		$ 8.30		$ 8.30
300	$ 1.86	$ 1.07	$ 0.11	$ 2.77	$ -	$ 0.84		$ 6.66		$ 6.66
200	$ 1.22	$ 0.70	$ 0.07	$ 1.81	$ -	$ 0.55		$ 4.35		$ 4.35
100	$ 0.65	$ 0.37	$ 0.04	$ 0.96	$ -	$ 0.29		$ 2.31		$ 2.31
50	$ 0.36	$ 0.21	$ 0.02	$ 0.54	$ -	$ 0.17		$ 1.30		$ 1.30
25	$ 0.22	$ 0.13	$ 0.01	$ 0.33	$ -	$ 0.10		$ 0.78		$ 0.78
18	$ 0.22	$ 0.13	$ 0.01	$ 0.33	$ -	$ 0.10		$ 0.78		$ 0.78
12	$ 0.22	$ 0.13	$ 0.01	$ 0.33	$ -	$ 0.10		$ 0.78		$ 0.78

Cable Costs

24 Gauge Cable - Underground Copper

Size	FIXED COSTS						DENSITY 2551-5000		DENSITY 5001-10000	
	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
4200	$ 21.09	$ 18.21	$ 1.27	$ 40.18	$ 8.58	$ 5.89		$ 95.21		$ 95.21
3600	$ 18.08	$ 15.60	$ 1.08	$ 34.44	$ 7.35	$ 5.05		$ 81.61		$ 81.61
3000	$ 15.06	$ 13.00	$ 0.90	$ 28.70	$ 6.13	$ 4.21		$ 68.01		$ 68.01
2400	$ 12.05	$ 10.40	$ 0.72	$ 22.96	$ 4.90	$ 3.37		$ 54.41		$ 54.41
2100	$ 10.61	$ 9.16	$ 0.64	$ 20.22	$ 4.32	$ 2.97		$ 47.91		$ 47.91
1800	$ 9.38	$ 8.10	$ 0.56	$ 17.87	$ 3.82	$ 2.62		$ 42.35		$ 42.35
1200	$ 6.24	$ 5.39	$ 0.37	$ 11.89	$ 2.54	$ 1.74		$ 28.19		$ 28.19
900	$ 6.52	$ 5.63	$ 0.39	$ 12.43	$ 2.65	$ 1.82		$ 29.45		$ 29.45
600	$ 3.25	$ 2.81	$ 0.20	$ 6.19	$ 1.32	$ 0.91		$ 14.68		$ 14.68
400	$ 2.17	$ 1.87	$ 0.13	$ 4.13	$ 0.88	$ 0.61		$ 9.78		$ 9.78
300	$ 1.63	$ 1.40	$ 0.10	$ 3.10	$ 0.66	$ 0.45		$ 7.34		$ 7.34
200	$ 1.08	$ 0.94	$ 0.07	$ 2.06	$ 0.44	$ 0.30		$ 4.89		$ 4.89
100	$ 0.54	$ 0.47	$ 0.03	$ 1.03	$ 0.22	$ 0.15		$ 2.45		$ 2.45
50	$ 0.27	$ 0.23	$ 0.02	$ 0.52	$ 0.11	$ 0.08		$ 1.22		$ 1.22
25	$ 0.14	$ 0.12	$ 0.01	$ 0.26	$ 0.06	$ 0.04		$ 0.61		$ 0.61
18	$ 0.14	$ 0.12	$ 0.01	$ 0.26	$ 0.06	$ 0.04		$ 0.61		$ 0.61
12	$ 0.14	$ 0.12	$ 0.01	$ 0.26	$ 0.06	$ 0.04		$ 0.61		$ 0.61

24 Gauge Cable - Dual Sheath "Filled" Buried Copper

Size	FIXED COSTS						DENSITY 2551-5000		DENSITY 5001-10000	
	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
4200	$ 23.26	$ 13.32	$ 1.40	$ 34.64	$ -	$ 10.55		$ 83.16		$ 83.16
3600	$ 19.93	$ 11.42	$ 1.20	$ 29.69	$ -	$ 9.04		$ 71.28		$ 71.28
3000	$ 16.61	$ 9.52	$ 1.00	$ 24.74	$ -	$ 7.53		$ 59.40		$ 59.40
2400	$ 13.29	$ 7.61	$ 0.80	$ 19.79	$ -	$ 6.03		$ 47.52		$ 47.52
2100	$ 11.63	$ 6.66	$ 0.70	$ 17.32	$ -	$ 5.27		$ 41.58		$ 41.58
1800	$ 9.97	$ 5.71	$ 0.60	$ 14.84	$ -	$ 4.52		$ 35.64		$ 35.64
1200	$ 6.64	$ 3.80	$ 0.40	$ 9.89	$ -	$ 3.01		$ 23.73		$ 23.73
900	$ 4.99	$ 2.86	$ 0.30	$ 7.44	$ -	$ 2.26		$ 17.86		$ 17.86
600	$ 3.36	$ 1.92	$ 0.20	$ 5.00	$ -	$ 1.52		$ 12.02		$ 12.02
400	$ 2.32	$ 1.33	$ 0.14	$ 3.46	$ -	$ 1.05		$ 8.30		$ 8.30
300	$ 1.86	$ 1.07	$ 0.11	$ 2.77	$ -	$ 0.84		$ 6.66		$ 6.66
200	$ 1.22	$ 0.70	$ 0.07	$ 1.81	$ -	$ 0.55		$ 4.35		$ 4.35
100	$ 0.65	$ 0.37	$ 0.04	$ 0.96	$ -	$ 0.29		$ 2.31		$ 2.31
50	$ 0.36	$ 0.21	$ 0.02	$ 0.54	$ -	$ 0.17		$ 1.30		$ 1.30
25	$ 0.22	$ 0.13	$ 0.01	$ 0.33	$ -	$ 0.10		$ 0.78		$ 0.78
18	$ 0.22	$ 0.13	$ 0.01	$ 0.33	$ -	$ 0.10		$ 0.78		$ 0.78
12	$ 0.22	$ 0.13	$ 0.01	$ 0.33	$ -	$ 0.10		$ 0.78		$ 0.78

BCPM Loop Cost Inputs

Cable Costs

24 Gauge Cable - Underground Copper

Size	FIXED COSTS						DENSITY >10001	
	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total
4200	$ 21.09	$ 18.21	$ 1.27	$ 40.18	$ 8.58	$ 5.89		$ 95.21
3600	$ 18.08	$ 15.60	$ 1.08	$ 34.44	$ 7.35	$ 5.05		$ 81.61
3000	$ 15.06	$ 13.00	$ 0.90	$ 28.70	$ 6.13	$ 4.21		$ 68.01
2400	$ 12.05	$ 10.40	$ 0.72	$ 22.96	$ 4.90	$ 3.37		$ 54.41
2100	$ 10.61	$ 9.16	$ 0.64	$ 20.22	$ 4.32	$ 2.97		$ 47.91
1800	$ 9.38	$ 8.10	$ 0.56	$ 17.87	$ 3.82	$ 2.62		$ 42.35
1200	$ 6.24	$ 5.39	$ 0.37	$ 11.89	$ 2.54	$ 1.74		$ 28.19
900	$ 6.52	$ 5.63	$ 0.39	$ 12.43	$ 2.65	$ 1.82		$ 29.45
600	$ 3.25	$ 2.81	$ 0.20	$ 6.19	$ 1.32	$ 0.91		$ 14.68
400	$ 2.17	$ 1.87	$ 0.13	$ 4.13	$ 0.88	$ 0.61		$ 9.78
300	$ 1.63	$ 1.40	$ 0.10	$ 3.10	$ 0.66	$ 0.45		$ 7.34
200	$ 1.08	$ 0.94	$ 0.07	$ 2.06	$ 0.44	$ 0.30		$ 4.89
100	$ 0.54	$ 0.47	$ 0.03	$ 1.03	$ 0.22	$ 0.15		$ 2.45
50	$ 0.27	$ 0.23	$ 0.02	$ 0.52	$ 0.11	$ 0.08		$ 1.22
25	$ 0.14	$ 0.12	$ 0.01	$ 0.26	$ 0.06	$ 0.04		$ 0.61
18	$ 0.14	$ 0.12	$ 0.01	$ 0.26	$ 0.06	$ 0.04		$ 0.61
12	$ 0.14	$ 0.12	$ 0.01	$ 0.26	$ 0.06	$ 0.04		$ 0.61

24 Gauge Cable - Dual Sheath "Filled" Buried Copper

Size	FIXED COSTS						DENSITY >10001	
	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total
4200	$ 23.26	$ 13.32	$ 1.40	$ 34.64	$ -	$ 10.55		$ 83.16
3600	$ 19.93	$ 11.42	$ 1.20	$ 29.69	$ -	$ 9.04		$ 71.28
3000	$ 16.61	$ 9.52	$ 1.00	$ 24.74	$ -	$ 7.53		$ 59.40
2400	$ 13.29	$ 7.61	$ 0.80	$ 19.79	$ -	$ 6.03		$ 47.52
2100	$ 11.63	$ 6.66	$ 0.70	$ 17.32	$ -	$ 5.27		$ 41.58
1800	$ 9.97	$ 5.71	$ 0.60	$ 14.84	$ -	$ 4.52		$ 35.64
1200	$ 6.64	$ 3.80	$ 0.40	$ 9.89	$ -	$ 3.01		$ 23.73
900	$ 4.99	$ 2.86	$ 0.30	$ 7.44	$ -	$ 2.26		$ 17.86
600	$ 3.36	$ 1.92	$ 0.20	$ 5.00	$ -	$ 1.52		$ 12.02
400	$ 2.32	$ 1.33	$ 0.14	$ 3.46	$ -	$ 1.05		$ 8.30
300	$ 1.86	$ 1.07	$ 0.11	$ 2.77	$ -	$ 0.84		$ 6.66
200	$ 1.22	$ 0.70	$ 0.07	$ 1.81	$ -	$ 0.55		$ 4.35
100	$ 0.65	$ 0.37	$ 0.04	$ 0.96	$ -	$ 0.29		$ 2.31
50	$ 0.36	$ 0.21	$ 0.02	$ 0.54	$ -	$ 0.17		$ 1.30
25	$ 0.22	$ 0.13	$ 0.01	$ 0.33	$ -	$ 0.10		$ 0.78
18	$ 0.22	$ 0.13	$ 0.01	$ 0.33	$ -	$ 0.10		$ 0.78
12	$ 0.22	$ 0.13	$ 0.01	$ 0.33	$ -	$ 0.10		$ 0.78

BCPM Loop Cost Inputs

24 Gauge Cable - Aerial

Size	FIXED COSTS						DENSITY 0-3		DENSITY 6-100	
	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
4200	$ 23.03	$ 22.64	$ 1.38	$ 57.28	$ 10.47	$ 9.15		$ 123.95		$ 123.95
3600	$ 19.74	$ 19.40	$ 1.18	$ 49.10	$ 8.97	$ 7.84		$ 106.24		$ 106.24
3000	$ 16.45	$ 16.17	$ 0.99	$ 40.91	$ 7.48	$ 6.54		$ 88.53		$ 88.53
2400	$ 13.16	$ 12.94	$ 0.79	$ 32.71	$ 5.98	$ 5.23		$ 70.83		$ 70.83
2100	$ 11.51	$ 11.32	$ 0.69	$ 28.64	$ 5.23	$ 4.57		$ 61.97		$ 61.97
1800	$ 9.87	$ 9.70	$ 0.59	$ 24.55	$ 4.49	$ 3.92		$ 53.12		$ 53.12
1200	$ 6.46	$ 6.35	$ 0.39	$ 16.07	$ 2.94	$ 2.57		$ 34.78		$ 34.78
900	$ 4.96	$ 4.87	$ 0.30	$ 12.33	$ 2.25	$ 1.97		$ 26.67		$ 26.67
600	$ 3.39	$ 3.33	$ 0.20	$ 8.43	$ 1.54	$ 1.35		$ 18.23		$ 18.23
400	$ 2.30	$ 2.26	$ 0.14	$ 5.72	$ 1.05	$ 0.91		$ 12.38		$ 12.38
300	$ 1.77	$ 1.74	$ 0.11	$ 4.39	$ 0.80	$ 0.70		$ 9.51		$ 9.51
200	$ 1.37	$ 1.35	$ 0.08	$ 3.41	$ 0.62	$ 0.54		$ 7.37		$ 7.37
100	$ 0.75	$ 0.74	$ 0.05	$ 1.87	$ 0.34	$ 0.30		$ 4.05		$ 4.05
50	$ 0.47	$ 0.46	$ 0.03	$ 1.17	$ 0.21	$ 0.19		$ 2.53		$ 2.53
25	$ 0.30	$ 0.30	$ 0.02	$ 0.75	$ 0.14	$ 0.12		$ 1.63		$ 1.63
18	$ 0.30	$ 0.30	$ 0.02	$ 0.75	$ 0.14	$ 0.12		$ 1.63		$ 1.63
12	$ 0.30	$ 0.30	$ 0.02	$ 0.75	$ 0.14	$ 0.12		$ 1.63		$ 1.63

26 Gauge Cable - Underground Copper

Size	FIXED COSTS						DENSITY 0-3		DENSITY 6-100	
	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
4200	$ 14.55	$ 16.68	$ 0.87	$ 36.31	$ 5.92	$ 4.07		$ 78.40		$ 78.40
3600	$ 12.56	$ 14.40	$ 0.75	$ 31.35	$ 5.11	$ 3.51		$ 67.68		$ 67.68
3000	$ 10.59	$ 12.14	$ 0.64	$ 26.44	$ 4.31	$ 2.96		$ 57.08		$ 57.08
2400	$ 8.57	$ 9.83	$ 0.51	$ 21.40	$ 3.49	$ 2.40		$ 46.20		$ 46.20
2100	$ 7.57	$ 8.68	$ 0.45	$ 18.89	$ 3.08	$ 2.12		$ 40.79		$ 40.79
1800	$ 6.55	$ 7.51	$ 0.39	$ 16.36	$ 2.67	$ 1.83		$ 35.32		$ 35.32
1200	$ 4.57	$ 5.23	$ 0.27	$ 11.40	$ 1.86	$ 1.28		$ 24.61		$ 24.61
900	$ 3.51	$ 4.02	$ 0.21	$ 8.76	$ 1.43	$ 0.98		$ 18.92		$ 18.92
600	$ 2.35	$ 2.69	$ 0.14	$ 5.87	$ 0.96	$ 0.66		$ 12.67		$ 12.67
400	$ 1.57	$ 1.80	$ 0.09	$ 3.91	$ 0.64	$ 0.44		$ 8.44		$ 8.44
300	$ 1.18	$ 1.35	$ 0.07	$ 2.93	$ 0.48	$ 0.33		$ 6.33		$ 6.33
200	$ 0.78	$ 0.90	$ 0.05	$ 1.96	$ 0.32	$ 0.22		$ 4.22		$ 4.22
100	$ 0.39	$ 0.45	$ 0.02	$ 0.98	$ 0.16	$ 0.11		$ 2.11		$ 2.11
50	$ 0.20	$ 0.22	$ 0.01	$ 0.49	$ 0.08	$ 0.05		$ 1.06		$ 1.06
25	$ 0.10	$ 0.11	$ 0.01	$ 0.24	$ 0.04	$ 0.03		$ 0.53		$ 0.53
18	$ 0.10	$ 0.11	$ 0.01	$ 0.24	$ 0.04	$ 0.03		$ 0.53		$ 0.53
12	$ 0.10	$ 0.11	$ 0.01	$ 0.24	$ 0.04	$ 0.03		$ 0.53		$ 0.53

BCPM Loop Cost Inputs

24 Gauge Cable - Aerial

Size	FIXED COSTS						DENSITY 101-200		DENSITY 201-650	
	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
4200	$ 23.03	$ 22.64	$ 1.38	$ 57.28	$ 10.47	$ 9.15		$ 123.95		$ 123.95
3600	$ 19.74	$ 19.40	$ 1.18	$ 49.10	$ 8.97	$ 7.84		$ 106.24		$ 106.24
3000	$ 16.45	$ 16.17	$ 0.99	$ 40.91	$ 7.48	$ 6.54		$ 88.53		$ 88.53
2400	$ 13.16	$ 12.94	$ 0.79	$ 32.73	$ 5.98	$ 5.23		$ 70.83		$ 70.83
2100	$ 11.51	$ 11.32	$ 0.69	$ 28.64	$ 5.23	$ 4.57		$ 61.97		$ 61.97
1800	$ 9.87	$ 9.70	$ 0.59	$ 24.55	$ 4.49	3.92		$ 53.12		$ 53.12
1200	$ 6.46	$ 6.35	$ 0.39	$ 16.07	$ 2.94	$ 2.57		$ 34.78		$ 34.78
900	$ 4.96	$ 4.87	$ 0.30	$ 12.33	$ 2.25	$ 1.97		$ 26.67		$ 26.67
600	$ 3.39	$ 3.33	$ 0.20	$ 8.43	$ 1.54	$ 1.35		$ 18.23		$ 18.23
400	$ 2.30	$ 2.26	$ 0.14	$ 5.72	$ 1.05	$ 0.91		$ 12.38		$ 12.38
300	$ 1.77	$ 1.74	$ 0.11	$ 4.39	$ 0.80	$ 0.70		$ 9.51		$ 9.51
200	$ 1.37	$ 1.35	$ 0.08	$ 3.41	$ 0.62	$ 0.54		$ 7.37		$ 7.37
100	$ 0.75	$ 0.74	$ 0.05	$ 1.87	$ 0.34	$ 0.30		$ 4.05		$ 4.05
50	$ 0.47	$ 0.46	$ 0.03	$ 1.17	$ 0.21	$ 0.19		$ 2.53		$ 2.53
25	$ 0.30	$ 0.30	$ 0.02	$ 0.75	$ 0.14	$ 0.12		$ 1.63		$ 1.63
18	$ 0.30	$ 0.30	$ 0.02	$ 0.75	$ 0.14	$ 0.12		$ 1.63		$ 1.63
12	$ 0.30	$ 0.30	$ 0.02	$ 0.75	$ 0.14	$ 0.12		$ 1.63		$ 1.63

26 Gauge Cable - Underground Copper

Size	FIXED COSTS						DENSITY 101-200		DENSITY 201-650	
	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
4200	$ 14.55	$ 16.68	$ 0.87	$ 36.31	$ 5.92	$ 4.07		$ 78.40		$ 78.40
3600	$ 12.56	$ 14.40	$ 0.75	$ 31.35	$ 5.11	$ 3.51		$ 67.68		$ 67.68
3000	$ 10.59	$ 12.14	$ 0.64	$ 26.44	$ 4.31	$ 2.96		$ 57.08		$ 57.08
2400	$ 8.57	$ 9.83	$ 0.51	$ 21.40	$ 3.49	$ 2.40		$ 46.20		$ 46.20
2100	$ 7.57	$ 8.68	$ 0.45	$ 18.89	$ 3.08	$ 2.12		$ 40.79		$ 40.79
1800	$ 6.55	$ 7.51	$ 0.39	$ 16.36	$ 2.67	$ 1.83		$ 35.32		$ 35.32
1200	$ 4.57	$ 5.23	$ 0.27	$ 11.40	$ 1.86	$ 1.28		$ 24.61		$ 24.61
900	$ 3.51	$ 4.02	$ 0.21	$ 8.76	$ 1.43	$ 0.98		$ 18.92		$ 18.92
600	$ 2.35	$ 2.69	$ 0.14	$ 5.87	$ 0.96	$ 0.66		$ 12.67		$ 12.67
400	$ 1.57	$ 1.80	$ 0.09	$ 3.91	$ 0.64	$ 0.44		$ 8.44		$ 8.44
300	$ 1.18	$ 1.35	$ 0.07	$ 2.93	$ 0.48	$ 0.33		$ 6.33		$ 6.33
200	$ 0.78	$ 0.90	$ 0.05	$ 1.96	$ 0.32	$ 0.22		$ 4.22		$ 4.22
100	$ 0.39	$ 0.45	$ 0.02	$ 0.98	$ 0.16	$ 0.11		$ 2.11		$ 2.11
50	$ 0.20	$ 0.22	$ 0.01	$ 0.49	$ 0.08	$ 0.05		$ 1.06		$ 1.06
25	$ 0.10	$ 0.11	$ 0.01	$ 0.24	$ 0.04	$ 0.03		$ 0.53		$ 0.53
18	$ 0.10	$ 0.11	$ 0.01	$ 0.24	$ 0.04	$ 0.03		$ 0.53		$ 0.53
12	$ 0.10	$ 0.11	$ 0.01	$ 0.24	$ 0.04	$ 0.03		$ 0.53		$ 0.53

000180.7

BCPM Loop Cost Inputs

24 Gauge Cable - Aerial

Size	FIXED COSTS						DENSITY 651-850		DENSITY 851-2550	
	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
4200	$ 23.03	$ 22.64	$ 1.38	$ 57.28	$ 10.47	$ 9.15		$ 123.95		$ 123.95
3600	$ 19.74	$ 19.40	$ 1.18	$ 49.10	$ 8.97	$ 7.84		$ 106.24		$ 106.24
3000	$ 16.45	$ 16.17	$ 0.99	$ 40.91	$ 7.48	$ 6.54		$ 88.53		$ 88.53
2400	$ 13.16	$ 12.94	$ 0.79	$ 32.73	$ 5.98	$ 5.23		$ 70.83		$ 70.83
2100	$ 11.51	$ 11.32	$ 0.69	$ 28.64	$ 5.23	$ 4.57		$ 61.97		$ 61.97
1800	$ 9.87	$ 9.70	$ 0.59	$ 24.55	$ 4.49	$ 3.92		$ 53.12		$ 53.12
1200	$ 6.46	$ 6.35	$ 0.39	$ 16.07	$ 2.94	$ 2.57		$ 34.78		$ 34.78
900	$ 4.96	$ 4.87	$ 0.30	$ 12.33	$ 2.25	$ 1.97		$ 26.67		$ 26.67
600	$ 3.39	$ 3.33	$ 0.20	$ 8.43	$ 1.54	$ 1.35		$ 18.23		$ 18.23
400	$ 2.30	$ 2.26	$ 0.14	$ 5.72	$ 1.05	$ 0.91		$ 12.38		$ 12.38
300	$ 1.77	$ 1.74	$ 0.11	$ 4.39	$ 0.80	$ 0.70		$ 9.51		$ 9.51
200	$ 1.37	$ 1.35	$ 0.08	$ 3.41	$ 0.62	$ 0.54		$ 7.37		$ 7.37
100	$ 0.75	$ 0.74	$ 0.05	$ 1.87	$ 0.34	$ 0.30		$ 4.05		$ 4.05
50	$ 0.47	$ 0.46	$ 0.03	$ 1.17	$ 0.21	$ 0.19		$ 2.53		$ 2.53
25	$ 0.30	$ 0.30	$ 0.02	$ 0.75	$ 0.14	$ 0.12		$ 1.63		$ 1.63
18	$ 0.30	$ 0.30	$ 0.02	$ 0.75	$ 0.14	$ 0.12		$ 1.63		$ 1.63
12	$ 0.30	$ 0.30	$ 0.02	$ 0.75	$ 0.14	$ 0.12		$ 1.63		$ 1.63

26 Gauge Cable - Underground Copper

Size	FIXED COSTS						DENSITY 651-850		DENSITY 851-2550	
	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
4200	$ 14.55	$ 16.68	$ 0.87	$ 36.31	$ 5.92	$ 4.07		$ 78.40		$ 78.40
3600	$ 12.56	$ 14.40	$ 0.75	$ 31.35	$ 5.11	$ 3.51		$ 67.68		$ 67.68
3000	$ 10.59	$ 12.14	$ 0.64	$ 26.44	$ 4.31	$ 2.96		$ 57.08		$ 57.08
2400	$ 8.57	$ 9.83	$ 0.51	$ 21.40	$ 3.49	$ 2.40		$ 46.20		$ 46.20
2100	$ 7.57	$ 8.68	$ 0.45	$ 18.89	$ 3.08	$ 2.12		$ 40.79		$ 40.79
1800	$ 6.55	$ 7.51	$ 0.39	$ 16.36	$ 2.67	$ 1.83		$ 35.32		$ 35.32
1200	$ 4.57	$ 5.23	$ 0.27	$ 11.40	$ 1.86	$ 1.28		$ 24.61		$ 24.61
900	$ 3.51	$ 4.02	$ 0.21	$ 8.76	$ 1.43	$ 0.98		$ 18.92		$ 18.92
600	$ 2.35	$ 2.69	$ 0.14	$ 5.87	$ 0.96	$ 0.66		$ 12.67		$ 12.67
400	$ 1.57	$ 1.80	$ 0.09	$ 3.91	$ 0.64	$ 0.44		$ 8.44		$ 8.44
300	$ 1.18	$ 1.35	$ 0.07	$ 2.93	$ 0.48	$ 0.33		$ 6.33		$ 6.33
200	$ 0.78	$ 0.90	$ 0.05	$ 1.96	$ 0.32	$ 0.22		$ 4.22		$ 4.22
100	$ 0.39	$ 0.45	$ 0.02	$ 0.98	$ 0.16	$ 0.11		$ 2.11		$ 2.11
50	$ 0.20	$ 0.22	$ 0.01	$ 0.49	$ 0.08	$ 0.05		$ 1.06		$ 1.06
25	$ 0.10	$ 0.11	$ 0.01	$ 0.24	$ 0.04	$ 0.03		$ 0.53		$ 0.53
18	$ 0.10	$ 0.11	$ 0.01	$ 0.24	$ 0.04	$ 0.03		$ 0.53		$ 0.53
12	$ 0.10	$ 0.11	$ 0.01	$ 0.24	$ 0.04	$ 0.03		$ 0.53		$ 0.53

BCPM Loop Cost Inputs

24 Gauge Cable - Aerial

Size	FIXED COSTS						DENSITY 2551-5000		DENSITY 5001-10000	
	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
4200	$ 23.03	$ 22.64	$ 1.38	$ 57.28	$ 10.47	$ 9.15		$ 123.95		$ 123.95
3600	$ 19.74	$ 19.40	$ 1.18	$ 49.10	$ 8.97	$ 7.84		$ 106.24		$ 106.24
3000	$ 16.45	$ 16.17	$ 0.99	$ 40.91	$ 7.48	$ 6.54		$ 88.53		$ 88.53
2400	$ 13.16	$ 12.94	$ 0.79	$ 32.73	$ 5.98	$ 5.23		$ 70.83		$ 70.83
2100	$ 11.51	$ 11.32	$ 0.69	$ 28.64	$ 5.23	$ 4.57		$ 61.97		$ 61.97
1800	$ 9.87	$ 9.70	$ 0.59	$ 24.55	$ 4.49	$ 3.92		$ 53.12		$ 53.12
1200	$ 6.46	$ 6.35	$ 0.39	$ 16.07	$ 2.94	$ 2.57		$ 34.78		$ 34.78
900	$ 4.96	$ 4.87	$ 0.30	$ 12.33	$ 2.25	$ 1.97		$ 26.67		$ 26.67
600	$ 3.39	$ 3.33	$ 0.20	$ 8.43	$ 1.54	$ 1.35		$ 18.23		$ 18.23
400	$ 2.30	$ 2.26	$ 0.14	$ 5.72	$ 1.05	$ 0.91		$ 12.38		$ 12.38
300	$ 1.77	$ 1.74	$ 0.11	$ 4.39	$ 0.80	$ 0.70		$ 9.51		$ 9.51
200	$ 1.37	$ 1.35	$ 0.08	$ 3.41	$ 0.62	$ 0.54		$ 7.37		$ 7.37
100	$ 0.75	$ 0.74	$ 0.05	$ 1.87	$ 0.34	$ 0.30		$ 4.05		$ 4.05
50	$ 0.47	$ 0.46	$ 0.03	$ 1.17	$ 0.21	$ 0.19		$ 2.53		$ 2.53
25	$ 0.30	$ 0.30	$ 0.02	$ 0.75	$ 0.14	$ 0.12		$ 1.63		$ 1.63
18	$ 0.30	$ 0.30	$ 0.02	$ 0.75	$ 0.14	$ 0.12		$ 1.63		$ 1.63
12	$ 0.30	$ 0.30	$ 0.02	$ 0.75	$ 0.14	$ 0.12		$ 1.63		$ 1.63

26 Gauge Cable - Underground Copper

Size	FIXED COSTS						DENSITY 2551-5000		DENSITY 5001-10000	
	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
4200	$ 14.55	$ 16.68	$ 0.87	$ 36.31	$ 5.92	$ 4.07		$ 78.40		$ 78.40
3600	$ 12.56	$ 14.40	$ 0.75	$ 31.35	$ 5.11	$ 3.51		$ 67.68		$ 67.68
3000	$ 10.59	$ 12.14	$ 0.64	$ 26.44	$ 4.31	$ 2.96		$ 57.08		$ 57.08
2400	$ 8.57	$ 9.83	$ 0.51	$ 21.40	$ 3.49	$ 2.40		$ 46.20		$ 46.20
2100	$ 7.57	$ 8.68	$ 0.45	$ 18.89	$ 3.08	$ 2.12		$ 40.79		$ 40.79
1800	$ 6.55	$ 7.51	$ 0.39	$ 16.36	$ 2.67	$ 1.83		$ 35.32		$ 35.32
1200	$ 4.57	$ 5.23	$ 0.27	$ 11.40	$ 1.86	$ 1.28		$ 24.61		$ 24.61
900	$ 3.51	$ 4.02	$ 0.21	$ [illegible]	$ 1.43	$ 0.98		$ 18.92		$ 18.92
600	$ 2.35	$ 2.69	$ 0.14	$ 5.87	$ 0.96	$ 0.66		$ 12.67		$ 12.67
400	$ 1.57	$ 1.80	$ 0.09	$ 3.91	$ 0.64	$ 0.44		$ 8.44		$ 8.44
300	$ 1.18	$ 1.35	$ 0.07	$ 2.93	$ 0.48	$ 0.33		$ 6.33		$ 6.33
200	$ 0.78	$ 0.90	$ 0.05	$ 1.96	$ 0.32	$ 0.22		$ 4.22		$ 4.22
100	$ 0.39	$ 0.45	$ 0.02	$ 0.98	$ 0.16	$ 0.11		$ 2.11		$ 2.11
50	$ 0.20	$ 0.22	$ 0.01	$ 0.49	$ 0.08	$ 0.05		$ 1.06		$ 1.06
25	$ 0.10	$ 0.11	$ 0.01	$ 0.24	$ 0.04	$ 0.03		$ 0.53		$ 0.53
18	$ 0.10	$ 0.11	$ 0.01	$ 0.24	$ 0.04	$ 0.03		$ 0.53		$ 0.53
12	$ 0.10	$ 0.11	$ 0.01	$ 0.24	$ 0.04	$ 0.03		$ 0.53		$ 0.53

BCPM Loop Cost Inputs

24 Gauge Cable - Aerial

Size	FIXED COSTS						DENSITY >10001	
	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total
4200	$ 23.03	$ 22.64	$ 1.38	$ 57.28	$ 10.47	$ 9.15		$ 123.95
3600	$ 19.74	$ 19.40	$ 1.18	$ 49.10	$ 8.97	$ 7.84		$ 106.24
3000	$ 16.45	$ 16.17	$ 0.99	$ 40.91	$ 7.48	$ 6.54		$ 88.53
2400	$ 13.16	$ 12.94	$ 0.79	$ 32.73	$ 5.98	$ 5.23		$ 70.83
2100	$ 11.51	$ 11.32	$ 0.69	$ 28.64	$ 5.23	$ 4.57		$ 61.97
1800	$ 9.87	$ 9.70	$ 0.59	$ 24.55	$ 4.49	$ 3.92		$ 53.12
1200	$ 6.46	$ 6.35	$ 0.39	$ 16.07	$ 2.94	$ 2.57		$ 34.78
900	$ 4.96	$ 4.87	$ 0.30	$ 12.33	$ 2.25	$ 1.97		$ 26.67
600	$ 3.39	$ 3.33	$ 0.20	$ 8.43	$ 1.54	$ 1.35		$ 18.23
400	$ 2.30	$ 2.26	$ 0.14	$ 5.72	$ 1.05	$ 0.91		$ 12.38
300	$ 1.77	$ 1.74	$ 0.11	$ 4.39	$ 0.80	$ 0.70		$ 9.51
200	$ 1.37	$ 1.35	$ 0.08	$ 3.41	$ 0.62	$ 0.54		$ 7.37
100	$ 0.75	$ 0.74	$ 0.05	$ 1.87	$ 0.34	$ 0.30		$ 4.05
50	$ 0.47	$ 0.46	$ 0.03	$ 1.17	$ 0.21	$ 0.19		$ 2.53
25	$ 0.30	$ 0.30	$ 0.02	$ 0.75	$ 0.14	$ 0.12		$ 1.63
18	$ 0.30	$ 0.30	$ 0.02	$ 0.75	$ 0.14	$ 0.12		$ 1.63
12	$ 0.30	$ 0.30	$ 0.02	$ 0.75	$ 0.14	$ 0.12		$ 1.63

26 Gauge Cable - Underground Copper

Size	FIXED COSTS						DENSITY >10001	
	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total
4200	$ 14.55	$ 16.68	$ 0.87	$ 36.31	$ 5.92	$ 4.07		$ 78.40
3600	$ 12.56	$ 14.40	$ 0.75	$ 31.35	$ 5.11	$ 3.51		$ 67.68
3000	$ 10.59	$ 12.14	$ 0.64	$ 26.44	$ 4.31	$ 2.96		$ 57.08
2400	$ 8.57	$ 9.83	$ 0.51	$ 21.40	$ 3.49	$ 2.40		$ 46.20
2100	$ 7.57	$ 8.68	$ 0.45	$ 18.89	$ 3.08	$ 2.12		$ 40.79
1800	$ 6.55	$ 7.51	$ 0.39	$ 16.36	$ 2.67	$ 1.83		$ 35.32
1200	$ 4.57	$ 5.23	$ 0.27	$ 11.40	$ 1.86	$ 1.28		$ 24.61
900	$ 3.51	$ 4.02	$ 0.21	$ 8.76	$ 1.43	$ 0.98		$ 18.92
600	$ 2.35	$ 2.69	$ 0.14	$ 5.87	$ 0.96	$ 0.66		$ 12.67
400	$ 1.57	$ 1.80	$ 0.09	$ 3.91	$ 0.64	$ 0.44		$ 8.44
300	$ 1.18	$ 1.35	$ 0.07	$ 2.93	$ 0.48	$ 0.33		$ 6.33
200	$ 0.78	$ 0.90	$ 0.05	$ 1.96	$ 0.32	$ 0.22		$ 4.22
100	$ 0.39	$ 0.45	$ 0.02	$ 0.98	$ 0.16	$ 0.11		$ 2.11
50	$ 0.20	$ 0.22	$ 0.01	$ 0.49	$ 0.08	$ 0.05		$ 1.06
25	$ 0.10	$ 0.11	$ 0.01	$ 0.24	$ 0.04	$ 0.03		$ 0.53
18	$ 0.10	$ 0.11	$ 0.01	$ 0.24	$ 0.04	$ 0.03		$ 0.53
12	$ 0.10	$ 0.11	$ 0.01	$ 0.24	$ 0.04	$ 0.03		$ 0.53

BCPM Loop Cost Inputs

26 Gauge Cable - Dual Sheath "Filled" Buried Copper

	FIXED COSTS						DENSITY 0-5		DENSITY 6-100	
Size	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
4200	$ 16.73	$ 12.70	$ 1.00	$ 31.15	$ -	$ 7.59		$ 69.17		$ 69.17
3600	$ 14.34	$ 10.88	$ 0.86	$ 26.70	$ -	$ 6.50		$ 59.29		$ 59.29
3000	$ 11.95	$ 9.07	$ 0.72	$ 22.25	$ -	$ 5.42		$ 49.41		$ 49.41
2400	$ 9.56	$ 7.26	$ 0.57	$ 17.80	$ -	$ 4.34		$ 39.53		$ 39.53
2100	$ 8.49	$ 6.44	$ 0.51	$ 15.81	$ -	$ 3.85		$ 35.10		$ 35.10
1800	$ 7.45	$ 5.65	$ 0.45	$ 13.87	$ -	$ 3.38		$ 30.80		$ 30.80
1200	$ 5.53	$ 4.20	$ 0.33	$ 10.30	$ -	$ 2.51		$ 22.88		$ 22.88
900	$ 3.70	$ 2.81	$ 0.22	$ 6.90	$ -	$ 1.68		$ 15.31		$ 15.31
600	$ 2.87	$ 2.18	$ 0.17	$ 5.35	$ -	$ 1.30		$ 11.87		$ 11.87
400	$ 1.82	$ 1.38	$ 0.11	$ 3.39	$ -	$ 0.83		$ 7.53		$ 7.53
300	$ 1.37	$ 1.04	$ 0.08	$ 2.56	$ -	$ 0.62		$ 5.68		$ 5.68
200	$ 0.99	$ 0.75	$ 0.06	$ 1.84	$ -	$ 0.45		$ 4.09		$ 4.09
100	$ 0.54	$ 0.41	$ 0.03	$ 1.01	$ -	$ 0.25		$ 2.24		$ 2.24
50	$ 0.33	$ 0.25	$ 0.02	$ 0.62	$ -	$ 0.15		$ 1.38		$ 1.38
25	$ 0.23	$ 0.17	$ 0.01	$ 0.43	$ -	$ 0.10		$ 0.95		$ 0.95
18	$ 0.23	$ 0.17	$ 0.01	$ 0.43	$ -	$ 0.10		$ 0.95		$ 0.95
12	$ 0.23	$ 0.17	$ 0.01	$ 0.43	$ -	$ 0.10		$ 0.95		$ 0.95

26 Gauge Cable - Aerial

	FIXED COSTS						DENSITY 0-5		DENSITY 6-100	
Size	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
4200	$ 15.82	$ 19.72	$ 0.95	$ 47.75	$ 7.10	$ 6.29		$ 97.63		$ 97.63
3600	$ 13.56	$ 16.91	$ 0.81	$ 40.93	$ 6.08	$ 5.39		$ 83.68		$ 83.68
3000	$ 11.30	$ 14.09	$ 0.68	$ 34.10	$ 5.07	$ 4.49		$ 69.74		$ 69.74
2400	$ 8.60	$ 10.72	$ 0.52	$ 25.96	$ 3.86	$ 3.42		$ 53.08		$ 53.08
2100	$ 7.53	$ 9.38	$ 0.45	$ 22.71	$ 3.38	$ 2.99		$ 46.44		$ 46.44
1800	$ 6.93	$ 8.64	$ 0.42	$ 20.91	$ 3.11	$ 2.75		$ 42.77		$ 42.77
1200	$ 4.68	$ 5.84	$ 0.28	$ 14.13	$ 2.10	$ 1.86		$ 28.90		$ 28.90
900	$ 3.61	$ 4.50	$ 0.22	$ 10.88	$ 1.62	$ 1.43		$ 22.25		$ 22.25
600	$ 2.58	$ 3.22	$ 0.15	$ 7.79	$ 1.16	$ 1.03		$ 15.93		$ 15.93
400	$ 1.77	$ 2.20	$ 0.11	$ 5.33	$ 0.79	$ 0.70		$ 10.90		$ 10.90
300	$ 1.39	$ 1.73	$ 0.08	$ 4.20	$ 0.62	$ 0.55		$ 8.58		$ 8.58
200	$ 0.99	$ 1.24	$ 0.06	$ 3.00	$ 0.45	$ 0.39		$ 6.13		$ 6.13
100	$ 0.58	$ 0.72	$ 0.03	$ 1.74	$ 0.26	$ 0.23		$ 3.55		$ 3.55
50	$ 0.38	$ 0.47	$ 0.02	$ 1.14	$ 0.17	$ 0.15		$ 2.32		$ 2.32
25	$ 0.27	$ 0.34	$ 0.02	$ 0.82	$ 0.12	$ 0.11		$ 1.68		$ 1.68
18	$ 0.27	$ 0.34	$ 0.02	$ 0.82	$ 0.12	$ 0.11		$ 1.68		$ 1.68
12	$ 0.27	$ 0.34	$ 0.02	$ 0.82	$ 0.12	$ 0.11		$ 1.68		$ 1.68

000180.11

000180.12

BCPM Loop Cost Inputs

26 Gauge Cable - Dual Sheath "Filled" Buried Copper

Size	FIXED COSTS						DENSITY 101-200		DENSITY 201-650	
	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
4200	$ 16.73	$ 12.70	$ 1.00	$ 31.15	$ -	$ 7.59		$ 69.17		$ 69.17
3600	$ 14.34	$ 10.88	$ 0.86	$ 26.70	$ -	$ 6.50		$ 59.29		$ 59.29
3000	$ 11.95	$ 9.07	$ 0.72	$ 22.25	$ -	$ 5.42		$ 49.41		$ 49.41
2400	$ 9.56	$ 7.26	$ 0.57	$ 17.80	$ -	$ 4.34		$ 39.53		$ 39.53
2100	$ 8.49	$ 6.44	$ 0.51	$ 15.81	$ -	$ 3.85		$ 35.10		$ 35.10
1800	$ 7.45	$ 5.65	$ 0.45	$ 13.87	$ -	$ 3.38		$ 30.80		$ 30.80
1200	$ 5.53	$ 4.20	$ 0.33	$ 10.30	$ -	$ 2.51		$ 22.88		$ 22.88
900	$ 3.70	$ 2.81	$ 0.22	$ 6.90	$ -	$ 1.68		$ 15.31		$ 15.31
600	$ 2.87	$ 2.18	$ 0.17	$ 5.35	$ -	$ 1.30		$ 11.87		$ 11.87
400	$ 1.82	$ 1.38	$ 0.11	$ 3.39	$ -	$ 0.83		$ 7.53		$ 7.53
300	$ 1.37	$ 1.04	$ 0.08	$ 2.56	$ -	$ 0.62		$ 5.68		$ 5.68
200	$ 0.99	$ 0.75	$ 0.06	$ 1.84	$ -	$ 0.45		$ 4.09		$ 4.09
100	$ 0.54	$ 0.41	$ 0.03	$ 1.01	$ -	$ 0.25		$ 2.24		$ 2.24
50	$ 0.33	$ 0.25	$ 0.02	$ 0.62	$ -	$ 0.15		$ 1.38		$ 1.38
25	$ 0.23	$ 0.17	$ 0.01	$ 0.43	$ -	$ 0.10		$ 0.95		$ 0.95
18	$ 0.23	$ 0.17	$ 0.01	$ 0.43	$ -	$ 0.10		$ 0.95		$ 0.95
12	$ 0.23	$ 0.17	$ 0.01	$ 0.43	$ -	$ 0.10		$ 0.95		$ 0.95

26 Gauge Cable - Aerial

Size	FIXED COSTS						DENSITY 101-200		DENSITY 201-650	
	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
4200	$ 15.82	$ 19.72	$ 0.95	$ 47.75	$ 7.10	$ 6.29		$ 97.63		$ 97.63
3600	$ 13.56	$ 16.91	$ 0.81	$ 40.93	$ 6.08	$ 5.39		$ 83.68		$ 83.68
3000	$ 11.30	$ 14.09	$ 0.68	$ 34.10	$ 5.07	$ 4.49		$ 69.74		$ 69.74
2400	$ 8.60	$ 10.72	$ 0.52	$ 25.96	$ 3.86	$ 3.42		$ 53.08		$ 53.08
2100	$ 7.53	$ 9.38	$ 0.45	$ 22.71	$ 3.38	$ 2.99		$ 46.44		$ 46.44
1800	$ 6.93	$ 8.64	$ 0.42	$ 20.91	$ 3.11	$ 2.75		$ 42.77		$ 42.77
1200	$ 4.68	$ 5.84	$ 0.28	$ 14.13	$ 2.10	$ 1.86		$ 28.90		$ 28.90
900	$ 3.61	$ 4.50	$ 0.22	$ 10.88	$ 1.62	$ 1.43		$ 22.25		$ 22.25
600	$ 2.58	$ 3.22	$ 0.15	$ 7.79	$ 1.16	$ 1.03		$ 15.93		$ 15.93
400	$ 1.77	$ 2.20	$ 0.11	$ 5.33	$ 0.79	$ 0.70		$ 10.90		$ 10.90
300	$ 1.39	$ 1.73	$ 0.08	$ 4.20	$ 0.62	$ 0.55		$ 8.58		$ 8.58
200	$ 0.99	$ 1.24	$ 0.06	$ 3.00	$ 0.45	$ 0.39		$ 6.13		$ 6.13
100	$ 0.58	$ 0.72	$ 0.03	$ 1.74	$ 0.26	$ 0.23		$ 3.55		$ 3.55
50	$ 0.38	$ 0.47	$ 0.02	$ 1.14	$ 0.17	$ 0.15		$ 2.32		$ 2.32
25	$ 0.27	$ 0.34	$ 0.02	$ 0.82	$ 0.12	$ 0.11		$ 1.68		$ 1.68
18	$ 0.27	$ 0.34	$ 0.02	$ 0.82	$ 0.12	$ 0.11		$ 1.68		$ 1.68
12	$ 0.27	$ 0.34	$ 0.02	$ 0.82	$ 0.12	$ 0.11		$ 1.68		$ 1.68

BCPM Loop Cost Inputs

26 Gauge Cable - Dual Sheath "Filled" Buried Copper

Size	FIXED COSTS						DENSITY 651-850		DENSITY 851-2550	
	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
4200	$ 16.73	$ 12.70	$ 1.00	$ 31.15	$ -	$ 7.59		$ 69.17		$ 69.17
3600	$ 14.34	$ 10.88	$ 0.86	$ 26.70	$ -	$ 6.50		$ 59.29		$ 59.29
3000	$ 11.95	$ 9.07	$ 0.72	$ 22.25	$ -	$ 5.42		$ 49.41		$ 49.41
2400	$ 9.56	$ 7.26	$ 0.57	$ 17.80	$ -	$ 4.34		$ 39.53		$ 39.53
2100	$ 8.49	$ 6.44	$ 0.51	$ 15.81	$ -	$ 3.85		$ 35.10		$ 35.10
1800	$ 7.45	$ 5.65	$ 0.45	$ 13.87	$ -	$ 3.38		$ 30.80		$ 30.80
1200	$ 5.53	$ 4.20	$ 0.33	$ 10.30	$ -	$ 2.51		$ 22.88		$ 22.88
900	$ 3.70	$ 2.81	$ 0.22	$ 6.90	$ -	$ 1.68		$ 15.31		$ 15.31
600	$ 2.87	$ 2.18	$ 0.17	$ 5.35	$ -	$ 1.30		$ 11.87		$ 11.87
400	$ 1.82	$ 1.38	$ 0.11	$ 3.39	$ -	$ 0.83		$ 7.53		$ 7.53
300	$ 1.37	$ 1.04	$ 0.08	$ 2.56	$ -	$ 0.62		$ 5.68		$ 5.68
200	$ 0.99	$ 0.75	$ 0.06	$ 1.84	$ -	$ 0.45		$ 4.09		$ 4.09
100	$ 0.54	$ 0.41	$ 0.03	$ 1.01	$ -	$ 0.25		$ 2.24		$ 2.24
50	$ 0.33	$ 0.25	$ 0.02	$ 0.62	$ -	$ 0.15		$ 1.38		$ 1.38
25	$ 0.23	$ 0.17	$ 0.01	$ 0.43	$ -	$ 0.10		$ 0.95		$ 0.95
18	$ 0.23	$ 0.17	$ 0.01	$ 0.43	$ -	$ 0.10		$ 0.95		$ 0.95
12	$ 0.23	$ 0.17	$ 0.01	$ 0.43	$ -	$ 0.10		$ 0.95		$ 0.95

26 Gauge Cable - Aerial

Size	FIXED COSTS						DENSITY 651-850		DENSITY 851-2550	
	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
4200	$ 15.82	$ 19.72	$ 0.95	$ 47.75	$ 7.10	$ 6.29		$ 97.63		$ 97.63
3600	$ 13.56	$ 16.91	$ 0.81	$ 40.93	$ 6.08	$ 5.39		$ 83.68		$ 83.68
3000	$ 11.30	$ 14.09	$ 0.68	$ 34.10	$ 5.07	$ 4.49		$ 69.74		$ 69.74
2400	$ 8.60	$ 10.72	$ 0.52	$ 25.96	$ 3.86	$ 3.42		$ 53.08		$ 53.08
2100	$ 7.53	$ 9.38	$ 0.45	$ 22.71	$ 3.38	$ 2.99		$ 46.44		$ 46.44
1800	$ 6.93	$ 8.64	$ 0.42	$ 20.91	$ 3.11	$ 2.75		$ 42.77		$ 42.77
1200	$ 4.68	$ 5.84	$ 0.28	$ 14.13	$ 2.10	$ 1.86		$ 28.90		$ 28.90
900	$ 3.61	$ 4.50	$ 0.22	$ 10.88	$ 1.62	$ 1.43		$ 22.25		$ 22.25
600	$ 2.58	$ 3.22	$ 0.15	$ 7.79	$ 1.16	$ 1.03		$ 15.93		$ 15.93
400	$ 1.77	$ 2.20	$ 0.11	$ 5.33	$ 0.79	$ 0.70		$ 10.90		$ 10.90
300	$ 1.39	$ 1.73	$ 0.08	$ 4.20	$ 0.62	$ 0.55		$ 8.58		$ 8.58
200	$ 0.99	$ 1.24	$ 0.06	$ 3.00	$ 0.45	$ 0.39		$ 6.13		$ 6.13
100	$ 0.58	$ 0.72	$ 0.03	$ 1.74	$ 0.26	$ 0.23		$ 3.55		$ 3.55
50	$ 0.38	$ 0.47	$ 0.02	$ 1.14	$ 0.17	$ 0.15		$ 2.32		$ 2.32
25	$ 0.27	$ 0.34	$ 0.02	$ 0.82	$ 0.12	$ 0.11		$ 1.68		$ 1.68
18	$ 0.27	$ 0.34	$ 0.02	$ 0.82	$ 0.12	$ 0.11		$ 1.68		$ 1.68
12	$ 0.27	$ 0.34	$ 0.02	$ 0.82	$ 0.12	$ 0.11		$ 1.68		$ 1.68

BCPM Loop Cost Inputs

26 Gauge Cable - Dual Sheath "Filled" Buried Copper

	FIXED COSTS						DENSITY 2551-5000		DENSITY 5001-10000	
Size	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
4200	$ 16.73	$ 12.70	$ 1.00	$ 31.15	$ -	$ 7.59		$ 69.17		$ 69.17
3600	$ 14.34	$ 10.88	$ 0.86	$ 26.70	$ -	$ 6.50		$ 59.29		$ 59.29
3000	$ 11.95	$ 9.07	$ 0.72	$ 22.25	$ -	$ 5.42		$ 49.41		$ 49.41
2400	$ 9.56	$ 7.26	$ 0.57	$ 17.80	$ -	$ 4.34		$ 39.53		$ 39.53
2100	$ 8.49	$ 6.44	$ 0.51	$ 15.81	$ -	$ 3.85		$ 35.10		$ 35.10
1800	$ 7.45	$ 5.65	$ 0.45	$ 13.87	$ -	$ 3.38		$ 30.80		$ 30.80
1200	$ 5.53	$ 4.20	$ 0.33	$ 10.30	$ -	$ 2.51		$ 22.88		$ 22.88
900	$ 3.70	$ 2.81	$ 0.22	$ 6.90	$ -	$ 1.68		$ 15.31		$ 15.31
600	$ 2.87	$ 2.18	$ 0.17	$ 5.35	$ -	$ 1.30		$ 11.87		$ 11.87
400	$ 1.82	$ 1.38	$ 0.11	$ 3.39	$ -	$ 0.83		$ 7.53		$ 7.53
300	$ 1.37	$ 1.04	$ 0.08	$ 2.56	$ -	$ 0.62		$ 5.68		$ 5.68
200	$ 0.99	$ 0.75	$ 0.06	$ 1.84	$ -	$ 0.45		$ 4.09		$ 4.09
100	$ 0.54	$ 0.41	$ 0.03	$ 1.01	$ -	$ 0.25		$ 2.24		$ 2.24
50	$ 0.33	$ 0.25	$ 0.02	$ 0.62	$ -	$ 0.15		$ 1.38		$ 1.38
25	$ 0.23	$ 0.17	$ 0.01	$ 0.43	$ -	$ 0.10		$ 0.95		$ 0.95
18	$ 0.23	$ 0.17	$ 0.01	$ 0.43	$ -	$ 0.10		$ 0.95		$ 0.95
12	$ 0.23	$ 0.17	$ 0.01	$ 0.43	$ -	$ 0.10		$ 0.95		$ 0.95

26 Gauge Cable - Aerial

	FIXED COSTS						DENSITY 2551-5000		DENSITY 5001-10000	
Size	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
4200	$ 15.82	$ 19.72	$ 0.95	$ 47.75	$ 7.10	$ 6.29		$ 97.63		$ 97.63
3600	$ 13.56	$ 16.91	$ 0.81	$ 40.93	$ 6.08	$ 5.39		$ 83.68		$ 83.68
3000	$ 11.30	$ 14.09	$ 0.68	$ 34.10	$ 5.07	$ 4.49		$ 69.74		$ 69.74
2400	$ 8.60	$ 10.72	$ 0.52	$ 25.96	$ 3.86	$ 3.42		$ 53.08		$ 53.08
2100	$ 7.53	$ 9.38	$ 0.45	$ 22.71	$ 3.38	$ 2.99		$ 46.44		$ 46.44
1800	$ 6.93	$ 8.64	$ 0.42	$ 20.91	$ 3.11	$ 2.75		$ 42.77		$ 42.77
1200	$ 4.68	$ 5.84	$ 0.28	$ 14.13	$ 2.10	$ 1.86		$ 28.90		$ 28.90
900	$ 3.61	$ 4.50	$ 0.22	$ 10.88	$ 1.62	$ 1.43		$ 22.25		$ 22.25
600	$ 2.58	$ 3.22	$ 0.15	$ 7.79	$ 1.16	$ 1.03		$ 15.93		$ 15.93
400	$ 1.77	$ 2.20	$ 0.11	$ 5.33	$ 0.79	$ 0.70		$ 10.90		$ 10.90
300	$ 1.39	$ 1.73	$ 0.08	$ 4.20	$ 0.62	$ 0.55		$ 8.58		$ 8.58
200	$ 0.99	$ 1.24	$ 0.06	$ 3.00	$ 0.45	$ 0.39		$ 6.13		$ 6.13
100	$ 0.58	$ 0.72	$ 0.03	$ 1.74	$ 0.26	$ 0.23		$ 3.55		$ 3.55
50	$ 0.38	$ 0.47	$ 0.02	$ 1.14	$ 0.17	$ 0.15		$ 2.32		$ 2.32
25	$ 0.27	$ 0.34	$ 0.02	$ 0.82	$ 0.12	$ 0.11		$ 1.68		$ 1.68
18	$ 0.27	$ 0.34	$ 0.02	$ 0.82	$ 0.12	$ 0.11		$ 1.68		$ 1.68
12	$ 0.27	$ 0.34	$ 0.02	$ 0.82	$ 0.12	$ 0.11		$ 1.68		$ 1.68

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BCPM Loop Cost Inputs

26 Gauge Cable - Dual Sheath "Filled" Buried Copper

Size	FIXED COSTS						DENSITY >10001	
	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total
4200	$ 16.73	$ 12.70	$ 1.00	$ 31.15	$ -	$ 7.59		$ 69.17
3600	$ 14.34	$ 10.88	$ 0.86	$ 26.70	$ -	$ 6.50		$ 59.29
3000	$ 11.95	$ 9.07	$ 0.72	$ 22.25	$ -	$ 5.42		$ 49.41
2400	$ 9.56	$ 7.26	$ 0.57	$ 17.80	$ -	$ 4.34		$ 39.53
2100	$ 8.49	$ 6.44	$ 0.51	$ 15.81	$ -	$ 3.85		$ 35.10
1800	$ 7.45	$ 5.65	$ 0.45	$ 13.87	$ -	$ 3.38		$ 30.80
1200	$ 5.53	$ 4.20	$ 0.33	$ 10.30	$ -	$ 2.51		$ 22.88
900	$ 3.70	$ 2.81	$ 0.22	$ 6.90	$ -	$ 1.68		$ 15.31
600	$ 2.87	$ 2.18	$ 0.17	$ 5.35	$ -	$ 1.30		$ 11.87
400	$ 1.82	$ 1.38	$ 0.11	$ 3.39	$ -	$ 0.83		$ 7.53
300	$ 1.37	$ 1.04	$ 0.08	$ 2.56	$ -	$ 0.62		$ 5.68
200	$ 0.99	$ 0.75	$ 0.06	$ 1.84	$ -	$ 0.45		$ 4.09
100	$ 0.54	$ 0.41	$ 0.03	$ 1.01	$ -	$ 0.25		$ 2.24
50	$ 0.33	$ 0.25	$ 0.02	$ 0.62	$ -	$ 0.15		$ 1.38
25	$ 0.23	$ 0.17	$ 0.01	$ 0.43	$ -	$ 0.10		$ 0.95
18	$ 0.23	$ 0.17	$ 0.01	$ 0.43	$ -	$ 0.10		$ 0.95
12	$ 0.23	$ 0.17	$ 0.01	$ 0.43	$ -	$ 0.10		$ 0.95

26 Gauge Cable - Aerial

Size	FIXED COSTS						DENSITY >10001	
	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total
4200	$ 15.82	$ 19.72	$ 0.95	$ 47.75	$ 7.10	$ 6.29		$ 97.63
3600	$ 13.56	$ 16.91	$ 0.81	$ 40.93	$ 6.08	$ 5.39		$ 83.68
3000	$ 11.30	$ 14.09	$ 0.68	$ 34.10	$ 5.07	$ 4.49		$ 69.74
2400	$ 8.60	$ 10.72	$ 0.52	$ 25.96	$ 3.86	$ 3.42		$ 53.08
2100	$ 7.53	$ 9.38	$ 0.45	$ 22.71	$ 3.38	$ 2.99		$ 46.44
1800	$ 6.93	$ 8.64	$ 0.42	$ 20.91	$ 3.11	$ 2.75		$ 42.77
1200	$ 4.68	$ 5.84	$ 0.28	$ 14.13	$ 2.10	$ 1.86		$ 28.90
900	$ 3.61	$ 4.50	$ 0.22	$ 10.88	$ 1.62	$ 1.43		$ 22.25
600	$ 2.58	$ 3.22	$ 0.15	$ 7.79	$ 1.16	$ 1.03		$ 15.93
400	$ 1.77	$ 2.20	$ 0.11	$ 5.33	$ 0.79	$ 0.70		$ 10.90
300	$ 1.39	$ 1.73	$ 0.08	$ 4.20	$ 0.62	$ 0.55		$ 8.58
200	$ 0.99	$ 1.24	$ 0.06	$ 3.00	$ 0.45	$ 0.39		$ 6.13
100	$ 0.58	$ 0.72	$ 0.03	$ 1.74	$ 0.26	$ 0.23		$ 3.55
50	$ 0.38	$ 0.47	$ 0.02	$ 1.14	$ 0.17	$ 0.15		$ 2.32
25	$ 0.27	$ 0.34	$ 0.02	$ 0.82	$ 0.12	$ 0.11		$ 1.68
18	$ 0.27	$ 0.34	$ 0.02	$ 0.82	$ 0.12	$ 0.11		$ 1.68
12	$ 0.27	$ 0.34	$ 0.02	$ 0.82	$ 0.12	$ 0.11		$ 1.68

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Terminal Costs

Outdoor SAI/Cross Connector

Size	FIXED COSTS						DENSITY 0-5		DENSITY 6-100	
	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
25	$ -							$ -		$ -
50	$ -							$ -		$ -
100	$ 214.81	$ 184.63	$ 12.89	$ 451.10	$ 657.32	$ 94.93		$ 1,615.68		$ 1,615.68
200	$ 429.62	$ 369.26	$ 25.78	$ 902.21	$ 1,314.65	$ 189.85		$ 3,231.36		$ 3,231.36
300	$ 644.43	$ 553.89	$ 38.67	$ 1,353.31	$ 1,971.97	$ 284.78		$ 4,847.05		$ 4,847.05
400	$ 859.24	$ 738.52	$ 51.55	$ 1,804.41	$ 2,629.29	$ 379.70		$ 6,462.72		$ 6,462.72
600	$ 1,284.11	$ 1,103.69	$ 77.05	$ 2,696.63	$ 3,929.38	$ 567.45		$ 9,658.30		$ 9,658.30
900	$ 1,552.14	$ 1,334.06	$ 93.13	$ 3,259.49	$ 4,749.54	$ 685.89		$ 11,674.24		$ 11,674.24
1200	$ 1,851.65	$ 1,591.49	$ 111.10	$ 3,888.46	$ 5,666.04	$ 818.24		$ 13,926.99		$ 13,926.99
1800	$ 2,580.35	$ 2,217.81	$ 154.82	$ 5,418.73	$ 7,895.87	$ 1,140.26		$ 19,407.84		$ 19,407.84
2100	$ 3,002.55	$ 2,580.69	$ 180.15	$ 6,305.36	$ 9,187.81	$ 1,326.83		$ 22,583.39		$ 22,583.39
2400	$ 3,240.26	$ 2,785.00	$ 194.42	$ 6,804.54	$ 9,915.19	$ 1,431.87		$ 24,371.28		$ 24,371.28
3000	$ 4,405.95	$ 3,786.92	$ 264.36	$ 9,252.50	$ 13,482.22	$ 1,946.99		$ 33,138.93		$ 33,138.93
3600	$ 5,464.75	$ 4,696.95	$ 327.89	$ 11,475.97	$ 16,722.13	$ 2,414.87		$ 41,102.57		$ 41,102.57
4200	$ 6,033.10	$ 5,185.45	$ 361.99	$ 12,669.50	$ 18,461.28	$ 2,666.03		$ 45,377.34		$ 45,377.34

Indoor SAI/Building (Includes cost of protection)

Size	FIXED COSTS						DENSITY 0-5		DENSITY 6-100	
	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
25	$ -							$ -		$ -
50	$ -							$ -		$ -
100	$ 325.92	$ 400.50	$ 19.56	$ 710.61	$ 273.35	$ 312.66		$ 2,042.60		$ 2,042.60
200	$ 651.85	$ 800.99	$ 39.11	$ 1,421.22	$ 546.71	$ 625.32		$ 4,085.20		$ 4,085.20
300	$ 977.77	$ 1,201.49	$ 58.67	$ 2,131.84	$ 820.06	$ 937.98		$ 6,127.80		$ 6,127.80
400	$ 1,303.70	$ 1,601.98	$ 78.22	$ 2,842.45	$ 1,093.41	$ 1,250.64		$ 8,170.40		$ 8,170.40
600	$ 1,955.55	$ 2,402.97	$ 117.33	$ 4,263.67	$ 1,640.12	$ 1,875.95		$ 12,255.60		$ 12,255.60
900	$ 2,933.32	$ 3,604.46	$ 176.00	$ 6,395.51	$ 2,460.17	$ 2,813.93		$ 18,383.39		$ 18,383.39
1200	$ 3,911.09	$ 4,805.95	$ 234.67	$ 8,527.35	$ 3,280.23	$ 3,751.91		$ 24,511.19		$ 24,511.19
1800	$ 5,866.64	$ 7,208.92	$ 352.00	$ 12,791.02	$ 4,920.35	$ 5,627.86		$ 36,766.79		$ 36,766.79
2100	$ 6,844.41	$ 8,410.41	$ 410.66	$ 14,922.86	$ 5,740.40	$ 6,565.84		$ 42,894.59		$ 42,894.59
2400	$ 7,822.18	$ 9,611.89	$ 469.33	$ 17,054.70	$ 6,560.46	$ 7,503.82		$ 49,022.38		$ 49,022.38
3000	$ 9,777.73	$ 12,014.87	$ 586.66	$ 21,318.37	$ 8,200.58	$ 9,379.77		$ 61,277.98		$ 61,277.98
3600	$ 11,733.27	$ 14,417.84	$ 704.00	$ 25,582.05	$ 9,840.69	$ 11,255.73		$ 73,533.58		$ 73,533.58
4200	$ 13,688.82	$ 16,820.82	$ 821.33	$ 29,845.72	$ 11,480.81	$ 13,131.68		$ 85,789.17		$ 85,789.17

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BCPM Loop Cost Inputs

Terminal Costs

Outdoor SAI/Cross Connector

Size	FIXED COSTS						DENSITY 101-200		DENSITY 201-650	
	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
25	$ -							$ -		$ -
50	$ -							$ -		$ -
100	$ 214.81	$ 184.63	$ 12.89	$ 451.10	$ 657.32	$ 94.93		$ 1,615.68		$ 1,615.68
200	$ 429.62	$ 369.26	$ 25.78	$ 902.21	$ 1,314.65	$ 189.85		$ 3,231.36		$ 3,231.36
300	$ 644.43	$ 553.89	$ 38.67	$ 1,353.31	$ 1,971.97	$ 284.78		$ 4,847.05		$ 4,847.05
400	$ 859.21	$ 738.52	$ 51.55	$ 1,804.41	$ 2,629.29	$ 379.70		$ 6,462.72		$ 6,462.72
600	$ 1,284.11	$ 1,103.69	$ 77.05	$ 2,696.63	$ 3,929.38	$ 567.45		$ 9,658.30		$ 9,658.30
900	$ 1,552.14	$ 1,334.06	$ 93.13	$ 3,259.49	$ 4,749.54	$ 685.89		$ 11,674.24		$ 11,674.24
1200	$ 1,851.65	$ 1,591.49	$ 111.10	$ 3,888.46	$ 5,666.04	$ 818.24		$ 13,926.99		$ 13,926.99
1800	$ 2,580.35	$ 2,217.81	$ 154.82	$ 5,418.73	$ 7,895.87	$ 1,140.26		$ 19,407.84		$ 19,407.84
2100	$ 3,002.55	$ 2,580.69	$ 180.15	$ 6,305.36	$ 9,187.81	$ 1,326.83		$ 22,583.39		$ 22,583.39
2400	$ 3,240.26	$ 2,785.00	$ 194.42	$ 6,804.54	$ 9,915.19	$ 1,431.87		$ 24,371.28		$ 24,371.28
3000	$ 4,405.95	$ 3,786.92	$ 264.36	$ 9,257.50	$ 13,482.22	$ 1,946.99		$ 33,138.93		$ 33,138.93
3600	$ 5,464.75	$ 4,696.95	$ 327.89	$ 11,475.97	$ 16,722.13	$ 2,414.87		$ 41,102.57		$ 41,102.57
4200	$ 6,033.10	$ 5,185.45	$ 361.99	$ 12,669.50	$ 18,461.28	$ 2,666.03		$ 45,377.34		$ 45,377.34

Indoor SAI/Building (Includes cost of protection)

Size	FIXED COSTS						DENSITY 101-200		DENSITY 201-650	
	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
25	$ -							$ -		$ -
50	$ -							$ -		$ -
100	$ 325.92	$ 400.50	$ 19.56	$ 710.61	$ 273.35	$ 312.66		$ 2,042.60		$ 2,042.60
200	$ 651.85	$ 800.99	$ 39.11	$ 1,421.22	$ 546.71	$ 625.32		$ 4,085.20		$ 4,085.20
300	$ 977.77	$ 1,201.49	$ 58.67	$ 2,131.84	$ 820.06	$ 937.98		$ 6,127.80		$ 6,127.80
400	$ 1,303.70	$ 1,601.98	$ 78.22	$ 2,842.45	$ 1,093.41	$ 1,250.64		$ 8,170.40		$ 8,170.40
600	$ 1,955.55	$ 2,402.97	$ 117.33	$ 4,263.67	$ 1,640.12	$ 1,875.95		$ 12,255.60		$ 12,255.60
900	$ 2,933.32	$ 3,604.46	$ 176.00	$ 6,395.51	$ 2,460.17	$ 2,813.93		$ 18,383.39		$ 18,383.39
1200	$ 3,911.09	$ 4,805.95	$ 234.67	$ 8,527.35	$ 3,280.23	$ 3,751.91		$ 24,511.19		$ 24,511.19
1800	$ 5,866.64	$ 7,208.92	$ 352.00	$ 12,791.02	$ 4,920.35	$ 5,627.86		$ 36,766.79		$ 36,766.79
2100	$ 6,844.41	$ 8,410.41	$ 410.66	$ 14,922.86	$ 5,740.40	$ 6,565.84		$ 42,894.59		$ 42,894.59
2400	$ 7,822.18	$ 9,611.89	$ 469.33	$ 17,054.70	$ 6,560.46	$ 7,503.82		$ 49,022.38		$ 49,022.38
3000	$ 9,777.73	$ 12,014.87	$ 586.66	$ 21,318.37	$ 8,200.58	$ 9,379.77		$ 61,277.98		$ 61,277.98
3600	$ 11,733.27	$ 14,417.84	$ 704.00	$ 25,582.05	$ 9,840.69	$ 11,255.73		$ 73,533.58		$ 73,533.58
4200	$ 13,688.82	$ 16,820.82	$ 821.33	$ 29,845.72	$ 11,480.81	$ 13,131.68		$ 85,789.17		$ 85,789.17

000182

Terminal Costs

Outdoor SAI/Cross Connector

Size	FIXED COSTS						DENSITY 651-850		DENSITY 851-2550	
	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
25	$ -							$ -		$ -
50	$ -							$ -		$ -
100	$ 214.81	$ 184.63	$ 12.89	$ 451.10	$ 657.32	$ 94.93		$ 1,615.68		$ 1,615.68
200	$ 429.62	$ 369.26	$ 25.78	$ 902.21	$ 1,314.65	$ 189.85		$ 3,231.36		$ 3,231.36
300	$ 644.43	$ 553.89	$ 38.67	$ 1,353.31	$ 1,971.97	$ 284.78		$ 4,847.05		$ 4,847.05
400	$ 859.24	$ 738.52	$ 51.55	$ 1,804.41	$ 2,629.29	$ 379.70		$ 6,462.72		$ 6,462.72
600	$ 1,284.11	$ 1,103.69	$ 77.04	$ 2,696.63	$ 3,929.38	$ 567.45		$ 9,658.30		$ 9,658.30
900	$ 1,552.14	$ 1,334.06	$ 93.13	$ 3,259.49	$ 4,749.54	$ 685.89		$ 11,674.24		$ 11,674.24
1200	$ 1,851.65	$ 1,591.49	$ 111.10	$ 3,888.46	$ 5,666.04	$ 818.24		$ 13,926.99		$ 13,926.99
1800	$ 2,580.35	$ 2,217.81	$ 154.82	$ 5,418.73	$ 7,895.87	$ 1,140.26		$ 19,407.84		$ 19,407.84
2100	$ 3,002.55	$ 2,580.69	$ 180.15	$ 6,305.36	$ 9,187.81	$ 1,326.83		$ 22,583.39		$ 22,583.39
2400	$ 3,240.26	$ 2,785.00	$ 194.42	$ 6,804.54	$ 9,915.19	$ 1,431.87		$ 24,371.28		$ 24,371.28
3000	$ 4,405.95	$ 3,786.92	$ 264.36	$ 9,252.50	$ 13,482.22	$ 1,946.99		$ 33,138.93		$ 33,138.93
3600	$ 5,464.75	$ 4,696.95	$ 327.89	$ 11,475.97	$ 16,722.13	$ 2,414.87		$ 41,102.57		$ 41,102.57
4200	$ 6,033.10	$ 5,185.45	$ 361.99	$ 12,669.50	$ 18,461.28	$ 2,666.03		$ 45,377.34		$ 45,377.34

Indoor SAI/Building (Includes cost of protection)

Size	FIXED COSTS						DENSITY 651-850		DENSITY 851-2550	
	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
25	$ -							$ -		$ -
50	$ -							$ -		$ -
100	$ 325.92	$ 400.50	$ 19.56	$ 710.61	$ 273.35	$ 312.66		$ 2,042.60		$ 2,042.60
200	$ 651.85	$ 800.99	$ 39.11	$ 1,421.22	$ 546.71	$ 625.32		$ 4,085.20		$ 4,085.20
300	$ 977.77	$ 1,201.49	$ 58.67	$ 2,131.84	$ 820.06	$ 937.98		$ 6,127.80		$ 6,127.80
400	$ 1,303.70	$ 1,601.98	$ 78.22	$ 2,842.45	$ 1,093.41	$ 1,250.64		$ 8,170.40		$ 8,170.40
600	$ 1,955.55	$ 2,402.97	$ 117.33	$ 4,263.67	$ 1,640.12	$ 1,875.95		$ 12,255.60		$ 12,255.60
900	$ 2,933.32	$ 3,604.46	$ 176.00	$ 6,395.51	$ 2,460.17	$ 2,813.93		$ 18,383.39		$ 18,383.39
1200	$ 3,911.09	$ 4,805.95	$ 234.67	$ 8,527.35	$ 3,280.23	$ 3,751.91		$ 24,511.19		$ 24,511.19
1800	$ 5,866.64	$ 7,208.92	$ 352.00	$ 12,791.02	$ 4,920.35	$ 5,627.86		$ 36,766.79		$ 36,766.79
2100	$ 6,844.41	$ 8,410.41	$ 410.66	$ 14,922.86	$ 5,740.40	$ 6,565.84		$ 42,894.59		$ 42,894.59
2400	$ 7,822.18	$ 9,611.89	$ 469.33	$ 17,054.70	$ 6,560.46	$ 7,503.82		$ 49,022.38		$ 49,022.38
3000	$ 9,777.73	$ 12,014.87	$ 586.66	$ 21,318.37	$ 8,200.58	$ 9,379.77		$ 61,277.98		$ 61,277.98
3600	$ 11,733.27	$ 14,417.84	$ 704.00	$ 25,582.05	$ 9,840.69	$ 11,255.73		$ 73,533.58		$ 73,533.58
4200	$ 13,688.82	$ 16,820.82	$ 821.33	$ 29,845.72	$ 11,480.81	$ 13,131.68		$ 85,789.17		$ 85,789.17

000183

Terminal Costs

Outdoor SA1/Cross Connector

Size	FIXED COSTS: Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	DENSITY 2551-5000: Adjustment	Total	DENSITY 5001-10000: Adjustment	Total
25	$ -							$ -		$ -
50	$ -							$ -		$ -
100	$ 214.81	$ 184.63	$ 12.89	$ 451.10	$ 657.32	$ 94.93		$ 1,615.68		$ 1,615.68
200	$ 429.62	$ 369.26	$ 25.78	$ 902.21	$ 1,314.63	$ 189.85		$ 3,231.36		$ 3,231.36
300	$ 644.43	$ 553.89	$ 38.67	$ 1,353.31	$ 1,971.97	$ 284.78		$ 4,847.05		$ 4,847.05
400	$ 859.24	$ 738.52	$ 51.55	$ 1,804.41	$ 2,629.29	$ 379.70		$ 6,462.72		$ 6,462.72
600	$ 1,284.11	$ 1,103.69	$ 77.05	$ 2,696.63	$ [illegible]	$ 567.45		$ 9,658.30		$ 9,658.30
900	$ 1,552.14	$ 1,334.06	$ 93.13	$ 3,259.49	$ 4,749.54	$ 685.89		$ 11,674.24		$ 11,674.24
1200	$ 1,851.65	$ 1,591.49	$ 111.10	$ 3,888.46	$ 5,666.04	$ 818.24		$ 13,926.99		$ 13,926.99
1800	$ 2,580.35	$ 2,217.81	$ 154.82	$ 5,418.73	$ 7,895.87	$ 1,140.26		$ 19,407.84		$ 19,407.84
2100	$ 3,002.55	$ 2,580.69	$ 180.15	$ 6,305.36	$ 9,187.81	$ 1,326.83		$ 22,583.39		$ 22,583.39
2400	$ 3,240.26	$ 2,785.00	$ 194.42	$ 6,804.54	$ 9,915.19	$ 1,431.87		$ 24,371.28		$ 24,371.28
3000	$ 4,405.95	$ 3,786.92	$ 264.36	$ 9,252.50	$ 13,482.22	$ 1,946.99		$ 33,138.93		$ 33,138.93
3600	$ 5,464.75	$ 4,696.95	$ 327.89	$ 11,475.97	$ 16,722.13	$ 2,414.87		$ 41,102.57		$ 41,102.57
4200	$ 6,033.10	$ 5,185.45	$ 361.99	$ 12,669.50	$ 18,461.28	$ 2,666.03		$ 45,377.34		$ 45,377.34

Indoor SA1/Building (Includes cost of protection)

Size	FIXED COSTS: Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	DENSITY 2551-5000: Adjustment	Total	DENSITY 5001-10000: Adjustment	Total
25	$ -							$ -		$ -
50	$ -							$ -		$ -
100	$ 325.92	$ 400.50	$ 19.56	$ 710.61	$ 273.35	$ 312.66		$ 2,042.60		$ 2,042.60
200	$ 651.85	$ 800.99	$ 39.11	$ 1,421.22	$ 546.71	$ 625.32		$ 4,085.20		$ 4,085.20
300	$ 977.77	$ 1,201.49	$ 58.67	$ 2,131.84	$ 820.06	$ 937.98		$ 6,127.80		$ 6,127.80
400	$ 1,303.70	$ 1,601.98	$ 78.22	$ 2,842.45	$ 1,093.41	$ 1,250.64		$ 8,170.40		$ 8,170.40
600	$ 1,955.55	$ 2,402.97	$ 117.33	$ 4,263.67	$ 1,640.12	$ 1,875.95		$ 12,255.60		$ 12,255.60
900	$ 2,933.32	$ 3,604.46	$ 176.00	$ 6,395.51	$ 2,460.17	$ 2,813.93		$ 18,383.39		$ 18,383.39
1200	$ 3,911.09	$ 4,805.95	$ 234.67	$ 8,527.35	$ 3,280.23	$ 3,751.91		$ 24,511.19		$ 24,511.19
1800	$ 5,866.64	$ 7,208.92	$ 352.00	$ 12,791.02	$ 4,920.35	$ 5,627.86		$ 36,766.79		$ 36,766.79
2100	$ 6,844.41	$ 8,410.41	$ 410.66	$ 14,922.86	$ 5,740.40	$ 6,565.84		$ 42,894.59		$ 42,894.59
2400	$ 7,822.18	$ 9,611.89	$ 469.33	$ 17,054.70	$ 6,560.46	$ 7,503.82		$ 49,022.38		$ 49,022.38
3000	$ 9,777.73	$ 12,014.87	$ 586.66	$ 21,318.37	$ 8,200.58	$ 9,379.77		$ 61,277.98		$ 61,277.98
3600	$ 11,733.27	$ 14,417.84	$ 704.00	$ 25,582.05	$ 9,840.69	$ 11,255.73		$ 73,533.58		$ 73,533.58
4200	$ 13,688.82	$ 16,820.82	$ 821.33	$ 29,845.72	$ 11,480.81	$ 13,131.68		$ 85,789.17		$ 85,789.17

000184

Terminal Costs

Outdoor SAI/Cross Connector

Size	FIXED COSTS						DENSITY >10001	
	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total
25	$ -							$ -
50	$ -							$ -
100	$ 214.81	$ 184.63	$ 12.89	$ 451.10	$ 657.32	$ 94.93		$ 1,615.68
200	$ 429.62	$ 369.26	$ 25.78	$ 902.21	$ 1,314.65	$ 189.85		$ 3,231.36
300	$ 644.43	$ 553.89	$ 38.67	$ 1,353.31	$ 1,971.97	$ 284.78		$ 4,847.05
400	$ 859.24	$ 738.52	$ 51.55	$ 1,804.41	$ 2,629.29	$ 379.70		$ 6,462.72
600	$ 1,284.11	$ 1,103.69	$ 77.05	$ 2,696.63	$ 3,929.38	$ 567.45		$ 9,658.30
900	$ 1,552.14	$ 1,334.06	$ 93.13	$ 3,259.49	$ 4,749.54	$ 685.89		$ 11,674.24
1200	$ 1,851.65	$ 1,591.49	$ 111.10	$ 3,888.46	$ 5,666.04	$ 818.24		$ 13,926.99
1800	$ 2,580.35	$ 2,217.81	$ 154.82	$ 5,418.73	$ 7,895.87	$ 1,140.26		$ 19,407.84
2100	$ 3,002.55	$ 2,580.69	$ 180.15	$ 6,305.36	$ 9,187.81	$ 1,326.83		$ 22,583.39
2400	$ 3,240.26	$ 2,785.00	$ 194.42	$ 6,804.54	$ 9,915.19	$ 1,431.87		$ 24,371.28
3000	$ 4,405.95	$ 3,786.92	$ 264.36	$ 9,252.50	$ 13,482.22	$ 1,946.99		$ 33,138.93
3600	$ 5,464.75	$ 4,696.95	$ 327.89	$ 11,475.97	$ 16,722.13	$ 2,414.87		$ 41,102.57
4200	$ 6,033.10	$ 5,185.45	$ 361.99	$ 12,669.50	$ 18,461.28	$ 2,666.03		$ 45,377.34

Indoor SAI/Building (Includes cost of protection)

Size	FIXED COSTS						DENSITY >10001	
	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total
25	$ -							$ -
50	$ -							$ -
100	$ 325.92	$ 400.50	$ 19.56	$ 710.61	$ 273.35	$ 312.66		$ 2,042.60
200	$ 651.85	$ 800.99	$ 39.11	$ 1,421.22	$ 546.71	$ 625.32		$ 4,085.20
300	$ 977.77	$ 1,201.49	$ 58.67	$ 2,131.84	$ 820.06	$ 937.98		$ 6,127.80
400	$ 1,303.70	$ 1,601.98	$ 78.22	$ 2,842.45	$ 1,093.41	$ 1,250.64		$ 8,170.40
600	$ 1,955.55	$ 2,402.97	$ 117.33	$ 4,263.67	$ 1,640.12	$ 1,875.95		$ 12,255.60
900	$ 2,933.32	$ 3,604.46	$ 176.00	$ 6,395.51	$ 2,460.17	$ 2,813.93		$ 18,383.39
1200	$ 3,911.09	$ 4,805.95	$ 234.67	$ 8,527.35	$ 3,280.23	$ 3,751.91		$ 24,511.19
1800	$ 5,866.64	$ 7,208.92	$ 352.00	$ 12,791.02	$ 4,920.35	$ 5,627.86		$ 36,766.79
2100	$ 6,844.41	$ 8,410.41	$ 410.66	$ 14,922.86	$ 5,740.40	$ 6,565.84		$ 42,894.59
2400	$ 7,822.18	$ 9,611.89	$ 469.33	$ 17,054.70	$ 6,560.46	$ 7,503.82		$ 49,022.38
3000	$ 9,777.73	$ 12,014.87	$ 586.66	$ 21,318.37	$ 8,200.58	$ 9,379.77		$ 61,277.98
3600	$ 11,733.27	$ 14,417.84	$ 704.00	$ 25,582.05	$ 9,840.69	$ 11,255.73		$ 73,533.58
4200	$ 13,688.82	$ 16,820.82	$ 821.33	$ 29,845.72	$ 11,480.81	$ 13,131.68		$ 85,789.17

000185

Aerial Drop Terminal Cost

Size	FIXED COSTS						DENSITY 0-5		DENSITY 6-100	
	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
6	$ -							$ -		$ -
12	$ -							$ -		$ -
25	$ -							$ -		$ -

Buried Drop Terminal Cost (Encapsulated or Pedestal)

Size	FIXED COSTS						DENSITY 0-5		DENSITY 6-100	
	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
6	$ -							$ -		$ -
12	$ -							$ -		$ -
25	$ -							$ -		$ -

000186

Aerial Drop Terminal Cost

Size	FIXED COSTS						DENSITY 101-200		DENSITY 201-650	
	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
6	$ -							$ -		$ -
12	$ -							$ -		$ -
25	$ -							$ -		$ -

Buried Drop Terminal Cost (Encapsulated or Pedestal)

Size	FIXED COSTS						DENSITY 101-200		DENSITY 201-650	
	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
6	$ -							$ -		$ -
12	$ -							$ -		$ -
25	$ -							$ -		$ -

000187

BCPM Loop Cost Inputs

Size	FIXED COSTS						DENSITY 651-850		DENSITY 851-2550	
	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
6	$ -							$ -		$ -
12	$ -							$ -		$ -
25	$ -							$ -		$ -

000188

Buried Drop Terminal Cost (Encapsulated or Pedestal)

Size	FIXED COSTS						DENSITY 651-850		DENSITY 851-2550	
	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
6	$ -							$ -		$ -
12	$ -							$ -		$ -
25	$ -							$ -		$ -

Aerial Drop Terminal Cost

Size	FIXED COSTS						DENSITY 2551-5000		DENSITY 5001-10000	
	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
6	$ -							$ -		$ -
12	$ -							$ -		$ -
25	$ -							$ -		$ -

Buried Drop Terminal Cost (Encapsulated or Pedestal)

Size	FIXED COSTS						DENSITY 2551-5000		DENSITY 5001-10000	
	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total	Adjustment	Total
6	$ -							$ -		$ -
12	$ -							$ -		$ -
25	$ -							$ -		$ -

000189

Aerial Drop Terminal Cost

Size	FIXED COSTS						DENSITY >1000	
	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total
6	$ -							$ -
12	$ -							$ -
25	$ -							$ -

Buried Drop Terminal Cost (Encapsulated or Pedestal)

Size	FIXED COSTS						DENSITY >1000	
	Material Cost	Exempt Mat'l	Tax	Telco	Contract	Engineering	Adjustment	Total
6	$ -							$ -
12	$ -							$ -
25	$ -							$ -

Normal Structure

Normal - Feeder Conduit

Activity	Base Cost Per Foot Installed	DENSITY 0-5 Cost Adjustment	DENSITY 0-5 % Activity	DENSITY 0-5 % Assigned Telephone	DENSITY 0-5 Weighted Amount	DENSITY 6-100 Cost Adjustment	DENSITY 6-100 % Activity	DENSITY 6-100 % Assigned Telephone	DENSITY 6-100 Weighted Amount
Trench & Backfill	$ 7.47		75.00%	99.00%	$ 5.55	$ -	71.00%	99.00%	$ 5.25
Rocky Trench	$ 7.47		0.00%	99.00%	$ -	$ -	0.00%	99.00%	$ -
Backhoe Trench	$ 7.47		17.00%	99.00%	$ 1.26	$ -	19.00%	99.00%	$ 1.41
Hand Dig Trench	$ 7.47		2.00%	99.00%	$ 0.15	$ -	2.00%	99.00%	$ 0.15
Boring	$ 53.94		2.00%	99.00%	$ 1.07	$ -	2.00%	99.00%	$ 1.07
Cut & Restore Asphalt	$ 10.97		1.00%	99.00%	$ 0.11	$ -	2.00%	99.00%	$ 0.22
Cut & Restore Concrete	$ 13.14		1.00%	99.00%	$ 0.13	$ -	2.00%	99.00%	$ 0.26
Cut & Restore Sod	$ 8.28		2.00%	99.00%	$ 0.16	$ -	2.00%	99.00%	$ 0.16
			100.00%		$ 8.42		100.00%		$ 8.51

Normal - Distribution Conduit

Activity	Base Cost Per Foot Installed	DENSITY 0-5 Cost Adjustment	DENSITY 0-5 % Activity	DENSITY 0-5 % Assigned Telephone	DENSITY 0-5 Weighted Amount	DENSITY 6-100 Cost Adjustment	DENSITY 6-100 % Activity	DENSITY 6-100 % Assigned Telephone	DENSITY 6-100 Weighted Amount
Trench & Backfill	$ 7.47	$ -	87.00%	99.00%	$ 6.44	$ -	71.00%	99.00%	$ 5.25
Rocky Trench	$ 7.47	$ -	0.00%	99.00%	$ -	$ -	0.00%	99.00%	$ -
Backhoe Trench	$ 7.47	$ -	5.00%	99.00%	$ 0.37	$ -	19.00%	99.00%	$ 1.41
Hand Dig Trench	$ 7.47	$ -	2.00%	99.00%	$ 0.15	$ -	2.00%	99.00%	$ 0.15
Boring	$ 53.94	$ -	2.00%	99.00%	$ 1.07	$ -	2.00%	99.00%	$ 1.07
Cut & Restore Asphalt	$ 10.97	$ -	1.00%	99.00%	$ 0.11	$ -	2.00%	99.00%	$ 0.22
Cut & Restore Concrete	$ 13.14	$ -	1.00%	99.00%	$ 0.13	$ -	2.00%	99.00%	$ 0.26
Cut & Restore Sod	$ 8.28	$ -	2.00%	99.00%	$ 0.16	$ -	2.00%	99.00%	$ 0.16
			100.00%		$ 8.42		100.00%		$ 8.51

000191

BCPM Structure Inputs

Normal Structure

Normal - Feeder Conduit

Activity	Base Cost Per Foot Installed	DENSITY 101-200 Cost Adjustment	DENSITY 101-200 % Activity	DENSITY 101-200 % Assigned Telephone	DENSITY 101-200 Weighted Amount	DENSITY 201-650 Cost Adjustment	DENSITY 201-650 % Activity	DENSITY 201-650 % Assigned Telephone	DENSITY 201-650 Weighted Amount
Trench & Backfill	$ 7.47	$ -	46.00%	99.00%	$ 3.40	$ -	35.00%	99.00%	$ 2.59
Rocky Trench	$ 7.47	$ -	0.00%	99.00%	$ -	$ -	0.00%	99.00%	$ -
Backhoe Trench	$ 7.47	$ -	30.00%	99.00%	$ 2.22	$ -	33.00%	99.00%	$ 2.44
Hand Dig Trench	$ 7.47	$ -	5.00%	99.00%	$ 0.37	$ -	3.00%	99.00%	$ 0.22
Boring	$ 53.94	$ -	4.00%	99.00%	$ 2.14	$ -	4.00%	99.00%	$ 2.14
Cut & Restore Asphalt	$ 10.97	$ -	5.00%	99.00%	$ 0.54	$ -	8.00%	99.00%	$ 0.87
Cut & Restore Concrete	$ 13.14	$ -	4.00%	99.00%	$ 0.52	$ -	7.00%	99.00%	$ 0.91
Cut & Restore Sod	$ 8.28	$ -	6.00%	99.00%	$ 0.49	$ -	10.00%	99.00%	$ 0.82
			100.00%		$ 9.68		100.00%		$ 9.99

Normal - Distribution Conduit

Activity	Base Cost Per Foot Installed	DENSITY 101-200 Cost Adjustment	DENSITY 101-200 % Activity	DENSITY 101-200 % Assigned Telephone	DENSITY 101-200 Weighted Amount	DENSITY 201-650 Cost Adjustment	DENSITY 201-650 % Activity	DENSITY 201-650 % Assigned Telephone	DENSITY 201-650 Weighted Amount
Trench & Backfill	$ 7.47	$ -	60.00%	99.00%	$ 4.44	$ -	45.00%	99.00%	$ 3.33
Rocky Trench	$ 7.47	$ -	0.00%	99.00%	$ -	$ -	0.00%	99.00%	$ -
Backhoe Trench	$ 7.47	$ -	18.00%	99.00%	$ 1.33	$ -	23.00%	99.00%	$ 1.70
Hand Dig Trench	$ 7.47	$ -	5.00%	99.00%	$ 0.37	$ -	3.00%	99.00%	$ 0.22
Boring	$ 53.94	$ -	2.00%	99.00%	$ 1.07	$ -	4.00%	99.00%	$ 2.14
Cut & Restore Asphalt	$ 10.97	$ -	5.00%	99.00%	$ 0.54	$ -	8.00%	99.00%	$ 0.87
Cut & Restore Concrete	$ 13.14	$ -	4.00%	99.00%	$ 0.52	$ -	7.00%	99.00%	$ 0.91
Cut & Restore Sod	$ 8.28	$ -	6.00%	99.00%	$ 0.49	$ -	10.00%	99.00%	$ 0.82
			100.00%		$ 8.76		100.00%		$ 9.99

000192

BCPM Structure Inputs

Normal Structure

Normal - Feeder Conduit

Activity	Base Cost Per Foot Installed	DENSITY 651-850 Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount	DENSITY 851-2550 Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount
Trench & Backfill	$ 7.47	$ -	27.00%	99.00%	$ 2.00	$ -	27.00%	99.00%	$ 2.00
Rocky Trench	$ 7.47	$ -	0.00%	99.00%	$ -	$ -	0.00%	99.00%	$ -
Backhoe Trench	$ 7.47	$ -	30.00%	99.00%	$ 2.22	$ -	30.00%	99.00%	$ 2.22
Hand Dig Trench	$ 7.47	$ -	6.00%	99.00%	$ 0.44	$ -	6.00%	99.00%	$ 0.44
Boring	$ 53.94	$ -	2.00%	99.00%	$ 1.07	$ -	2.00%	99.00%	$ 1.07
Cut & Restore Asphalt	$ 10.97	$ -	13.00%	99.00%	$ 1.41	$ -	13.00%	99.00%	$ 1.41
Cut & Restore Concrete	$ 13.14	$ -	12.00%	99.00%	$ 1.56	$ -	12.00%	99.00%	$ 1.56
Cut & Restore Sod	$ 8.28	$ -	10.00%	99.00%	$ 0.82	$ -	10.00%	99.00%	$ 0.82
			100.00%		$ 9.52		100.00%		$ 9.52

Normal - Distribution Conduit

Activity	Base Cost Per Foot Installed	DENSITY 651-850 Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount	DENSITY 851-2550 Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount
Trench & Backfill	$ 7.47	$ -	40.00%	99.00%	$ 2.96	$ -	40.00%	99.00%	$ 2.96
Rocky Trench	$ 7.47	$ -	0.00%	99.00%	$ -	$ -	0.00%	99.00%	$ -
Backhoe Trench	$ 7.47	$ -	7.00%	99.00%	$ 0.52	$ -	7.00%	99.00%	$ 0.52
Hand Dig Trench	$ 7.47	$ -	6.00%	99.00%	$ 0.44	$ -	6.00%	99.00%	$ 0.44
Boring	$ 53.94	$ -	2.00%	99.00%	$ 1.07	$ -	2.00%	99.00%	$ 1.07
Cut & Restore Asphalt	$ 10.97	$ -	13.00%	99.00%	$ 1.41	$ -	13.00%	99.00%	$ 1.41
Cut & Restore Concrete	$ 13.14	$ -	12.00%	99.00%	$ 1.56	$ -	12.00%	99.00%	$ 1.56
Cut & Restore Sod	$ 8.28	$ -	20.00%	99.00%	$ 1.64	$ -	20.00%	99.00%	$ 1.64
			100.00%		$ 9.60		100.00%		$ 9.60

000193

BCPM Structure Inputs

Normal Structure

Normal - Feeder Conduit

Activity	Base Cost Per Foot Installed	DENSITY 2551-5000 Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount	DENSITY 5001-10000 Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount
Trench & Backfill	$ 7.47	$ -	5.00%	99.00%	$ 0.37	$ -	5.00%	99.00%	$ 0.37
Rocky Trench	$ 7.47	$ -	0.00%	99.00%	$ -	$ -	0.00%	99.00%	$ -
Backhoe Trench	$ 7.47	$ -	20.00%	99.00%	$ 1.48	$ -	20.00%	99.00%	$ 1.48
Hand Dig Trench	$ 7.47	$ -	8.00%	99.00%	$ 0.59	$ -	8.00%	99.00%	$ 0.59
Boring	$ 53.94	$ -	15.00%	99.00%	$ 8.01	$ -	15.00%	99.00%	$ 8.01
Cut & Restore Asphalt	$ 10.97	$ -	25.00%	99.00%	$ 2.71	$ -	25.00%	99.00%	$ 2.71
Cut & Restore Concrete	$ 13.14	$ -	20.00%	99.00%	$ 2.60	$ -	20.00%	99.00%	$ 2.60
Cut & Restore Sod	$ 8.28	$ -	7.00%	99.00%	$ 0.57	$ -	7.00%	99.00%	$ 0.57
			100.00%		$ 16.34		100.00%		$ 16.34

000194

Normal - Distribution Conduit

Activity	Base Cost Per Foot Installed	DENSITY 2551-5000 Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount	DENSITY 5001-10000 Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount
Trench & Backfill	$ 7.47	$ -	5.00%	99.00%	$ 0.37	$ -	5.00%	99.00%	$ 0.37
Rocky Trench	$ 7.47	$ -	0.00%	99.00%	$ -	$ -	0.00%	99.00%	$ -
Backhoe Trench	$ 7.47	$ -	19.00%	99.00%	$ 1.41	$ -	19.00%	99.00%	$ 1.41
Hand Dig Trench	$ 7.47	$ -	8.00%	99.00%	$ 0.59	$ -	8.00%	99.00%	$ 0.59
Boring	$ 53.94	$ -	15.00%	99.00%	$ 8.01	$ -	15.00%	99.00%	$ 8.01
Cut & Restore Asphalt	$ 10.97	$ -	25.00%	99.00%	$ 2.71	$ -	25.00%	99.00%	$ 2.71
Cut & Restore Concrete	$ 13.14	$ -	20.00%	99.00%	$ 2.60	$ -	20.00%	99.00%	$ 2.60
Cut & Restore Sod	$ 8.28	$ -	8.00%	99.00%	$ 0.66	$ -	8.00%	99.00%	$ 0.66
			100.00%		$ 16.35		100.00%		$ 16.35

BCPM Structure Inputs

Normal Structure

Normal - Feeder Conduit

Activity	Base Cost Per Foot Installed	DENSITY >10001			
		Cost Adustment	% Activity	% Assigned Telephone	Weighted Amount
Trench & Backfill	$ 7.47	$ -	3.00%	99.00%	$ 0.22
Rocky Trench	$ 7.47	$ -	0.00%	99.00%	$ -
Backhoe Trench	$ 7.47	$ -	15.00%	99.00%	$ 1.11
Hand Dig Trench	$ 7.47	$ -	8.00%	99.00%	$ 0.59
Boring	$ 53.94	$ -	10.00%	99.00%	$ 5.34
Cut & Restore Asphalt	$ 10.97	$ -	33.00%	99.00%	$ 3.58
Cut & Restore Concrete	$ 13.14	$ -	28.00%	99.00%	$ 3.64
Cut & Restore Sod	$ 8.28	$ -	3.00%	99.00%	$ 0.25
			100.00%		$ 14.74

Normal - Distribution Conduit

Activity	Base Cost Per Foot Installed	DENSITY >10001			
		Cost Adustment	% Activity	% Assigned Telephone	Weighted Amount
Trench & Backfill	$ 7.47	$ -	3.00%	99.00%	$ 0.22
Rocky Trench	$ 7.47	$ -	0.00%	99.00%	$ -
Backhoe Trench	$ 7.47	$ -	15.00%	99.00%	$ 1.11
Hand Dig Trench	$ 7.47	$ -	8.00%	99.00%	$ 0.59
Boring	$ 53.94	$ -	10.00%	99.00%	$ 5.34
Cut & Restore Asphalt	$ 10.97	$ -	33.00%	99.00%	$ 3.58
Cut & Restore Concrete	$ 13.14	$ -	28.00%	99.00%	$ 3.64
Cut & Restore Sod	$ 8.28	$ -	3.00%	99.00%	$ 0.25
			100.00%		$ 14.74

000195

BCPM Structure Inputs

Normal - Buried Feeder Cable

Activity	Base Cost Per Foot Installed	DENSITY 0-5 Cost Adjustment	DENSITY 0-5 % Activity	DENSITY 0-5 % Assigned Telephone	DENSITY 0-5 Weighted Amount	DENSITY 6-100 Cost Adjustment	DENSITY 6-100 % Activity	DENSITY 6-100 % Assigned Telephone	DENSITY 6-100 Weighted Amount
Plow	$ 3.06		96.00%	99.00%	$ 2.91	$ -	78.00%	99.00%	$ 2.37
Rocky Plow	$ 3.06		0.00%	99.00%	$ -	$ -	0.00%	99.00%	$ -
Trench & Backfill	$ 3.06		0.00%	99.00%	$ -	$ -	10.00%	99.00%	$ 0.30
Rocky Trench	$ 3.06		0.00%	99.00%	$ -	$ -	0.00%	99.00%	$ -
Backhoe Trench	$ 3.06		0.00%	99.00%	$ -	$ -	5.00%	99.00%	$ 0.15
Hand Dig Trench	$ 3.06		0.00%	99.00%	$ -	$ -	1.00%	99.00%	$ 0.03
Bore Cable	$ 23.50		0.00%	99.00%	$ -	$ -	0.00%	99.00%	$ -
Push Pipe & Pull Cable	$ 26.96		0.00%	99.00%	$ -	$ -	0.00%	99.00%	$ -
Cut & Restore Asphalt	$ 6.01		1.00%	99.00%	$ 0.06	$ -	2.00%	99.00%	$ 0.12
Cut & Restore Concrete	$ 8.90		1.00%	99.00%	$ 0.09	$ -	2.00%	99.00%	$ 0.18
Cut & Restore Sod	$ 4.80		2.00%	99.00%	$ 0.10	$ -	2.00%	99.00%	$ 0.10
			100.00%		$ 3.15		100.00%		$ 3.24

Normal - Buried Distribution Cable

Activity	Base Cost Per Foot Installed	DENSITY 0-5 Cost Adjustment	DENSITY 0-5 % Activity	DENSITY 0-5 % Assigned Telephone	DENSITY 0-5 Weighted Amount	DENSITY 6-100 Cost Adjustment	DENSITY 6-100 % Activity	DENSITY 6-100 % Assigned Telephone	DENSITY 6-100 Weighted Amount
Plow	$ 3.06	$ -	86.00%	96.00%	$ 2.53	$ -	80.00%	96.00%	$ 2.35
Rocky Plow	$ 3.06	$ -	0.00%	96.00%	$ -	$ -	0.00%	96.00%	$ -
Trench & Backfill	$ 3.06	$ -	10.00%	96.00%	$ 0.29	$ -	11.00%	96.00%	$ 0.32
Rocky Trench	$ 3.06	$ -	0.00%	96.00%	$ -	$ -	0.00%	96.00%	$ -
Backhoe Trench	$ 3.06	$ -	0.00%	96.00%	$ -	$ -	3.00%	96.00%	$ 0.09
Hand Dig Trench	$ 3.06	$ -	0.00%	96.00%	$ -	$ -	0.00%	96.00%	$ -
Bore Cable	$ 23.50	$ -	0.00%	96.00%	$ -	$ -	0.00%	96.00%	$ -
Push Pipe & Pull Cable	$ 26.96	$ -	0.00%	96.00%	$ -	$ -	0.00%	96.00%	$ -
Cut & Restore Asphalt	$ 6.01	$ -	1.00%	96.00%	$ 0.06	$ -	2.00%	96.00%	$ 0.12
Cut & Restore Concrete	$ 8.90	$ -	1.00%	96.00%	$ 0.09	$ -	2.00%	96.00%	$ 0.17
Cut & Restore Sod	$ 4.80	$ -	2.00%	96.00%	$ 0.09	$ -	2.00%	96.00%	$ 0.09
			100.00%		$ 3.06		100.00%		$ 3.14

000196

BCPM Structure Inputs

Normal - Buried Feeder Cable

Activity	Base Cost Per Foot Installed	DENSITY 101-200 Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount	DENSITY 201-650 Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount
Plow	$ 3.06	$ -	60.00%	99.00%	$ 1.82	$ -	33.00%	99.00%	$ 1.00
Rocky Plow	$ 3.06	$ -	0.00%	99.00%	$ -	$ -	0.00%	99.00%	$ -
Trench & Backfill	$ 3.06	$ -	10.00%	99.00%	$ 0.30	$ -	20.00%	99.00%	$ 0.61
Rocky Trench	$ 3.06	$ -	0.00%	99.00%	$ -	$ -	0.00%	99.00%	$ -
Backhoe Trench	$ 3.06	$ -	6.00%	99.00%	$ 0.18	$ -	10.00%	99.00%	$ 0.30
Hand Dig Trench	$ 3.06	$ -	5.00%	99.00%	$ 0.15	$ -	3.00%	99.00%	$ 0.09
Bore Cable	$ 23.50	$ -	3.00%	99.00%	$ 0.70	$ -	4.00%	99.00%	$ 0.93
Push Pipe & Pull Cable	$ 26.96	$ -	1.00%	99.00%	$ 0.27	$ -	5.00%	99.00%	$ 1.33
Cut & Restore Asphalt	$ 6.01	$ -	5.00%	99.00%	$ 0.30	$ -	8.00%	99.00%	$ 0.48
Cut & Restore Concrete	$ 8.90	$ -	4.00%	99.00%	$ 0.35	$ -	7.00%	99.00%	$ 0.62
Cut & Restore Sod	$ 4.80	$ -	6.00%	99.00%	$ 0.29	$ -	10.00%	99.00%	$ 0.48
			100.00%		$ 4.36		100.00%		$ 5.83

Normal - Buried Distribution Cable

Activity	Base Cost Per Foot Installed	DENSITY 101-200 Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount	DENSITY 201-650 Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount
Plow	$ 3.06	$ -	69.00%	96.00%	$ 2.03	$ -	21.00%	96.00%	$ 0.62
Rocky Plow	$ 3.06	$ -	0.00%	96.00%	$ -	$ -	0.00%	96.00%	$ -
Trench & Backfill	$ 3.06	$ -	11.00%	96.00%	$ 0.32	$ -	30.00%	96.00%	$ 0.88
Rocky Trench	$ 3.06	$ -	0.00%	96.00%	$ -	$ -	0.00%	96.00%	$ -
Backhoe Trench	$ 3.06	$ -	3.00%	96.00%	$ 0.09	$ -	12.00%	96.00%	$ 0.35
Hand Dig Trench	$ 3.06	$ -	0.00%	96.00%	$ -	$ -	3.00%	96.00%	$ 0.09
Bore Cable	$ 23.50	$ -	1.00%	96.00%	$ 0.23	$ -	4.00%	96.00%	$ 0.90
Push Pipe & Pull Cable	$ 26.96	$ -	1.00%	96.00%	$ 0.26	$ -	5.00%	96.00%	$ 1.29
Cut & Restore Asphalt	$ 6.01	$ -	5.00%	96.00%	$ 0.29	$ -	8.00%	96.00%	$ 0.46
Cut & Restore Concrete	$ 8.90	$ -	4.00%	96.00%	$ 0.34	$ -	7.00%	96.00%	$ 0.60
Cut & Restore Sod	$ 4.80	$ -	6.00%	96.00%	$ 0.28	$ -	10.00%	96.00%	$ 0.46
			100.00%		$ 3.83		100.00%		$ 5.66

000197

BCPM Structure Inputs

Normal - Buried Feeder Cable

Activity	Base Cost Per Foot Installed	DENSITY 651-850 Cost Adjustment	DENSITY 651-850 % Activity	DENSITY 651-850 % Assigned Telephone	DENSITY 651-850 Weighted Amount	DENSITY 851-2550 Cost Adjustment	DENSITY 851-2550 % Activity	DENSITY 851-2550 % Assigned Telephone	DENSITY 851-2550 Weighted Amount
Plow	$ 3.06	$ -	15.00%	99.00%	$ 0.45	$ -	15.00%	99.00%	$ 0.45
Rocky Plow	$ 3.06	$ -	0.00%	99.00%	$ -	$ -	0.00%	99.00%	$ -
Trench & Backfill	$ 3.06	$ -	26.00%	99.00%	$ 0.79	$ -	26.00%	99.00%	$ 0.79
Rocky Trench	$ 3.06	$ -	0.00%	99.00%	$ -	$ -	0.00%	99.00%	$ -
Backhoe Trench	$ 3.06	$ -	11.00%	99.00%	$ 0.33	$ -	11.00%	99.00%	$ 0.33
Hand Dig Trench	$ 3.06	$ -	6.00%	99.00%	$ 0.18	$ -	6.00%	99.00%	$ 0.18
Bore Cable	$ 23.50	$ -	2.00%	99.00%	$ 0.47	$ -	2.00%	99.00%	$ 0.47
Push Pipe & Pull Cable	$ 26.96	$ -	5.00%	99.00%	$ 1.33	$ -	5.00%	99.00%	$ 1.33
Cut & Restore Asphalt	$ 6.01	$ -	13.00%	99.00%	$ 0.77	$ -	13.00%	99.00%	$ 0.77
Cut & Restore Concrete	$ 8.90	$ -	12.00%	99.00%	$ 1.06	$ -	12.00%	99.00%	$ 1.06
Cut & Restore Sod	$ 4.80	$ -	10.00%	99.00%	$ 0.48	$ -	10.00%	99.00%	$ 0.48
			100.00%		$ 5.87		100.00%		$ 5.87

Normal - Buried Distribution Cable

Activity	Base Cost Per Foot Installed	DENSITY 651-850 Cost Adjustment	DENSITY 651-850 % Activity	DENSITY 651-850 % Assigned Telephone	DENSITY 651-850 Weighted Amount	DENSITY 851-2550 Cost Adjustment	DENSITY 851-2550 % Activity	DENSITY 851-2550 % Assigned Telephone	DENSITY 851-2550 Weighted Amount
Plow	$ 3.06	$ -	20.00%	96.00%	$ 0.59	$ -	20.00%	96.00%	$ 0.59
Rocky Plow	$ 3.06	$ -	0.00%	96.00%	$ -	$ -	0.00%	96.00%	$ -
Trench & Backfill	$ 3.06	$ -	20.00%	96.00%	$ 0.59	$ -	20.00%	96.00%	$ 0.59
Rocky Trench	$ 3.06	$ -	0.00%	96.00%	$ -	$ -	0.00%	96.00%	$ -
Backhoe Trench	$ 3.06	$ -	2.00%	96.00%	$ 0.06	$ -	2.00%	96.00%	$ 0.06
Hand Dig Trench	$ 3.06	$ -	6.00%	96.00%	$ 0.18	$ -	6.00%	96.00%	$ 0.18
Bore Cable	$ 23.50	$ -	2.00%	96.00%	$ 0.45	$ -	2.00%	96.00%	$ 0.45
Push Pipe & Pull Cable	$ 26.96	$ -	5.00%	96.00%	$ 1.29	$ -	5.00%	96.00%	$ 1.29
Cut & Restore Asphalt	$ 6.01	$ -	13.00%	96.00%	$ 0.75	$ -	13.00%	96.00%	$ 0.75
Cut & Restore Concrete	$ 8.90	$ -	12.00%	96.00%	$ 1.03	$ -	12.00%	96.00%	$ 1.03
Cut & Restore Sod	$ 4.80	$ -	20.00%	96.00%	$ 0.92	$ -	20.00%	96.00%	$ 0.92
			100.00%		$ 5.85		100.00%		$ 5.85

000198

BCPM Structure Inputs

Normal - Buried Feeder Cable

Activity	Base Cost Per Foot Installed	DENSITY 2551-5000 Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount	DENSITY 5001-10000 Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount
Plow	$ 3.06	$ -	0.00%	99.00%	$ -	$ -	0.00%	99.00%	$ -
Rocky Plow	$ 3.06	$ -	0.00%	99.00%	$ -	$ -	0.00%	99.00%	$ -
Trench & Backfill	$ 3.06	$ -	5.00%	99.00%	$ 0.15	$ -	5.00%	99.00%	$ 0.15
Rocky Trench	$ 3.06	$ -	0.00%	99.00%	$ -	$ -	0.00%	99.00%	$ -
Backhoe Trench	$ 3.06	$ -	20.00%	99.00%	$ 0.61	$ -	20.00%	99.00%	$ 0.61
Hand Dig Trench	$ 3.06	$ -	8.00%	99.00%	$ 0.24	$ -	8.00%	99.00%	$ 0.24
Bore Cable	$ 23.50	$ -	15.00%	99.00%	$ 3.49	$ -	15.00%	99.00%	$ 3.49
Push Pipe & Pull Cable	$ 26.96	$ -	0.00%	99.00%	$ -	$ -	0.00%	99.00%	$ -
Cut & Restore Asphalt	$ 6.01	$ -	25.00%	99.00%	$ 1.49	$ -	25.00%	99.00%	$ 1.49
Cut & Restore Concrete	$ 8.90	$ -	20.00%	99.00%	$ 1.76	$ -	20.00%	99.00%	$ 1.76
Cut & Restore Sod	$ 4.80	$ -	7.00%	99.00%	$ 0.33	$ -	7.00%	99.00%	$ 0.33
			100.00%		$ 8.07		100.00%		$ 8.07

Normal - Buried Distribution Cable

Activity	Base Cost Per Foot Installed	DENSITY 2551-5000 Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount	DENSITY 5001-10000 Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount
Plow	$ 3.06	$ -	0.00%	96.00%	$ -	$ -	0.00%	96.00%	$ -
Rocky Plow	$ 3.06	$ -	0.00%	96.00%	$ -	$ -	0.00%	96.00%	$ -
Trench & Backfill	$ 3.06	$ -	5.00%	96.00%	$ 0.15	$ -	5.00%	96.00%	$ 0.15
Rocky Trench	$ 3.06	$ -	0.00%	96.00%	$ -	$ -	0.00%	96.00%	$ -
Backhoe Trench	$ 3.06	$ -	19.00%	96.00%	$ 0.56	$ -	19.00%	96.00%	$ 0.56
Hand Dig Trench	$ 3.06	$ -	8.00%	96.00%	$ 0.24	$ -	8.00%	96.00%	$ 0.24
Bore Cable	$ 23.50	$ -	15.00%	96.00%	$ 3.38	$ -	15.00%	96.00%	$ 3.38
Push Pipe & Pull Cable	$ 26.96	$ -	0.00%	96.00%	$ -	$ -	0.00%	96.00%	$ -
Cut & Restore Asphalt	$ 6.01	$ -	25.00%	96.00%	$ 1.44	$ -	25.00%	96.00%	$ 1.44
Cut & Restore Concrete	$ 8.90	$ -	20.00%	96.00%	$ 1.71	$ -	20.00%	96.00%	$ 1.71
Cut & Restore Sod	$ 4.80	$ -	8.00%	96.00%	$ 0.37	$ -	8.00%	96.00%	$ 0.37
			100.00%		$ 7.84		100.00%		$ 7.84

000199

BCPM Structure Inputs

Normal - Buried Feeder Cable

Activity	Base Cost Per Foot Installed	DENSITY >10001 Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount
Plow	$ 3.06	$ -	0.00%	99.00%	$ -
Rocky Plow	$ 3.06	$ -	0.00%	99.00%	$ -
Trench & Backfill	$ 3.06	$ -	3.00%	99.00%	$ 0.09
Rocky Trench	$ 3.06	$ -	0.00%	99.00%	$ -
Backhoe Trench	$ 3.06	$ -	15.00%	99.00%	$ 0.45
Hand Dig Trench	$ 3.06	$ -	8.00%	99.00%	$ 0.24
Bore Cable	$ 23.50	$ -	10.00%	99.00%	$ 2.33
Push Pipe & Pull Cable	$ 26.96	$ -	0.00%	99.00%	$ -
Cut & Restore Asphalt	$ 6.01	$ -	33.00%	99.00%	$ 1.96
Cut & Restore Concrete	$ 8.90	$ -	28.00%	99.00%	$ 2.47
Cut & Restore Sod	$ 4.80	$ -	3.00%	99.00%	$ 0.14
			100.00%		$ 7.69

Normal - Buried Distribution Cable

Activity	Base Cost Per Foot Installed	DENSITY >10001 Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount
Plow	$ 3.06	$ -	0.00%	96.00%	$ -
Rocky Plow	$ 3.06	$ -	0.00%	96.00%	$ -
Trench & Backfill	$ 3.06	$ -	3.00%	96.00%	$ 0.09
Rocky Trench	$ 3.06	$ -	0.00%	96.00%	$ -
Backhoe Trench	$ 3.06	$ -	15.00%	96.00%	$ 0.44
Hand Dig Trench	$ 3.06	$ -	8.00%	96.00%	$ 0.24
Bore Cable	$ 23.50	$ -	10.00%	96.00%	$ 2.26
Push Pipe & Pull Cable	$ 26.96	$ -	0.00%	96.00%	$ -
Cut & Restore Asphalt	$ 6.01	$ -	33.00%	96.00%	$ 1.90
Cut & Restore Concrete	$ 8.90	$ -	28.00%	96.00%	$ 2.39
Cut & Restore Sod	$ 4.80	$ -	3.00%	96.00%	$ 0.14
			100.00%		$ 7.46

000200

BCPM Structure Inputs

Normal - Aerial Feeder Cable

Activity	Base Cost Per Unit	DENSITY 0-5 Cost Adjustment	Installation Cost	% Assigned Telephone	Weighted Amount	DENSITY 6-100 Cost Adjustment	Installation Cost	% Assigned Telephone	Weighted Amount
Poles	$ 229.89		$ 161.81	39.88%	$ 156.21		$ 161.81	39.88%	$ 156.21
Anchors and Guys	$ 28.45		$ 72.01	100.00%	$ 16.74		$ 72.01	100.00%	$ 16.74
					$ 172.96				$ 172.96

Normal - Aerial Distribution Cable

Activity	Base Cost Per Unit	DENSITY 0-5 Cost Adjustment	Installation Cost	% Assigned Telephone	Weighted Amount	DENSITY 6-100 Cost Adjustment	Installation Cost	% Assigned Telephone	Weighted Amount
Poles	$ 229.89	$ -	$ 161.81	39.88%	$ 156.21	$ -	$ 161.81	39.88%	$ 156.21
Anchors and Guys	$ 28.45	$ -	$ 72.01	100.00%	$ 16.74	$ -	$ 72.01	100.00%	$ 16.74
					$ 172.96				$ 172.96

000201

BCPM Structure Inputs

000202

Normal - Aerial Feeder Cable

Activity	Base Cost Per Unit	DENSITY 101-200 Cost Adjustment	DENSITY 101-200 Installation Cost	DENSITY 101-200 % Assigned Telephone	DENSITY 101-200 Weighted Amount	DENSITY 201-650 Cost Adjustment	DENSITY 201-650 Installation Cost	DENSITY 201-650 % Assigned Telephone	DENSITY 201-650 Weighted Amount
Poles	$ 229.89		$ 161.81	39.88%	$ 156.21		$ 161.81	39.88%	$ 156.21
Anchors and Guys	$ 28.45		$ 72.01	100.00%	$ 16.74		$ 72.01	100.00%	$ 16.74
					$ 172.96				$ 172.96

Normal - Aerial Distribution Cable

Activity	Base Cost Per Unit	DENSITY 101-200 Cost Adjustment	DENSITY 101-200 Installation Cost	DENSITY 101-200 % Assigned Telephone	DENSITY 101-200 Weighted Amount	DENSITY 201-650 Cost Adjustment	DENSITY 201-650 Installation Cost	DENSITY 201-650 % Assigned Telephone	DENSITY 201-650 Weighted Amount
Poles	$ 229.89	$ -	$ 161.81	39.88%	$ 156.21	$ -	$ 161.81	39.88%	$ 156.21
Anchors and Guys	$ 28.45	$ -	$ 72.01	100.00%	$ 16.74	$ -	$ 72.01	100.00%	$ 16.74
					$ 172.96				$ 172.96

BCPM Structure Inputs

000203

Normal - Aerial Feeder Cable

Activity	Base Cost Per Unit	DENSITY 651-850				DENSITY 851-2550			
		Cost Adjustment	Installation Cost	% Assigned Telephone	Weighted Amount	Cost Adjustment	Installation Cost	% Assigned Telephone	Weighted Amount
Poles	$ 229.89		$ 161.81	39.88%	$ 156.21		$ 161.81	39.88%	$ 156.21
Anchors and Guys	$ 28.45		$ 72.01	100.00%	$ 15.07		$ 72.01	100.00%	$ 30.14
					$ 171.28				$ 186.35

Normal - Aerial Distribution Cable

Activity	Base Cost Per Unit	DENSITY 651-850				DENSITY 851-2550			
		Cost Adjustment	Installation Cost	% Assigned Telephone	Weighted Amount	Cost Adjustment	Installation Cost	% Assigned Telephone	Weighted Amount
Poles	$ 229.89	$ -	$ 161.81	39.88%	$ 156.21	$ -	$ 161.81	39.88%	$ 156.21
Anchors and Guys	$ 28.45	$ -	$ 72.01	100.00%	$ 15.07	$ -	$ 72.01	100.00%	$ 30.14
					$ 171.28				$ 186.35

BCPM Structure Inputs

000204

Normal - Aerial Feeder Cable

Activity	Base Cost Per Unit	DENSITY 2551-5000				DENSITY 5001-10000			
		Cost Adjustment	Installation Cost	% Assigned Telephone	Weighted Amount	Cost Adjustment	Installation Cost	% Assigned Telephone	Weighted Amount
Poles	$ 229.89		$ 161.81	39.88%	$ 156.21		$ 161.81	39.88%	$ 156.21
Anchors and Guys	$ 28.45		$ 72.01	100.00%	$ 30.14		$ 72.01	100.00%	$ 30.14
					$ 186.35				$ 186.35

Normal - Aerial Distribution Cable

Activity	Base Cost Per Unit	DENSITY 2551-5000				DENSITY 5001-10000			
		Cost Adjustment	Installation Cost	% Assigned Telephone	Weighted Amount	Cost Adjustment	Installation Cost	% Assigned Telephone	Weighted Amount
Poles	$ 229.89	$ -	$ 161.81	39.88%	$ 156.21	$ -	$ 161.81	39.88%	$ 156.21
Anchors and Guys	$ 28.45	$ -	$ 72.01	100.00%	$ 30.14	$ -	$ 72.01	100.00%	$ 30.14
					$ 186.35				$ 186.35

BCPM Structure Inputs

Normal - Aerial Feeder Cable

Activity	Base Cost Per Unit	DENSITY >10001			
		Cost Adjustment	Installation Cost	% Assigned Telephone	Weighted Amount
Poles	$ 229.89		$ 161.81	39.88%	$ 156.21
Anchors and Guys	$ 28.45		$ 72.01	100.00%	$ 30.14
					$ 186.35

Normal - Aerial Distribution Cable

Activity	Base Cost Per Unit	DENSITY >10001			
		Cost Adjustment	Installation Cost	% Assigned Telephone	Weighted Amount
Poles	$ 229.89	$ -	$ 161.81	39.88%	$ 156.21
Anchors and Guys	$ 28.45	$ -	$ 72.01	100.00%	$ 30.14
					$ 186.35

BCPM Structure Inputs

Soft Rock Structure

Soft Rock - Feeder Conduit

Activity	Base Cost Per Foot Installed	DENSITY 0-5 Cost Adjustment	DENSITY 0-5 % Activity	DENSITY 0-5 % Assigned Telephone	DENSITY 0-5 Weighted Amount	DENSITY 6-100 Cost Adjustment	DENSITY 6-100 % Activity	DENSITY 6-100 % Assigned Telephone	DENSITY 6-100 Weighted Amount
Trench & Backfill	$ 7.47		5.00%	99.00%	$ 0.37	$ -	5.00%	99.00%	$ 0.37
Rocky Trench	$ 7.47		29.00%	99.00%	$ 2.15	$ -	37.00%	99.00%	$ 2.74
Backhoe Trench	$ 7.47		52.00%	99.00%	$ 3.85	$ -	45.00%	99.00%	$ 3.33
Hand Dig Trench	$ 7.47		5.00%	99.00%	$ 0.37	$ -	4.00%	99.00%	$ 0.30
Boring	$ 53.94		5.00%	99.00%	$ 2.67	$ -	3.00%	99.00%	$ 1.60
Cut & Restore Asphalt	$ 10.97		1.00%	99.00%	$ 0.11	$ -	2.00%	99.00%	$ 0.22
Cut & Restore Concrete	$ 13.14		1.00%	99.00%	$ 0.13	$ -	2.00%	99.00%	$ 0.26
Cut & Restore Sod	$ 8.28		2.00%	99.00%	$ 0.16	$ -	2.00%	99.00%	$ 0.16
			100.00%		$ 9.80		100.00%		$ 8.97

000206

Soft Rock - Distribution Conduit

Activity	Base Cost Per Foot Installed	DENSITY 0-5 Cost Adjustment	DENSITY 0-5 % Activity	DENSITY 0-5 % Assigned Telephone	DENSITY 0-5 Weighted Amount	DENSITY 6-100 Cost Adjustment	DENSITY 6-100 % Activity	DENSITY 6-100 % Assigned Telephone	DENSITY 6-100 Weighted Amount
Trench & Backfill	$ 7.47	$ -	8.00%	99.00%	$ 0.59	$ -	8.00%	99.00%	$ 0.59
Rocky Trench	$ 7.47	$ -	46.00%	99.00%	$ 3.40	$ -	51.00%	99.00%	$ 3.77
Backhoe Trench	$ 7.47	$ -	32.00%	99.00%	$ 2.37	$ -	27.00%	99.00%	$ 2.00
Hand Dig Trench	$ 7.47	$ -	5.00%	99.00%	$ 0.37	$ -	5.00%	99.00%	$ 0.37
Boring	$ 53.94	$ -	5.00%	99.00%	$ 2.67	$ -	3.00%	99.00%	$ 1.60
Cut & Restore Asphalt	$ 10.97	$ -	1.00%	99.00%	$ 0.11	$ -	2.00%	99.00%	$ 0.22
Cut & Restore Concrete	$ 13.14	$ -	1.00%	99.00%	$ 0.13	$ -	2.00%	99.00%	$ 0.26
Cut & Restore Sod	$ 8.28	$ -	2.00%	99.00%	$ 0.16	$ -	2.00%	99.00%	$ 0.16
			100.00%		$ 9.80		100.00%		$ 8.97

Soft Rock Structure

Soft Rock - Feeder Conduit

Activity	Base Cost Per Foot Installed	DENSITY 101-200 Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount	DENSITY 201-650 Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount
Trench & Backfill	$ 7.47	$ -	5.00%	99.00%	$ 0.37	$ -	15.00%	99.00%	$ 1.11
Rocky Trench	$ 7.47	$ -	35.00%	99.00%	$ 2.59	$ -	33.00%	99.00%	$ 2.44
Backhoe Trench	$ 7.47	$ -	38.00%	99.00%	$ 2.81	$ -	20.00%	99.00%	$ 1.48
Hand Dig Trench	$ 7.47	$ -	4.00%	99.00%	$ 0.30	$ -	3.00%	99.00%	$ 0.22
Boring	$ 53.94	$ -	3.00%	99.00%	$ 1.60	$ -	4.00%	99.00%	$ 2.14
Cut & Restore Asphalt	$ 10.97	$ -	5.00%	99.00%	$ 0.54	$ -	8.00%	99.00%	$ 0.87
Cut & Restore Concrete	$ 13.14	$ -	4.00%	99.00%	$ 0.52	$ -	7.00%	99.00%	$ 0.91
Cut & Restore Sod	$ 8.28	$ -	6.00%	99.00%	$ 0.49	$ -	10.00%	99.00%	$ 0.82
			100.00%		$ 9.22		100.00%		$ 9.99

000207

Soft Rock - Distribution Conduit

Activity	Base Cost Per Foot Installed	DENSITY 101-200 Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount	DENSITY 201-650 Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount
Trench & Backfill	$ 7.47	$ -	8.00%	99.00%	$ 0.59	$ -	15.00%	99.00%	$ 1.11
Rocky Trench	$ 7.47	$ -	48.00%	99.00%	$ 3.55	$ -	32.00%	99.00%	$ 2.37
Backhoe Trench	$ 7.47	$ -	21.00%	99.00%	$ 1.55	$ -	21.00%	99.00%	$ 1.55
Hand Dig Trench	$ 7.47	$ -	5.00%	99.00%	$ 0.37	$ -	3.00%	99.00%	$ 0.22
Boring	$ 53.94	$ -	3.00%	99.00%	$ 1.60	$ -	4.00%	99.00%	$ 2.14
Cut & Restore Asphalt	$ 10.97	$ -	5.00%	99.00%	$ 0.54	$ -	8.00%	99.00%	$ 0.87
Cut & Restore Concrete	$ 13.14	$ -	4.00%	99.00%	$ 0.52	$ -	7.00%	99.00%	$ 0.91
Cut & Restore Sod	$ 8.28	$ -	6.00%	99.00%	$ 0.49	$ -	10.00%	99.00%	$ 0.82
			100.00%		$ 9.22		100.00%		$ 9.99

0002008

Soft Rock Structure

Soft Rock - Feeder Conduit

Activity	Base Cost Per Foot Installed	DENSITY 651-850				DENSITY 851-2550			
		Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount	Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount
Trench & Backfill	$ 7.47	$ -	9.00%	99.00%	$ 0.67	$ -	9.00%	99.00%	$ 0.67
Rocky Trench	$ 7.47	$ -	28.00%	99.00%	$ 2.07	$ -	28.00%	99.00%	$ 2.07
Backhoe Trench	$ 7.47	$ -	20.00%	99.00%	$ 1.48	$ -	20.00%	99.00%	$ 1.48
Hand Dig Trench	$ 7.47	$ -	6.00%	99.00%	$ 0.44	$ -	6.00%	99.00%	$ 0.44
Boring	$ 53.94	$ -	2.00%	99.00%	$ 1.07	$ -	2.00%	99.00%	$ 1.07
Cut & Restore Asphalt	$ 10.97	$ -	13.00%	99.00%	$ 1.41	$ -	13.00%	99.00%	$ 1.41
Cut & Restore Concrete	$ 13.14	$ -	12.00%	99.00%	$ 1.56	$ -	12.00%	99.00%	$ 1.56
Cut & Restore Sod	$ 8.28	$ -	10.00%	99.00%	$ 0.82	$ -	10.00%	99.00%	$ 0.82
			100.00%		$ 9.52		100.00%		$ 9.52

Soft Rock - Distribution Conduit

Activity	Base Cost Per Foot Installed	DENSITY 651-850				DENSITY 851-2550			
		Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount	Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount
Trench & Backfill	$ 7.47	$ -	8.00%	99.00%	$ 0.59	$ -	8.00%	99.00%	$ 0.59
Rocky Trench	$ 7.47	$ -	30.00%	99.00%	$ 2.22	$ -	30.00%	99.00%	$ 2.22
Backhoe Trench	$ 7.47	$ -	9.00%	99.00%	$ 0.67	$ -	9.00%	99.00%	$ 0.67
Hand Dig Trench	$ 7.47	$ -	6.00%	99.00%	$ 0.44	$ -	6.00%	99.00%	$ 0.44
Boring	$ 53.94	$ -	2.00%	99.00%	$ 1.07	$ -	2.00%	99.00%	$ 1.07
Cut & Restore Asphalt	$ 10.97	$ -	13.00%	99.00%	$ 1.41	$ -	13.00%	99.00%	$ 1.41
Cut & Restore Concrete	$ 13.14	$ -	12.00%	99.00%	$ 1.56	$ -	12.00%	99.00%	$ 1.56
Cut & Restore Sod	$ 8.28	$ -	20.00%	99.00%	$ 1.64	$ -	20.00%	99.00%	$ 1.64
			100.00%		$ 9.60		100.00%		$ 9.60

Soft Rock Structure

Soft Rock - Feeder Conduit

Activity	Base Cost Per Foot Installed	DENSITY 2551-5000 Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount	DENSITY 5001-10000 Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount
Trench & Backfill	$ 7.47	$ -	2.00%	99.00%	$ 0.15	$ -	2.00%	99.00%	$ 0.15
Rocky Trench	$ 7.47	$ -	5.00%	99.00%	$ 0.37	$ -	5.00%	99.00%	$ 0.37
Backhoe Trench	$ 7.47	$ -	18.00%	99.00%	$ 1.33	$ -	18.00%	99.00%	$ 1.33
Hand Dig Trench	$ 7.47	$ -	8.00%	99.00%	$ 0.59	$ -	8.00%	99.00%	$ 0.59
Boring	$ 53.94	$ -	15.00%	99.00%	$ 8.01	$ -	15.00%	99.00%	$ 8.01
Cut & Restore Asphalt	$ 10.97	$ -	25.00%	99.00%	$ 2.71	$ -	25.00%	99.00%	$ 2.71
Cut & Restore Concrete	$ 13.14	$ -	20.00%	99.00%	$ 2.60	$ -	20.00%	99.00%	$ 2.60
Cut & Restore Sod	$ 8.28	$ -	7.00%	99.00%	$ 0.57	$ -	7.00%	99.00%	$ 0.57
			100.00%		$ 16.34		100.00%		$ 16.34

Soft Rock - Distribution Conduit

Activity	Base Cost Per Foot Installed	DENSITY 2551-5000 Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount	DENSITY 5001-10000 Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount
Trench & Backfill	$ 7.47	$ -	2.00%	99.00%	$ 0.15	$ -	2.00%	99.00%	$ 0.15
Rocky Trench	$ 7.47	$ -	5.00%	99.00%	$ 0.37	$ -	5.00%	99.00%	$ 0.37
Backhoe Trench	$ 7.47	$ -	17.00%	99.00%	$ 1.26	$ -	17.00%	99.00%	$ 1.26
Hand Dig Trench	$ 7.47	$ -	8.00%	99.00%	$ 0.59	$ -	8.00%	99.00%	$ 0.59
Boring	$ 53.94	$ -	15.00%	99.00%	$ 8.01	$ -	15.00%	99.00%	$ 8.01
Cut & Restore Asphalt	$ 10.97	$ -	25.00%	99.00%	$ 2.71	$ -	25.00%	99.00%	$ 2.71
Cut & Restore Concrete	$ 13.14	$ -	20.00%	99.00%	$ 2.60	$ -	20.00%	99.00%	$ 2.60
Cut & Restore Sod	$ 8.28	$ -	8.00%	99.00%	$ 0.66	$ -	8.00%	99.00%	$ 0.66
			100.00%		$ 16.35		100.00%		$ 16.35

Soft Rock Structure

Soft Rock - Feeder Conduit

Activity	Base Cost Per Foot Installed	DENSITY >10001 Cost Adustment	% Activity	% Assigned Telephone	Weighted Amount
Trench & Backfill	$ 7.47	$ -	0.00%	99.00%	$ -
Rocky Trench	$ 7.47	$ -	6.00%	99.00%	$ 0.44
Backhoe Trench	$ 7.47	$ -	12.00%	99.00%	$ 0.89
Hand Dig Trench	$ 7.47	$ -	8.00%	99.00%	$ 0.59
Boring	$ 53.94	$ -	10.00%	99.00%	$ 5.34
Cut & Restore Asphalt	$ 10.97	$ -	33.00%	99.00%	$ 3.58
Cut & Restore Concrete	$ 13.14	$ -	28.00%	99.00%	$ 3.64
Cut & Restore Sod	$ 8.28	$ -	3.00%	99.00%	$ 0.25
			100.00%		$ 14.74

Soft Rock - Distribution Conduit

Activity	Base Cost Per Foot Installed	DENSITY >10001 Cost Adustment	% Activity	% Assigned Telephone	Weighted Amount
Trench & Backfill	$ 7.47	$ -	0.00%	99.00%	$ -
Rocky Trench	$ 7.47	$ -	6.00%	99.00%	$ 0.44
Backhoe Trench	$ 7.47	$ -	12.00%	99.00%	$ 0.89
Hand Dig Trench	$ 7.47	$ -	8.00%	99.00%	$ 0.59
Boring	$ 53.94	$ -	10.00%	99.00%	$ 5.34
Cut & Restore Asphalt	$ 10.97	$ -	33.00%	99.00%	$ 3.58
Cut & Restore Concrete	$ 13.14	$ -	28.00%	99.00%	$ 3.64
Cut & Restore Sod	$ 8.28	$ -	3.00%	99.00%	$ 0.25
			100.00%		$ 14.74

000210

BCPM Structure Inputs

Soft Rock - Buried Feeder Cable

Activity	Base Cost Per Foot Installed	DENSITY 0-5 Cost Adjustment	DENSITY 0-5 % Activity	DENSITY 0-5 % Assigned Telephone	DENSITY 0-5 Weighted Amount	DENSITY 6-100 Cost Adjustment	DENSITY 6-100 % Activity	DENSITY 6-100 % Assigned Telephone	DENSITY 6-100 Weighted Amount
Plow	$ 3.06		44.00%	99.00%	$ 1.33	$ -	35.00%	99.00%	$ 1.06
Rocky Plow	$ 3.06		34.00%	99.00%	$ 1.03	$ -	28.00%	99.00%	$ 0.85
Trench & Backfill	$ 3.06		5.00%	99.00%	$ 0.15	$ -	10.00%	99.00%	$ 0.30
Rocky Trench	$ 3.06		5.00%	99.00%	$ 0.15	$ -	5.00%	99.00%	$ 0.15
Backhoe Trench	$ 3.06		2.00%	99.00%	$ 0.06	$ -	12.00%	99.00%	$ 0.36
Hand Dig Trench	$ 3.06		3.00%	99.00%	$ 0.09	$ -	3.00%	99.00%	$ 0.09
Bore Cable	$ 23.50		1.00%	99.00%	$ 0.23	$ -	1.00%	99.00%	$ 0.23
Push Pipe & Pull Cable	$ 26.96		2.00%	99.00%	$ 0.53	$ -	0.00%	99.00%	$ -
Cut & Restore Asphalt	$ 6.01		1.00%	99.00%	$ 0.06	$ -	2.00%	99.00%	$ 0.12
Cut & Restore Concrete	$ 8.90		1.00%	99.00%	$ 0.09	$ -	2.00%	99.00%	$ 0.18
Cut & Restore Sod	$ 4.80		2.00%	99.00%	$ 0.10	$ -	2.00%	99.00%	$ 0.10
			100.00%		$ 3.83		100.00%		$ 3.44

Soft Rock - Buried Distribution Cable

Activity	Base Cost Per Foot Installed	DENSITY 0-5 Cost Adjustment	DENSITY 0-5 % Activity	DENSITY 0-5 % Assigned Telephone	DENSITY 0-5 Weighted Amount	DENSITY 6-100 Cost Adjustment	DENSITY 6-100 % Activity	DENSITY 6-100 % Assigned Telephone	DENSITY 6-100 Weighted Amount
Plow	$ 3.06	$ -	47.00%	96.00%	$ 1.38	$ -	46.00%	96.00%	$ 1.35
Rocky Plow	$ 3.06	$ -	29.00%	96.00%	$ 0.85	$ -	28.00%	96.00%	$ 0.82
Trench & Backfill	$ 3.06	$ -	5.00%	96.00%	$ 0.15	$ -	10.00%	96.00%	$ 0.29
Rocky Trench	$ 3.06	$ -	4.00%	96.00%	$ 0.12	$ -	4.00%	96.00%	$ 0.12
Backhoe Trench	$ 3.06	$ -	2.00%	96.00%	$ 0.06	$ -	2.00%	96.00%	$ 0.06
Hand Dig Trench	$ 3.06	$ -	3.00%	96.00%	$ 0.09	$ -	3.00%	96.00%	$ 0.09
Bore Cable	$ 23.50	$ -	1.00%	96.00%	$ 0.23	$ -	1.00%	96.00%	$ 0.23
Push Pipe & Pull Cable	$ 26.96	$ -	5.00%	96.00%	$ 1.29	$ -	0.00%	96.00%	$ -
Cut & Restore Asphalt	$ 6.01	$ -	1.00%	96.00%	$ 0.06	$ -	2.00%	96.00%	$ 0.12
Cut & Restore Concrete	$ 8.90	$ -	1.00%	96.00%	$ 0.09	$ -	2.00%	96.00%	$ 0.17
Cut & Restore Sod	$ 4.80	$ -	2.00%	96.00%	$ 0.09	$ -	2.00%	96.00%	$ 0.09
			100.00%		$ 4.40		100.00%		$ 3.34

000211

BCPM Structure Inputs

Soft Rock - Buried Feeder Cable

Activity	Base Cost Per Foot Installed	DENSITY 101-200 Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount	DENSITY 201-650 Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount
Plow	$ 3.06	$ -	20.00%	99.00%	$ 0.61	$ -	5.00%	99.00%	$ 0.15
Rocky Plow	$ 3.06	$ -	30.00%	99.00%	$ 0.91	$ -	13.00%	99.00%	$ 0.39
Trench & Backfill	$ 3.06	$ -	10.00%	99.00%	$ 0.30	$ -	5.00%	99.00%	$ 0.15
Rocky Trench	$ 3.06	$ -	8.00%	99.00%	$ 0.24	$ -	25.00%	99.00%	$ 0.76
Backhoe Trench	$ 3.06	$ -	10.00%	99.00%	$ 0.30	$ -	15.00%	99.00%	$ 0.45
Hand Dig Trench	$ 3.06	$ -	5.00%	99.00%	$ 0.15	$ -	3.00%	99.00%	$ 0.09
Bore Cable	$ 23.50	$ -	1.00%	99.00%	$ 0.23	$ -	4.00%	99.00%	$ 0.93
Push Pipe & Pull Cable	$ 26.96	$ -	1.00%	99.00%	$ 0.27	$ -	5.00%	99.00%	$ 1.33
Cut & Restore Asphalt	$ 6.01	$ -	5.00%	99.00%	$ 0.30	$ -	8.00%	99.00%	$ 0.48
Cut & Restore Concrete	$ 8.90	$ -	4.00%	99.00%	$ 0.35	$ -	7.00%	99.00%	$ 0.62
Cut & Restore Sod	$ 4.80	$ -	6.00%	99.00%	$ 0.29	$ -	10.00%	99.00%	$ 0.48
			100.00%		$ 3.95		100.00%		$ 5.83

Soft Rock - Buried Distribution Cable

Activity	Base Cost Per Foot Installed	DENSITY 101-200 Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount	DENSITY 201-650 Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount
Plow	$ 3.06	$ -	29.00%	96.00%	$ 0.85	$ -	3.00%	96.00%	$ 0.09
Rocky Plow	$ 3.06	$ -	30.00%	96.00%	$ 0.88	$ -	12.00%	96.00%	$ 0.35
Trench & Backfill	$ 3.06	$ -	12.00%	96.00%	$ 0.35	$ -	5.00%	96.00%	$ 0.15
Rocky Trench	$ 3.06	$ -	8.00%	96.00%	$ 0.24	$ -	27.00%	96.00%	$ 0.79
Backhoe Trench	$ 3.06	$ -	2.00%	96.00%	$ 0.06	$ -	16.00%	96.00%	$ 0.47
Hand Dig Trench	$ 3.06	$ -	2.00%	96.00%	$ 0.06	$ -	3.00%	96.00%	$ 0.09
Bore Cable	$ 23.50	$ -	1.00%	96.00%	$ 0.23	$ -	4.00%	96.00%	$ 0.90
Push Pipe & Pull Cable	$ 26.96	$ -	1.00%	96.00%	$ 0.26	$ -	5.00%	96.00%	$ 1.29
Cut & Restore Asphalt	$ 6.01	$ -	5.00%	96.00%	$ 0.29	$ -	8.00%	96.00%	$ 0.46
Cut & Restore Concrete	$ 8.90	$ -	4.00%	96.00%	$ 0.34	$ -	7.00%	96.00%	$ 0.60
Cut & Restore Sod	$ 4.80	$ -	6.00%	96.00%	$ 0.28	$ -	10.00%	96.00%	$ 0.46
			100.00%		$ 3.83		100.00%		$ 5.66

000212

BCPM Structure Inputs

Soft Rock - Buried Feeder Cable

Activity	Base Cost Per Foot Installed	DENSITY 651-850				DENSITY 851-2550			
		Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount	Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount
Plow	$ 3.06	$ -	3.00%	99.00%	$ 0.09	$ -	3.00%	99.00%	$ 0.09
Rocky Plow	$ 3.06	$ -	3.00%	99.00%	$ 0.09	$ -	3.00%	99.00%	$ 0.09
Trench & Backfill	$ 3.06	$ -	15.00%	99.00%	$ 0.45	$ -	15.00%	99.00%	$ 0.45
Rocky Trench	$ 3.06	$ -	25.00%	99.00%	$ 0.76	$ -	25.00%	99.00%	$ 0.76
Backhoe Trench	$ 3.06	$ -	6.00%	99.00%	$ 0.18	$ -	6.00%	99.00%	$ 0.18
Hand Dig Trench	$ 3.06	$ -	6.00%	99.00%	$ 0.18	$ -	6.00%	99.00%	$ 0.18
Bore Cable	$ 23.50	$ -	2.00%	99.00%	$ 0.47	$ -	2.00%	99.00%	$ 0.47
Push Pipe & Pull Cable	$ 26.96	$ -	5.00%	99.00%	$ 1.33	$ -	5.00%	99.00%	$ 1.33
Cut & Restore Asphalt	$ 6.01	$ -	13.00%	99.00%	$ 0.77	$ -	13.00%	99.00%	$ 0.77
Cut & Restore Concrete	$ 8.90	$ -	12.00%	99.00%	$ 1.06	$ -	12.00%	99.00%	$ 1.06
Cut & Restore Sod	$ 4.80	$ -	10.00%	99.00%	$ 0.48	$ -	10.00%	99.00%	$ 0.48
			100.00%		$ 5.87		100.00%		$ 5.87

Soft Rock - Buried Distribution Cable

Activity	Base Cost Per Foot Installed	DENSITY 651-850				DENSITY 851-2550			
		Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount	Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount
Plow	$ 3.06	$ -	2.00%	96.00%	$ 0.06	$ -	2.00%	96.00%	$ 0.06
Rocky Plow	$ 3.06	$ -	2.00%	96.00%	$ 0.06	$ -	2.00%	96.00%	$ 0.06
Trench & Backfill	$ 3.06	$ -	5.00%	96.00%	$ 0.15	$ -	5.00%	96.00%	$ 0.15
Rocky Trench	$ 3.06	$ -	25.00%	96.00%	$ 0.74	$ -	25.00%	96.00%	$ 0.74
Backhoe Trench	$ 3.06	$ -	8.00%	96.00%	$ 0.24	$ -	8.00%	96.00%	$ 0.24
Hand Dig Trench	$ 3.06	$ -	6.00%	96.00%	$ 0.18	$ -	6.00%	96.00%	$ 0.18
Bore Cable	$ 23.50	$ -	2.00%	96.00%	$ 0.45	$ -	2.00%	96.00%	$ 0.45
Push Pipe & Pull Cable	$ 26.96	$ -	5.00%	96.00%	$ 1.29	$ -	5.00%	96.00%	$ 1.29
Cut & Restore Asphalt	$ 6.01	$ -	13.00%	96.00%	$ 0.75	$ -	13.00%	96.00%	$ 0.75
Cut & Restore Concrete	$ 8.90	$ -	12.00%	96.00%	$ 1.03	$ -	12.00%	96.00%	$ 1.03
Cut & Restore Sod	$ 4.80	$ -	20.00%	96.00%	$ 0.92	$ -	20.00%	96.00%	$ 0.92
			100.00%		$ 5.85		100.00%		$ 5.85

000213

BCPM Structure Inputs

000214

Soft Rock - Buried Feeder Cable

Activity	Base Cost Per Foot Installed	DENSITY 2551-5000				DENSITY 5001-10000			
		Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount	Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount
Plow	$ 3.06	$ -	0.00%	99.00%	$ -	$ -	0.00%	99.00%	$ -
Rocky Plow	$ 3.06	$ -	0.00%	99.00%	$ -	$ -	0.00%	99.00%	$ -
Trench & Backfill	$ 3.06	$ -	2.00%	99.00%	$ 0.06	$ -	2.00%	99.00%	$ 0.06
Rocky Trench	$ 3.06	$ -	5.00%	99.00%	$ 0.15	$ -	5.00%	99.00%	$ 0.15
Backhoe Trench	$ 3.06	$ -	18.00%	99.00%	$ 0.55	$ -	18.00%	99.00%	$ 0.55
Hand Dig Trench	$ 3.06	$ -	8.00%	99.00%	$ 0.24	$ -	8.00%	99.00%	$ 0.24
Bore Cable	$ 23.50	$ -	15.00%	99.00%	$ 3.49	$ -	15.00%	99.00%	$ 3.49
Push Pipe & Pull Cable	$ 26.96	$ -	0.00%	99.00%	$ -	$ -	0.00%	99.00%	$ -
Cut & Restore Asphalt	$ 6.01	$ -	25.00%	99.00%	$ 1.49	$ -	25.00%	99.00%	$ 1.49
Cut & Restore Concrete	$ 8.90	$ -	20.00%	99.00%	$ 1.76	$ -	20.00%	99.00%	$ 1.76
Cut & Restore Sod	$ 4.80	$ -	7.00%	99.00%	$ 0.33	$ -	7.00%	99.00%	$ 0.33
			100.00%		$ 8.07		100.00%		$ 8.07

Soft Rock - Buried Distribution Cable

Activity	Base Cost Per Foot Installed	DENSITY 2551-5000				DENSITY 5001-10000			
		Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount	Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount
Plow	$ 3.06	$ -	0.00%	96.00%	$ -	$ -	0.00%	96.00%	$ -
Rocky Plow	$ 3.06	$ -	0.00%	96.00%	$ -	$ -	0.00%	96.00%	$ -
Trench & Backfill	$ 3.06	$ -	2.00%	96.00%	$ 0.06	$ -	2.00%	96.00%	$ 0.06
Rocky Trench	$ 3.06	$ -	5.00%	96.00%	$ 0.15	$ -	5.00%	96.00%	$ 0.15
Backhoe Trench	$ 3.06	$ -	17.00%	96.00%	$ 0.50	$ -	17.00%	96.00%	$ 0.50
Hand Dig Trench	$ 3.06	$ -	8.00%	96.00%	$ 0.24	$ -	8.00%	96.00%	$ 0.24
Bore Cable	$ 23.50	$ -	15.00%	96.00%	$ 3.38	$ -	15.00%	96.00%	$ 3.38
Push Pipe & Pull Cable	$ 26.96	$ -	0.00%	96.00%	$ -	$ -	0.00%	96.00%	$ -
Cut & Restore Asphalt	$ 6.01	$ -	25.00%	96.00%	$ 1.44	$ -	25.00%	96.00%	$ 1.44
Cut & Restore Concrete	$ 8.90	$ -	20.00%	96.00%	$ 1.71	$ -	20.00%	96.00%	$ 1.71
Cut & Restore Sod	$ 4.80	$ -	8.00%	96.00%	$ 0.37	$ -	8.00%	96.00%	$ 0.37
			100.00%		$ 7.84		100.00%		$ 7.84

BCPM Structure Inputs

Soft Rock - Buried Feeder Cable

Activity	Base Cost Per Foot Installed	DENSITY >10001 Cost Adustment	% Activity	% Assigned Telephone	Weighted Amount
Plow	$ 3.06	$ -	0.00%	99.00%	$ -
Rocky Plow	$ 3.06	$ -	0.00%	99.00%	$ -
Trench & Backfill	$ 3.06	$ -	0.00%	99.00%	$ -
Rocky Trench	$ 3.06	$ -	6.00%	99.00%	$ 0.18
Backhoe Trench	$ 3.06	$ -	12.00%	99.00%	$ 0.36
Hand Dig Trench	$ 3.06	$ -	8.00%	99.00%	$ 0.24
Bore Cable	$ 23.50	$ -	10.00%	99.00%	$ 2.33
Push Pipe & Pull Cable	$ 26.96	$ -	0.00%	99.00%	$ -
Cut & Restore Asphalt	$ 6.01	$ -	33.00%	99.00%	$ 1.96
Cut & Restore Concrete	$ 8.90	$ -	28.00%	99.00%	$ 2.47
Cut & Restore Sod	$ 4.80	$ -	3.00%	99.00%	$ 0.14
			100.00%		$ 7.69

Soft Rock - Buried Distribution Cable

Activity	Base Cost Per Foot Installed	DENSITY >10001 Cost Adustment	% Activity	% Assigned Telephone	Weighted Amount
Plow	$ 3.06	$ -	0.00%	96.00%	$ -
Rocky Plow	$ 3.06	$ -	0.00%	96.00%	$ -
Trench & Backfill	$ 3.06	$ -	0.00%	96.00%	$ -
Rocky Trench	$ 3.06	$ -	6.00%	96.00%	$ 0.18
Backhoe Trench	$ 3.06	$ -	12.00%	96.00%	$ 0.35
Hand Dig Trench	$ 3.06	$ -	8.00%	96.00%	$ 0.24
Bore Cable	$ 23.50	$ -	10.00%	96.00%	$ 2.26
Push Pipe & Pull Cable	$ 26.96	$ -	0.00%	96.00%	$ -
Cut & Restore Asphalt	$ 6.01	$ -	33.00%	96.00%	$ 1.90
Cut & Restore Concrete	$ 8.90	$ -	28.00%	96.00%	$ 2.39
Cut & Restore Sod	$ 4.80	$ -	3.00%	96.00%	$ 0.14
			100.00%		$ 7.46

000215

000216

Soft Rock - Aerial Feeder Cable

Activity	Base Cost Per Unit	DENSITY 0-5				DENSITY 6-100			
		Cost Adjustment	Installation Cost	% Assigned Telephone	Weighted Amount	Cost Adjustment	Installation Cost	% Assigned Telephone	Weighted Amount
Poles	$ 229.89	$ -	$ 161.81	39.88%	$ 156.21		$ 161.81	39.88%	$ 156.21
Anchors and Guys	$ 28.45	$ -	$ 72.01	100.00%	$ 16.74		$ 72.01	100.00%	$ 16.74
					$ 172.96				$ 172.96

Soft Rock - Aerial Distribution Cable

Activity	Base Cost Per Unit	DENSITY 0-5				DENSITY 6-100			
		Cost Adjustment	Installation Cost	% Assigned Telephone	Weighted Amount	Cost Adjustment	Installation Cost	% Assigned Telephone	Weighted Amount
Poles	$ 229.89	$ -	$ 161.81	39.88%	$ 156.21	$ -	$ 161.81	39.88%	$ 156.21
Anchors and Guys	$ 28.45	$ -	$ 72.01	100.00%	$ 16.74	$ -	$ 72.01	100.00%	$ 16.74
					$ 172.96				$ 172.96

BCPM Structure Inputs

000217

Soft Rock - Aerial Feeder Cable

Activity	Base Cost Per Unit	DENSITY 101-200				DENSITY 201-650			
		Cost Adjustment	Installation Cost	% Assigned Telephone	Weighted Amount	Cost Adjustment	Installation Cost	% Assigned Telephone	Weighted Amount
Poles	$ 229.89		$ 161.81	39.88%	$ 156.21		$ 161.81	39.88%	$ 156.21
Anchors and Guys	$ 28.45		$ 72.01	100.00%	$ 16.74		$ 72.01	100.00%	$ 16.74
					$ 172.96				$ 172.96

Soft Rock - Aerial Distribution Cable

Activity	Base Cost Per Unit	DENSITY 101-200				DENSITY 201-650			
		Cost Adjustment	Installation Cost	% Assigned Telephone	Weighted Amount	Cost Adjustment	Installation Cost	% Assigned Telephone	Weighted Amount
Poles	$ 229.89	$ -	$ 161.81	39.88%	$ 156.21	$ -	$ 161.81	39.88%	$ 156.21
Anchors and Guys	$ 28.45	$ -	$ 72.01	100.00%	$ 16.74	$ -	$ 72.01	100.00%	$ 16.74
					$ 172.96				$ 172.96

000218

Soft Rock - Aerial Feeder Cable

Activity	Base Cost Per Unit	DENSITY 651-850				DENSITY 851-2550			
		Cost Adjustment	Installation Cost	% Assigned Telephone	Weighted Amount	Cost Adjustment	Installation Cost	% Assigned Telephone	Weighted Amount
Poles	$ 229.89		$ 161.81	39.88%	$ 156.21		$ 161.81	39.88%	$ 156.21
Anchors and Guys	$ 28.45		$ 72.01	100.00%	$ 15.07		$ 72.01	100.00%	$ 30.14
					$ 171.28				$ 186.35

Soft Rock - Aerial Distribution Cable

Activity	Base Cost Per Unit	DENSITY 651-850				DENSITY 851-2550			
		Cost Adjustment	Installation Cost	% Assigned Telephone	Weighted Amount	Cost Adjustment	Installation Cost	% Assigned Telephone	Weighted Amount
Poles	$ 229.89	$ -	$ 161.81	39.88%	$ 156.21	$ -	$ 161.81	39.88%	$ 156.21
Anchors and Guys	$ 28.45	$ -	$ 72.01	100.00%	$ 15.07	$ -	$ 72.01	100.00%	$ 30.14
					$ 171.28				$ 186.35

000219

Soft Rock - Aerial Feeder Cable

Activity	Base Cost Per Unit	DENSITY 2551-5000 Cost Adjustment	DENSITY 2551-5000 Installation Cost	DENSITY 2551-5000 % Assigned Telephone	DENSITY 2551-5000 Weighted Amount	DENSITY 5001-10000 Cost Adjustment	DENSITY 5001-10000 Installation Cost	DENSITY 5001-10000 % Assigned Telephone	DENSITY 5001-10000 Weighted Amount
Poles	$ 229.89		$ 161.81	39.88%	$ 156.21		$ 161.81	39.88%	$ 156.21
Anchors and Guys	$ 28.45		$ 72.01	100.00%	$ 30.14		$ 72.01	100.00%	$ 30.14
					$ 186.35				$ 186.35

Soft Rock - Aerial Distribution Cable

Activity	Base Cost Per Unit	DENSITY 2551-5000 Cost Adjustment	DENSITY 2551-5000 Installation Cost	DENSITY 2551-5000 % Assigned Telephone	DENSITY 2551-5000 Weighted Amount	DENSITY 5001-10000 Cost Adjustment	DENSITY 5001-10000 Installation Cost	DENSITY 5001-10000 % Assigned Telephone	DENSITY 5001-10000 Weighted Amount
Poles	$ 229.89	$ -	$ 161.81	39.88%	$ 156.21	$ -	$ 161.81	39.88%	$ 156.21
Anchors and Guys	$ 28.45	$ -	$ 72.01	100.00%	$ 30.14	$ -	$ 72.01	100.00%	$ 30.14
					$ 186.35				$ 186.35

BCPM Structure Inputs

000220

Soft Rock - Aerial Feeder Cable

Activity	Base Cost Per Unit	DENSITY >10001			
		Cost Adjustment	Installation Cost	% Assigned Telephone	Weighted Amount
Poles	$ 229.89		$ 161.81	39.88%	$ 156.21
Anchors and Guys	$ 28.45		$ 72.01	100.00%	$ 30.14
					$ 186.35

Soft Rock - Aerial Distribution Cable

Activity	Base Cost Per Unit	DENSITY >10001			
		Cost Adjustment	Installation Cost	% Assigned Telephone	Weighted Amount
Poles	$ 229.89	$ -	$ 161.81	39.88%	$ 156.21
Anchors and Guys	$ 28.45	$ -	$ 72.01	100.00%	$ 30.14
					$ 186.35

Hard Rock Structure

Hard Rock - Feeder Conduit

Activity	Base Cost Per Foot Installed	DENSITY 0-5 Cost Adjustment	DENSITY 0-5 % Activity	DENSITY 0-5 % Assigned Telephone	DENSITY 0-5 Weighted Amount	DENSITY 6-100 Cost Adjustment	DENSITY 6-100 % Activity	DENSITY 6-100 % Assigned Telephone	DENSITY 6-100 Weighted Amount
Trench & Backfill	$ 60.98		0.00%	99.00%	$ -	$ -	0%	99%	$ -
Rocky Trench	$ 60.98		55.00%	99.00%	$ 33.21	$ -	55%	99%	$ 33.21
Backhoe Trench	$ 60.98		34.00%	99.00%	$ 20.53	$ -	32%	99%	$ 19.32
Hand Dig Trench	$ 60.98		5.00%	99.00%	$ 3.02	$ -	4%	99%	$ 2.41
Boring	$ 53.94		2.00%	99.00%	$ 1.07	$ -	3%	99%	$ 1.60
Cut & Restore Asphalt	$ 64.48		1.00%	99.00%	$ 0.64	$ -	2%	99%	$ 1.28
Cut & Restore Concrete	$ 66.65		1.00%	99.00%	$ 0.66	$ -	2%	99%	$ 1.32
Cut & Restore Sod	$ 61.79		2.00%	99.00%	$ 1.22	$ -	2%	99%	$ 1.22
			100.00%		$ 60.34		100.00%		$ 60.36

000221

Hard Rock - Distribution Conduit

Activity	Base Cost Per Foot Installed	DENSITY 0-5 Cost Adjustment	DENSITY 0-5 % Activity	DENSITY 0-5 % Assigned Telephone	DENSITY 0-5 Weighted Amount	DENSITY 6-100 Cost Adjustment	DENSITY 6-100 % Activity	DENSITY 6-100 % Assigned Telephone	DENSITY 6-100 Weighted Amount
Trench & Backfill	$ 60.98	$ -	0.00%	99.00%	$ -	$ -	0%	99%	$ -
Rocky Trench	$ 60.98	$ -	50.00%	99.00%	$ 30.19	$ -	50%	99%	$ 30.19
Backhoe Trench	$ 60.98	$ -	39.00%	99.00%	$ 23.55	$ -	37%	99%	$ 22.34
Hand Dig Trench	$ 60.98	$ -	5.00%	99.00%	$ 3.02	$ -	5%	99%	$ 3.02
Boring	$ 53.94	$ -	2.00%	99.00%	$ 1.07	$ -	2%	99%	$ 1.07
Cut & Restore Asphalt	$ 64.48	$ -	1.00%	99.00%	$ 0.64	$ -	2%	99%	$ 1.28
Cut & Restore Concrete	$ 66.65	$ -	1.00%	99.00%	$ 0.66	$ -	2%	99%	$ 1.32
Cut & Restore Sod	$ 61.79	$ -	2.00%	99.00%	$ 1.22	$ -	2%	99%	$ 1.22
			100.00%		$ 60.34		100.00%		$ 60.43

Hard Rock Structure

Hard Rock - Feeder Conduit

Activity	Base Cost Per Foot Installed	DENSITY 101-200 Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount	DENSITY 201-650 Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount
Trench & Backfill	$ 60.98	$ -	0.00%	99.00%	$ -	$ -	0.00%	99.00%	$ -
Rocky Trench	$ 60.98	$ -	53.00%	99.00%	$ 32.00	$ -	50.00%	99.00%	$ 30.19
Backhoe Trench	$ 60.98	$ -	25.00%	99.00%	$ 15.09	$ -	18.00%	99.00%	$ 10.87
Hand Dig Trench	$ 60.98	$ -	4.00%	99.00%	$ 2.41	$ -	3.00%	99.00%	$ 1.81
Boring	$ 53.94	$ -	3.00%	99.00%	$ 1.60	$ -	4.00%	99.00%	$ 2.14
Cut & Restore Asphalt	$ 64.48	$ -	5.00%	99.00%	$ 3.19	$ -	8.00%	99.00%	$ 5.11
Cut & Restore Concrete	$ 66.65	$ -	4.00%	99.00%	$ 2.64	$ -	7.00%	99.00%	$ 4.62
Cut & Restore Sod	$ 61.79	$ -	6.00%	99.00%	$ 3.67	$ -	10.00%	99.00%	$ 6.12
			100.00%		$ 60.61		100.00%		$ 60.84

000222

Hard Rock - Distribution Conduit

Activity	Base Cost Per Foot Installed	DENSITY 101-200 Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount	DENSITY 201-650 Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount
Trench & Backfill	$ 60.98	$ -	0.00%	99.00%	$ -	$ -	0.00%	99.00%	$ -
Rocky Trench	$ 60.98	$ -	47.00%	99.00%	$ 28.38	$ -	50.00%	99.00%	$ 30.19
Backhoe Trench	$ 60.98	$ -	31.00%	99.00%	$ 18.72	$ -	18.00%	99.00%	$ 10.87
Hand Dig Trench	$ 60.98	$ -	5.00%	99.00%	$ 3.02	$ -	3.00%	99.00%	$ 1.81
Boring	$ 53.94	$ -	2.00%	99.00%	$ 1.07	$ -	4.00%	99.00%	$ 2.14
Cut & Restore Asphalt	$ 64.48	$ -	5.00%	99.00%	$ 3.19	$ -	8.00%	99.00%	$ 5.11
Cut & Restore Concrete	$ 66.65	$ -	4.00%	99.00%	$ 2.64	$ -	7.00%	99.00%	$ 4.62
Cut & Restore Sod	$ 61.79	$ -	6.00%	99.00%	$ 3.67	$ -	10.00%	99.00%	$ 6.12
			100.00%		$ 60.68		100.00%		$ 60.84

BCPM Structure Inputs

Hard Rock Structure

Hard Rock - Feeder Conduit

Activity	Base Cost Per Foot Installed	DENSITY 651-850				DENSITY 851-2550			
		Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount	Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount
Trench & Backfill	$ 60.98	$ -	0.00%	99.00%	$ -	$ -	0.0%	99.0%	$ -
Rocky Trench	$ 60.98	$ -	45.00%	99.00%	$ 27.17	$ -	45.0%	99.0%	$ 27.17
Backhoe Trench	$ 60.98	$ -	12.00%	99.00%	$ 7.24	$ -	12.0%	99.0%	$ 7.24
Hand Dig Trench	$ 60.98	$ -	6.00%	99.00%	$ 3.62	$ -	6.0%	99.0%	$ 3.62
Boring	$ 53.94	$ -	2.00%	99.00%	$ 1.07	$ -	2.0%	99.0%	$ 1.07
Cut & Restore Asphalt	$ 64.48	$ -	13.00%	99.00%	$ 8.30	$ -	13.0%	99.0%	$ 8.30
Cut & Restore Concrete	$ 66.65	$ -	12.00%	99.00%	$ 7.92	$ -	12.0%	99.0%	$ 7.92
Cut & Restore Sod	$ 61.79	$ -	10.00%	99.00%	$ 6.12	$ -	10.0%	99.0%	$ 6.12
			100.00%		$ 61.44		100.00%		$ 61.44

000223

Hard Rock - Distribution Conduit

Activity	Base Cost Per Foot Installed	DENSITY 651-850				DENSITY 851-2550			
		Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount	Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount
Trench & Backfill	$ 60.98	$ -	5.00%	99.00%	$ 3.02	$ -	5.00%	99.00%	$ 3.02
Rocky Trench	$ 60.98	$ -	32.00%	99.00%	$ 19.32	$ -	32.00%	99.00%	$ 19.32
Backhoe Trench	$ 60.98	$ -	10.00%	99.00%	$ 6.04	$ -	10.00%	99.00%	$ 6.04
Hand Dig Trench	$ 60.98	$ -	6.00%	99.00%	$ 3.62	$ -	6.00%	99.00%	$ 3.62
Boring	$ 53.94	$ -	2.00%	99.00%	$ 1.07	$ -	2.00%	99.00%	$ 1.07
Cut & Restore Asphalt	$ 64.48	$ -	13.00%	99.00%	$ 8.30	$ -	13.00%	99.00%	$ 8.30
Cut & Restore Concrete	$ 66.65	$ -	12.00%	99.00%	$ 7.92	$ -	12.00%	99.00%	$ 7.92
Cut & Restore Sod	$ 61.79	$ -	20.00%	99.00%	$ 12.23	$ -	20.00%	99.00%	$ 12.23
			100.00%		$ 61.52		100.00%		$ 61.52

Hard Rock Structure

Hard Rock - Feeder Conduit

Activity	Base Cost Per Foot Installed	DENSITY 2551-5000 Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount	DENSITY 5001-10000 Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount
Trench & Backfill	$ 60.98	$ -	0.00%	99.00%	$ -	$ -	0.00%	99.00%	$ -
Rocky Trench	$ 60.98	$ -	15.00%	99.00%	$ 9.06	$ -	15.00%	99.00%	$ 9.06
Backhoe Trench	$ 60.98	$ -	10.00%	99.00%	$ 6.04	$ -	10.00%	99.00%	$ 6.04
Hand Dig Trench	$ 60.98	$ -	8.00%	99.00%	$ 4.83	$ -	8.00%	99.00%	$ 4.83
Boring	$ 53.94	$ -	15.00%	99.00%	$ 8.01	$ -	15.00%	99.00%	$ 8.01
Cut & Restore Asphalt	$ 64.48	$ -	25.00%	99.00%	$ 15.96	$ -	25.00%	99.00%	$ 15.96
Cut & Restore Concrete	$ 66.65	$ -	20.00%	99.00%	$ 13.20	$ -	20.00%	99.00%	$ 13.20
Cut & Restore Sod	$ 61.79	$ -	7.00%	99.00%	$ 4.28	$ -	7.00%	99.00%	$ 4.28
			100.00%		$ 61.37		100.00%		$ 61.37

000224

Hard Rock - Distribution Conduit

Activity	Base Cost Per Foot Installed	DENSITY 2551-5000 Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount	DENSITY 5001-10000 Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount
Trench & Backfill	$ 60.98	$ -	0.00%	99.00%	$ -	$ -	0.00%	99.00%	$ -
Rocky Trench	$ 60.98	$ -	14.00%	99.00%	$ 8.45	$ -	14.00%	99.00%	$ 8.45
Backhoe Trench	$ 60.98	$ -	10.00%	99.00%	$ 6.04	$ -	10.00%	99.00%	$ 6.04
Hand Dig Trench	$ 60.98	$ -	8.00%	99.00%	$ 4.83	$ -	8.00%	99.00%	$ 4.83
Boring	$ 53.94	$ -	15.00%	99.00%	$ 8.01	$ -	15.00%	99.00%	$ 8.01
Cut & Restore Asphalt	$ 64.48	$ -	25.00%	99.00%	$ 15.96	$ -	25.00%	99.00%	$ 15.96
Cut & Restore Concrete	$ 66.65	$ -	20.00%	99.00%	$ 13.20	$ -	20.00%	99.00%	$ 13.20
Cut & Restore Sod	$ 61.79	$ -	8.00%	99.00%	$ 4.89	$ -	8.00%	99.00%	$ 4.89
			100.00%		$ 61.38		100.00%		$ 61.38

000225

Hard Rock Structure

Hard Rock - Feeder Conduit

Activity	Base Cost Per Foot Installed	DENSITY >10001 Cost Adustment	% Activity	% Assigned Telephone	Weighted Amount
Trench & Backfill	$ 60.98	$ -	0.00%	99.00%	$ -
Rocky Trench	$ 60.98	$ -	10.00%	99.00%	$ 6.04
Backhoe Trench	$ 60.98	$ -	8.00%	99.00%	$ 4.83
Hand Dig Trench	$ 60.98	$ -	8.00%	99.00%	$ 4.83
Boring	$ 53.94	$ -	10.00%	99.00%	$ 5.34
Cut & Restore Asphalt	$ 64.48	$ -	33.00%	99.00%	$ 21.07
Cut & Restore Concrete	$ 66.65	$ -	28.00%	99.00%	$ 18.48
Cut & Restore Sod	$ 61.79	$ -	3.00%	99.00%	$ 1.84
			100.00%		$ 62.41

Hard Rock - Distribution Conduit

Activity	Base Cost Per Foot Installed	DENSITY >10001 Cost Adustment	% Activity	% Assigned Telephone	Weighted Amount
Trench & Backfill	$ 60.98	$ -	0.00%	99.00%	$ -
Rocky Trench	$ 60.98	$ -	10.00%	99.00%	$ 6.04
Backhoe Trench	$ 60.98	$ -	8.00%	99.00%	$ 4.83
Hand Dig Trench	$ 60.98	$ -	8.00%	99.00%	$ 4.83
Boring	$ 53.94	$ -	10.00%	99.00%	$ 5.34
Cut & Restore Asphalt	$ 64.48	$ -	33.00%	99.00%	$ 21.07
Cut & Restore Concrete	$ 66.65	$ -	28.00%	99.00%	$ 18.48
Cut & Restore Sod	$ 61.79	$ -	3.00%	99.00%	$ 1.84
			100.00%		$ 62.41

Hard Rock - Buried Feeder Cable

Activity	Base Cost Per Foot Installed	DENSITY 0-5 Cost Adjustment	DENSITY 0-5 % Activity	DENSITY 0-5 % Assigned Telephone	DENSITY 0-5 Weighted Amount	DENSITY 6-100 Cost Adjustment	DENSITY 6-100 % Activity	DENSITY 6-100 % Assigned Telephone	DENSITY 6-100 Weighted Amount
Plow	$ 3.06		0.00%	99.00%	$ -	$ -	0.00%	99.00%	$ -
Rocky Plow	$ 3.06		55.00%	99.00%	$ 1.67	$ -	48.00%	99.00%	$ 1.46
Trench & Backfill	$ 3.06		5.00%	99.00%	$ 0.15	$ -	10.00%	99.00%	$ 0.30
Rocky Trench	$ 3.06		29.00%	99.00%	$ 0.88	$ -	31.00%	99.00%	$ 0.94
Backhoe Trench	$ 3.06		4.00%	99.00%	$ 0.12	$ -	2.00%	99.00%	$ 0.06
Hand Dig Trench	$ 3.06		1.00%	99.00%	$ 0.03	$ -	1.00%	99.00%	$ 0.03
Bore Cable	$ 23.50		1.00%	99.00%	$ 0.23	$ -	1.00%	99.00%	$ 0.23
Push Pipe & Pull Cable	$ 26.96		1.00%	99.00%	$ 0.27	$ -	1.00%	99.00%	$ 0.27
Cut & Restore Asphalt	$ 6.56		1.00%	99.00%	$ 0.06	$ -	2.00%	99.00%	$ 0.13
Cut & Restore Concrete	$ 8.73		1.00%	99.00%	$ 0.09	$ -	2.00%	99.00%	$ 0.17
Cut & Restore Sod	$ 3.87		2.00%	99.00%	$ 0.08	$ -	2.00%	99.00%	$ 0.08
			100.00%		$ 3.58		100.00%		$ 3.67

000226

Hard Rock - Buried Distribution Cable

Activity	Base Cost Per Foot Installed	DENSITY 0-5 Cost Adjustment	DENSITY 0-5 % Activity	DENSITY 0-5 % Assigned Telephone	DENSITY 0-5 Weighted Amount	DENSITY 6-100 Cost Adjustment	DENSITY 6-100 % Activity	DENSITY 6-100 % Assigned Telephone	DENSITY 6-100 Weighted Amount
Plow	$ 3.06	$ -	0.00%	96.00%	$ -	$ -	0.00%	96.00%	$ -
Rocky Plow	$ 3.06	$ -	48.00%	96.00%	$ 1.41	$ -	47.00%	96.00%	$ 1.38
Trench & Backfill	$ 3.06	$ -	5.00%	96.00%	$ 0.15	$ -	10.00%	96.00%	$ 0.29
Rocky Trench	$ 3.06	$ -	38.00%	96.00%	$ 1.12	$ -	29.00%	96.00%	$ 0.85
Backhoe Trench	$ 3.06	$ -	2.00%	96.00%	$ 0.06	$ -	5.00%	96.00%	$ 0.15
Hand Dig Trench	$ 3.06	$ -	1.00%	96.00%	$ 0.03	$ -	1.00%	96.00%	$ 0.03
Bore Cable	$ 23.50	$ -	1.00%	96.00%	$ 0.23	$ -	1.00%	96.00%	$ 0.23
Push Pipe & Pull Cable	$ 26.96	$ -	1.00%	96.00%	$ 0.26	$ -	1.00%	96.00%	$ 0.26
Cut & Restore Asphalt	$ 6.56	$ -	1.00%	96.00%	$ 0.06	$ -	2.00%	96.00%	$ 0.13
Cut & Restore Concrete	$ 8.73	$ -	1.00%	96.00%	$ 0.08	$ -	2.00%	96.00%	$ 0.17
Cut & Restore Sod	$ 3.87	$ -	2.00%	96.00%	$ 0.07	$ -	2.00%	96.00%	$ 0.07
			100.00%		$ 3.47		100.00%		$ 3.56

BCPM Structure Inputs

Hard Rock - Buried Feeder Cable

Activity	Base Cost Per Foot Installed	DENSITY 101-200 Cost Adjustment	DENSITY 101-200 % Activity	DENSITY 101-200 % Assigned Telephone	DENSITY 101-200 Weighted Amount	DENSITY 201-650 Cost Adjustment	DENSITY 201-650 % Activity	DENSITY 201-650 % Assigned Telephone	DENSITY 201-650 Weighted Amount
Plow	$ 3.06	$ -	0.00%	99.00%	$ -	$ -	0.00%	99.00%	$ -
Rocky Plow	$ 3.06	$ -	45.00%	99.00%	$ 1.36	$ -	13.00%	99.00%	$ 0.39
Trench & Backfill	$ 3.06	$ -	3.00%	99.00%	$ 0.09	$ -	0.00%	99.00%	$ -
Rocky Trench	$ 3.06	$ -	28.00%	99.00%	$ 0.85	$ -	40.00%	99.00%	$ 1.21
Backhoe Trench	$ 3.06	$ -	2.00%	99.00%	$ 0.06	$ -	10.00%	99.00%	$ 0.30
Hand Dig Trench	$ 3.06	$ -	5.00%	99.00%	$ 0.15	$ -	3.00%	99.00%	$ 0.09
Bore Cable	$ 23.50	$ -	1.00%	99.00%	$ 0.23	$ -	4.00%	99.00%	$ 0.93
Push Pipe & Pull Cable	$ 26.96	$ -	1.00%	99.00%	$ 0.27	$ -	5.00%	99.00%	$ 1.33
Cut & Restore Asphalt	$ 6.56	$ -	5.00%	99.00%	$ 0.32	$ -	8.00%	99.00%	$ 0.52
Cut & Restore Concrete	$ 8.73	$ -	4.00%	99.00%	$ 0.35	$ -	7.00%	99.00%	$ 0.61
Cut & Restore Sod	$ 3.87	$ -	6.00%	99.00%	$ 0.23	$ -	10.00%	99.00%	$ 0.38
			100.00%		$ 3.92		100.00%		$ 5.77

000227

Hard Rock - Buried Distribution Cable

Activity	Base Cost Per Foot Installed	DENSITY 101-200 Cost Adjustment	DENSITY 101-200 % Activity	DENSITY 101-200 % Assigned Telephone	DENSITY 101-200 Weighted Amount	DENSITY 201-650 Cost Adjustment	DENSITY 201-650 % Activity	DENSITY 201-650 % Assigned Telephone	DENSITY 201-650 Weighted Amount
Plow	$ 3.06	$ -	0.00%	96.00%	$ -	$ -	0.00%	96.00%	$ -
Rocky Plow	$ 3.06	$ -	40.00%	96.00%	$ 1.18	$ -	13.00%	96.00%	$ 0.38
Trench & Backfill	$ 3.06	$ -	7.00%	96.00%	$ 0.21	$ -	8.00%	96.00%	$ 0.24
Rocky Trench	$ 3.06	$ -	32.00%	96.00%	$ 0.94	$ -	30.00%	96.00%	$ 0.88
Backhoe Trench	$ 3.06	$ -	2.00%	96.00%	$ 0.06	$ -	12.00%	96.00%	$ 0.35
Hand Dig Trench	$ 3.06	$ -	2.00%	96.00%	$ 0.06	$ -	3.00%	96.00%	$ 0.09
Bore Cable	$ 23.50	$ -	1.00%	96.00%	$ 0.23	$ -	4.00%	96.00%	$ 0.90
Push Pipe & Pull Cable	$ 26.96	$ -	1.00%	96.00%	$ 0.26	$ -	5.00%	96.00%	$ 1.29
Cut & Restore Asphalt	$ 6.56	$ -	5.00%	96.00%	$ 0.31	$ -	8.00%	96.00%	$ 0.50
Cut & Restore Concrete	$ 8.73	$ -	4.00%	96.00%	$ 0.34	$ -	7.00%	96.00%	$ 0.59
Cut & Restore Sod	$ 3.87	$ -	6.00%	96.00%	$ 0.22	$ -	10.00%	96.00%	$ 0.37
			100.00%		$ 3.80		100.00%		$ 5.60

BCPM Structure Inputs

Hard Rock - Buried Feeder Cable

Activity	Base Cost Per Foot Installed	DENSITY 651-850 Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount	DENSITY 851-2550 Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount
Plow	$ 3.06	$ -	0.00%	99.00%	$ -	$ -	0.00%	99.00%	$ -
Rocky Plow	$ 3.06	$ -	3.00%	99.00%	$ 0.09	$ -	3.00%	99.00%	$ 0.09
Trench & Backfill	$ 3.06	$ -	0.00%	99.00%	$ -	$ -	0.00%	99.00%	$ -
Rocky Trench	$ 3.06	$ -	35.00%	99.00%	$ 1.06	$ -	35.00%	99.00%	$ 1.06
Backhoe Trench	$ 3.06	$ -	14.00%	99.00%	$ 0.42	$ -	14.00%	99.00%	$ 0.42
Hand Dig Trench	$ 3.06	$ -	6.00%	99.00%	$ 0.18	$ -	6.00%	99.00%	$ 0.18
Bore Cable	$ 23.50	$ -	2.00%	99.00%	$ 0.47	$ -	2.00%	99.00%	$ 0.47
Push Pipe & Pull Cable	$ 26.96	$ -	5.00%	99.00%	$ 1.33	$ -	5.00%	99.00%	$ 1.33
Cut & Restore Asphalt	$ 6.56	$ -	13.00%	99.00%	$ 0.84	$ -	13.00%	99.00%	$ 0.84
Cut & Restore Concrete	$ 8.73	$ -	12.00%	99.00%	$ 1.04	$ -	12.00%	99.00%	$ 1.04
Cut & Restore Sod	$ 3.87	$ -	10.00%	99.00%	$ 0.38	$ -	10.00%	99.00%	$ 0.38
			100.00%		$ 5.82		100.00%		$ 5.82

Hard Rock - Buried Distribution Cable

Activity	Base Cost Per Foot Installed	DENSITY 651-850 Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount	DENSITY 851-2550 Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount
Plow	$ 3.06	$ -	0%	96%	$ -	$ -	0.00%	96.00%	$ -
Rocky Plow	$ 3.06	$ -	3.00%	96.00%	$ 0.09	$ -	3.00%	96.00%	$ 0.09
Trench & Backfill	$ 3.06	$ -	0.00%	96.00%	$ -	$ -	0.00%	96.00%	$ -
Rocky Trench	$ 3.06	$ -	27.00%	96.00%	$ 0.79	$ -	27.00%	96.00%	$ 0.79
Backhoe Trench	$ 3.06	$ -	12.00%	96.00%	$ 0.35	$ -	12.00%	96.00%	$ 0.35
Hand Dig Trench	$ 3.06	$ -	6.00%	96.00%	$ 0.18	$ -	6.00%	96.00%	$ 0.18
Bore Cable	$ 23.50	$ -	2.00%	96.00%	$ 0.45	$ -	2.00%	96.00%	$ 0.45
Push Pipe & Pull Cable	$ 26.96	$ -	5.00%	96.00%	$ 1.29	$ -	5.00%	96.00%	$ 1.29
Cut & Restore Asphalt	$ 6.56	$ -	13.00%	96.00%	$ 0.82	$ -	13.00%	96.00%	$ 0.82
Cut & Restore Concrete	$ 8.73	$ -	12.00%	96.00%	$ 1.01	$ -	12.00%	96.00%	$ 1.01
Cut & Restore Sod	$ 3.87	$ -	20.00%	96.00%	$ 0.74	$ -	20.00%	96.00%	$ 0.74
			100.00%		$ 5.72		100.00%		$ 5.72

000228

BCPM Structure Inputs

Hard Rock - Buried Feeder Cable

Activity	Base Cost Per Foot Installed	DENSITY 2551-5000 Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount	DENSITY 5001-10000 Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount
Plow	$ 3.06	$ -	0.00%	99.00%	$ -	$ -	0.00%	99.00%	$ -
Rocky Plow	$ 3.06	$ -	0.00%	99.00%	$ -	$ -	0.00%	99.00%	$ -
Trench & Backfill	$ 3.06	$ -	0.00%	99.00%	$ -	$ -	0.00%	99.00%	$ -
Rocky Trench	$ 3.06	$ -	15.00%	99.00%	$ 0.45	$ -	15.00%	99.00%	$ 0.45
Backhoe Trench	$ 3.06	$ -	10.00%	99.00%	$ 0.30	$ -	10.00%	99.00%	$ 0.30
Hand Dig Trench	$ 3.06	$ -	8.00%	99.00%	$ 0.24	$ -	8.00%	99.00%	$ 0.24
Bore Cable	$ 23.50	$ -	15.00%	99.00%	$ 3.49	$ -	15.00%	99.00%	$ 3.49
Push Pipe & Pull Cable	$ 26.96	$ -	0.00%	99.00%	$ -	$ -	0.00%	99.00%	$ -
Cut & Restore Asphalt	$ 6.56	$ -	25.00%	99.00%	$ 1.62	$ -	25.00%	99.00%	$ 1.62
Cut & Restore Concrete	$ 8.73	$ -	20.00%	99.00%	$ 1.73	$ -	20.00%	99.00%	$ 1.73
Cut & Restore Sod	$ 3.87	$ -	7.00%	99.00%	$ 0.27	$ -	7.00%	99.00%	$ 0.27
			100.00%		$ 8.11		100.00%		$ 8.11

Hard Rock - Buried Distribution Cable

Activity	Base Cost Per Foot Installed	DENSITY 2551-5000 Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount	DENSITY 5001-10000 Cost Adjustment	% Activity	% Assigned Telephone	Weighted Amount
Plow	$ 3.06	$ -	0.00%	96.00%	$ -	$ -	0.00%	96.00%	$ -
Rocky Plow	$ 3.06	$ -	0.00%	96.00%	$ -	$ -	0.00%	96.00%	$ -
Trench & Backfill	$ 3.06	$ -	0.00%	96.00%	$ -	$ -	0.00%	96.00%	$ -
Rocky Trench	$ 3.06	$ -	14.00%	96.00%	$ 0.41	$ -	14.00%	96.00%	$ 0.41
Backhoe Trench	$ 3.06	$ -	10.00%	96.00%	$ 0.29	$ -	10.00%	96.00%	$ 0.29
Hand Dig Trench	$ 3.06	$ -	8.00%	96.00%	$ 0.24	$ -	8.00%	96.00%	$ 0.24
Bore Cable	$ 23.50	$ -	15.00%	96.00%	$ 3.38	$ -	15.00%	96.00%	$ 3.38
Push Pipe & Pull Cable	$ 26.96	$ -	0.00%	96.00%	$ -	$ -	0.00%	96.00%	$ -
Cut & Restore Asphalt	$ 6.56	$ -	25.00%	96.00%	$ 1.57	$ -	25.00%	96.00%	$ 1.57
Cut & Restore Concrete	$ 8.73	$ -	20.00%	96.00%	$ 1.68	$ -	20.00%	96.00%	$ 1.68
Cut & Restore Sod	$ 3.87	$ -	8.00%	96.00%	$ 0.30	$ -	8.00%	96.00%	$ 0.30
			100.00%		$ 7.87		100.00%		$ 7.87

000229

BCPM Structure Inputs

Hard Rock - Buried Feeder Cable

Activity	Base Cost Per Foot Installed	DENSITY >10001 Cost Adustment	% Activity	% Assigned Telephone	Weighted Amount
Plow	$ 3.06	$ -	0.00%	99.00%	$ -
Rocky Plow	$ 3.06	$ -	0.00%	99.00%	$ -
Trench & Backfill	$ 3.06	$ -	0.00%	99.00%	$ -
Rocky Trench	$ 3.06	$ -	10.00%	99.00%	$ 0.30
Backhoe Trench	$ 3.06	$ -	8.00%	99.00%	$ 0.24
Hand Dig Trench	$ 3.06	$ -	8.00%	99.00%	$ 0.24
Bore Cable	$ 23.50	$ -	10.00%	99.00%	$ 2.33
Push Pipe & Pull Cable	$ 26.96	$ -	0.00%	99.00%	$ -
Cut & Restore Asphalt	$ 6.56	$ -	33.00%	99.00%	$ 2.14
Cut & Restore Concrete	$ 8.73	$ -	28.00%	99.00%	$ 2.42
Cut & Restore Sod	$ 3.87	$ -	3.00%	99.00%	$ 0.11
			100.00%		$ 7.79

Hard Rock - Buried Distribution Cable

Activity	Base Cost Per Foot Installed	DENSITY >10001 Cost Adustment	% Activity	% Assigned Telephone	Weighted Amount
Plow	$ 3.06	$ -	0%	96%	$ -
Rocky Plow	$ 3.06	$ -	0.00%	96.00%	$ -
Trench & Backfill	$ 3.06	$ -	0.00%	96.00%	$ -
Rocky Trench	$ 3.06	$ -	10.00%	96.00%	$ 0.29
Backhoe Trench	$ 3.06	$ -	8.00%	96.00%	$ 0.24
Hand Dig Trench	$ 3.06	$ -	8.00%	96.00%	$ 0.24
Bore Cable	$ 23.50	$ -	10.00%	96.00%	$ 2.26
Push Pipe & Pull Cable	$ 26.96	$ -	0.00%	96.00%	$ -
Cut & Restore Asphalt	$ 6.56	$ -	33.00%	96.00%	$ 2.08
Cut & Restore Concrete	$ 8.73	$ -	28.00%	96.00%	$ 2.35
Cut & Restore Sod	$ 3.87	$ -	3.00%	96.00%	$ 0.11
			100.00%		$ 7.56

000230

BCPM Structure Inputs

Hard Rock - Aerial Feeder Cable

Activity	Base Cost Per Unit	DENSITY 0-5				DENSITY 6-100			
		Cost Adjustment	Installation Cost	% Assigned Telephone	Weighted Amount	Cost Adjustment	Installation Cost	% Assigned Telephone	Weighted Amount
Poles	$ 229.89	$ -	$ 161.81	39.88%	$ 156.21		$ 161.81	39.88%	$ 156.21
Anchors and Guys	$ 28.45	$ -	$ 72.01	100%	$ 16.74		$ 72.01	100%	$ 16.74
					$ 172.96				$ 172.96

000231

Hard Rock - Aerial Distribution Cable

Activity	Base Cost Per Unit	DENSITY 0-5				DENSITY 6-100			
		Cost Adjustment	Installation Cost	% Assigned Telephone	Weighted Amount	Cost Adjustment	Installation Cost	% Assigned Telephone	Weighted Amount
Poles	$ 229.89	$ -	$ 161.81	39.88%	$ 156.21	$ -	$ 161.81	39.88%	$ 156.21
Anchors and Guys	$ 28.45	$ -	$ 72.01	100%	$ 16.74	$ -	$ 72.01	100%	$ 16.74
					$ 172.96				$ 172.96

BCPM Structure Inputs

Hard Rock - Aerial Feeder Cable

Activity	Base Cost Per Unit	DENSITY 101-200 Cost Adjustment	DENSITY 101-200 Installation Cost	DENSITY 101-200 % Assigned Telephone	DENSITY 101-200 Weighted Amount	DENSITY 201-650 Cost Adjustment	DENSITY 201-650 Installation Cost	DENSITY 201-650 % Assigned Telephone	DENSITY 201-650 Weighted Amount
Poles	$ 229.89		$ 161.81	39.88%	$ 156.21		$ 161.81	39.88%	$ 156.21
Anchors and Guys	$ 28.45		$ 72.01	100%	$ 16.74		$ 72.01	100%	$ 16.74
					$ 172.96				$ 172.96

Hard Rock - Aerial Distribution Cable

Activity	Base Cost Per Unit	DENSITY 101-200 Cost Adjustment	DENSITY 101-200 Installation Cost	DENSITY 101-200 % Assigned Telephone	DENSITY 101-200 Weighted Amount	DENSITY 201-650 Cost Adjustment	DENSITY 201-650 Installation Cost	DENSITY 201-650 % Assigned Telephone	DENSITY 201-650 Weighted Amount
Poles	$ 229.89	$ -	$ 161.81	39.88%	$ 156.21	$ -	$ 161.81	39.88%	$ 156.21
Anchors and Guys	$ 28.45	$ -	$ 72.01	100%	$ 16.74	$ -	$ 72.01	100%	$ 16.74
					$ 172.96				$ 172.96

000232

000233

Hard Rock - Aerial Feeder Cable

Activity	Base Cost Per Unit	DENSITY 651-850				DENSITY 851-2550			
		Cost Adjustment	Installation Cost	% Assigned Telephone	Weighted Amount	Cost Adjustment	Installation Cost	% Assigned Telephone	Weighted Amount
Poles	$ 229.89		$ 161.81	39.88%	$ 156.21		$ 161.81	39.88%	$ 156.21
Anchors and Guys	$ 28.45		$ 72.01	100%	$ 15.07		$ 72.01	100%	$ 30.14
					$ 171.28				$ 186.35

Hard Rock - Aerial Distribution Cable

Activity	Base Cost Per Unit	DENSITY 651-850				DENSITY 851-2550			
		Cost Adjustment	Installation Cost	% Assigned Telephone	Weighted Amount	Cost Adjustment	Installation Cost	% Assigned Telephone	Weighted Amount
Poles	$ 229.89	$ -	$ 161.81	39.88%	$ 156.21	$ -	$ 161.81	39.88%	$ 156.21
Anchors and Guys	$ 28.45	$ -	$ 72.01	100%	$ 15.07	$ -	$ 72.01	100%	$ 30.14
					$ 171.28				$ 186.35

BCPM Structure Inputs

000234

Hard Rock - Aerial Feeder Cable

Activity	Base Cost Per Unit	DENSITY 2551-5000				DENSITY 5001-10000			
		Cost Adjustment	Installation Cost	% Assigned Telephone	Weighted Amount	Cost Adjustment	Installation Cost	% Assigned Telephone	Weighted Amount
Poles	$ 229.89		$ 161.81	39.88%	$ 156.21		$ 161.81	39.88%	$ 156.21
Anchors and Guys	$ 28.45		$ 72.01	100%	$ 30.14		$ 72.01	100%	$ 30.14
					$ 186.35				$ 186.35

Hard Rock - Aerial Distribution Cable

Activity	Base Cost Per Unit	DENSITY 2551-5000				DENSITY 5001-10000			
		Cost Adjustment	Installation Cost	% Assigned Telephone	Weighted Amount	Cost Adjustment	Installation Cost	% Assigned Telephone	Weighted Amount
Poles	$ 229.89	$ -	$ 161.81	39.88%	$ 156.21	$ -	$ 161.81	39.88%	$ 156.21
Anchors and Guys	$ 28.45	$ -	$ 72.01	100%	$ 30.14	$ -	$ 72.01	100%	$ 30.14
					$ 186.35				$ 186.35

BCPM Structure Inputs

Hard Rock - Aerial Feeder Cable

Activity	Base Cost Per Unit	DENSITY >10001			
		Cost Adjustment	Installation Cost	% Assigned Telephone	Weighted Amount
Poles	$ 229.89		$ 161.81	39.88%	$ 156.21
Anchors and Guys	$ 28.45		$ 72.01	100%	$ 30.14
					$ 186.35

Hard Rock - Aerial Distribution Cable

Activity	Base Cost Per Unit	DENSITY >10001			
		Cost Adjustment	Installation Cost	% Assigned Telephone	Weighted Amount
Poles	$ 229.89	$ -	$ 161.81	39.88%	$ 156.21
Anchors and Guys	$ 28.45	$ -	$ 72.01	100%	$ 30.14
					$ 186.35

BCPM ManHole Inputs

Manhole Inputs

Normal - Manhole

Unit	Per Unit Costs		DENSITY 0-5			DENSITY 6-100		
	Material	Installation	Cost Adjustment	% Assigned Telephone	Unit Cost	Cost Adjustment	% Assigned Telephone	Unit Cost
Handhole 3x5 or 4x6	$ 964.27	$ 443.10		99.00%	$ 1,393.29		99.00%	$ 1,393.29
Manhole 4x6x7	$ 6,468.70	$ -		99.00%	$ 6,404.01		99.00%	$ 6,404.01
Manhold 12x6x7	$ 9,606.01	$ -		99.00%	$ 9,509.95		99.00%	$ 9,509.95
Adder 12x6x7	$ -	$ -		99.00%	$ -		99.00%	$ -
Conduit Per Duct Foot	$ 2.24	N/A	N/A	99.00%	$ 2.22	N/A	99.00%	$ 2.22

Soft Rock - Manhole

Unit	Per Unit Costs		DENSITY 0-5			DENSITY 6-100		
	Material	Installation	Cost Adjustment	% Assigned Telephone	Unit Cost	Cost Adjustment	% Assigned Telephone	Unit Cost
Handhole 3x5 or 4x6	$ 964.27	$ 443.10		99%	$ 1,393.29		99%	$ 1,393.29
Manhole 4x6x7	$ 6,468.70	$ -		99%	$ 6,404.01		99%	$ 6,404.01
Manhold 12x6x7	$ 9,606.01	$ -		99%	$ 9,509.95		99%	$ 9,509.95
Adder 12x6x7	$ -	$ -		99%	$ -		99%	$ -
Conduit Per Duct Foot	$ 2.24	N/A	N/A	99%	$ 2.22	N/A	99%	$ 2.22

Hard Rock - Manhole

Unit	Per Unit Costs		DENSITY 0-5			DENSITY 6-100		
	Material	Installation	Cost Adjustment	% Assigned Telephone	Unit Cost	Cost Adjustment	% Assigned Telephone	Unit Cost
Handhole 3x5 or 4x6	$ 964.27	$ 852.38		99%	$ 1,798.48		99%	$ 1,798.48
Manhole 4x6x7	$ 6,468.70	$ 3,274.23		99%	$ 9,645.50		99%	$ 9,645.50
Manhold 12x6x7	$ 9,606.01	$ 8,594.85		99%	$ 18,018.86		99%	$ 18,018.86
Adder 12x6x7	$ -	$ -		99%	$ -		99%	$ -
Conduit Per Duct Foot	$ 2.24	N/A	N/A	99%	$ 2.22	N/A	99%	$ 2.22

000236

BCPM ManHole Inputs

Manhole Inputs

Normal - Manhole

Unit	Per Unit Costs		DENSITY 101-200			DENSITY 201-650		
	Material	Installation	Cost Adjustment	% Assigned Telephone	Unit Cost	Cost Adjustment	% Assigned Telephone	Unit Cost
Handhole 3x5 or 4x6	$ 964.27	$ 443.10		99.00%	$ 1,393.29		99.00%	$ 1,393.29
Manhole 4x6x7	$ 6,468.70	$ -		99.00%	$ 6,404.01		99.00%	$ 6,404.01
Manhold 12x6x7	$ 9,606.01	$ -		99.00%	$ 9,509.95		99.00%	$ 9,509.95
Adder 12x6x7	$ -	$ -		99.00%	$ -		99.00%	$ -
Conduit Per Duct Foot	$ 2.24	N/A	N/A	99.00%	$ 2.22	N/A	99.00%	$ 2.22

Soft Rock - Manhole

Unit	Per Unit Costs		DENSITY 101-200			DENSITY 201-650		
	Material	Installation	Cost Adjustment	% Assigned Telephone	Unit Cost	Cost Adjustment	% Assigned Telephone	Unit Cost
Handhole 3x5 or 4x6	$ 964.27	$ 443.10		99%	$ 1,393.29		99%	$ 1,393.29
Manhole 4x6x7	$ 6,468.70	$ -		99%	$ 6,404.01		99%	$ 6,404.01
Manhold 12x6x7	$ 9,606.01	$ -		99%	$ 9,509.95		99%	$ 9,509.95
Adder 12x6x7	$ -	$ -		99%	$ -		99%	$ -
Conduit Per Duct Foot	$ 2.24	N/A	N/A	99%	$ 2.22	N/A	99%	$ 2.22

Hard Rock - Manhole

Unit	Per Unit Costs		DENSITY 101-200			DENSITY 201-650		
	Material	Installation	Cost Adjustment	% Assigned Telephone	Unit Cost	Cost Adjustment	% Assigned Telephone	Unit Cost
Handhole 3x5 or 4x6	$ 964.27	$ 852.38		99%	$ 1,798.48		99%	$ 1,798.48
Manhole 4x6x7	$ 6,468.70	$ 3,274.23		99%	$ 9,645.50		99%	$ 9,645.50
Manhold 12x6x7	$ 9,606.01	$ 8,594.85		99%	$ 18,018.86		99%	$ 18,018.86
Adder 12x6x7	$ -	$ -		99%	$ -		99%	$ -
Conduit Per Duct Foot	$ 2.24	N/A	N/A	99%	$ 2.22	N/A	99%	$ 2.22

000237

Manhole Inputs

Normal - Manhole

Unit	Per Unit Costs		DENSITY 651-850			DENSITY 851-2550		
	Material	Installation	Cost Adjustment	% Assigned Telephone	Unit Cost	Cost Adjustment	% Assigned Telephone	Unit Cost
Handhole 3x5 or 4x6	$ 964.27	$ 443.10		99.00%	$ 1,393.29		99.00%	$ 1,393.29
Manhole 4x6x7	$ 6,468.70	$ -		99.00%	$ 6,404.01		99.00%	$ 6,404.01
Manhold 12x6x7	$ 9,606.01	$ -		99.00%	$ 9,509.95		99.00%	$ 9,509.95
Adder 12x6x7	$ -	$ -		99.00%	$ -		99.00%	$ -
Conduit Per Duct Foot	$ 2.24	N/A	N/A	99.00%	$ 2.22	N/A	99.00%	$ 2.22

Soft Rock - Manhole

Unit	Per Unit Costs		DENSITY 651-850			DENSITY 851-2550		
	Material	Installation	Cost Adjustment	% Assigned Telephone	Unit Cost	Cost Adjustment	% Assigned Telephone	Unit Cost
Handhole 3x5 or 4x6	$ 964.27	$ 443.10		99%	$ 1,393.29		99%	$ 1,393.29
Manhole 4x6x7	$ 6,468.70	$ -		99%	$ 6,404.01		99%	$ 6,404.01
Manhold 12x6x7	$ 9,606.01	$ -		99%	$ 9,509.95		99%	$ 9,509.95
Adder 12x6x7	$ -	$ -		99%	$ -		99%	$ -
Conduit Per Duct Foot	$ 2.24	N/A	N/A	99%	$ 2.22	N/A	99%	$ 2.22

Hard Rock - Manhole

Unit	Per Unit Costs		DENSITY 651-850			DENSITY 851-2550		
	Material	Installation	Cost Adjustment	% Assigned Telephone	Unit Cost	Cost Adjustment	% Assigned Telephone	Unit Cost
Handhole 3x5 or 4x6	$ 964.27	$ 852.38		99%	$ 1,798.48		99%	$ 1,798.48
Manhole 4x6x7	$ 6,468.70	$ 3,274.23		99%	$ 9,645.50		99%	$ 9,645.50
Manhold 12x6x7	$ 9,606.01	$ 8,594.85		99%	$ 18,018.86		99%	$ 18,018.86
Adder 12x6x7	$ -	$ -		99%	$ -		99%	$ -
Conduit Per Duct Foot	$ 2.24	N/A	N/A	99%	$ 2.22	N/A	99%	$ 2.22

000238

Manhole Inputs

Normal - Manhole

Unit	Per Unit Costs		DENSITY 2551-5000			DENSITY 5001-10000		
	Material	Installation	Cost Adjustment	% Assigned Telephone	Unit Cost	Cost Adjustment	% Assigned Telephone	Unit Cost
Handhole 3x5 or 4x6	$ 964.27	$ 443.10		99.00%	$ 1,393.29		99.00%	$ 1,393.29
Manhole 4x6x7	$ 6,468.70	$ -		99.00%	$ 6,404.01		99.00%	$ 6,404.01
Manhold 12x6x7	$ 9,606.01	$ -		99.00%	$ 9,509.95		99.00%	$ 9,509.95
Adder 12x6x7	$ -	$ -		99.00%	$ -		99.00%	$ -
Conduit Per Duct Foot	$ 2.24	N/A	N/A	99.00%	$ 2.22	N/A	99.00%	$ 2.22

Soft Rock - Manhole

Unit	Per Unit Costs		DENSITY 2551-5000			DENSITY 5001-10000		
	Material	Installation	Cost Adjustment	% Assigned Telephone	Unit Cost	Cost Adjustment	% Assigned Telephone	Unit Cost
Handhole 3x5 or 4x6	$ 964.27	$ 443.10		99%	$ 1,393.29		99%	$ 1,393.29
Manhole 4x6x7	$ 6,468.70	$ -		99%	$ 6,404.01		99%	$ 6,404.01
Manhold 12x6x7	$ 9,606.01	$ -		99%	$ 9,509.95		99%	$ 9,509.95
Adder 12x6x7	$ -	$ -		99%	$ -		99%	$ -
Conduit Per Duct Foot	$ 2.24	N/A	N/A	99%	$ 2.22	N/A	99%	$ 2.22

Hard Rock - Manhole

Unit	Per Unit Costs		DENSITY 2551-5000			DENSITY 5001-10000		
	Material	Installation	Cost Adjustment	% Assigned Telephone	Unit Cost	Cost Adjustment	% Assigned Telephone	Unit Cost
Handhole 3x5 or 4x6	$ 964.27	$ 852.38		99%	$ 1,798.48		99%	$ 1,798.48
Manhole 4x6x7	$ 6,468.70	$ 3,274.23		99%	$ 9,645.50		99%	$ 9,645.50
Manhold 12x6x7	$ 9,606.01	$ 8,594.85		99%	$ 18,018.86		99%	$ 18,018.86
Adder 12x6x7	$ -	$ -		99%	$ -		99%	$ -
Conduit Per Duct Foot	$ 2.24	N/A	N/A	99%	$ 2.22	N/A	99%	$ 2.22

000239

BCPM ManHole Inputs

Manhole Inputs

Normal - Manhole

Unit	Per Unit Costs		DENSITY >10001		
	Material	Installation	Cost Adjustment	% Assigned Telephone	Unit Cost
Handhole 3x5 or 4x6	$ 964.27	$ 443.10		99.00%	$ 1,393.29
Manhole 4x6x7	$ 6,468.70	$ -		99.00%	$ 6,404.01
Manhold 12x6x7	$ 9,606.01	$ -		99.00%	$ 9,509.95
Adder 12x6x7	$ -	$ -		99.00%	$ -
Conduit Per Duct Foot	$ 2.24	N/A	N/A	99.00%	$ 2.22

Soft Rock - Manhole

Unit	Per Unit Costs		DENSITY >10001		
	Material	Installation	Cost Adjustment	% Assigned Telephone	Unit Cost
Handhole 3x5 or 4x6	$ 964.27	$ 443.10		99%	$ 1,393.29
Manhole 4x6x7	$ 6,468.70	$ -		99%	$ 6,404.01
Manhold 12x6x7	$ 9,606.01	$ -		99%	$ 9,509.95
Adder 12x6x7	$ -	$ -		99%	$ -
Conduit Per Duct Foot	$ 2.24	N/A	N/A	99%	$ 2.22

Hard Rock - Manhole

Unit	Per Unit Costs		DENSITY >10001		
	Material	Installation	Cost Adjustment	% Assigned Telephone	Unit Cost
Handhole 3x5 or 4x6	$ 964.27	$ 852.38		99%	$ 1,798.48
Manhole 4x6x7	$ 6,468.70	$ 3,274.23		99%	$ 9,645.50
Manhold 12x6x7	$ 9,606.01	$ 8,594.85		99%	$ 18,018.86
Adder 12x6x7	$ -	$ -		99%	$ -
Conduit Per Duct Foot	$ 2.24	N/A	N/A	99%	$ 2.22

000240

BCPM Spacing Inputs

Spacing Tables

Feeder Spacing Table

Density	In Feet			
	Manhole Spacing	Pole Spacing	Guy Spacing	Relative Pole Units
0	725	250	1500	6.00
6	725	250	1500	6.00
101	725	250	1500	6.00
201	725	250	1500	6.00
651	550	150	1000	6.67
851	550	150	500	3.33
2551	550	150	500	3.33
5001	550	150	500	3.33
10001	550	150	500	3.33

Distribution Spacing Table

Density	In Feet			
	Manhole Spacing	Pole Spacing	Guy Spacing	Relative Pole Units
0	725	250	1500	6.00
6	725	250	1500	6.00
101	725	250	1500	6.00
201	725	250	1500	6.00
651	550	150	1000	6.67
851	550	150	500	3.33
2551	550	150	500	3.33
5001	550	150	500	3.33
10001	550	150	500	3.33

BCPM Loop Percent Table Inputs

Loop Percentage Tables

Distribution Plant Mix Table

Normal Terrain			
Density	UnderGrnd %	Buried %	Aerial%
0	0.00%	60.00%	40.00%
6	2.00%	61.00%	37.00%
101	5.00%	62.00%	33.00%
201	8.00%	62.00%	30.00%
651	15.00%	65.00%	20.00%
851	25.00%	65.00%	10.00%
2551	40.00%	55.00%	5.00%
5001	60.00%	35.00%	5.00%
10001	90.00%	10.00%	0.00%

Soft Rock Terrain			
Density	UnderGrnd %	Buried %	Aerial%
0	0.00%	60.00%	40.00%
6	2.00%	61.00%	37.00%
101	5.00%	62.00%	33.00%
201	8.00%	62.00%	30.00%
651	15.00%	65.00%	20.00%
851	25.00%	65.00%	10.00%
2551	40.00%	55.00%	5.00%
5001	60.00%	35.00%	5.00%
10001	90.00%	10.00%	0.00%

Hard Rock Terrain			
Density	UnderGrnd %	Buried %	Aerial%
0	0.00%	50.00%	50.00%
6	2.00%	51.00%	47.00%
101	5.00%	52.00%	43.00%
201	8.00%	52.00%	40.00%
651	15.00%	60.00%	25.00%
851	18.00%	62.00%	20.00%
2551	20.00%	65.00%	15.00%
5001	45.00%	40.00%	15.00%
10001	90.00%	0.00%	10.00%

Copper Plant Mix Table

Normal Terrain			
Density	UnderGrnd %	Buried %	Aerial%
0	10.00%	50.00%	40.00%
6	15.00%	45.00%	40.00%
101	20.00%	40.00%	40.00%
201	25.00%	35.00%	40.00%
651	45.00%	30.00%	25.00%
851	65.00%	25.00%	10.00%
2551	80.00%	20.00%	0.00%
5001	90.00%	10.00%	0.00%
10001	95.00%	5.00%	0.00%

Soft Rock Terrain			
Density	UnderGrnd %	Buried %	Aerial%
0	10.00%	50.00%	40.00%
6	15.00%	45.00%	40.00%
101	20.00%	40.00%	40.00%
201	25.00%	35.00%	40.00%
651	45.00%	30.00%	25.00%
851	65.00%	25.00%	10.00%
2551	80.00%	20.00%	0.00%
5001	90.00%	10.00%	0.00%
10001	95.00%	5.00%	0.00%

Hard Rock Terrain			
Density	UnderGrnd %	Buried %	Aerial%
0	5.00%	45.00%	50.00%
6	10.00%	40.00%	50.00%
101	15.00%	35.00%	50.00%
201	25.00%	25.00%	50.00%
651	35.00%	25.00%	40.00%
851	60.00%	20.00%	20.00%
2551	80.00%	10.00%	10.00%
5001	85.00%	5.00%	10.00%
10001	95.00%	0.00%	5.00%

000242

BCPM Loop Percent Table Inputs

Fiber Plant Mix Table (Loop)

Normal Terrain - Loop			
Density	UnderGrnd %	Buried %	Aerial%
0	10.00%	50.00%	40.00%
6	15.00%	45.00%	40.00%
101	20.00%	40.00%	40.00%
201	25.00%	35.00%	40.00%
651	45.00%	30.00%	25.00%
851	65.00%	25.00%	10.00%
2551	80.00%	20.00%	0.00%
5001	90.00%	10.00%	0.00%
10001	95.00%	5.00%	0.00%

Soft Rock Terrain - Loop			
Density	UnderGrnd %	Buried %	Aerial%
0	10.00%	50.00%	40.00%
6	15.00%	45.00%	40.00%
101	20.00%	40.00%	40.00%
201	25.00%	35.00%	40.00%
651	45.00%	30.00%	25.00%
851	65.00%	25.00%	10.00%
2551	80.00%	20.00%	0.00%
5001	90.00%	10.00%	0.00%
10001	95.00%	5.00%	0.00%

Hard Rock Terrain - Loop			
Density	UnderGrnd %	Buried %	Aerial%
0	5.00%	45.00%	50.00%
6	10.00%	40.00%	50.00%
101	15.00%	35.00%	50.00%
201	25.00%	25.00%	50.00%
651	35.00%	25.00%	40.00%
851	60.00%	20.00%	20.00%
2551	80.00%	10.00%	10.00%
5001	85.00%	5.00%	10.00%
10001	95.00%	0.00%	5.00%

000243

Fiber Plant Mix Table (Transport)

Normal Terrain - Transport			
Density	UnderGrnd %	Buried %	Aerial%
0	10.00%	80.00%	10.00%
6	15.00%	77.00%	8.00%
101	20.00%	74.00%	6.00%
201	25.00%	70.00%	5.00%
651	50.00%	47.00%	3.00%
851	75.00%	22.00%	3.00%
2551	85.00%	15.00%	0.00%
5001	85.00%	15.00%	0.00%
10001	95.00%	5.00%	0.00%

Soft Rock Terrain - Transport			
Density	UnderGrnd %	Buried %	Aerial%
0	10.00%	80.00%	10.00%
6	15.00%	77.00%	8.00%
101	20.00%	74.00%	6.00%
201	25.00%	70.00%	5.00%
651	50.00%	47.00%	3.00%
851	75.00%	22.00%	3.00%
2551	85.00%	15.00%	0.00%
5001	85.00%	15.00%	0.00%
10001	95.00%	5.00%	0.00%

Hard Rock Terrain - Transport			
Density	UnderGrnd %	Buried %	Aerial%
0	5.00%	45.00%	50.00%
6	10.00%	40.00%	50.00%
101	15.00%	35.00%	50.00%
201	25.00%	25.00%	50.00%
651	35.00%	25.00%	40.00%
851	60.00%	20.00%	20.00%
2551	80.00%	10.00%	10.00%
5001	85.00%	5.00%	10.00%
10001	95.00%	0.00%	5.00%

000244

Average Number of Housing Units Per Dwelling For Each Census Data Range

Units per Dwelling	Density								
	0-5	6-100	101-200	201-650	651-850	851-2550	2551-5000	5001-10000	>10,000
2	2	2	2	2	2	2	2	2	2
3-4	3	3	3	3	3	3	3	3	3
5-9	7	7	7	7	7	7	7	7	7
10-19	15	15	15	15	15	15	15	15	15
20-49	35	35	35	35	35	35	35	35	35
>50	55	55	55	55	55	55	55	55	55
Other	1	1	1	1	1	1	1	1	1

Density Cable Sizing Factor Table

Density	Feeder	Distribution
0	71.10%	100.00%
6	71.10%	100.00%
101	71.10%	100.00%
201	71.10%	100.00%
651	71.10%	100.00%
851	71.10%	100.00%
2551	71.10%	100.00%
5001	71.10%	100.00%
10001	71.10%	100.00%

DensityHhTable

Density	Percent Single Family	Household per Multi Unit Dwelling	Percent Multi Family Dwellings	Lots per Household
0	96.00%	2.80	4.00%	97.43%
6	93.90%	3.20	6.10%	95.81%
101	89.00%	4.50	11.00%	91.44%
201	83.40%	5.20	16.60%	86.59%
651	74.20%	5.70	25.80%	78.73%
851	74.20%	5.70	25.80%	78.73%
2551	59.40%	5.90	40.60%	66.28%
5001	59.40%	7.10	40.60%	65.12%
10001	22.00%	7.10	78.00%	32.99%

000245

Structure Allocation Table (Percent of Structure Assigned to Facility)

Cable Size	Cable Structure %	Fiber Structure %
0	50.00%	50.00%
200	50.00%	50.00%
900	50.00%	50.00%
2400	50.00%	50.00%
4200	50.00%	50.00%
>4200	75.00%	25.00%

Voice Grade Ratio Table

# Switched Lines In CBG	% Switched To VG	% Switched To DS1	% Special To VG	% Special To DS1
0	100.00%	0.00%	100.00%	0.00%
2017	65.00%	35.00%	50.00%	50.00%
10000	50.00%	50.00%	30.00%	70.00%
20000	75.00%	25.00%	10.00%	90.00%

DLC & Electronic Costs

Digital Loop Carrier Remote System Cost Table

Dlc Fiber Size	Fixed Cost	Per Line Cost for each service available								
	All	VG	ISDN	DS1	DDS	4W	EBS	COIN	ADSL	HDSL
0	$ 19,120.17	$ 94.00	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
25	$ 19,203.56	$ 94.00	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
49	$ 23,789.75	$ 94.00	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
97	$ 23,886.56	$ 94.00	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
121	$ 37,691.12	$ 94.00	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
193	$ 37,873.22	$ 94.00	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
241	$ 64,291.00	$ 89.11	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
385	$ 68,377.00	$ 89.11	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
673	$ 96,859.00	$ 89.11	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
1345	$ 165,236.00	$ 89.11	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

DLC COT Investment Table

COT Size	Fixed Cost
0	$ 11,268.16
25	$ 11,749.30
49	$ 12,711.57
97	$ 13,192.71
121	$ 14,808.60
193	$ 15,770.87
241	$ 22,176.00
385	$ 22,176.00
673	$ 22,176.00
1345	$ 26,881.00

000246

Ring Size Table

Toggle	DS0/DS1	DS1/DS3	#DS3s	Planning Threshold	Trigger(DS1)	SIZE	DS0 CAP
1	24	28	3	60.0%	0	OC3	2016
1	24	28	12	85.0%	51	OC12	8064
1	24	28	24	85.0%	286	OC12x2	16128
1	24	28	48	85.0%	572	OC48	32256
1	24	28	96	85.0%	1143	OC48X2	64512
1	24	28	144	85.0%	2285	OC48X3	96768
1	24	28	192	85.0%	3428	OC48X4	129024
1	24	28	240	85.0%	4570	OC48X5	161280
1	24	28	288	85.0%	5712	OC48X6	193536
1	24	28	336	85.0%	6855	OC48X7	225792
1	24	28	384	85.0%	7997	OC48X8	258048
1	24	28	432	85.0%	9140	OC48X9	290304
1	24	28	480	85.0%	10282	OC48X10	322560

Equipment Price Inputs

Description	Material	Other	Utilization	Discount	Units Required	DS1 System Capacity
Fiber Tip Cable (Per Fiber)	$ 72	$ 12	85.0%	31.0%	2	Varies
Fiber Patch Panel (Per Fiber)	$ 167	$ 17	85.0%	57.0%	2	Varies
Sonet Terminal Shelf (OC3)	$ 16,710	$ 878	NA	41.0%	1	84
DS3 Card	$ 3,749	$ 124	67.0%	45.0%	1	28
DS1 Card	$ 564	$ 19	100.0%	45.0%	1	1
Sonet Terminal Shelf (OC12)	$ 35,656	$ 1,874	NA	41.0%	1	336
OC3 Card	$ 6,418	$ 235	NA	39.0%	1	84
3 DS3 Card (OC12)	$ 10,670	$ 346	31.8%	46.0%	1	84
Sonet Terminal Shelf (OC48)	$ 75,742	$ 3,982	NA	41.0%	1	1344
OC3 Card	$ 14,435	$ 372	NA	57.0%	1	84
3 DS3 Card (OC48)	$ 10,698	$ 282	22.0%	56.0%	1	84
DSX3 Cross Connect Shelf	$ 7,016	$ 954	27.0%	38.0%	1	448
DSX3 Cross Connect Card	$ 596	$ 17	27.0%	53.0%	1	28
DSX1 Cross Connect Jack Field	$ 1,490	$ 5,210	85.0%	50.0%	1	56
Channel Bank Shelf	$ 4,634	$ 277	85.0%	33.0%	1	2
Channel Bank Card	$ 299	$ 12	85.0%	33.0%	1	0.041667
Fiber Repeater (OC3)	$ 16,710	$ 878	NA	41.0%	2	NA
Fiber Repeater (OC12)	$ 35,656	$ 1,874	NA	41.0%	2	NA
Fiber Repeater (OC48)	$ 75,742	$ 3,982	NA	41.0%	2	NA

Transport Inputs

Variable	Value	Desciption
Transport		
MaxNodes	9	Maximum number of nodes on a ring
ARFactor	1.370	Air to Route Factor
LTFactor	6	Access line to DS0 trunk factor associated with host remote links
TTFactor	10	Access line to DS0 trunk factor associated with host tandem trunks
SPFactor	5.0%	% special access circuits to the number of exchange access lines
RepeaterDist	35	Maximum Repeater spacing (miles)
MOUPerDS1	216,000	MOU per DS1
RDSWitch	N	Does a two point ('folded') ring use separate routing for the two sides
EASPct	25.00%	Percent of interoffice MOUs that are EAS
CLLIMatch	11	Used to identify 'like' tandems
Fiber Factors		
MEAerialFiber	33%	Mileage Equipment Aerial Fiber (per fiber mile)
MEUndergroundFiber	33%	Mileage Equipment Underground Fiber (per fiber mile)
MEBuriedFiber	33%	Mileage Equipment Buried Fiber (per fiber mile)
FiberPoleFactor	0.3278	Fiber Pole Factor
FiberConduitFactor	0.9544	Fiber Conduit Factor
PowerAndEquipmentFactor	0.0571	Miscellaneous Equipment & Power Factor
SheathSharingFactor	0.68	Sheath Sharing Factor
TwoPointSheathSharingFactor	0.5	Two Point Sheath Sharing Factor
FiberMixAerial	9.9%	Fiber Mix - Aerial
FiberMixUnderground	48.2%	Fiber Mix - Underground
FiberMixBuried	41.9%	Fiber Mix - Buried

Miscellaneous Inputs

Variable	Value	Desciption
		Cable & Wire Inputs
PairsPerHousingUnit	2	Distribution pairs per residential housing unit
PairsPerBusinessLocation	6	Minimum number of pairs per business location
MaxSizeFDI	4200	Maximum Size Feeder Distribution Interface Cabinet (Cross Connect)
MaxFiberSize	288	Maximum Fiber Cable Size
MaxFeederSize	4,200	Maximum Copper Feeder Cable Size
MaxDistSize	3600	Maximum Copper Distribution Cable Size
CprMaxDistr	12,000	Maximum length of copper cable in the CHG distribution area
FiberCableDiscount	0.00%	Fiber Cable Discount %
CopperCableDiscount	0.00%	Copper Cable Discount %
InvLoopCap	$ 4,350	Loop Investment Cap Expense
BreakPoint	12,000	Cable Break Point
		Terrain Inputs and Surface Impacts
CriticalWaterDepth	3	Depth in feet at which water impacts placement costs
WaterFactor	30.00%	% Cost increase for presence of water within critical depth
New TerrainTrigger	5	Value that triggers new terrain variable multiplier
New TerrainFactor	1	Cost multiplier when new terrain variable exceeds trigger point
MinSlopeTrigger	12	Point at which minimum slope effects placement distance
MinSlopeFactor	1.10	Change in distance due to increased average slope
MaxSlopeTrigger	30	Point where presence of very high slope causes yet more cable distance
MaxSlopeFactor	1.05	Change in distance due to a maximum only slope presence
CombSlopeFactor	1.20	Secondary change in distance due to substantial slope presence
		Census Data Inputs - State Specific
BusinessPrem	3	Average Number of Business lines per location
		Trench Depth
NormalUGBuriedCover	24.00	Minimum Cover Depth in inches for Buried Underground Copper Cable
NormalFiberCover	36.00	Minimum Cover Depth in inches for Buried Underground Fiber

Digital Electronics			
OpticsCost	$	75,000.00	Material & Installation for Fiber Optics Terminal at CO and Customer Loc
CopperT1	$	2,500.00	Average Cost per DS-1 on copper (both terminals & repeater)
FbrTermFrame	$	-	Material & Installation for Fiber Termination Framel at CO
D4Bank	$	-	Material & Installation for D4 type equipment
ElectronicFill		65.4%	Fill Factors for Electronics
HiCapFill		82%	Fill Factors for High Capacity Optic Multiplexers
SmallDLCDiscount		0%	Small DLC Electronics Discount %
LargeDLCDiscount		0%	Large DLC Electronics Discount %
MaxCOTDLCL		2016	Maximum Central Office Terminal DLC-L Size
MaxCOTDLCS		672	Maximum Central Office Terminal DLC-S Size
COTDLCLPerLine	$	15.58	Central Office Terminal DLC-L Per line Investment
COTDLCSPerLine	$	18.54	Central Office Terminal DLC-S Per line Investment
Financial Data			
ReturnOnEquity		14.4%	Return On Equity
DebtRate		6.5%	Debt Rate
DebtRatio		40.0%	Debt Ratio
Tax Data			
FederalTaxRate		35.0%	Federal Tax Rate
StateTaxRate		5.5%	State Tax Rate
AdValoremInsurance		0.9%	Ad Valorem, Insurance, etc
OtherTaxRate		0.0%	Other Tax Rate
Tax Depreciation			
BookSurvivalCurves		CG&S	Use Survival Curves
BookConvention		Mid Year	Convention
BookELG_VG		ELG	ELG VG
BookWL_RL		Remaining Life	WL RL
Calculated Results			
DLC-SDiscount		#REF!	DLC Small - Pricing ratio after Discount
DLC-LDiscount		#REF!	DLC Large - Pricing ratio after Discount
FiberCostRatio		#REF!	Fiber cable cost ratio after discount
CopperCostRatio		#REF!	Copper Cable Cost ratio after discount
CopperGauge		#REF!	Gauge of copper cable
Version 3 Input Change: Extended Range Line Card Inputs			
COTDLCLPerLineExRange	$	15.58	Central Office Terminal DLC-L Per line Investment for Extended Range Line Cards
COTDLCSPerLineExRange	$	18.54	Central Office Terminal DLC-S Per line Investment for Extended Range Line Cards
RTDLCLPerLineExRange	$	187.50	Remote Terminal DLC-L Per line Investment for Extended Range Line Cards
RTDLCSPerLineExRange	$	125.00	Remote Terminal DLC-S Per line Investment for Extended Range Line Cards
BreakPointExRange		13,600	Breakpoint (in feet) when Extended Range line cards are Required in DLC

Expense Inputs

Aggregate Support Inputs

Levels	Residence	Business
Aggregate Support Level at:	$ 13.63	$ 31.26
Aggregate Support Level at:	$ 31.00	$ 51.00
Aggregate Support Level at:	$ 40.00	$ 40.00
Aggregate Support Level at:	$ 50.00	$ 50.00
Aggregate Support Level at:	$ 60.00	$ 60.00
Aggregate Support Level at:	$ 70.00	$ 70.00
Aggregate Support Level at:	$ 80.00	$ 80.00

Support and Expense Factors for Tier 1 Companies

Support Ratio Table

	Support Accounts		
	1	2	3
Investment Support Accounts	Small	Medium	Large
6112 Motor Vehicle	0.739%	0.739%	0.837%
6114 Special Purpose Vehicles	0.001%	0.001%	0.000%
6115 Garage Work Equipment	0.032%	0.032%	0.018%
6116 Other Work Equipment	0.627%	0.627%	0.833%
6122 Furniture	0.233%	0.233%	0.086%
61213 Office Support	0.701%	0.701%	0.276%
6124 General Purpose Computers	2.965%	2.965%	2.662%
Total Support Ratio	5.298%	5.298%	4.711%

BCPM Expense Inputs

Per Line Monthly Operating Expenses for Small, Medium and Large Companies

Residence Expense Table

Cost Element	USOAR Account	Residential					
		Fixed Cost per Line			Expense % per Investment		
		Small	Medium	Large	Small	Medium	Large
Network Support Expense	6110	$ 0.15	$ 0.15	$ 0.03	0.0000	0.0000	0.0000
General Support	6120	$ 1.20	$ 1.20	$ 1.45	N/A	N/A	N/A
COE Switching	6210	$ 0.34	$ 0.34	$ -	0.0000	0.0000	0.0359
COE Transmission	6230	$ 0.23	$ 0.23	$ -	0.0000	0.0000	0.0194
Information Orig/Term	6310	$ 0.07	$ 0.07	$ 0.37	N/A	N/A	N/A
Poles	6411	$ 2.76	$ 2.76	$ -	0.0000	0.0000	0.0155
Aerial Copper Cable	6421.1	$ -	$ -	$ -	0.0000	0.0000	0.0399
Aerial Fiber Cable	6421.2	$ -	$ -	$ -	0.0000	0.0000	0.0019
Underground Copper Cable	6422.1	$ -	$ -	$ -	0.0000	0.0000	0.0214
Underground Fiber Cable	6422.2	$ -	$ -	$ -	0.0000	0.0000	0.0030
Buried Copper Cable	6423.1	$ -	$ -	$ -	0.0000	0.0000	0.0340
Buried Fiber Cable	6423.2	$ -	$ -	$ -	0.0000	0.0000	0.0014
Conduit Investment System	6441	$ -	$ -	$ -	0.0000	0.0000	0.0025
Other Property Plant	6510	$ 0.03	$ 0.03	$ 0.03	0.0000	0.0000	0.0000
Network Operations	6530	$ 1.33	$ 1.33	$ 2.25	0.0000	0.0000	0.0000
Marketing	6610	$ 0.35	$ 0.35	$ 1.71	N/A	N/A	N/A
Services	6620	$ 2.42	$ 2.42	$ 0.46	N/A	N/A	N/A
Executive and Planning	6710	$ 0.14	$ 0.14	$ 0.10	N/A	N/A	N/A
General and Administrative	6720	$ 2.15	$ 2.15	$ 2.44	N/A	N/A	N/A
Uncollectibles	6790	$ 0.17	$ 0.17	$ 0.32	N/A	N/A	N/A
Total Expense	Per Line Expense	$ 11.34	$ 11.34	$ 9.14			

000253

BCPM Expense Inputs

Per Line Monthly Operating Expenses for Small, Medium and Large Companies

Business Expense Table

Cost Element	USOAR Account	Business					
		Fixed Cost per Line			Expense % per Investment		
		Small	Medium	Large	Small	Medium	Large
Network Support Expense	6110	$ 0.15	$ 0.15	$ 0.03	0.0000	0.0000	0.0000
General Support	6120	$ 1.20	$ 1.20	$ 1.45	N/A	N/A	N/A
COE Switching	6210	$ 0.34	$ 0.34	$ -	0.0000	0.0000	0.0359
COE Transmission	6230	$ 0.23	$ 0.23	$ -	0.0000	0.0000	0.0194
Information Orig/Term	6310	$ 0.07	$ 0.07	$ 0.37	N/A	N/A	N/A
Poles	6411	$ 2.76	$ 2.76	$ -	0.0000	0.0000	0.0155
Aerial Copper Cable	6421.1	$ -	$ -	$ -	0.0000	0.0000	0.0399
Aerial Fiber Cable	6421.2	$ -	$ -	$ -	0.0000	0.0000	0.0019
Underground Copper Cable	6422.1	$ -	$ -	$ -	0.0000	0.0000	0.0214
Underground Fiber Cable	6422.2	$ -	$ -	$ -	0.0000	0.0000	0.0030
Buried Copper Cable	6423.1	$ -	$ -	$ -	0.0000	0.0000	0.0340
Buried Fiber Cable	6423.2	$ -	$ -	$ -	0.0000	0.0000	0.0014
Conduit Investment System	6441	$ -	$ -	$ -	0.0000	0.0000	0.0025
Other Property Plant	6510	$ 0.03	$ 0.03	$ 0.03	0.0000	0.0000	0.0000
Network Operations	6530	$ 1.33	$ 1.33	$ 2.25	0.0000	0.0000	0.0000
Marketing	6610	$ 0.35	$ 0.35	$ 1.71	N/A	N/A	N/A
Services	6620	$ 2.42	$ 2.42	$ 0.46	N/A	N/A	N/A
Executive and Planning	6710	$ 0.14	$ 0.14	$ 0.10	N/A	N/A	N/A
General and Administrative	6720	$ 2.15	$ 2.15	$ 2.44	N/A	N/A	N/A
Uncollectibles	6790	$ 0.17	$ 0.17	$ 0.32	N/A	N/A	N/A
Total Expense		$ 11.34	$ 11.34	$ 9.14			

000254

BCPM State Specific Inputs

State Information Table

State ID	Residence Line Multiplier	Single Business Line Factor	Special Access Ratio	Gross Receipts Tax
AK	1.0949	0.2833	0.1300	3.90%
AL	1.0875	0.1383	0.1300	3.90%
AR	1.0051	0.1663	0.1300	3.90%
AZ	1.1242	0.0546	0.1300	3.90%
CA	1.1714	0.5358	0.1300	3.90%
CO	1.1474	0.0662	0.1300	3.90%
CT	1.1036	0.0898	0.1300	3.90%
DC	1.2661	0.0101	0.1300	3.90%
DE	1.2074	0.0734	0.1300	3.90%
FL	1.2106	0.1622	0.1300	1.37%
GA	1.1078	0.0768	0.1300	3.90%
HI	1.1897	0.5726	0.1300	3.90%
IA	1.0507	0.1579	0.1300	3.90%
ID	1.0843	0.1541	0.1300	3.90%
IL	1.1048	0.1390	0.1300	3.90%
IN	1.0647	0.1558	0.1300	3.90%
KS	1.0713	0.0763	0.1300	3.90%
KY	1.0301	0.2227	0.1300	3.90%
LA	1.1114	0.0938	0.1300	3.90%
MA	1.2348	0.6106	0.1300	3.90%
MD	1.1504	0.0547	0.1300	3.90%
ME	1.2046	0.6274	0.1300	3.90%
MI	1.1449	0.1638	0.1300	3.90%
MN	1.1057	0.0512	0.1300	3.90%
MO	1.0870	0.1374	0.1300	3.90%
MS	0.9969	0.1484	0.1300	3.90%
MT	1.0552	0.1272	0.1300	3.90%
NC	1.1246	0.1839	0.1300	3.90%
ND	1.1643	0.1013	0.1300	3.90%
NE	1.0774	0.1757	0.1300	3.90%
NH	1.2532	0.6936	0.1300	3.90%
NJ	1.3210	0.0622	0.1300	3.90%
NM	1.0349	0.1235	0.1300	3.90%
NV	1.1758	0.5024	0.1300	3.90%
NY	1.2039	0.5678	0.1300	3.90%
OH	1.0709	0.1627	0.1300	3.90%
OK	1.0375	0.1268	0.1300	3.90%
OR	1.0787	0.1639	0.1300	3.90%
PA	1.1366	0.1048	0.1300	3.90%
RI	1.1714	0.6603	0.1300	3.90%
SC	1.0860	0.1554	0.1300	0.66%
SD	1.0447	0.1049	0.1300	3.90%
TN	1.1409	0.1031	0.1300	3.90%
TX	1.0878	0.1187	0.1300	3.90%
UT	1.1545	0.0624	0.1300	3.90%
VA	1.0912	0.1077	0.1300	3.90%
VT	1.2110	0.5668	0.1300	3.90%
WA	1.0967	0.1501	0.1300	3.90%
WI	1.1265	0.1226	0.1300	3.90%
WV	0.9939	0.1188	0.1300	3.90%
WY	1.0555	0.0687	0.1300	3.90%

BCPM Capital Costs Inputs

Capital Cost Inputs

Account	Economic Life (years)	Tax Life (years)	Future Net Salvage (percent)	Survival Curve	Gompertz C	Gompertz G	Gompertz S
Land	0	0	0%	Square Life	0.00000000	0.00000000	0.00000000
Motor Vehicle	8	3	16%	CG&S	1.38000000	-0.01670620	0.00936039
Special Purpose Vehicles	7	3	0%	CG&S	1.07162956	-0.00114623	0.00031873
Garage Work	12	5	0%	CG&S	0.26000000	-0.17998568	-0.02879616
Other Work	15	5	0%	CG&S	0.71000000	-0.36299544	-0.10289069
Building	45	31.5	0%	CG&S	1.18428730	-0.10144970	0.01557655
Furniture	15	5	10%	CG&S	0.95000000	-2.62877800	-0.15608763
Office Support	11.5	5	5%	CG&S	0.95000000	0.57143143	-0.00484797
General Purpose Computers	5	5	0%	CG&S	0.99000000	-92.68154400	-0.94973087
Switching	10	5	0%	CG&S	1.13339740	-0.21745512	0.02396884
Circuit/DLC	9	5	0%	CG&S	1.05000000	-0.57837320	0.02360540
Pole	34	15	-60%	CG&S	1.03000000	-0.09352546	-0.00225398
Aerial Copper	14	15	-14%	CG&S	1.02000000	-1.18860420	0.02146242
Aerial Fiber	20	15	-14%	CG&S	1.02000000	-1.18860420	0.02146242
Underground Copper	12	15	-8%	CG&S	1.10249400	-0.33410041	0.02401188
Underground Fiber	20	15	-8%	CG&S	1.10249400	-0.33410041	0.02401188
Buried Copper	14	15	-7%	CG&S	1.06000000	-0.07963530	0.00449206
Buried Fiber	20	15	-7%	CG&S	1.06000000	-0.07963530	0.00449206
Conduit	55	15	-10%	CG&S	1.71629560	-0.00114623	0.00038173

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SWDiscountFactorTable

	New Discount Rate	Growth Discount Rate	Percent of Lines New	MDF & Protector Discount
5E Switches	[redacted]	[redacted]	[redacted]	[redacted]
DMS Switches	[redacted]	[redacted]	[redacted]	[redacted]

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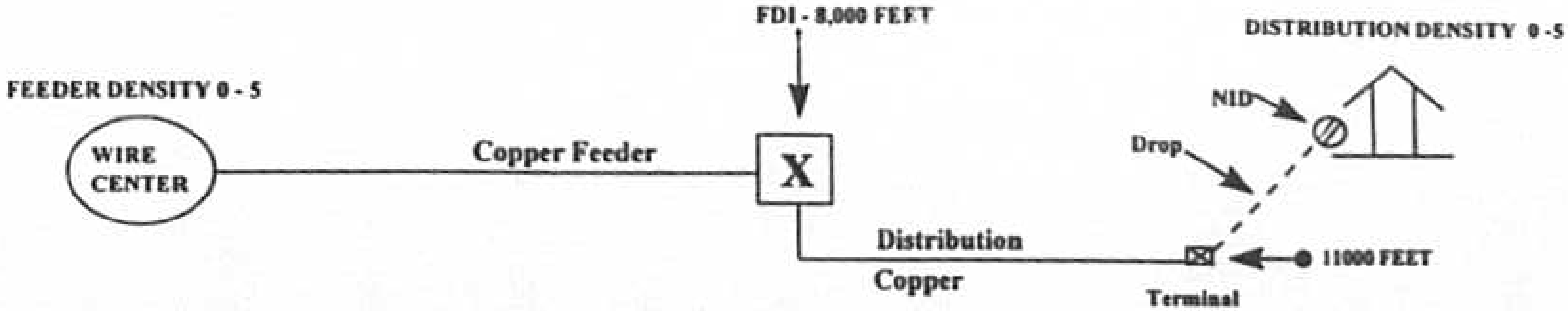
Loop Network

EXAMPLES

Shorter Loop



Longer Loop