impede the provision of advanced services while still meeting the criterion in (b), above.

The loop design of the BCPM 3.1 does not impede the provision of advanced services. The voice grade service that the design would provide includes the capability to support currently available modems for dial up access. Loaded loop plant is not used in the BCPM 3.1.

The BCPM 3.1 is designed to observe required limits for loading and resistance by limiting copper loop lengths to twelve kilofeet. The BCPM 3.1 design is based on 26 gauge cable in the feeder and 26 and 24 gauge cable in the distribution. This allows the design to meet both the 1500 ohm supervisory limit of today's digital switches and the 900 ohm powering limit of digital loop carrier line cards, without requiring the use of much more expensive extended range cards. By avoiding bridged-tap, the BCPM 3.1 design also removes capacity concerns. When the demand in a grid exceeds the capacity of copper cables, the BCPM 3.1 uses digital loop carrier systems for voice grade services.

U S WEST asserts that the BCPM Sponsors have provided evidence that the 12 Kft maximum copper loop length is more cost-effective in almost every case than an 18 Kft loop, while preserving the service quality needed for advanced services[5]. They claim the 12Kft standard proves to be more cost-effective because at 18Kft, a heavier 24-gauge cable and more expensive extended range DLC line cards must be used to support transmission standards for advanced services.

(e) Describe how distances are measured in the model (e.g., does the model use airline distances, adjusted airline distances, rectilinear distances, or road distances)? Please identify in each portion of the model in which a particular distance metric is used and why that metric was selected.

The BCPM 3.1 uses road distances to size the distribution area, by multiplying such road distances in populated microgrids in a quadrant of an ultimate grid, by one thousand feet. Once customer locations and distribution areas have been established, plant is built using rectilinear distances, except where feeder is angled, in which case distance along the feeder and subfeeder would be airline.

(f) Do wire center line counts equal actual incumbent LEC wire center

[5] "Analysis of 18 Kft and 12 Kft Runs", Submission of the BCPM3 Model by BellSouth Corporation, BellSouth Telecommunications, Inc., U S WEST, Inc., and Sprint Local Telephone Companies, CC Dockets Nos. 96-45 and 97-160, December 11, 1997.

line counts? If a closing factor is used to achieve this equality, describe the size of the closing factor and how it is used in the study. If the study's wire center line counts do not equal actual incumbent LEC wire center line counts, explain why not.

According to U S WEST, the BCPM 3.1 wire center line counts for U S WEST agree with U S WEST's actual wire center line counts.

(g) Does the study's average loop length reflect the incumbent LEC's actual average length? If not, explain why not.

No. The BCPM 3.1 builds to all housing units while U S WEST's actual loop lengths are built to current customers.

(h) Please describe how the study determines customer location. Specify the data that were used to determine the number and location of customers. In addition, please describe in detail if the study locates customers in grids, clusters, census blocks, census block groups, or other areas smaller than a wire center. How does the study identify serving areas?

BCPM 3.1 determines customer location through a four step process. First the model develops wire center boundaries and apportions customer information to the wire center. The model then establishes micro grids and aggregates micro grids into Ultimate Grids. Finally, distribution quadrants are established within each Ultimate Grid.

Wire Center Boundaries and Customer Information

BCPM 3.1 uses wire center data obtained from BLR to define the wire center boundaries. After the boundaries are established, the model determines which Census Block (CB) data fall within the corresponding wire center boundary. For the occasional CB that crosses a wire center boundary, housing and business data are apportioned to the respective wire center based either on the proportion of land area, if the CB is less than 1/4 of a square mile, or the proportion of roads, if the CB is greater than 1/4 of a square mile. 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 reflect 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, PNR has successfully assigned approximately 85% of the business customers to specific CBs.

The final step is the creation of the variable size grids from the CB data within the wire center boundaries. The purpose of developing variable size grids is to simulate the basic telephone plant engineering units of a CSA and DA.

Establishing Microgrids

It is necessary to establish microgrids so that populated areas can be aggregated appropriately into telephone engineering CSAs and DAs. There are two phases of the grid process. The first phase entails assigning CB data to microgrids. "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. The entire serving wire center is partitioned into microgrids. Thus, each CB within the serving wire center is overlaid with microgrids (unless the entire CB falls within a single microgrid). Smaller CBs, typically located in the denser, urban areas, are aggregated into microgrids while larger CBs located in the rural areas may span multiple microgrids.

Since household and business line data are assigned at the CB level, this process requires apportioning CB line data to the corresponding microgrids. Two approaches are used to apportion this data to the microgrids, depending on the size of the CB. For CBs whose area is less than 1/4 of a square mile, (2,640 feet by 2,640 feet), encompassing approximately three to four microgrids, household and business line data is apportioned based on the land area of the microgrid used relative to the CB's total area.

For CBs with an area greater than 1/4 of a square mile, household and business line data is 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. 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.

Aggregating Microgrids into Grids

The second phase of the grid process entails aggregating these microgrids into larger grids as appropriate. 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 1/25th of a degree latitude and longitude in size or approximately, 12,000 to 14,000 feet per side. Hereafter, grids 1/25th 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 distribution cable may exceed 12,000 feet. In these cases cable gauge is adjusted from 26 to 24 gauge to accommodate distribution cable lengths up to 18,000 feet.

At first, 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. A total of 64 microgrids constitutes 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. The derivation of 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 microgrids, 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 microgrids.

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 1/5th 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. This process is repeated for each macrogrid within the wire center boundaries.

Establishing Distribution Quadrants Within Each Grid

Once the ultimate grids have been established, each ultimate grid is segmented into four distribution quadrants. Each quadrant represents a potential DA. The latitude and longitude coordinates of the distribution quadrants are determined by first establishing the road centroid of the grid. The road centroid is calculated as the average horizontal and vertical point of all roads in the defined area. Distribution quadrants within the ultimate grid are centered about this road centroid.

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 DA is modeled as a square whose size is equal to the total road buffer area. The center of each distribution quadrant's square DA is placed at the road centroid of the distribution quadrant. Such an approach provides a reasonable model of the required telecommunications network facilities for two reasons. First, households and businesses typically reside near roads and centering the distribution quadrant of the distribution area about the center of the roads establishes network facilities closer to where customers are located than does 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.

(i) How does the cost study determine the cost of the outside plant from the wire center to the customer locations identified in (g)? Does the cost study estimate the costs of a forward-looking network, or does the cost study rely on a loop length study? If the cost study relies on a loop

length study, please describe how the cost study relies on the loop length study and provide the loop length study as part of the documentation provided in response to II.(7)(a), above, including a discussion of the sampling methods used in the loop length study. Also, if a loop length study is used to estimate forward-looking costs, please compare the mix of loop technologies in the loop length study sample to the mix of technologies in the loops assumed by the cost study. If the mix of loop technologies assumed n the cost study is based on the mix of technologies in the sample, please justify the use of this assumption.

The BCPM 3.1 estimates the cost of a forward looking network which is based on building loops of lengths necessary to reach all customers identified.

A key element of platform design in this regard is the determination of the length of the loop. The FNPRM discussed this issue in ¶ 44, and tentatively concluded:

> that the selected mechanism should calculate population clusters' proximity to wire centers with more precision than the models currently permit. We seek comment on our tentative conclusions and also seek comment on how BCPM's uniform distribution algorithm and Hatfield's clustering algorithm could be modified to provide more accurate information regarding the locations of customers.

The BCPM 3.1 calculates the proximity of population clusters to the wire centers with far more precision than was the case with the version of the BCPM which the FCC considered in the FNPRM. At ¶ 46 of the NPRM, the FCC sought comment on whether any commercial mapping software existed which could identify the locations of customers in all census blocks in a company's service area. At the same reference, the FCC sought comment on whether a model should impose a uniform grid structure over the service area to establish population clusters, determining the size of the cluster according to the constraints of electronic equipment used to provide universal service.

U S WEST asserts that today, there is no commercially available mapping software which provides reliable locations for customers in the high cost, low density rural areas which define the universal service issue. U S WEST asserts that the BCPM 3.1 grid process produces superior identification of customer cluster locations and the distances of such clusters from the central offices that serve them.

BCPM builds a forward looking, least cost network. BCPM assures that the network will be able to meet service requirements for all customers by using standard engineering practices based on CSAs and DAs. These practices insure a network that can deliver the same level of service to customers at the end of its longest loops as it does to customers at the end of its shortest loops.

(j) If the cost study meets criterion 1 in any way not captured by (a) through (h), please explain.

Criterion 2: ***Any network function or element, such as loop, switching, transport signaling, necessary to produce supported services must have an associated cost.***

(a) Does the study contain costs associated with all network functions or elements (such as loop, switching, transport or signaling) necessary to produce supported services?

Yes. 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. U S WEST asserts, the algorithms which assure that sufficient plant and equipment are provided are clearly documented and verifiable within the model software and methodology documentation.

(b) What non-supported services, if any, are currently included in your cost study, are the costs associated with provision of advanced services included in your calculation of cost?

The BCPM 3.1 only includes supported services.

(c) If the cost study meets criterion 2 in any way not captured by (a) and (b), please explain.

Criterion 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).***

Describe how the costs used in the study represent long-run, forward-looking costs. In particular, describe and verify how the costs of facilities and equipment used in the study reflect the current costs of purchasing those facilities and equipment.

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

Criterion 4: ***The rate of return should be either the authorized federal rate of interstate services, currently 11.25 percent, or the state's prescribed rate of return for intrastate services.***

(a) What rate of return is used in the cost study?

The Montana Public Service Commission elects to use the following cost of capital:

	Percentage	Cost	Rate of Return
Long-term Debt	45.00 %	7.70 %	3.465 %
Common Equity	55.00 %	11.90 %	6.545 %
Total	100.00 %		10.010 %

(b) Please provide an explanation of the basis for the rate of return used if it is different from the authorized federal rate of return on interstate services. If available, please identify any documents (e.g., commission orders) supporting the value used in the study.

On March 20, 1997, the Montana Public Service Commission in Docket No. D96.11.200, issued Order 5961b, the petition of AT&T Communications of the Mountain States, Inc., for arbitration of rates, terms, and conditions of interconnection with U S WEST Communications, Inc., pursuant to 47 U.S.C. Section 252(b). The Hatfield default values for the cost of capital were used in that Docket. The Commission adopts these values to be used for the cost of capital in this cost study.

(c) If the cost study meets criterion 4 in any way not captured by (a) and (b), please explain.

Criterion 5: ***Economic lives and future net salvage percentages used in calculating depreciation expense should be within the FCC-authorized range and use currently authorized depreciation lives.***

Please identify the depreciation rates and future net salvage percentages used in the study.

BCPM 3.1 includes two set of inputs. The first set uses economic lives and future net salvage percentages that are within the FCC-authorized range. The second set of inputs uses economic lives that the BCPM sponsors deem appropriate and those economic lives are:

a. Aerial and Underground Cable Accounts: 11.3 year life;
b. Buried Cable Account: 15 year life;
c. Digital Switching Account: 10 year life;
d. Digital Circuit Account: 10 year economic life; and
e. Non-Metallic Cable Account: 20 year economic life

Criterion 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. The 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.***

Describe how the study takes into account the cost of providing service for all business and households within a geographic region, including the provision of multi-line business services, special access private lines, and multiple residential lines serve household.

BCPM 3.1 appropriately includes the multi-line business services, special access and multiple residential lines. The Model includes the capability to include private lines, designated "non-switched working loops", within the Model. Thus, the user can collect and define private lines in running BCPM 3.1.

This study uses two steps to assure it provides service to all business and households within the geographic region.

First, great care is taken to use the most current information and best possible techniques to identify and locate housing units and businesses in the wire center area. The methodology used to accomplish this step is detailed in the answer to question B.1.h (above).

Second, the model provides two methods to develop the service needs of the households and businesses in the wire center. In the first method the user can directly input wire center line count information. As an alternative, the model uses a residence line multiplier, single business line multiplier and special access line multiplier to reflect the line needs in the wire center. The residence line multiplier is a factor developed at a state level from ARMIS and NERA data and is applied to the number of Housing Units to produce the number of residence lines served in the wire center. The single line business multiplier is also a state level factor developed from ARMIS and NERA data and when applied to the number of total business lines produces the number of single business lines in the wire center. The special access line multiplier is a factor developed from BCPM sponsor studies and when applied to the number of total business lines produces the number of special access and private lines in the wire center.

Criterion 7: A reasonable allocation of joint and common costs should be assigned to the cost of supported services.

Describe how the study's methodology assigns a reasonable allocation of joint and common costs to the cost of supported services. What is the amount of common costs attributed to supported services, and what percentage does this represent of total common costs as identified in the study or model? Please explain how this amount was determined. Specifically, please identify how line-side port costs are identified as a portion of total switching costs.

BCPM 3.1 allows the user to input either a common cost factor or expenses on a per line basis.

U S WEST explained that the BCPM switch regression model identifies line-side port costs through a specific investment equation for each switch functional investment category. The functional investment category used to develop the switch curve were obtained from Audited LEC Switching Models (ALSMs) which use engineering rules to specifically identify the amount of line port investment for each subscriber line. Therefore, BCPM does not require an allocation process to identify line port investments as a portion of the total switch investment. BCPM provides an input to allow the user to specify what portion of the line port should be allocated to universal service. This input is set at 100%, as recommended by the FCC[6].

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

(a) Please identify any underlying data, formulae, computations, or software used in study that are not available for review and comment, and

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

explain why they are unavailable.

U S West asserts, all underlying data, formulae, computations and software used in the study are available for review and comment.

(b) Please describe what steps were taken to determine that the study's outputs are plausible.

U S WEST asserts that over the last 18 months the BCPM model has evolved through a series of enhanced versions, each version delivering a model whose theoretical basis and actual outputs became more and more plausible. This continual refinement was done through a series of field tests comparing results with actual data; workshop challenges by state regulators, FCC staff members, and advocates for other proxy models; and numerous analytical studies.

On March 2 and 3, 1998, BCPM sponsors filed Ex Parte documentation with the FCC discussing the results of tests done on the most recent output runs of both the BCPM and HAI models. In summary U S WEST maintains, the test showed that:

- The BCPM model produces higher funding in less dense western states and lower funding in dense eastern states.
- Using road length in the model (as BCPM does) avoids overbuilding in dense areas and underbuilding in sparse areas.
- BCPM wire center cable route mileage does not exceed actual road mileage.
- BCPM grid areas do a good job of modeling the actual wire center area.
- BCPM is accurate in its line counts.
- BCPM has a high correlation between predicted customer locations and actual locations in tested rural wire centers.
- The BCPM model is sensitive to changes in key variable values.

(c) Standardized presentation of outputs. If the state cost study is based on a version the HAI model, please file: the universal service calculation, cost summary, cost of network elements, and USOA detail breakdown (HAI 5.0 only) reports. If the state cost study is based on a version of BCPM, please file: the area-wide summary, key elements, aggregate support summary and plant summary reports. If the state cost study is based on neither BCPM nor HAI, please provide outputs in either of the BCPM or HAI formats just mentioned, or provide investment and expenses per study area by USOA accounts or ARMIS rows, and show whether and how cost calculations differ across geographic areas.

Outputs are attached in the file PucUswMtRpt.xls.

(d) If the cost study meets criterion 8 in any way not captured by (a) through (c), please explain.

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

(a) Please describe the extent to which and how the user can examine and modify the cost study's critical assumptions and engineering principles.

U S WEST declares all underlying data, formulae, computations and software used in the study are available for review and comment.

(b) <u>Standardized presentation of inputs</u>. Please provide the input values used in your study using the attached Excel spreadsheet document. If your study uses input values that are not identified in the Excel document, please add them to the end of the list in the appropriate category You may also provide the standard presentation of inputs in electronic form in an identical spreadsheet prepared using any other commercially available spreadsheet software.

As part of this submission, the proxy model inputs have been attached in the file MtPSCInputs.xls, as requested. The format of the attached Excel spreadsheet provided by the FCC does not correspond to the BCPM input requirements, but rather, appears similar to the Hatfield Input Spreadsheet. This has been pointed out to the FCC by the BCPM 3.1 Sponsors and hopefully will be addressed in the near future.

The input values used in the BCPM cost proxy model do not correspond to the inputs listed in the FCC Excel spreadsheet, nor can the inputs sheet layout be used to populate the BCPM inputs. In addition, it would be misleading to populate this spreadsheet with any BCPM values because those BCPM inputs that, at first blush, may appear to be comparable to those used in Hatfield, are actually quite different, given the manner in which they are used in the respective models. For example, Hatfield applies the fill factor to lines while BCPM applies the fill factor to pairs. To avoid creating the misperception of an "apples to apples" comparison of the BCPM and Hatfield inputs and the problem with conversion to the sheet and from the sheet back into the BCPM, the BCPM inputs worksheet is provided which contains a comprehensive list of the BCPM inputs.

(c) If the cost study meets criterion 9 in any way not captured by (a) and (b), please explain.

Criterion 10: ***The cost study or model must deaverage support calculations to the serving area level at least, and, if feasible, to even smaller areas such as Census Block Group, Census Block, or grid cell in order to target universal service support efficiently.***

(a) Describe the manner in which the study disaggregates investment calculations to study geographic areas, such as wire centers, census block groups, census blocks, or grid cells and identify the level to which cost calculations are disaggregated. For example, please describe how costs that are shared among customers in different geographic areas, such as feeder structures, are allocated.

BCPM disaggregates investment calculations down to the individual grid. This analysis can then be aggregated to the CBG or wire center level. Per line costs are calculated based on the cost impact of each piece of plant structure on each individual line. For example, if a pole costs $400 and it carries 50 lines the cost impact of the pole on each line would be $400/50 poles or $8 per line. To create the line cost per grid, the model calculates the cost impact of each piece of plant equipment that supports lines in the grid.

C. Demonstration that the Cost Study Fulfills Other Requirements of the Universal Service Order

1. "In order for the Commission to accept a state cost study submitted to [the Commission] for the purposes of calculating federal universal service support, that study must be the same cost study that is used by the state to determine intrastate universal service support levels pursuant to section 254(f)."

If your state has an intrastate universal service support mechanism for non-rural LECs please demonstrate that the cost study being submitted for the purpose of calculating federal universal service support is the same cost study that will be used by your state to determine intrastate universal service support levels pursuant to Section 254(f) of the Telecommunications Act of 1996.

At this time, Montana does not have an intrastate Universal High Cost Fund in place. In Senate Bill 89, in 1997, the Montana legislature established the mechanism for the implementation of a High Cost Fund. In Section 69-3-841 of the Montana Code, the Legislature states that a new Montana Universal

Service Fund should be created that will:

(1) Not duplicate the federal universal service fund mandated by the Telecommunications Act of 1996 but that will complement the federal fund by providing additional funds as necessary to ensure universal service in the state of Montana;
(2) be competitively and technologically neutral in both funding and distribution;
(3) provide a specific, predictable, and sufficient mechanism of support for high cost areas.

The Montana legislature also set out criteria to be used in the demonstration of a Proxy Cost Model to be used for Universal Service funding (Section 69-3-845(7), MCA). The Commission shall use a model that:

(a) targets support to a geographic area smaller than a wire center;
(b) uses acceptable outside plant design and costing principles;
(c) uses reasonable switch design and costing principles;
(d) includes a reasonable share of the joint and common costs of the telecommunications carrier;
(e) meets standards for documenting model logic and the sources of cost data input; and
(f) meets reasonableness tests to ensure that model outputs are representative of costs that can be reasonably expected in the construction of a network and that the network is capable of providing telecommunications services meeting quality standards of the Commission and federal regulators.

The state criteria is consistent with the FCC criteria for Universal Cost Proxy Models. BCPM 3.1 meets this criteria.

A proceeding to assess the need for an intrastate High Cost Fund, to establish the affordability benchmark, to establish the Proxy Model inputs for an intrastate fund and to establish rules and procedures to administer the fund remains to be opened.

2. "We also encourage a state, to the extent possible and consistent with the above criteria, to use its ongoing proceedings to develop permanent unbundled network element prices as a basis for its universal service cost study."

Please explain the interrelationship, if any, between this universal service cost and the cost study that will be used by your state in developing permanent prices.

The Montana Commission conducted a proceeding too determine whether to adopt a Cost Model for Interstate Universal Service Support and, if so which model. The BCPM was sponsored by U S WEST and the Hatfield was sponsored by AT&T/MCI in this proceeding. The purpose of a Universal High Cost Proxy Model is to identify the cost differences between geographic areas based upon differences in demographic and geographic factors. The BCPM is designed to accomplish that purpose.

A Montana Docket to develop permanent prices for Unbundled Network Elements and to assess the models available for that purpose has not been established. In that Docket, the appropriate methodology to determine the costs and the resulting prices for wholesale interconnection services and for the wholesale discount for resale will be determined. The Docket will be initiated sometime after the conclusion of the approval process for the arbitrated contract between AT&T and U S WEST. In that Docket, cost models will be assessed, a cost method will be established and permanent wholesale prices will be approved.

It is premature for Montana to decide upon a permanent cost model appropriate for pricing of unbundled network elements at this time. In a general sense, unbundled network element prices should be based on a forward-looking, incremental cost model.

Attachment b

Inputs

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

SWDiscountFactorTable

[illegible]	New Discount Rate	[illegible]	[illegible]	[illegible]
5E Switches	50%	50%	50%	50%
DMS Switches	50%	50%	50%	50%

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	[illegible]	SS7
Standalone	31%	23%	33%	6.17E-02	4.58E-02	######
Host	19%	28%	39%	7.92E-02	5.70E-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

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	85%	15%	71.85%	28.15%	2.5	3.60									-	-
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%	1.782399059	2.42									-	-
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									-	-
WY	82%	18%	69.03%	30.97%	2.5	3.60									-	-

0.0117	0.0738	0.0577	0.0682	60%	28.8		30%	25%	14	90%	50%	50%	0.7			
0.0117	0.0738	0.0577	0.0682	60%	28.8		30%	25%	14	90%	50%	50%	0.7			
0.0117	0.0738	0.0577	0.0682	60%	28.8		30%	25%	14	90%	50%	50%	0.7			
0.0117	0.0738	0.0577	0.0682	60%	28.8		30%	25%	14	90%	50%	50%	0.7			
0.0117	0.0738	0.0577	0.0682	60%	28.8		30%	25%	14	90%	50%	50%	0.7			
0.0117	0.0738	0.0577	0.0682	60%	28.8		30%	25%	14	90%	50%	50%	0.7			
0.0117	0.0738	0.0577	0.0682	60%	28.8		30%	25%	14	90%	50%	50%	0.7			
0.0117	0.0738	0.0577	0.0682	60%	28.8		30%	25%	14	90%	50%	50%	0.7			
0.0117	0.0738	0.0577	0.0682	60%	28.8		30%	25%	14	90%	50%	50%	0.7			
0.0117	0.0738	0.0577	0.0682	60%	28.8		30%	25%	14	90%	50%	50%	0.7			
0.0117	0.0738	0.0577	0.0682	60%	28.8		30%	25%	14	90%	50%	50%	0.7			
0.0117	0.0738	0.0577	0.0682	60%	28.8		30%	25%	14	90%	50%	50%	0.7			
0.0117	0.0738	0.0577	0.0682	60%	28.8		30%	25%	14	90%	50%	50%	0.7			
0.0117	0.0738	0.0577	0.0682	60%	28.8		30%	25%	14	90%	50%	50%	0.7			
0.0117	0.0738	0.0577	0.0682	60%	28.8		30%	25%	14	90%	50%	50%	0.7			
0.0117	0.0738	0.0577	0.0682	60%	28.8		30%	25%	14	90%	50%	50%	0.7			
0.0117	0.0738	0.0577	0.0682	60%	28.8		30%	25%	14	90%	50%	50%	0.7			
0.0117	0.0738	0.0577	0.0682	60%	28.8		30%	25%	14	90%	50%	50%	0.7			
0.0117	0.0738	0.0577	0.0682	60%	28.8		30%	25%	14	90%	50%	50%	0.7			
0.0117	0.0738	0.0577	0.0682	60%	28.8		30%	25%	14	90%	50%	50%	0.7			
0.0117	0.0738	0.0577	0.0682	60%	28.8		30%	25%	14	90%	50%	50%	0.7			
0.0117	0.0738	0.0577	0.0682	60%	28.8		30%	25%	14	90%	50%	50%	0.7			
0.0117	0.0738	0.0577	0.0682	60%	28.8		30%	25%	14	90%	50%	50%	0.7			
0.0117	0.0738	0.0577	0.0682	60%	28.8		30%	25%	14	90%	50%	50%	0.7			
0.0117	0.0738	0.0577	0.0682	60%	28.8		30%	25%	14	90%	50%	50%	0.7			
0.0117	0.0738	0.0577	0.0682	60%	28.8		30%	25%	14	90%	50%	50%	0.7			
0.0024	0.0655	0.0000	0.0000	29%	24.5		30%	25%	13.2592335	76%	100%	0%	0.797			
0.0117	0.0738	0.0577	0.0682	60%	28.8		30%	25%	14	90%	50%	50%	0.7			
0.0117	0.0738	0.0577	0.0682	60%	28.8		30%	25%	14	90%	50%	50%	0.7			
0.0117	0.0738	0.0577	0.0682	60%	28.8		30%	25%	14	90%	50%	50%	0.7			
0.0117	0.0738	0.0577	0.0682	60%	28.8		30%	25%	14	90%	50%	50%	0.7			
0.0117	0.0738	0.0577	0.0682	60%	28.8		30%	25%	14	90%	50%	50%	0.7			
0.0117	0.0738	0.0577	0.0682	60%	28.8		30%	25%	14	90%	50%	50%	0.7			
0.0117	0.0738	0.0577	0.0682	60%	28.8		30%	25%	14	90%	50%	50%	0.7			
0.0117	0.0738	0.0577	0.0682	60%	28.8		30%	25%	14	90%	50%	50%	0.7			
0.0117	0.0738	0.0577	0.0682	60%	28.8		30%	25%	14	90%	50%	50%	0.7			
0.0117	0.0738	0.0577	0.0682	60%	28.8		30%	25%	14	90%	50%	50%	0.7			
0.0117	0.0738	0.0577	0.0682	60%	28.8		30%	25%	14	90%	50%	50%	0.7			
0.0117	0.0738	0.0577	0.0682	60%	28.8		30%	25%	14	90%	50%	50%	0.7			
0.0117	0.0738	0.0577	0.0682	60%	28.8		30%	25%	14	90%	50%	50%	0.7			
0.0117	0.0738	0.0577	0.0682	60%	28.8		30%	25%	14	90%	50%	50%	0.7			
0.0117	0.0738	0.0577	0.0682	60%	28.8		30%	25%	14	90%	50%	50%	0.7			
0.0117	0.0738	0.0577	0.0682	60%	28.8		30%	25%	14	90%	50%	50%	0.7			
0.0117	0.0738	0.0577	0.0682	60%	28.8		30%	25%	14	90%	50%	50%	0.7			
0.0117	0.0738	0.0577	0.0682	60%	28.8		30%	25%	14	90%	50%	50%	0.7			
0.0117	0.0738	0.0577	0.0682	60%	28.8		30%	25%	14	90%	50%	50%	0.7			
0.0117	0.0738	0.0577	0.0682	60%	28.8		30%	25%	14	90%	50%	50%	0.7			
0.0117	0.0738	0.0577	0.0682	60%	28.8		30%	25%	14	90%	50%	50%	0.7			
0.0117	0.0738	0.0577	0.0682	60%	28.8		30%	25%	14	90%	50%	50%	0.7			
0.0117	0.0738	0.0577	0.0682	60%	28.8		30%	25%	14	90%	50%	50%	0.7			
0.0117	0.0738	0.0577	0.0682	60%	28.8		30%	25%	14	90%	50%	50%	0.7			
0.0117	0.0738	0.0577	0.0682	60%	28.8		30%	25%	14	90%	50%	50%	0.7			

3 of 3

	1	2	3	4	5	6	7	8	9
1									
2									
3	[redacted]								
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	[redacted]							
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	[redacted]							
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
29									

SignalingInvestments

[illegible]	$ 20.94	$ 20.94	$ 20.94
[illegible]	$ 41.93	$ 41.93	$ 41.93

BCPM Loop Cost Inputs

Drop, NID, Protector Costs

Buried Drop Costs

	FIXED COSTS						DENSITY 0-5		DENSITY 6-100		DENSITY 101-200		DENSITY 201-650		DENSITY 651-850		DENSITY 851-2550		DENSITY 2551-5000		DENSITY 5001-10000		DENSITY >10001	
Size	Material Cost	Supply Cost	Tax	Placing	Splicing	Engineering	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total
1	$ 0.12			$ 1.17				$ 1.29		$ 1.29		$ 1.29		$ 1.29		$ 1.29		$ 1.29		$ 1.29		$ 1.29		$ 1.29

Aerial Drop Costs

	FIXED COSTS						DENSITY 0-5		DENSITY 6-100		DENSITY 101-200		DENSITY 201-650		DENSITY 651-850		DENSITY 851-2550		DENSITY 2551-5000		DENSITY 5001-10000		DENSITY >10001	
Size	Material Cost	Supply Cost	Tax	Placing	Splicing	Engineering	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total
1	$ 0.24			$ 0.56				$ 0.80		$ 0.80		$ 0.80		$ 0.80		$ 0.80		$ 0.80		$ 0.80		$ 0.80		$ 0.80

Residence Costs

	FIXED COSTS						DENSITY 0-5		DENSITY 6-100		DENSITY 101-200		DENSITY 201-650		DENSITY 651-850		DENSITY 851-2550		DENSITY 2551-5000		DENSITY 5001-10000		DENSITY >10001	
Size	Material Cost	Supply Cost	Tax	Placing	Splicing	Engineering	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total
NID	$ 12.59			$ 35.13				$ 47.72		$ 47.72		$ 47.72		$ 47.72		$ 47.72		$ 47.72		$ 47.72		$ 47.72		$ 47.72
Protector								$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
Interface								$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -

Business Costs

	FIXED COSTS						DENSITY 0-5		DENSITY 6-100		DENSITY 101-200		DENSITY 201-650		DENSITY 651-850		DENSITY 851-2550		DENSITY 2551-5000		DENSITY 5001-10000		DENSITY >10001	
Size	Material Cost	Supply Cost	Tax	Placing	Splicing	Engineering	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total
NID	$ 28.16			$ 30.43				$ 58.59		$ 58.59		$ 58.59		$ 58.59		$ 58.59		$ 58.59		$ 58.59		$ 58.59		$ 58.59
Protector								$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -
Interface								$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -		$ -

Fiber Costs

Fiber - Underground

	FIXED COSTS						DENSITY 0-5		DENSITY 6-100		DENSITY 101-200		DENSITY 201-650		DENSITY 651-850		DENSITY 851-2550		DENSITY 2551-5000		DENSITY 5001-10000		DENSITY >10001	
Size	Material Cost	Supply Cost	Tax	Placing	Splicing	Engineering	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total
288	$ 11.95							$ 11.95		$ 11.95		$ 11.95		$ 11.95		$ 11.95		$ 11.95		$ 11.95		$ 11.95		$ 11.95
144	$ 6.15							$ 6.15		$ 6.15		$ 6.15		$ 6.15		$ 6.15		$ 6.15		$ 6.15		$ 6.15		$ 6.15
96	$ 4.54							$ 4.54		$ 4.54		$ 4.54		$ 4.54		$ 4.54		$ 4.54		$ 4.54		$ 4.54		$ 4.54
72	$ 3.65							$ 3.65		$ 3.65		$ 3.65		$ 3.65		$ 3.65		$ 3.65		$ 3.65		$ 3.65		$ 3.65
60	$ 2.95							$ 2.95		$ 2.95		$ 2.95		$ 2.95		$ 2.95		$ 2.95		$ 2.95		$ 2.95		$ 2.95
48	$ 2.90							$ 2.90		$ 2.90		$ 2.90		$ 2.90		$ 2.90		$ 2.90		$ 2.90		$ 2.90		$ 2.90
36	$ 2.54							$ 2.54		$ 2.54		$ 2.54		$ 2.54		$ 2.54		$ 2.54		$ 2.54		$ 2.54		$ 2.54
24	$ 2.11							$ 2.11		$ 2.11		$ 2.11		$ 2.11		$ 2.11		$ 2.11		$ 2.11		$ 2.11		$ 2.11
18	$ 1.93							$ 1.93		$ 1.93		$ 1.93		$ 1.93		$ 1.93		$ 1.93		$ 1.93		$ 1.93		$ 1.93
12	$ 1.76							$ 1.76		$ 1.76		$ 1.76		$ 1.76		$ 1.76		$ 1.76		$ 1.76		$ 1.76		$ 1.76

Fiber - Buried

	FIXED COSTS						DENSITY 0-5		DENSITY 6-100		DENSITY 101-200		DENSITY 201-650		DENSITY 651-850		DENSITY 851-2550		DENSITY 2551-5000		DENSITY 5001-10000		DENSITY >10001	
Size	Material Cost	Supply Cost	Tax	Placing	Splicing	Engineering	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total
288	$ 13.30							$ 13.30		$ 13.30		$ 13.30		$ 13.30		$ 13.30		$ 13.30		$ 13.30		$ 13.30		$ 13.30
144	$ 6.89							$ 6.89		$ 6.89		$ 6.89		$ 6.89		$ 6.89		$ 6.89		$ 6.89		$ 6.89		$ 6.89
96	$ 5.29							$ 5.29		$ 5.29		$ 5.29		$ 5.29		$ 5.29		$ 5.29		$ 5.29		$ 5.29		$ 5.29
72	$ 4.40							$ 4.40		$ 4.40		$ 4.40		$ 4.40		$ 4.40		$ 4.40		$ 4.40		$ 4.40		$ 4.40
60	$ 4.03							$ 4.03		$ 4.03		$ 4.03		$ 4.03		$ 4.03		$ 4.03		$ 4.03		$ 4.03		$ 4.03
48	$ 3.66							$ 3.66		$ 3.66		$ 3.66		$ 3.66		$ 3.66		$ 3.66		$ 3.66		$ 3.66		$ 3.66
36	$ 3.30							$ 3.30		$ 3.30		$ 3.30		$ 3.30		$ 3.30		$ 3.30		$ 3.30		$ 3.30		$ 3.30
24	$ 2.88							$ 2.88		$ 2.88		$ 2.88		$ 2.88		$ 2.88		$ 2.88		$ 2.88		$ 2.88		$ 2.88
18	$ 2.71							$ 2.71		$ 2.71		$ 2.71		$ 2.71		$ 2.71		$ 2.71		$ 2.71		$ 2.71		$ 2.71
12	$ 2.54							$ 2.54		$ 2.54		$ 2.54		$ 2.54		$ 2.54		$ 2.54		$ 2.54		$ 2.54		$ 2.54

Fiber - Aerial

	FIXED COSTS						DENSITY 0-5		DENSITY 6-100		DENSITY 101-200		DENSITY 201-650		DENSITY 651-850		DENSITY 851-2550		DENSITY 2551-5000		DENSITY 5001-10000		DENSITY >10001	
Size	Material Cost	Supply Cost	Tax	Placing	Splicing	Engineering	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total
288	$ 18.72							$ 18.72		$ 18.72		$ 18.72		$ 18.72		$ 18.72		$ 18.72		$ 18.72		$ 18.72		$ 18.72
144	$ 9.50							$ 9.50		$ 9.50		$ 9.50		$ 9.50		$ 9.50		$ 9.50		$ 9.50		$ 9.50		$ 9.50
96	$ 7.99							$ 7.99		$ 7.99		$ 7.99		$ 7.99		$ 7.99		$ 7.99		$ 7.99		$ 7.99		$ 7.99
72	$ 6.51							$ 6.51		$ 6.51		$ 6.51		$ 6.51		$ 6.51		$ 6.51		$ 6.51		$ 6.51		$ 6.51
60	$ 5.34							$ 5.34		$ 5.34		$ 5.34		$ 5.34		$ 5.34		$ 5.34		$ 5.34		$ 5.34		$ 5.34
48	$ 5.06							$ 5.06		$ 5.06		$ 5.06		$ 5.06		$ 5.06		$ 5.06		$ 5.06		$ 5.06		$ 5.06
36	$ 4.36							$ 4.36		$ 4.36		$ 4.36		$ 4.36		$ 4.36		$ 4.36		$ 4.36		$ 4.36		$ 4.36
24	$ 3.71							$ 3.71		$ 3.71		$ 3.71		$ 3.71		$ 3.71		$ 3.71		$ 3.71		$ 3.71		$ 3.71
18	$ 3.45							$ 3.45		$ 3.45		$ 3.45		$ 3.45		$ 3.45		$ 3.45		$ 3.45		$ 3.45		$ 3.45
12	$ 3.04							$ 3.04		$ 3.04		$ 3.04		$ 3.04		$ 3.04		$ 3.04		$ 3.04		$ 3.04		$ 3.04

Terminal Costs

Outdoor SAI/Cross Connector

	FIXED COSTS						DENSITY 0-5		DENSITY 6-100		DENSITY 101-200		DENSITY 201-650		DENSITY 651-850		DENSITY 851-2550		DENSITY 2551-5000		DENSITY 5001-10000		DENSITY >10001	
Size	Material Cost	Supply Cost	Tax	Placing	Splicing	Engineering	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total
25	$ 2,562.65							$ 2,562.65		$ 2,562.65		$ 2,562.65		$ 2,562.65		$ 2,562.65		$ 2,562.65		$ 2,562.65		$ 2,562.65		$ 2,562.65
50	$ 2,562.65							$ 2,562.65		$ 2,562.65		$ 2,562.65		$ 2,562.65		$ 2,562.65		$ 2,562.65		$ 2,562.65		$ 2,562.65		$ 2,562.65
100	$ 2,562.65							$ 2,562.65		$ 2,562.65		$ 2,562.65		$ 2,562.65		$ 2,562.65		$ 2,562.65		$ 2,562.65		$ 2,562.65		$ 2,562.65
200	$ 2,562.65							$ 2,562.65		$ 2,562.65		$ 2,562.65		$ 2,562.65		$ 2,562.65		$ 2,562.65		$ 2,562.65		$ 2,562.65		$ 2,562.65
300	$ 2,562.65							$ 2,562.65		$ 2,562.65		$ 2,562.65		$ 2,562.65		$ 2,562.65		$ 2,562.65		$ 2,562.65		$ 2,562.65		$ 2,562.65
400	$ 2,562.65							$ 2,562.65		$ 2,562.65		$ 2,562.65		$ 2,562.65		$ 2,562.65		$ 2,562.65		$ 2,562.65		$ 2,562.65		$ 2,562.65
600	$ 2,562.65							$ 2,562.65		$ 2,562.65		$ 2,562.65		$ 2,562.65		$ 2,562.65		$ 2,562.65		$ 2,562.65		$ 2,562.65		$ 2,562.65
900	$ 3,172.58							$ 3,172.58		$ 3,172.58		$ 3,172.58		$ 3,172.58		$ 3,172.58		$ 3,172.58		$ 3,172.58		$ 3,172.58		$ 3,172.58
1200	$ 4,532.06							$ 4,532.06		$ 4,532.06		$ 4,532.06		$ 4,532.06		$ 4,532.06		$ 4,532.06		$ 4,532.06		$ 4,532.06		$ 4,532.06
1800	$ 6,422.58							$ 6,422.58		$ 6,422.58		$ 6,422.58		$ 6,422.58		$ 6,422.58		$ 6,422.58		$ 6,422.58		$ 6,422.58		$ 6,422.58
2100	$ 7,704.64							$ 7,704.64		$ 7,704.64		$ 7,704.64		$ 7,704.64		$ 7,704.64		$ 7,704.64		$ 7,704.64		$ 7,704.64		$ 7,704.64
2400	$ 8,985.23							$ 8,985.23		$ 8,985.23		$ 8,985.23		$ 8,985.23		$ 8,985.23		$ 8,985.23		$ 8,985.23		$ 8,985.23		$ 8,985.23
3000	$ 10,877.22							$ 10,877.22		$ 10,877.22		$ 10,877.22		$ 10,877.22		$ 10,877.22		$ 10,877.22		$ 10,877.22		$ 10,877.22		$ 10,877.22
3600	$ 13,052.66							$ 13,052.66		$ 13,052.66		$ 13,052.66		$ 13,052.66		$ 13,052.66		$ 13,052.66		$ 13,052.66		$ 13,052.66		$ 13,052.66
4200	$ 15,228.11							$ 15,228.11		$ 15,228.11		$ 15,228.11		$ 15,228.11		$ 15,228.11		$ 15,228.11		$ 15,228.11		$ 15,228.11		$ 15,228.11

BCPM Loop Cost Inputs

Indoor SAI/Building (includes cost of protection)

Size	FIXED COSTS						DENSITY 0-5		DENSITY 6-100		DENSITY 101-200		DENSITY 201-650		DENSITY 651-850		DENSITY 851-2550		DENSITY 2551-5000		DENSITY 5001-10000		DENSITY >10001	
	Material Cost	Supply Cost	Tax	Placing	Splicing	Engineering	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total
25	$ 946.84							$ 946.84		$ 946.84		$ 946.84		$ 946.84		$ 946.84		$ 946.84		$ 946.84		$ 946.84		$ 946.84
50	$ 946.84							$ 946.84		$ 946.84		$ 946.84		$ 946.84		$ 946.84		$ 946.84		$ 946.84		$ 946.84		$ 946.84
100	$ 1,088.38							$ 1,088.38		$ 1,088.38		$ 1,088.38		$ 1,088.38		$ 1,088.38		$ 1,088.38		$ 1,088.38		$ 1,088.38		$ 1,088.38
200	$ 5,284.43							$ 5,284.43		$ 5,284.43		$ 5,284.43		$ 5,284.43		$ 5,284.43		$ 5,284.43		$ 5,284.43		$ 5,284.43		$ 5,284.43
300	$ 5,284.43							$ 5,284.43		$ 5,284.43		$ 5,284.43		$ 5,284.43		$ 5,284.43		$ 5,284.43		$ 5,284.43		$ 5,284.43		$ 5,284.43
400	$ 5,284.43							$ 5,284.43		$ 5,284.43		$ 5,284.43		$ 5,284.43		$ 5,284.43		$ 5,284.43		$ 5,284.43		$ 5,284.43		$ 5,284.43
600	$ 5,284.43							$ 5,284.43		$ 5,284.43		$ 5,284.43		$ 5,284.43		$ 5,284.43		$ 5,284.43		$ 5,284.43		$ 5,284.43		$ 5,284.43
900	$ 7,782.48							$ 7,782.48		$ 7,782.48		$ 7,782.48		$ 7,782.48		$ 7,782.48		$ 7,782.48		$ 7,782.48		$ 7,782.48		$ 7,782.48
1200	$ 12,986.83							$ 12,986.83		$ 12,986.83		$ 12,986.83		$ 12,986.83		$ 12,986.83		$ 12,986.83		$ 12,986.83		$ 12,986.83		$ 12,986.83
1800	$ 12,986.83							$ 12,986.83		$ 12,986.83		$ 12,986.83		$ 12,986.83		$ 12,986.83		$ 12,986.83		$ 12,986.83		$ 12,986.83		$ 12,986.83
2100	$ 20,489.23							$ 20,489.23		$ 20,489.23		$ 20,489.23		$ 20,489.23		$ 20,489.23		$ 20,489.23		$ 20,489.23		$ 20,489.23		$ 20,489.23
2400	$ 20,489.23							$ 20,489.23		$ 20,489.23		$ 20,489.23		$ 20,489.23		$ 20,489.23		$ 20,489.23		$ 20,489.23		$ 20,489.23		$ 20,489.23
3000	$ 28,391.63							$ 28,391.63		$ 28,391.63		$ 28,391.63		$ 28,391.63		$ 28,391.63		$ 28,391.63		$ 28,391.63		$ 28,391.63		$ 28,391.63
3600	$ 30,888.48							$ 30,888.48		$ 30,888.48		$ 30,888.48		$ 30,888.48		$ 30,888.48		$ 30,888.48		$ 30,888.48		$ 30,888.48		$ 30,888.48
4200	$ 34,894.83							$ 34,894.83		$ 34,894.83		$ 34,894.83		$ 34,894.83		$ 34,894.83		$ 34,894.83		$ 34,894.83		$ 34,894.83		$ 34,894.83

Aerial Drop Terminal Cost

Size	FIXED COSTS						DENSITY 0-5		DENSITY 6-100		DENSITY 101-200		DENSITY 201-650		DENSITY 651-850		DENSITY 851-2550		DENSITY 2551-5000		DENSITY 5001-10000		DENSITY >10001	
	Material Cost	Supply Cost	Tax	Placing	Splicing	Engineering	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total
6	$ 124.75							$ 124.75		$ 124.75		$ 124.75		$ 124.75		$ 124.75		$ 124.75		$ 124.75		$ 124.75		$ 124.75
12	$ 124.75							$ 124.75		$ 124.75		$ 124.75		$ 124.75		$ 124.75		$ 124.75		$ 124.75		$ 124.75		$ 124.75
25	$ 124.75							$ 124.75		$ 124.75		$ 124.75		$ 124.75		$ 124.75		$ 124.75		$ 124.75		$ 124.75		$ 124.75

Buried Drop Terminal Cost (Encapsulated or Pedestal)

Size	FIXED COSTS						DENSITY 0-5		DENSITY 6-100		DENSITY 101-200		DENSITY 201-650		DENSITY 651-850		DENSITY 851-2550		DENSITY 2551-5000		DENSITY 5001-10000		DENSITY >10001	
	Material Cost	Supply Cost	Tax	Placing	Splicing	Engineering	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total
6	$ 234.94							$ 234.94		$ 234.94		$ 234.94		$ 234.94		$ 234.94		$ 234.94		$ 234.94		$ 234.94		$ 234.94
12	$ 234.94							$ 234.94		$ 234.94		$ 234.94		$ 234.94		$ 234.94		$ 234.94		$ 234.94		$ 234.94		$ 234.94
25	$ 234.94							$ 234.94		$ 234.94		$ 234.94		$ 234.94		$ 234.94		$ 234.94		$ 234.94		$ 234.94		$ 234.94

Cable Costs

24 Gauge Cable - Underground Copper

Size	FIXED COSTS						DENSITY 0-5		DENSITY 6-100		DENSITY 101-200		DENSITY 201-650		DENSITY 651-850		DENSITY 851-2550		DENSITY 2551-5000		DENSITY 5001-10000		DENSITY >10001	
	Material Cost	Supply Cost	Tax	Placing	Splicing	Engineering	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total
4200	$ 29.37							$ 29.37		$ 29.37		$ 29.37		$ 29.37		$ 29.37		$ 29.37		$ 29.37		$ 29.37		$ 29.37
3600	$ 25.47							$ 25.47		$ 25.47		$ 25.47		$ 25.47		$ 25.47		$ 25.47		$ 25.47		$ 25.47		$ 25.47
3000	$ 24.38							$ 24.38		$ 24.38		$ 24.38		$ 24.38		$ 24.38		$ 24.38		$ 24.38		$ 24.38		$ 24.38
2400	$ 22.38							$ 22.38		$ 22.38		$ 22.38		$ 22.38		$ 22.38		$ 22.38		$ 22.38		$ 22.38		$ 22.38
2100	$ 21.68							$ 21.68		$ 21.68		$ 21.68		$ 21.68		$ 21.68		$ 21.68		$ 21.68		$ 21.68		$ 21.68
1800	$ 20.03							$ 20.03		$ 20.03		$ 20.03		$ 20.03		$ 20.03		$ 20.03		$ 20.03		$ 20.03		$ 20.03
1200	$ 14.34							$ 14.34		$ 14.34		$ 14.34		$ 14.34		$ 14.34		$ 14.34		$ 14.34		$ 14.34		$ 14.34
900	$ 11.66							$ 11.66		$ 11.66		$ 11.66		$ 11.66		$ 11.66		$ 11.66		$ 11.66		$ 11.66		$ 11.66
600	$ 8.87							$ 8.87		$ 8.87		$ 8.87		$ 8.87		$ 8.87		$ 8.87		$ 8.87		$ 8.87		$ 8.87
400	$ 5.62							$ 5.62		$ 5.62		$ 5.62		$ 5.62		$ 5.62		$ 5.62		$ 5.62		$ 5.62		$ 5.62
300	$ 4.63							$ 4.63		$ 4.63		$ 4.63		$ 4.63		$ 4.63		$ 4.63		$ 4.63		$ 4.63		$ 4.63
200	$ 3.64							$ 3.64		$ 3.64		$ 3.64		$ 3.64		$ 3.64		$ 3.64		$ 3.64		$ 3.64		$ 3.64
100	$ 2.71							$ 2.71		$ 2.71		$ 2.71		$ 2.71		$ 2.71		$ 2.71		$ 2.71		$ 2.71		$ 2.71
50	$ 2.26							$ 2.26		$ 2.26		$ 2.26		$ 2.26		$ 2.26		$ 2.26		$ 2.26		$ 2.26		$ 2.26
25	$ 1.90							$ 1.90		$ 1.90		$ 1.90		$ 1.90		$ 1.90		$ 1.90		$ 1.90		$ 1.90		$ 1.90
18	$ 1.90							$ 1.90		$ 1.90		$ 1.90		$ 1.90		$ 1.90		$ 1.90		$ 1.90		$ 1.90		$ 1.90
12	$ 1.90							$ 1.90		$ 1.90		$ 1.90		$ 1.90		$ 1.90		$ 1.90		$ 1.90		$ 1.90		$ 1.90

24 Gauge Cable - Dual Sheath "Filled" Buried Copper

Size	FIXED COSTS						DENSITY 0-5		DENSITY 6-100		DENSITY 101-200		DENSITY 201-650		DENSITY 651-850		DENSITY 851-2550		DENSITY 2551-5000		DENSITY 5001-10000		DENSITY >10001	
	Material Cost	Supply Cost	Tax	Placing	Splicing	Engineering	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total
4200	$ 42.42							$ 42.42		$ 42.42		$ 42.42		$ 42.42		$ 42.42		$ 42.42		$ 42.42		$ 42.42		$ 42.42
3600	$ 36.36							$ 36.36		$ 36.36		$ 36.36		$ 36.36		$ 36.36		$ 36.36		$ 36.36		$ 36.36		$ 36.36
3000	$ 30.30							$ 30.30		$ 30.30		$ 30.30		$ 30.30		$ 30.30		$ 30.30		$ 30.30		$ 30.30		$ 30.30
2400	$ 24.24							$ 24.24		$ 24.24		$ 24.24		$ 24.24		$ 24.24		$ 24.24		$ 24.24		$ 24.24		$ 24.24
2100	$ 21.21							$ 21.21		$ 21.21		$ 21.21		$ 21.21		$ 21.21		$ 21.21		$ 21.21		$ 21.21		$ 21.21
1800	$ 18.18							$ 18.18		$ 18.18		$ 18.18		$ 18.18		$ 18.18		$ 18.18		$ 18.18		$ 18.18		$ 18.18
1200	$ 12.44							$ 12.44		$ 12.44		$ 12.44		$ 12.44		$ 12.44		$ 12.44		$ 12.44		$ 12.44		$ 12.44
900	$ 9.67							$ 9.67		$ 9.67		$ 9.67		$ 9.67		$ 9.67		$ 9.67		$ 9.67		$ 9.67		$ 9.67
600	$ 6.59							$ 6.59		$ 6.59		$ 6.59		$ 6.59		$ 6.59		$ 6.59		$ 6.59		$ 6.59		$ 6.59
400	$ 4.68							$ 4.68		$ 4.68		$ 4.68		$ 4.68		$ 4.68		$ 4.68		$ 4.68		$ 4.68		$ 4.68
300	$ 3.68							$ 3.68		$ 3.68		$ 3.68		$ 3.68		$ 3.68		$ 3.68		$ 3.68		$ 3.68		$ 3.68
200	$ 2.78							$ 2.78		$ 2.78		$ 2.78		$ 2.78		$ 2.78		$ 2.78		$ 2.78		$ 2.78		$ 2.78
100	$ 1.77							$ 1.77		$ 1.77		$ 1.77		$ 1.77		$ 1.77		$ 1.77		$ 1.77		$ 1.77		$ 1.77
50	$ 1.31							$ 1.31		$ 1.31		$ 1.31		$ 1.31		$ 1.31		$ 1.31		$ 1.31		$ 1.31		$ 1.31
25	$ 0.96							$ 0.96		$ 0.96		$ 0.96		$ 0.96		$ 0.96		$ 0.96		$ 0.96		$ 0.96		$ 0.96
18	$ 0.96							$ 0.96		$ 0.96		$ 0.96		$ 0.96		$ 0.96		$ 0.96		$ 0.96		$ 0.96		$ 0.96
12	$ 0.96							$ 0.96		$ 0.96		$ 0.96		$ 0.96		$ 0.96		$ 0.96		$ 0.96		$ 0.96		$ 0.96

24 Gauge Cable - Aerial

Size	FIXED COSTS						DENSITY 0-5		DENSITY 6-100		DENSITY 101-200		DENSITY 201-650		DENSITY 651-850		DENSITY 851-2550		DENSITY 2551-5000		DENSITY 5001-10000		DENSITY >10001	
	Material Cost	Supply Cost	Tax	Placing	Splicing	Engineering	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total	Adjustment	Total
4200	$ 49.58							$ 49.58		$ 49.58		$ 49.58		$ 49.58		$ 49.58		$ 49.58		$ 49.58		$ 49.58		$ 49.58
3600	$ 42.48							$ 42.48		$ 42.48		$ 42.48		$ 42.48		$ 42.48		$ 42.48		$ 42.48		$ 42.48		$ 42.48
3000	$ 35.40							$ 35.40		$ 35.40		$ 35.40		$ 35.40		$ 35.40		$ 35.40		$ 35.40		$ 35.40		$ 35.40
2400	$ 28.32							$ 28.32		$ 28.32		$ 28.32		$ 28.32		$ 28.32		$ 28.32		$ 28.32		$ 28.32		$ 28.32
2100	$ 24.78							$ 24.78		$ 24.78		$ 24.78		$ 24.78		$ 24.78		$ 24.78		$ 24.78		$ 24.78		$ 24.78
1800	$ 21.24							$ 21.24		$ 21.24		$ 21.24		$ 21.24		$ 21.24		$ 21.24		$ 21.24		$ 21.24		$ 21.24
1200	$ 14.16							$ 14.16		$ 14.16		$ 14.16		$ 14.16		$ 14.16		$ 14.16		$ 14.16		$ 14.16		$ 14.16
900	$ 10.91							$ 10.91		$ 10.91		$ 10.91		$ 10.91		$ 10.91		$ 10.91		$ 10.91		$ 10.91		$ 10.91
600	$ 8.63							$ 8.63		$ 8.63		$ 8.63		$ 8.63		$ 8.63		$ 8.63		$ 8.63		$ 8.63		$ 8.63
400	$ 5.97							$ 5.97		$ 5.97		$ 5.97		$ 5.97		$ 5.97		$ 5.97		$ 5.97		$ 5.97		$ 5.97
300	$ 4.81							$ 4.81		$ 4.81		$ 4.81		$ 4.81		$ 4.81		$ 4.81		$ 4.81		$ 4.81		$ 4.81
200	$ 3.99							$ 3.99		$ 3.99		$ 3.99		$ 3.99		$ 3.99		$ 3.99		$ 3.99		$ 3.99		$ 3.99
100	$ 2.96							$ 2.96		$ 2.96		$ 2.96		$ 2.96		$ 2.96		$ 2.96		$ 2.96		$ 2.96		$ 2.96
50	$ 3.31							$ 3.31		$ 3.31		$ 3.31		$ 3.31		$ 3.31		$ 3.31		$ 3.31		$ 3.31		$ 3.31
25	$ 3.20							$ 3.20		$ 3.20		$ 3.20		$ 3.20		$ 3.20		$ 3.20		$ 3.20		$ 3.20		$ 3.20
18	$ 3.20							$ 3.20		$ 3.20		$ 3.20		$ 3.20		$ 3.20		$ 3.20		$ 3.20		$ 3.20		$ 3.20
12	$ 3.20							$ 3.20		$ 3.20		$ 3.20		$ 3.20		$ 3.20		$ 3.20		$ 3.20		$ 3.20		$ 3.20