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NASHVILLE • MEMPHIS

424 CHURCH STREET, SUITE 2800
NASHVILLE, TENNESSEE 37219-2386
(615) 259-1450 • FAX: (615) 259-1470
www.stokesbartholomew.com

GUILFORD F. THORNTON, JR.
Direct Dial: 615/259-1492
Direct Fax: 615/687-1507
gthornton@stokesbartholomew.com

January 8, 2001

David Waddell, Executive Secretary
Tennessee Regulatory Authority
460 James Robertson Parkway
Nashville, TN 37243

RE: All Telephone Companies Tariff Filings Regarding Reclassification of Pay Telephone Service as Required by Federal Communications Commission
Docket 96-128
TRA Docket No. 97-00409

Dear Mr. Waddell:

On behalf of Citizens Telecommunications Company of the Volunteer State ("Citizens"), I am enclosing with this letter additional usage data which may have been inadvertently omitted from previous filings. Further, pursuant to telephone conversations between Mike Swatts of Citizens and Joe Shirley, please be advised that Citizens does not have measured service available in its territory, so there is no need for the TRA to establish a rate.

Copies are being served on counsel for all parties of record. Should you have any questions or require anything further at this time, please do not hesitate to contact me.

Sincerely,

Guilford F. Thornton, Jr.

cc: Mike Swatts

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing has been served upon the following individuals, via U.S. Mail, on this 8th day of January, 2001.

Richard Collier
Tennessee Regulatory Authority
460 James Robertson Parkway
Nashville, TN 37243

Guy Hicks
Patrick Turner
BellSouth
333 Commerce Street, Suite 2101
Nashville, TN 37201-3300

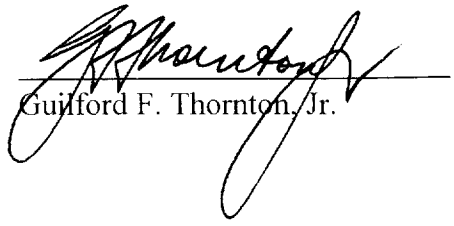
Val Sanford
Gullett, Sanford, Robinson & Martin
230 Fourth Avenue, N, 3rd Floor
Nashville, TN 37219

Henry M. Walker
Boult, Cummings, Conners & Berry
414 Union Street, Suite 1600
Nashville, TN 37219

T.G. Pappas, Esq.
Bass, Berry & Sims
2700 First American Center
Nashville, TN 37219-8888

Jon E. Hastings
Boult, Cummings, Conners & Berry
414 Union Street, Suite 1600
Nashville, TN 37219

L. Vincent Williams
Consumer Advocate
G-27 Cordell Hull Building
436 6th Avenue North
Nashville, TN 37243



Guilford F. Thornton, Jr.

Table of Contents

Citizens Telecommunications Company of Tennessee, LLC.
Response to Consumer Advocates
Discovery Request, Interrogatory 1

RE: Docket 97-00409 – Reclassification of Pay Telephone Service

I. Introduction

A. Model Description

The Cost Map Wireline Model ("CMWM") calculates the economic value of the investment in the various wireline network components required to connect customers to their serving central office and to provide a wide-range of services to these customers. The model assumes the installation of forward-looking but commercially available telecommunications technologies and uses widely accepted engineering practices and procedures. Input tables within the model allow users to enter the equipment and material prices, labor rates, and contractor costs that a company actually incurs supplying loop facilities and equipment in the states where the company operates. These same tables also enable users to test the sensitivity of the model's results by entering different input values. In addition, the model permits users to test its sensitivity in other ways, including the deployment of different network architectures and technologies.

B. Model Scope

The CMWM enables the user to calculate the incremental investment associated with supplying a wide range of services using local loop facilities. The model produces the incremental investment values necessary for supporting either the total service long-run incremental cost ("TSLRIC") of loops associated with a company's retail offerings or the total element long-run incremental cost ("TELRIC") of its various unbundled loop offerings. These incremental loop investment values are useful for several purposes. Local loops are an element of numerous services in retail tariffs, including residential and business basic local exchange service, private lines, Centrex and PBX trunks and wide-band services. Competitive local exchange carriers may also lease unbundled loops pursuant to interconnection agreements and tariffs. Moreover, to preserve and promote universal service, federal and state regulators must often obtain information concerning the costs of installing local loops in all areas. The CMWM has been designed to be sufficiently flexible to fulfill all of these multiple objectives.

C. Model Strengths

The CMWM has three general advantages over existing incremental loop investment models: greater adaptability, flexibility and accuracy. First and foremost is the model's adaptability. As mentioned above, it may be used to calculate the loop investment that supports basic local service, which can then be used as input to the calculation of universal service subsidy requirements.[1] By changing the appropriate inputs, the model also calculates the incremental forward-looking investment of unbundled loop elements or that supporting bundled retail services. Moreover, the CMWM produces forward-looking loop investment supporting retail services ranging from ordinary analog voice communication to wide-band digital transmission involving xDSL and ISDN technologies.

Second is the model's flexibility. The CMWM enables the user to select different modeling options representing differing network configurations and loop technologies. With respect to network configuration, the CMWM makes it possible, for example, for users to set varying maximum copper loop lengths in order to test for investment sensitivity. Regarding technology, users may elect to deploy fiber optic instead of copper cables in distribution plant or to install universal in place of integrated digital loop carrier. Moreover, the model is sufficiently dynamic in the sense that the appropriate technology and network design will be used to derive the necessary investment to support wide-band services.

The third advantage of the CMWM is its greater accuracy. More refined geographic information and spatial modeling techniques in the CMWM produce representations of actual customer density and dispersion with much greater precision than previously possible. For example, the use of actual company service records allows for greater accuracy in the spatial location of customers (i.e., address geocoding) as well as allows for a more accurate depiction of the service portfolio to which each of these customers subscribes. In addition, the CMWM's loop architecture includes the use of the Minimum

[1] It is important to keep clear that the CMWM only calculates investment. Calculation of service cost must be done outside the model.

Spanning Road Tree ("MSRT") algorithm that yields a realistic picture of the paths that distribution and feeder cable would actually follow (i.e., along the roads in a wire center). Finally, the CMWM has a reporting engine capable of producing multi-layered results. Investment and inventory reports allow a wealth of information to reach the user, who will then be better able to analyze and interpret the investment information.

II. Model Overview

A. Modeling Approach

The CMWM represents the next generation of "bottom-to-top" engineering/economic models for determining incremental loop investment in a wireline telecommunications network. The model runs on a Personal Computer and, through the use of spreadsheets, databases, and a user friendly interface, allows a user to determine the incremental loop investment required to supply a wide-range of services within a company's service territory. These services range from narrow-band such as POTS to wide-band such as xDSL. The model explicitly uses as input a company's customer service records, including their service address as well as the portfolio of services to which each customer currently subscribes. The model explicitly assumes the use of forward-looking technologies and efficient engineering design principles.

At its core, the CMWM is a "spatial" model in that it determines where a company's customers are actually located on a map of a wire center and "lays" cable along the roads of that wire center to serve these customers. In fact, a cable path can literally be traced from each customer's premise all the way back to the serving central office; a path that follows the actual roads in the wire center.

Serving areas are determined for a wire center based on a Minimum Spanning Road Tree (MSRT) algorithm. Simply, the MSRT is the shortest road path that connects a set of

customer locations. Once a MSRT is determined for those customers in excess of a user-defined, road feet distance from the central office (e.g., 12,000 feet), branches of the tree are "broken off" to form Carrier Serving Areas (CSAs), based on a set of engineering design constraints. A similar process for customers within the user-defined, road feet distance from the central office yields Allocation Areas. Components such as Digital Loop Carriers (DLCs) and Feeder Distribution Interfaces (FDIs) are then located with each serving area. The MSRT within each serving area then becomes the distribution cable path. A MSRT for feeder plant is also determined that links the DLCs to the CO as well as linking the FDIs in the Allocation Areas to the CO.

Once the spatial layout of the network is determined, the CMWM next "configures" the network. In essence, this entails the determination of, for example, what size of cable can be used to connect a particular FDI with the set of Distribution Terminals it serves, what terrain type will a given cable route pass through, and how many shelves and line cards are needed in a particular DLC unit. Once the network is configured or provisioned in this manner, the model then determines the dollar investment associated with each component in the network, not only by component type, for example, a DLC unit, but also by component location. That is, not only can one trace the cable route taken from the CO to a given customer, but one can also trace the investment dollars associated with each cable segment and network element along this route. This capability yields investment values at a finely disaggregated level. The user can determine the investment required to supply basic voice grade service in a given wire center, and even the investment required to supply basic voice grade service to a *specific* customer.

The CMWM calculates material only investment, EF&I investment ("engineered, furnished and installed"), and material plus EF&I investment, so called "installed investment."

B. Economic Approach

As noted above, the CMWM calculates the incremental investment required to install the various components of local loop facilities. The purpose of these investment values is to serve as inputs to the calculation of TSLRIC and TELRIC. Consequently, the model's incremental investment values are consistent with the economic principles underlying TSLRIC and TELRIC. In principle, TSLRIC and TELRIC calculations should reflect cost causation, be forward-looking in nature, avoid allocations of shared and common costs, and pertain to the long run.[2]

Any item included in an economic cost calculation must be affected by the decision in question; unaffected items should be excluded from the calculation. This is called the principle of cost causation – a true economic cost is caused by the decision in question. In the cases of TSLRIC and TELRIC, the relevant economic costs are the costs incurred (or saved) by the decision to introduce (or discontinue) an entire service or network element.

Forward-looking costs reflect the values of forward-looking technologies. For example, if the existing network consists of part fiber optic cable and part copper cable, some digital equipment and some analog equipment, the embedded or accounting cost would reflect this mix of technology. However, if all future growth and replacements will use only fiber optic cable and digital equipment, then a forward-looking economic cost analysis would appropriately use the cost of fiber optic cable and digital equipment. Perhaps more importantly, new technology drives the value of older technology. New technology drives the value of old technology in the used equipment market as well as for valuation in continued use by its existing owner. Indeed, the value of the continued use of an older technology piece of equipment is the deferred purchase of new technology. In

[2] The TSLRIC and TELRIC principles discussed here relate to their use in determining incremental cost, not for cost recovery. In fact, the FCC in the First Report and Order on Interconnection uses the term "TELRIC" in two different ways. First, "TELRIC," by itself refers simply to the type of forward-looking cost the FCC Order requires. Second, a "TELRIC pricing methodology," required by the FCC Order, utilizes TELRIC costs, but also adds a "reasonable allocation" of the provider's forward-looking joint and common costs. This second notion makes the leap from cost determination to cost recovery or pricing technique.

theory one could calculate the capital value of old equipment by considering its remaining economic life and the difference in maintenance costs between new and old technologies. However, as a practical matter, it is far easier to simply use new technology costs to represent the forward-looking costs of all assets serving that function. Certainly forward-looking incremental cost anticipates the manner in which resources will be deployed in the future, and their value, not the manner in which resources were deployed in the past or past values.

Costs caused by two or more services or elements (*i.e.*, are caused by decisions involving multiple services or elements) are called "shared" costs, meaning that their causation is shared by more than one service or element (e.g., marketing costs associated with two different services). Shared costs are often caused by decisions related to entire families of services and elements (e.g., advertising an entire line of products). In some instances, shared costs are caused by the existence of the company in its entirety. The term "common cost" is sometimes used to refer to this type of shared cost.

By their very nature, shared and common costs are not caused by a change in the output of any particular service or element, or even the provision of an entire service or element. Similarly, shared costs in a family are not caused by changes in the quantity of any particular service or element provided, or even by the existence of a single service or element. Because the allocations of costs are not (and cannot be) based on cost causation, there are thousands of possible techniques for allocating costs. Unfortunately, there is no meaningful way to choose among the possible techniques – none of them can reflect cost causation.

C. Comparison and Contrast: Existing Alternative Methodologies

The CMWM is the product of a natural evolution in "cost proxy" models that began with the FCC's search for a high-cost model for use in determining universal service subsidies. The CMWM is state of the art in terms of bottom-to-top modeling and incorporates

features similar to both a cost "proxy" model and a company-specific incremental cost model.

"Cost proxy model" is now a term of art that refers to a bottom-to-top, economic engineering model such as the HAI Model, the Benchmark Cost Proxy Model (BCPM), the Cost Proxy Model (CPM), and the FCC Synthesis Cost Model. These models were originally developed to identify high-cost areas and to determine universal service subsidy requirements. As the models were in contention for the FCC's choice of a national high-cost model, the term "cost proxy" refers to the characteristics taken on by these models that were dictated by FCC rulings and guidelines. In particular, these cost proxy models (1) are simple enough so that they can be used to estimate cost in any portion of the US; (2) were designed around the use of data available nationwide; and, (3) are generic enough so they can generate a cost estimate for any company, not just the incumbent provider, that chooses to be a universal service provider. These cost proxy models do *not* attempt to reflect the network of any specific provider. Rather, they reflect the network of a generic provider overlaid onto the terrain and customer base of an existing provider's service territory.

A company specific incremental cost model, on the other hand, is one that reflects the provider's network, uses company-specific data, and reflects the provider's engineering practices, not those of a generic provider. Indeed, a sound forward-looking cost model used to price UNEs or retail services should best reflect the resources that will be used in the future and best estimate the value of those resources. In the past, company-specific incremental cost models often relied upon a sample of customers. This characteristic limited the use of company-specific models when cost estimates were required for small geographic areas.

The CMWM draws from both types of models. The CMWM employs the same modeling philosophy as the cost proxy models in terms of "building" a wireline network in geographic space. That is, the model determines where customers are actually located within a wire center and lays out the necessary network to connect these customers to

each other and to the serving central office. However, the CMWM takes the next step and lays out the *actual* path the network is *likely* to take. That is, the CMWM network follows the actual roads from the central office to each customer's premise and does not use a modeling abstraction such as "square" or "rectangular" serving areas. The customers are where they are and the CMWM lays the plant required to serve them in these locations. Hence, each wire center will have its own unique network configuration.

Where customer locations cannot be accurately assigned to the correct street segment, a surrogate location process is used similar to that employed by the cost proxy models. However, since the model uses a company's service record addresses, the bulk of customer locations can be accurately assigned to the correct street segment. Surrogation is thus used to locate those few customers that fall out of the geocoding process and for assigning a location to non-company households that are within a company's wire centers. In fact, the use of a company's specific customer data, including each customer's current service portfolio, sets the CMWM apart from the cost proxy models and makes it specific to a particular company.

The following table lists some of the key modeling aspects of the CMWM and indicates whether the cost proxy models have the same characteristic.

Table 1. Bottom-to-Top Model Comparisons

	CMWM	FCC Synthesis Model	HAI Model	BCPM
General				
Estimate forward-looking investment of unbundled loops	Y	N	N	N
Estimate forward-looking investment supporting basic local service for USF	Y	Y	Y	Y
Model "existing node" company's wireline network	Y	N	N	N
Model "scorched node" wireline network to serve customers within company's wire	Y	Y	Y	Y

centers				
Model service to company's customers	Y	N	N	N
Model service to all potential customers within company's wire centers	Y	Y	Y	Y
Customer Location				
Model locates customers via address-geocoding	Y	N	Y	N
Model locates customers via enhanced location assignment	Y	N	N	N
Customer Aggregation				
Customer serving areas based on minimum spanning road tree path distance rather than line-of-sight distance	Y	N	N	NA
Cable Routing				
Model assumes all cable routes explicitly follow actual roads in wire center	Y	N	N	N
Model determines shortest actual road path for all cable routes	Y	N	N	N
Model "lays" cable from central office to each customers' actual premise	Y	N	N	N
Engineering				
Dynamic DLC/HDT sizing	Y	N	N	N
Variable maximum copper loop distance	Y	Y	N	N
TR-303 and TR-008 DLC concentration	Y	N	N	N
DLC-COT sharing	Y	N	N	Y
Copper gauge crossover	Y	Y	N	Y[3]
Variable CSA/AA line size limits	Y	N	N	N
T1 copper technology	N	Y	Y	N
Fiber distribution option	Y	N	N	N

[3] Distribution only.

Service specific network design	Y	N	N	N
HiCap SONET Network	Y	N	N	N
ADSL/HDSL technology	Y	N	N	N

E. Regulatory Compliance

The CMWM was developed to be compliant with the FCC's guidelines for a model that supports the calculation of TELRIC for unbundled network elements as well as those for a model that supports the calculation of basic local service cost for universal service purposes.

1. TELRIC Models

In the First Report and Order on Interconnection, the FCC concluded that a model (or study) used to support the calculation of forward-looking economic cost of unbundled network elements should yield the TELRIC of the element in question. The FCC defines TELRIC as follows:

> "The total element long-run incremental cost of an element is the forward-looking cost over the long run of the total quantity of the facilities and functions that are directly attributable to, or reasonably identifiable as incremental to, such element, calculated taking as given the incumbents LEC's provision of other elements." (Final Rule 51.505 (b))

Furthermore, the FCC concluded that the calculation of TELRIC should

> "...be measured based on the use of the most efficient telecommunications technology currently available and the lowest cost network configuration given the existing

location of the incumbent LEC's wire centers." (Final Rule 51.505 (b)(1))

The FCC discusses the practical aspects of such a cost calculation. For example, at paragraph 685:

> "Under the third approach, prices ... deployed in the incumbent LEC's *current wire center locations*. This approach *mitigates* incumbent LEC's concerns that a forward-looking pricing methodology ignores *existing network design*, while basing prices on efficient, new technology that is *compatible with existing infrastructure*. This benchmark of forward looking cost and existing network design most closely represents the incremental *cost that incumbents actually expect to incur* in making network elements available to new entrants." (Emphasis added)

The CMWM properly applies TELRIC principles to the calculation of loop investment. In addition, the existing location of a company's central offices and switches are used. Given the location of these switches and the existing wire center boundaries, the model designs a wireline network that efficiently serves customers within each wire center. This efficiency is achieved by assuming the shortest road distance between the customer and the central office, given that the customer is part of a network, for the placement of cable. It is also achieved through the process for the determination of customer service areas that strives to maximize customer membership in each area, while adhering to engineering design constraints. This minimizes the number of serving areas within a given wire center and, thus, keeps investment in electronic equipment such as Digital Loop Carriers as low as possible. Finally, the CMWM employs forward-looking technology and engineering design principles.

2. Universal Service Cost Models

The FCC Universal Service Order invited states to submit universal service cost studies that are consistent with its ten model criteria.[4] The pertinent portions of the ten criteria are presented in italics below. Following each criterion is a brief statement describing how the CMWM is consistent with the criterion. It should be noted, however, that since the CMWM calculates only loop investment and does not calculate a recurring cost, some criteria are not directly applicable to the CMWM.

(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.

As noted above, the CMWM employs forward-looking technology. Moreover, since the model calculates the investment needed to support a wide-range of services, including wide-band services, the modeled network explicitly does not impede the provision of advanced services.

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

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

The CMWM only calculates loop investment. However, the model does so at a finely desegregated level so that investment associated with sub-loop elements are provided, such as NIDs.

(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).

The CMWM estimates the long run, forward-looking incremental investment needed to support a wide-range of services supplied using the local loop network. All material cost used by the model is user-adjustable.

(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.*

The CMWM calculates only loop investment and not recurring cost. Hence, this criterion does not directly apply.

(5) Economic lives and future net salvage percentages used in calculating depreciation expense must be within the FCC-authorized range.

The CMWM calculates only loop investment and not recurring cost. Hence, this criterion does not directly apply.

(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.

The CMWM calculates the loop investment necessary to supply the existing portfolio of services to a company's customers. That is, *all* of the wireline services that are currently supplied are modeled by the CMWM. Hence, the CMWM fully accounts for economies of scale associated with the provision of these services.

The CMWM can model a network to serve three sets of customers, as described later in this manual: (1) current company customers; (2) current company customers + all other households within the given wire center; and, (3) current company customers + all other households within the given wire center + all remaining housing units within the given wire center.

(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.

The CMWM calculates only loop investment and not recurring cost. Hence, this criterion does not directly apply.

(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 CMWM was developed to allow the user to fully review and audit the calculations, formulas, and output. The companion *User Guide* provides more information on the

auditing capabilities of the model. The underlying data can be open to review (may require a protective agreement) and the engineering assumptions are reasonable and based on widely accepted engineering design principles.

(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.

The CMWM allows the user to examine and change the values of a very large number of user-adjustable inputs covering network design rules, GIS rules, and material cost. This capability is facilitated by a user-friendly interface as described in the companion *User Guide*. The model's interface allows the user to perform "what if" scenarios.

(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.

The CMWM only calculates loop investment. However, it does so at a finely disaggregated level. Investment can be reported at the wire center, or at individual customer aggregation levels within the central office.

III. Model Inputs

A. CostMap Wireline Model Inputs

The attached sheets are representative of the input tables for the CostMap Wireline Model.

Vendor "A" DLC - CE (DLC/ONU-COT)

Item	Material Cost	DS0 Capacity	Total Placing Hours	Total Cost	Description/ Source	Notes
CO CE Optical Bank/Shelf	2222.2	672	2	0	Consists of all hardwired equipment associated with the common shelf.	
CE Bank/Shelf Common Equip.	2185.3	120	2	0	Consists of all common equipment associated with the common shelf and with the same capacity.	
TSI Integrated	NA	NA	NA	0	Time Slot Interchanger. Used only when Integrated DLC is toggled.	
TSI Universal	NA	NA	NA	0	Time Slot Interchanger. Used only when Universal DLC is toggled.	
TSI Protect	NA	NA	NA	0	Time Slot Interchanger Protection.	
CO channel bank/metallic shelf SW	1995	120	1	0	Used for Integrating switched services when Integrated DLC is toggled. Consists of all hardwired equipment associated with the Channel Unit shelf.	
SW Channel Bank/Shelf CE	NA	NA	NA	0	Used for Integrating switched services when Integrated DLC is toggled. Consists of all common equipment associated with the channel bank shelf and with the same capacity.	
CO channel bank/metallic shelf NSW	NA	NA	NA	0	Used for Non-switched services when Integration DLC is toggled or Universal DLC when Universal is toggled. Consists of all hardwired equipment associated with the Channel Unit shelf.	
NSW Channel Bank/Shelf CE	NA	NA	NA	0	Used for Non-switched services when Integration DLC is toggled or Universal DLC when Universal is toggled. Consists of all common equipment associated with the channel bank shelf and with the same capacity.	
CO DS1 channel units for integration	1082.4	24	1	0	Channel units required for connection to the integrated switch interface.	
Optical ONU Bank/Shelf	NA	NA	NA	0	Used with FITL and ONU placements served from the Central Office. Input labeled DSOCapacity for this item is actually for number of ONUs per shelf and not DSOs.	
Optical Line Units	NA	NA	NA	0	1 Optical Line Unit required for each ONU.	
HDSL Common Equipment	NA	NA	NA	0	Consist of equipment other than plug-in required to provide HDSL service from a central office DLC terminal.	
ADSL Common Equipment	NA	NA	NA	0	Consist of equipment other than plug-in required to provide ADSL service from a central office DLC terminal.	
DSX Panel	500	28	3	0	Required for terminating DS1s used for Integration of switched services.	
Bay	2000	672	8	0	Inputs used when DLCs are housed in Bldg., Huts, or CEVs.	
D4 Bay	0	96	1	0	Used for Non-Switched services and unbundled network units.	
D4 Shelf	0	24	1	0	Used for Non-Switched services and unbundled network units.	
D4 Channel Unit	0	2	0.05	0	Used for Non-Switched services and unbundled network units.	

Vendor "A" DLC - Channel (DLC/ONU-COT)

Item	Material Cost	Service Capacity	Total Placing Hours	Total Cost	Description
POTS	336.2	6	0.05	0	Channel unit material and cost only applies when Universal DLC is toggled. Capacity is the number of services per unit.
COIN	545.3	6	0.05	0	Channel unit material and cost only applies when Universal DLC is toggled. Capacity is the number of services per unit.
BRI-ISDN	1230	6	0.05	0	Channel unit material and cost only applies when Universal DLC is toggled. Capacity is the number of services per unit.
CENTREX	336.2	6	0.05	0	Channel unit material and cost only applies when Universal DLC is toggled. Capacity is the number of services per unit.
SW-VGSS	336.2	6	0.05	0	Channel unit material and cost only applies when Universal DLC is toggled. Capacity is the number of services per unit.
NSW-VGSS	336.2	6	0.05	0	Material and cost applies for both Universal and Integrated . Capacity is the number of services per unit.
4-WIRE	684.7	3	0.05	0	Material and cost applies for both Universal and Integrated . Capacity is the number of services per unit.
DS1	619.1	1	0.05	0	Material and cost applies for both Universal and Integrated . Capacity is the number of services per unit.
HDSL	1082.4	1	0.05	0	Material and cost applies for both Universal and Integrated . Capacity is the number of services per unit.
ADSL	1082.4	1	0.05	0	Material and cost applies for both Universal and Integrated . Capacity is the number of services per unit.
PBX	668.3	6	0.05	0	Channel unit material and cost only applies when Universal DLC is toggled. Capacity is the number of services per unit.

Vendor "B" DLC - CE (DLC/ONU-COT)

Item	Material Cost	DS0 Capacity	Total Placing Hours	Total Cost	Description
CO CE Optical Bank/Shelf	2222.2	672	2	0	Consists of all hardwired equipment associated with the common shelf.
CE Bank/Shelf Common Equip.	2185.3	120	2	0	Consists of all common equipment associated with the common shelf and with the same capacity.
TSI Integrated	NA	NA	NA	0	Time Slot Interchanger. Used only when Integrated DLC is toggled.
TSI Universal	NA	NA	NA	0	Time Slot Interchanger. Used only when Universal DLC is toggled.
TSI Protect	NA	NA	NA	0	Time Slot Interchanger Protection.
CO channel bank/metallic shelf SW	1995	120	1	0	Used for Integrating switched services when Integrated DLC is toggled. Consists of all hardwired equipment associated with the Channel Unit shelf.
SW Channel Bank/Shelf CE	NA	NA	NA	0	Used for Integrating switched services when Integrated DLC is toggled. Consists of all common equipment associated with the channel bank shelf and with the same capacity.
CO channel bank/metallic shelf NSW	NA	NA	NA	0	Used for Non-switched services when Integration DLC is toggled or Universal DLC when Universal is toggled. Consists of all hardwired equipment associated with the Channel Unit shelf.
NSW Channel Bank/Shelf CE	NA	NA	NA	0	Used for Non-switched services when Integration DLC is toggled or Universal DLC when Universal is toggled. Consists of all common equipment associated with the channel bank shelf and with the same capacity.
CO DS1 channel units for integration	1082.4	24	1	0	Channel units required for connection to the integrated switch interface.
Optical ONU Bank/Shelf	NA	NA	NA	0	Used with FITL and ONU placements served from the Central Office. Input labeled DSOCapacity for this item is actually for number of ONUs per shelf and not DSOs.
Optical Line Units	NA	NA	NA	0	1 Optical Line Unit required for each ONU.
HDSL Common Equipment	NA	NA	NA	0	Consist of equipment other than plug-in required to provide HDSL service from a central office DLC terminal.
ADSL Common Equipment	NA	NA	NA	0	Consist of equipment other than plug-in required to provide ADSL service from a central office DLC terminal.
DSX Panel	500	28	3	0	Required for terminating DS1s used for Integration of switched services.
Bay	2000	672	8	0	Inputs used when DLCs are housed in Bldg., Huts, or CEVs.
D4 Bay	0	96	1	0	Used for Non-Switched services and unbundled network units.
D4 Shelf	0	24	1	0	Used for Non-Switched services and unbundled network units.
D4 Channel Unit	0	2	0.05	0	Used for Non-Switched services and unbundled network units.

Vendor "B" DLC - Channel (DLC/ONU-COT)

Item	Material Cost	Service Capacity	Total Placing Hours	Total Cost	Description
POTS	336.2	6	0.05	0	Channel unit material and cost only applies when Universal DLC is toggled. Capacity is the number of services per unit.
COIN	545.3	6	0.05	0	Channel unit material and cost only applies when Universal DLC is toggled. Capacity is the number of services per unit.
BRI-ISDN	1230	6	0.05	0	Channel unit material and cost only applies when Universal DLC is toggled. Capacity is the number of services per unit.
CENTREX	336.2	6	0.05	0	Channel unit material and cost only applies when Universal DLC is toggled. Capacity is the number of services per unit.
SW-VGSS	336.2	6	0.05	0	Channel unit material and cost only applies when Universal DLC is toggled. Capacity is the number of services per unit.
NSW-VGSS	336.2	6	0.05	0	Material and cost applies for both Universal and Integrated . Capacity is the number of services per unit.
4-WIRE	684.7	3	0.05	0	Material and cost applies for both Universal and Integrated . Capacity is the number of services per unit.
DS1	619.1	1	0.05	0	Material and cost applies for both Universal and Integrated .
HDSL	1082.4	1	0.05	0	Material and cost applies for both Universal and Integrated . Capacity is the number of services per unit.
ADSL	1082.4	1	0.05	0	Material and cost applies for both Universal and Integrated . Capacity is the number of services per unit.
PBX	668.3	6	0.05	0	Channel unit material and cost only applies when Universal DLC is toggled. Capacity is the number of services per unit.

Information - Channel (DLC/ONU-COT)

Item	Equipment Category	UOM
POTS	Plug-in	Item
COIN	Plug-in	Item
BRI-ISDN	Plug-in	Item
CENTREX	Plug-in	Item
SW-VGSS	Plug-in	Item
NSW-VGSS	Plug-in	Item
4-WIRE	Plug-in	Item
DS1	Plug-in	Item
HDSL	Plug-in	Item
ADSL	Plug-in	Item
PBX	Plug-in	Item

Information - CE (DLC/ONU-COT)

Item	Equipment Category	UOM
CO CE Optical Bank/Shelf	Hardwired	All
CE Bank/Shelf Common Equip.	Common	All
TSI Integrated	Common	Integrated
TSI Universal	Common	Universal
TSI Protect	Common	All
CO channel bank/metallic shelf SW	Hardwired	Integrated
SW Channel Bank/Shelf CE	Common	Integrated
CO channel bank/metallic shelf NSW	Hardwired	NSW
NSW Channel Bank/Shelf CE	Common	NSW
CO DS1 channel units for integration	Plug-in	Integrated
Optical ONU Bank/Shelf	Hardwired	ONU
Optical Line Units	Hardwired	ONU
HDSL Common Equipment	Common	HDSL
ADSL Common Equipment	Common	ADSL
DSX Panel	Hardwired	All
Bay	Hardwired	All
D4 Bay	Hardwired	NSW
D4 Shelf	Hardwired	NSW
D4 Channel Unit	Plug-in	NSW

Vendor "B" DLC - CE (DLC/ONU-DLCRT)

Item	Material Cost	DSO Capacity	Total Placing Hours	Total Contract Labor Costs	Description
RT CE Optical Bank/Shelf	4059	672	2	0	Consists of all hardwired item associated with the common shelf.
CE Bank/Shelf Common Equip. (Integrated)	NA	NA	NA	0	Consists of all common equipment associated with the common shelf and with the same cap
CE Bank/Shelf Common Equip. (Universal)	NA	NA	NA	0	Consists of all common equipment associated with the common shelf and with the same cap
TSI	NA	NA	NA	0	Time slot interghanger material cost and capacity.
TSI Protect	NA	NA	NA	0	Time slot interchanger protection.
RT channel bank /Shelf (Metallic)	NA	NA	NA	0	Material cost and capacity of remote terminal channel unit shelf/bank.
Channel Bank/Shelf CE	NA	NA	NA	0	Material cost and capacity of remote terminal channel unit shelf/bank common equipment suc
ADSL Common Equipment	NA	NA	NA	0	Consist of equipment other than a Plug-in required to provide ADSL services from the remote
HDSL Common Equipment	NA	NA	NA	0	Consist of equipment other than a Plug-in required to provide HDSL services from the remote
Optical ONU Bank/Shelf	NA	NA	NA	0	Used with FITL and ONU placements served from the remote terminal. Input labeled DSOCa
Optical Shelf CE	NA	NA	NA	0	Common equipment for optical shelf/bank used with FITL and ONU placements served from
Optical Line Units	NA	NA	NA	0	1 plug-in required for each ONU.
DSX Panel	500	28	3	0	Required for terminating DS1s used for Integration of switched services.
Batteries, Environ. Equip., Etc.	4428	672	1	0	Inputs only used when DLCs are housed in Bldg., Huts, or CEVs.
Bay	2000	672	1	0	Inputs only used when DLCs are housed in Bldg., Huts, or CEVs.
ONU Cabinet (e.g. CAD-12)	NA	NA	NA	0	Cabinet/housing for ONUs
Cabinet Small (includes Batt. Etc.)	10130.3	48	24	0	AFC. Material cost includes power, battery backup, land, right-of-way, environmental control
Cabinet Medium (includes Batt. Etc.)	38365.9	240	24	0	AFC. Material cost includes power, battery backup, land, right-of-way, environmental control
Cabinet Large (includes Batt. Etc.)	63125.8	672	28	0	AFC. Material cost includes power, battery backup, land, right-of-way, environmental control
Cabinet Xtra Large (includes Batt. Etc.)	102268.5	1440	28	0	AFC Material cost includes power, battery backup, land, right-of-way, environmental controls
Mini-Hut	NA	NA	NA	0	Above ground Hut. Material cost includes power, land, Bldg., environmental controls, etc.
Maxi -Hut	NA	NA	NA	0	Above ground Hut. Material cost includes power, land, Bldg., environmental controls, etc.
CEV 16	NA	NA	NA	0	Below ground vault. Material cost includes power, land, right-of-way, environmental controls,
CEV 24	NA	NA	NA	0	Below ground vault. Material cost includes power, land, right-of-way, environmental controls,

Vendor "B" DLC - Channel (DLC/ONU-DLCRT)

Item	Material Cost	Service Capacit	Total Placing Hours	Total Contract Labor Costs	Description
POTS	324	6	0.05	0	Material cost and service capacity of channel unit. Capacity is the number of services per uni
POTSX	600	6	0.05	0	If applicable, material cost and service capacity of extended range channel unit. If NA, input
COIN	665	6	0.05	0	Material cost and service capacity of channel unit. Capacity is the number of services per uni
COINX	665	6	0.05	0	If applicable, material cost and service capacity of extended range channel unit. If NA, input
BRI-ISDN	700	6	0.05	0	Material cost and service capacity of channel unit. Capacity is the number of services per uni
BRI-ISDNX	700	6	0.05	0	If applicable, material cost and service capacity of extended range channel unit. If NA, input
CENTREX	561	6	0.05	0	Material cost and service capacity of channel unit. Capacity is the number of services per uni
CENTREXX	561	6	0.05	0	If applicable, material cost and service capacity of extended range channel unit. If NA, input
SW-VGSS	561	6	0.05	0	Material cost and service capacity of channel unit. Capacity is the number of services per uni
SW-VGSSX	561	6	0.05	0	If applicable, material cost and service capacity of extended range channel unit. If NA, input
NSW-VGSS	561	6	0.05	0	Material cost and service capacity of channel unit. Capacity is the number of services per uni
NSW-VGSSX	561	6	0.05	0	If applicable, material cost and service capacity of extended range channel unit. If NA, input
4-WIRE	609	3	0.05	0	Material cost and service capacity of channel unit. Capacity is the number of services per uni
4-WIREX	609	3	0.05	0	If applicable, material cost and service capacity of extended range channel unit. If NA, input
DS1	800	1	0.05	0	Material cost and service capacity of channel unit. Capacity is the number of services per uni
DS1X	800	1	0.05	0	If applicable, material cost and service capacity of extended range channel unit. If NA, input
HDSL	1250	1	0.05	0	Material cost and service capacity of channel unit. Capacity is the number of services per uni
HDSLX	1250	1	0.05	0	If applicable, material cost and service capacity of extended range channel unit. If NA, input
ADSL	1250	1	0.05	0	Material cost and service capacity of channel unit. Capacity is the number of services per uni
ADSLX	1250	1	0.05	0	If applicable, material cost and service capacity of extended range channel unit. If NA, input
PBX	561	6	0.05	0	Material cost and service capacity of channel unit. Capacity is the number of services per uni
PBXX	561	6	0.05	0	If applicable, material cost and service capacity of extended range channel unit. If NA, input

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Vendor "A" DLC - CE (DLC/ONU-DLCRT)

Item	Material Cost	DSO Capacity	Total Placing Hours	Total Contract Labor Costs	Description
RT CE Optical Bank/Shelf	4059	672	2	0	Consists of all hardwired item associated with the common shelf.
CE Bank/Shelf Common Equip. (Integrated)	NA	NA	NA	0	Consists of all common equipment associated with the common shelf and with the same ca
CE Bank/Shelf Common Equip. (Universal)	NA	NA	NA	0	Consists of all common equipment associated with the common shelf and with the same ca
TSI	NA	NA	NA	0	Time slot interghanger material cost and capacity.
TSI Protect	NA	NA	NA	0	Time slot interchanger Protection material cost and capacity
RT channel bank /Shelf (Metallic)	NA	NA	NA	0	Material cost and capacity of remote terminal channel unit shelf/bank.
Channel Bank/Shelf CE	NA	NA	NA	0	Material cost and capacity of remote terminal channel unit shelf/bank common equipment s
ADSL Common Equipment	NA	NA	NA	0	Consist of equipment other than a Plug-in required to provide ADSL services from the remo
HDSL Common Equipment	NA	NA	NA	0	Consist of equipment other than a Plug-in required to provide HDSL services from the remo
Optical ONU Bank/Shelf	NA	NA	NA	0	Used with FITL and ONU placements served from a remote terminal. Input labeled DSOCa
Optical Shelf CE	NA	NA	NA	0	Common equipment for optical shelf/bank used with FITL and ONU placements served fron
Optical Line Units	NA	NA	NA	0	1 plug-in required for each ONU.
DSX Panel	500	28	3	0	Required for terminating DS1s used for Integration of switched services.
Batteries, Environ. Equip., Etc.	4428	672	1	0	Inputs only used when DLCs are housed in Bldg., Huts, or CEVs.
Bay	2000	672	1	0	Inputs only used when DLCs are housed in Bldg., Huts, or CEVs.
ONU Cabinet (e.g. CAD-12)	NA	NA	NA	0	Cabinet/housing for ONUs
Cabinet Small (includes Batt. Etc.)	10130.3	48	24	0	LSC 2001 or MESA Sport. Material cost includes power, battery backup, land, right-of-way,
Cabinet Medium (includes Batt. Etc.)	38365.9	240	24	0	LSC 2010 or MESA 2. Material cost includes power, battery backup, land, right-of-way, env
Cabinet Large (includes Batt. Etc.)	63125.8	672	28	0	LSC 2030 or MESA 4. Material cost includes power, battery backup, land, right-of-way, env
Cabinet Xtra Large (includes Batt. Etc.)	102268.5	1440	28	0	CEC 2000 or MESA 6. Material cost includes power, battery backup, land, right-of-way, env
Mini-Hut	NA	NA	NA	0	Above ground Hut. Material cost includes power, land, Bldg., environmental controls, etc.
Maxi -Hut	NA	NA	NA	0	Above ground Hut. Material cost includes power, land, Bldg., environmental controls, etc.
CEV 16	NA	NA	NA	0	Below ground vault. Material cost includes power, land, right-of-way, environmental control
CEV 16	NA	NA	NA	0	Below ground vault. Material cost includes power, land, right-of-way, environmental control

Vendor "A" DLC - Channel (DLC/ONU-DLCRT)

Item	Material Cost	Service Capaci	Total Placing Hours	Total Contract Labor Costs	Description
POTS	324	6	0.05	0	Material cost and service capacity of channel unit. Capacity is the number of services per ur
POTSX	600	6	0.05	0	If applicable, material cost and service capacity of extended range channel unit. If NA, inpu
COIN	665	6	0.05	0	Material cost and service capacity of channel unit. Capacity is the number of services per ur
COINX	665	6	0.05	0	If applicable, material cost and service capacity of extended range channel unit. If NA, inpu
BRI-ISDN	700	6	0.05	0	Material cost and service capacity of channel unit. Capacity is the number of services per ur
BRI-ISDNX	700	6	0.05	0	If applicable, material cost and service capacity of extended range channel unit. If NA, inpu
CENTREX	561	6	0.05	0	Material cost and service capacity of channel unit. Capacity is the number of services per ur
CENTREXX	561	6	0.05	0	If applicable, material cost and service capacity of extended range channel unit. If NA, inpu
SW-VGSS	561	6	0.05	0	Material cost and service capacity of channel unit. Capacity is the number of services per ur
SW-VGSSX	561	6	0.05	0	If applicable, material cost and service capacity of extended range channel unit. If NA, inpu

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ONU 24 - CE (DLC/ONU-DLCRT)

Item	Material Cost	DSO Capacity	Total Placing Hours	Total Contract Labor Costs	Description
RT CE Optical Bank/Shelf	2222.2	24	1	0	Consists of all hardwired equipment associated with the common shelf.
CE Bank/Shelf Common Equip. (Integrated)	688	24	1	0	Consists of all common equipment associated with the common shelf and with the same ca
CE Bank/Shelf Common Equip. (Universal)	688	24	1	0	Consists of all common equipment associated with the common shelf and with the same ca
TSI	NA	NA	NA	0	
TSI Protect	NA	NA	NA	0	
RT channel bank /Shelf (Metallic)	NA	NA	NA	0	
Channel Bank/Shelf CE	NA	NA	NA	0	
ADSL Common Equipment	NA	NA	NA	0	If applicable, equipment other than a channel unit required for provisioning ADSL from an C
HDSL Common Equipment	NA	NA	NA	0	If applicable, equipment other than a channel unit required for provisioning HDSL from an C
Optical ONU Bank/Shelf	NA	NA	NA	0	
Optical Shelf CE	NA	NA	NA	0	
Optical Line Units	NA	NA	NA	0	
DSX Panel	NA	NA	NA	0	
Batteries, Environ. Equip., Etc.	NA	NA	NA	0	
Bay	NA	NA	NA	0	
ONU Cabinet (e.g. CAD-12)	6788	24	1	0	Cabinet, pedestal, etc. required to house an ONU.
Cabinet Small (includes Batt. Etc.)	NA	NA	NA	0	
Cabinet Medium (includes Batt. Etc.)	NA	NA	NA	0	
Cabinet Large (includes Batt. Etc.)	NA	NA	NA	0	
Cabinet Xtra Large (includes Batt. Etc.)	NA	NA	NA	0	
Mini-Hut	NA	NA	NA	0	
Maxi -Hut	NA	NA	NA	0	
CEV 16	NA	NA	NA	0	
CEV 24	NA	NA	NA	0	

ONU 24 - Channel (DLC/ONU-DLCRT)

Item	Material Cost	Service Capacit	Total Placing Hours	Total Contract Labor Costs	Description
POTS	479.7	6	0.05	0	Material cost and service capacity of channel unit. Capacity is the number of services per ui
POTSX	639.6	6	0.05	0	If applicable, material cost and service capacity of extended range channel unit. If NA, inpi
COIN	639.6	6	0.05	0	Material cost and service capacity of channel unit. Capacity is the number of services per ui
COINX	639.6	6	0.05	0	If applicable, material cost and service capacity of extended range channel unit. If NA, inpi
BRI-ISDN	1394	6	0.05	0	Material cost and service capacity of channel unit. Capacity is the number of services per ui
BRI-ISDNX	1394	6	0.05	0	If applicable, material cost and service capacity of extended range channel unit. If NA, inpi
CENTREX	479.7	6	0.05	0	Material cost and service capacity of channel unit. Capacity is the number of services per ui
CENTREXX	479.7	6	0.05	0	If applicable, material cost and service capacity of extended range channel unit. If NA, inpi
SW-VGSS	479.7	6	0.05	0	Material cost and service capacity of channel unit. Capacity is the number of services per ui
SW-VGSSX	479.7	6	0.05	0	If applicable, material cost and service capacity of extended range channel unit. If NA, inpi
NSW-VGSS	479.7	6	0.05	0	Material cost and service capacity of channel unit. Capacity is the number of services per ui
NSW-VGSSX	479.7	6	0.05	0	If applicable, material cost and service capacity of extended range channel unit. If NA, inpi
4-WIRE	684.7	3	0.05	0	Material cost and service capacity of channel unit. Capacity is the number of services per ui
4-WIREX	684.7	3	0.05	0	If applicable, material cost and service capacity of extended range channel unit. If NA, inpi
DS1	619.1	24	0.05	0	Material cost and service capacity of channel unit. Capacity is the number of services per ui
DS1X	619.1	24	0.05	0	If applicable, material cost and service capacity of extended range channel unit. If NA, inpi
HDSL	1082.4	6	0.05	0	Material cost and service capacity of channel unit. Capacity is the number of services per ui
HDSLX	1082.4	6	0.05	0	If applicable, material cost and service capacity of extended range channel unit. If NA, inpi
ADSL	1082.4	6	0.05	0	Material cost and service capacity of channel unit. Capacity is the number of services per ui
ADSLX	1082.4	6	0.05	0	If applicable, material cost and service capacity of extended range channel unit. If NA, inpi
PBX	668.3	6	0.05	0	Material cost and service capacity of channel unit. Capacity is the number of services per ui
PBXX	668.3	6	0.05	0	If applicable, material cost and service capacity of extended range channel unit. If NA, inpi

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Information - Channel (DLC/ONU-DLCRT)

Item	Equipment Category	UOM
POTS	Plug-in	POTS
POTSX	Plug-in	POTSX
COIN	Plug-in	COIN
COINX	Plug-in	COINX
BRI-ISDN	Plug-in	BRI-ISDN
BRI-ISDNX	Plug-in	BRI-ISDNX
CENTREX	Plug-in	CENTREX
CENTREXX	Plug-in	CENTREXX
SW-VGSS	Plug-in	SW-VGSS
SW-VGSSX	Plug-in	SW-VGSSX
NSW-VGSS	Plug-in	NSW-VGSS
NSW-VGSSX	Plug-in	NSW-VGSSX
4-WIRE	Plug-in	4-WIRE
4-WIREX	Plug-in	4-WIREX
DS1	Plug-in	DS1
DS1X	Plug-in	DS1X
HDSL	Plug-in	HDSL
HDSLX	Plug-in	HDSLX
ADSL	Plug-in	ADSL
ADSLX	Plug-in	ADSLX
PBX	Plug-in	PBX
PBXX	Plug-in	PBXX

Information - CE (DLC/ONU-DLCRT)

Item	Equipment Category	UOM
RT CE Optical Bank/Shelf	Hardwired	All
CE Bank/Shelf Common Equip. (Integrated)	Common	All
CE Bank/Shelf Common Equip. (Universal)	Common	All
TSI	Common	All
TSI Protect	Common	All
RT channel bank /Shelf (Metallic)	Hardwired	All
Channel Bank/Shelf CE	Common	All
ADSL Common Equipment	Common	ADSL
HDSL Common Equipment	Common	HDSL
Optical ONU Bank/Shelf	Hardwired	All
Optical Shelf CE	Common	ONU
Optical Line Units	Plug-In	ONU
DSX Panel	Hardwired	All
Batteries, Environ. Equip., Etc.	Hardwired	All
Bay	Hardwired	All
ONU Cabinet (e.g. CAD-12)	Hardwired	All
Cabinet Small (includes Batt. Etc.)	Hardwired	All
Cabinet Medium (includes Batt. Etc.)	Hardwired	All
Cabinet Large (includes Batt. Etc.)	Hardwired	All
Cabinet Xtra Large (includes Batt. Etc.)	Hardwired	All
Mini-Hut	Hut	All
Maxi -Hut	Hut	All
CEV 16	CEV	All
CEV 24	CEV	All

COT Fiber Termination (DLC/ONU-Other)

Plant Type	Type or Size	Material Cost
Fiber Terminating Frame	6	503.62
Fiber Terminating Frame	12	1007.24
Fiber Terminating Frame	24	2019.71
Fiber Terminating Frame	48	3146.92
Fiber Terminating Frame	72	4274.13
Fiber Terminating Frame	96	5401.34
Fiber Terminating Frame	144	6528.55
Fiber Terminating Frame	216	7655.76

DLC Vendor Mix (DLC/ONU-Other)

DLC Type	Vendor "A"	Vendor "B"
Integrated	0.5	0.5
ONU	0.5	0.5
Universal	0.5	0.5

DLC/ONU Testing and Inspection (DLC/ONU-Other)

DLC Lower Limit on Size	Telco Admin and Inspection	Testing Hours
0	1	4
448	1	4
672	1	6
1344	1	6
2016	2	8
7256	2	8
9792	2	10

Underground Rural Excavation Activity (Excavation Activity)

Excavation Activity	Normal Terrain: % of Activity	SoftRock Terrain: % of Activity	HardRock: % of Activity	Water: % of Activity
Backhoe Trench	0.85	0.85	0.85	0.85
Bore Cable	0.01	0.01	0.02	0.01
Cut & Restore Asphalt	0.02	0.02	0.02	0.02
Cut & Restore Concrete	0.02	0.02	0.02	0.02
Cut & Restore Sod	0.02	0.02	0.02	0.02
Free Trench (i.e. Developer)	0.05	0.05	0.05	0.05
Hand Dig Trench	0.02	0.02	0.01	0.02
Push Pipe & Pull Cable	0.01	0.01	0.01	0.01

Underground Suburban Excavation Activity (Excavation Activity)

Excavation Activity	Normal Terrain: % of Activity	SoftRock Terrain: % of Activity	HardRock: % of Activity	Water: % of Activity
Backhoe Trench	0.3	0.3	0.42	0.26
Bore Cable	0.05	0.05	0	0.05
Cut & Restore Asphalt	0.25	0.25	0.25	0.2
Cut & Restore Concrete	0.16	0.16	0.15	0.15
Cut & Restore Sod	0.01	0.1	0.1	0.1
Free Trench (i.e. Developer)	0.1	0.1	0.05	0.2
Hand Dig Trench	0.03	0.03	0.03	0.03
Push Pipe & Pull Cable	0.01	0.01	0	0.01

Underground Urban Excavation Activity (Excavation Activity)

Excavation Activity	Normal Terrain: % of Activity	SoftRock Terrain: % of Activity	HardRock: % of Activity	Water: % of Activity
Backhoe Trench	0.11	0.21	0.26	0.27
Bore Cable	0.1	0.05	0	0.05
Cut & Restore Asphalt	0.3	0.3	0.3	0.3
Cut & Restore Concrete	0.3	0.3	0.3	0.3
Cut & Restore Sod	0.03	0.03	0.03	0.02
Free Trench (i.e. Developer)	0.05	0.05	0.05	0.05
Hand Dig Trench	0.1	0.05	0.05	0
Push Pipe & Pull Cable	0.01	0.01	0.01	0.01

Buried Rural Excavation Activity (Excavation Activity)

Excavation Activity	Normal: % of Activity	SoftRock: % of Activity	HardRock: % of Activity	Water: % of Activity
Backhoe Trench	0.04	0.04	0.13	0.03
Bore Cable	0.05	0.05	0.01	0
Cut & Restore Asphalt	0	0	0	0
Cut & Restore Concrete	0	0	0	0
Cut & Restore Sod	0	0	0	0
Free Trench (i.e. Developer)	0.01	0.01	0.01	0.01
Hand Dig Trench	0.02	0.02	0.02	0.01
Plow	0.48	0.2	0.02	0.8
Push Pipe & Pull Cable	0	0	0	0
Rocky Plow	0	0.2	0.28	0
Rocky Trench	0	0.08	0.48	0
Trench & Backfill	0.4	0.4	0.05	0.15

Buried Suburban Excavation Activity (Excavation Activity)

Excavation Activity	Normal: % of Activity	SoftRock: % of Activity	HardRock: % of Activity	Water: % of Activity
Backhoe Trench	0.04	0.1	0.12	0.03
Bore Cable	0.01	0.1	0.02	0
Cut & Restore Asphalt	0.02	0.02	0.05	0
Cut & Restore Concrete	0.02	0.02	0.05	0
Cut & Restore Sod	0.02	0.02	0.04	0
Free Trench (i.e. Developer)	0.2	0.2	0.1	0.01
Hand Dig Trench	0.02	0.02	0.02	0.01
Plow	0.1	0.1	0	0.8
Push Pipe & Pull Cable	0.02	0.02	0	0
Rocky Plow	0	0	0.1	0
Rocky Trench	0	0	0.5	0
Trench & Backfill	0.46	0.4	0	0.15

Buried Urban Excavation Activity (Excavation Activity)

Excavation Activity	Normal: % of Activity	SoftRock: % of Activity	HardRock: % of Activity	Water: % of Activity
Backhoe Trench	0.09	0.08	0.1	0.03
Bore Cable	0.05	0.05	0.05	0
Cut & Restore Asphalt	0.25	0.25	0.25	0
Cut & Restore Concrete	0.2	0.2	0.2	0
Cut & Restore Sod	0.08	0.07	0.07	0
Free Trench (i.e. Developer)	0.2	0.2	0.2	0.01
Hand Dig Trench	0.08	0.08	0.08	0.01
Plow	0	0	0	0.8
Push Pipe & Pull Cable	0	0	0	0
Rocky Plow	0	0	0	0
Rocky Trench	0	0.05	0.05	0
Trench & Backfill	0.05	0.02	0	0.15

Terrain (Terrain)

Rule	Value	Description	UOM
CriticalWaterDepth	3	Depth in feet at which water impacts placement costs	Feet
NormalUGBuriedCover	30	Minimum Cover Depth in inches for Buried/Underground Copper Cable	Inches
NormalFiberCover	36	Minimum Cover Depth in inches for Buried/Underground Fiber	Inches

Soil (Terrain)

Texture	Impact	Description of Texture
	0	Blank
BY	1	Bouldery
BY-C	1	Bouldery & Clay
BY-CL	1	Bouldery & Clay Loam
BY-COS	1	Bouldery & Course Sand
BY-COSL	1	Bouldery & Course Sandy Loam
BY-FS	1	Bouldery & Fine Sand
BY-FSL	1	Bouldery & Fine Sandy Loam
BY-L	1	Bouldery & Loam
BY-LCOS	1	Bouldery & Loamy Course Sand
BY-LFS	1	Bouldery & Loamy Fine Sand
BY-LS	1	Bouldery & Sandy Loam
BY-MPT	1	Bouldery & Mucky Peat
BY-MUCK	1	Bouldery & Muck
BY-S	1	Bouldery & Sand
BY-SC	1	Bouldery & Sandy Clay
BY-SCL	1	Bouldery & Sandy Clay Loam
BY-SIC	1	Bouldery & Silty Clay
BY-SICL	1	Bouldery & Silty Clay Loam
BY-SIL	1	Bouldery & Silty Loam
BY-SL	1	Bouldery & Sandy Loam
BY-VFS	1	Bouldery & Very Fine Sand
BY-VFSL	1	Bouldery & Very Fine Sandy Loam
BYV	1	Very Bouldery
BYV-C	1	Very Bouldery & Clay
BYV-CL	1	Very Bouldery & Clay Loam
BYV-COS	1	Very Bouldery & Course Sand
BYV-COSL	1	Very Bouldery & Course Sandy Loam
BYV-FS	1	Very Bouldery & Fine Sand
BYV-FSL	1	Very Bouldery & Fine Sandy Loam
BYV-L	1	Very Bouldery & Loamy
BYV-LCOS	1	Very Bouldery & Loamy Course Sand
BYV-LFS	1	Very Bouldery & Loamy Fine Sand
BYV-LS	1	Very Bouldery & Loamy Sand
BYV-MPT	1	Very Bouldery & Mucky Peat
BYV-MUCK	1	Very Bouldery & Muck
BYV-S	1	Very Bouldery & Sand
BYV-SC	1	Very Bouldery & Sandy Clay
BYV-SCL	1	Very Bouldery & Sandy Clay Loam
BYV-SIC	1	Very Bouldery & Silty Clay
BYV-SICL	1	Very Bouldery & Silty Clay Loam
BYV-SIL	1	Very Bouldery & Silt Loam
BYV-SL	1	Very Bouldery & Sandy Loam
BYV-VFS	1	Very Bouldery & Very Fine Sand
BYV-VFSL	1	Very Bouldery & Very Fine Sandy Loam
BYX	1	Extremely Bouldery
BYX-C	1	Extremely Bouldery & Clay
BYX-CL	1	Extremely Bouldery & Clay Loam
BYX-COS	1	Extremely Bouldery & Course Sand
BYX-COSL	1	Extremely Bouldery & Course Sandy Loam

BYX-FS	1	Extremely Bouldery & Fine Sand
BYX-FSL	1	Extremely Bouldery & Fine Sandy Loam
BYX-L	1	Extremely Bouldery & Loam
BYX-LCOS	1	Extremely Bouldery & Loamy Course Sand
BYX-LFS	1	Extremely Bouldery & Loamy Fine Sand
BYX-LS	1	Extremely Bouldery & Loamy Sand
BYX-MPT	1	Extremely Bouldery & Mucky Peat
BYX-MUCK	1	Extremely Bouldery & Muck
BYX-S	1	Extremely Bouldery & Sand
BYX-SC	1	Extremely Bouldery & Sandy Clay
BYX-SCL	1	Extremely Bouldery & Sandy Clay Loam
BYX-SIC	1	Extremely Bouldery & Silty Clay
BYX-SICL	1	Extremely Bouldery & Silty Clay Loam
BYX-SIL	1	Extremely Bouldery & Silt Loam
BYX-SL	1	Extremely Bouldery & Sandy Loam
BYX-VFS	1	Extremely Bouldery & Very Fine Sand
BYX-VFSL	1	Extremely Bouldery & Very Fine Sandy Loam
C	0	Clay
CB	0	Cobbly
CBA	1	Angular Cobbly
CBA-FSL	1	Angular Cobbly & Fine Sandy Loam
CB-C	0	Cobbly & Clay
CB-CL	0	Cobbly & Clay Loam
CB-COS	0	Cobbly & Course Sand
CB-COSL	0	Cobbly & Coarse Sandy Loam
CB-FS	0	Cobbly & Fine Sand
CB-FSL	0	Cobbly & Fine Sandy Loam
CB-L	0	Cobbly & Loamy
CB-LCOS	0	Cobbly & Loamy Course Sand
CB-LFS	0	Cobbly & Loamy Fine Sand
CB-LS	0	Cobbly & Loamy Sand
CB-MPT	0	Cobbly & Mucky Peat
CB-MUCK	0	Cobbly & Mucky
CB-S	0	Cobbly & Sand
CB-SC	0	Cobbly & Sandy Clay
CB-SCL	0	Cobbly & Sandy Clay Loam
CB-SIC	0	Cobby & Silty Clay
CB-SICL	0	Cobbly & Silty Clay Loam
CB-SIL	0	Cobbly & Silt Loam
CB-SL	0	Cobbly & Sandy Loam
CB-VFS	0	Cobbly & Very Find Sand
CB-VFSL	0	Cobbly & Very Find Sandy Loam
CBV	1	Very Cobbly
CBV-C	1	Very Cobbly & Clay
CBV-CL	1	Very Cobbly & Clay Loam
CBV-COS	1	Very Cobbly & Course Sand
CBV-COSL	1	Very Cobbly & Coarse Sandy Loam
CBV-FS	1	Very Cobbly & Fine Sand
CBV-FSL	1	Very Cobbly & Fine Sandy Loam
CBV-L	1	Very Cobbly & Loamy
CBV-LCOS	1	Very Cobbly & Loamy Course Sand
CBV-LFS	1	Very Cobbly & Loamy Fine Sand

CBV-LS	1	Very Cobbly & Loamy Sand
CBV-MPT	1	Very Cobbly & Mucky Peat
CBV-MUCK	1	Very Cobbly & Mucky
CBV-S	1	Very Cobbly & Sand
CBV-SC	1	Very Cobbly & Sandy Clay
CBV-SCL	1	Very Cobbly & Sandy Clay Loam
CBV-SIC	1	Very Cobby & Silty Clay
CBV-SICL	1	Very Cobbly & Silty Clay Loam
CBV-SIL	1	Very Cobbly & Silt Loam
CBV-SL	1	Very Cobbly & Sandy Loam
CBV-VFS	1	Very Cobbly & Very Find Sand
CBV-VFSL	1	Very Cobbly & Very Find Sandy Loam
CBX	1	Extremely Cobbly
CBX-C	1	Extremely Cobbly & Clay
CBX-CL	1	Extremely Cobbly & Clay Loam
CBX-COS	1	Extremely Cobbly & Course Sand
CBX-COSL	1	Extremely Cobbly & Course Sandy Loam
CBX-FS	1	Extremely Cobbly & Fine Sand
CBX-FSL	1	Extremely Cobbly & Fine Sandy Loam
CBX-L	1	Extremely Cobbly & Loamy
CBX-LCOS	1	Extremely Cobbly & Loamy Course Sand
CBX-LFS	1	Extremely Cobbly & Loamy Fine Sand
CBX-LS	1	Extremely Cobbly & Loamy Sand
CBX-MPT	1	Extremely Cobbly & Mucky Peat
CBX-MUCK	1	Extremely Cobbly & Muck
CBX-S	1	Extremely Cobbly & Sand
CBX-SC	1	Extremely Cobbly & Sandy Clay
CBX-SCL	1	Extremely Cobbly & Sandy Clay Loam
CBX-SIC	1	Extremely Cobbly & Silty Clay
CBX-SICL	1	Extremely Cobbly & Silty Clay Loam
CBX-SIL	1	Extremely Cobbly & Silt Loam
CBX-SL	1	Extremely Cobbly & Sandy Loam
CBX-VFS	1	Extremely Cobbly & Very Fine Sand
CBX-VFSL	1	Extremely Cobbly Very Fine Sandy Loam
CE	0	Coprogenous Earth
CIND	0	Cinders
CL	0	Clay Loam
CM	1	Cemented
CN	0	Channery
CN-C	0	Channery & Silty Loam
CN-CL	0	Channery & Clay Loam
CN-COS	0	Channery & Course Sand
CN-COSL	0	Channery & Course Sandy Loam
CN-FS	0	Channery & Fine Sand
CN-FSL	0	Channery & Fine Sandy Loam
CN-L	0	Channery & Loamy
CN-LCOS	0	Channery & Loamy Course Sand
CN-LFS	0	Channery & Loamy Fine Sand
CN-LS	0	Channery & Loamy Sand
CN-MPT	0	Channery & Mucky Peat
CN-MUCK	0	Channery & Muck
CN-S	0	Channery & Sand

CN-SC	0 Channery & Sandy Clay
CN-SCL	0 Channery & Sandy Clay Loam
CN-SIC	0 Channery & Silty Clay
CN-SICL	0 Channery & Silty Clay Loam
CN-SIL	0 Channery & Silt Loam
CN-SL	0 Channery & Sandy Loam
CN-VFS	0 Channery & Very Fine Sand
CN-VFSL	0 Channery & Very Fine Sandy Loam
CNV	0 Very Channery
CNV-C	0 Very Channery & Clay
CNV-CL	0 Very Channery & Clay Loam
CNV-COS	0 Very Channery & Course Sand
CNV-COSL	0 Very Channery & Course Sandy Loam
CNV-FS	0 Very Channery & Find Sand
CNV-FSL	0 Very Channery & Fine Sandy Loam
CNV-L	0 Very Channery & Loam
CNV-LCOS	0 Very Channery & Loamy Course Sand
CNV-LFS	0 Very Channery & Loamy Fine Sand
CNV-LS	0 Very Channery & Loamy Sand
CNV-MPT	0 Very Channery & Mucky Peat
CNV-MUCK	0 Very Channery & Mucky Peat
CNV-S	0 Very Channery & Sand
CNV-SC	0 Very Channery & Sandy Clay
CNV-SCL	0 Very Channery & Sandy Clay Loam
CNV-SIC	0 Very Channery & Silty Clay
CNV-SICL	0 Very Channery & Silty Clay Loam
CNV-SIL	0 Very Channery & Silt Loam
CNV-SL	0 Very Channery & Sandy Loam
CNV-VFS	0 Very Channery & Very Fine Sand
CNV-VFSL	0 Very Channery & Very Fine Sandy Loam
CNX	0 Extremely Channery
CNX-C	0 Extremely Channery & Clay
CNX-CL	0 Extremely Channery & Clay Loam
CNX-COS	0 Extremely Channery & Course Sand
CNX-COSL	0 Extremely Channery & Course Sandy Loam
CNX-FS	0 Extremely Channery & Fine Sand
CNX-FSL	0 Extremely Channery & Fine Sandy Loam
CNX-L	0 Extremely Channery & Loamy
CNX-LCOS	0 Extremely Channery & Loamy Course Sand
CNX-LFS	0 Extremely Channery & Loamy Fine Sand
CNX-LS	0 Extremely Channery & Loamy Sand
CNX-MPT	0 Extremely Channery & Mucky Peat
CNX-MUCK	0 Extremely Channery & Muck
CNX-S	0 Extremely Channery & Sand
CNX-SC	0 Extremely Channery & Sandy Clay
CNX-SCL	0 Extremely Channery & sandy Clay Loam
CNX-SIC	0 Extremely Channery & Silty Clay
CNX-SICL	0 Extremely Channery & Silty Clay Loam
CNX-SIL	0 Extremely Channery & Silt Loam
CNX-SL	0 Extremely Channery & Sandy Loam
CNX-VFS	0 Extremely Channery & Very Fine Sand
CNX-VFSL	0 Extremely Channery & Very Fine Sandy Loam

COS	0	Coarse Sand
COSL	0	Coarse Sandy Loam
CR	0	Cherty
CRC	1	Coarse Cherty
CR-C	1	Cherty & Clay
CR-CL	1	Cherty & Clay Loam
CR-COS	1	Cherty & Course Sand
CR-COSL	1	Cherty & Course Sandy Loam
CR-FS	1	Cherty & Fine Sand
CR-FSL	1	Cherty & Fine Sandy Loam
CR-L	1	Cherty & Loam
CR-LCOS	1	Cherty & Loamy Course Sand
CR-LFS	1	Cherty & Loamy Fine Sand
CR-LS	1	Cherty & Loamy Sand
CR-MPT	1	Cherty & Mucky Peat
CR-MUCK	1	Cherty & Muck
CR-S	1	Cherty & Sand
CR-SC	1	Cherty & Sandy Clay
CR-SCL	1	Cherty & Sandy Clay Loam
CR-SIC	1	Cherty & Silty Clay
CR-SICL	1	Cherty & Silty Clay Loam
CR-SIL	1	Cherty & Silty Loam
CR-SL	1	Cherty & Sandy Loam
CR-VFS	1	Cherty & Very Fine Sand
CR-VFSL	1	Cherty & Very Fine Sandy Loam
CRV	1	Very Cherty
CRV-C	1	Very Cherty & Clay
CRV-CL	1	Very Cherty & Clay Loam
CRV-COS	1	Very Cherty & Course Sand
CRV-COSL	1	Very Cherty & Course Sandy Loam
CRV-FS	1	Very Cherty & Fine Sand
CRV-FSL	1	Very Cherty & Fine Sandy Loam
CRV-L	1	Very Cherty & Loamy
CRV-LCOS	1	Very Cherty & Loamy Course Sand
CRV-LFS	1	Very Cherty & Loamy Fine Sand
CRV-LS	1	Very Cherty & Loamy Sand
CRV-MPT	1	Very Cherty & Mucky Peat
CRV-MUCK	1	Very Cherty & Muck
CRV-S	1	Very Cherty & Sand
CRV-SC	1	Very Cherty & Sandy Clay
CRV-SCL	1	Very Cherty & Sandy Clay Loam
CRV-SIC	1	Very Cherty & Silty Clay
CRV-SICL	1	Very Cherty & Silty Clay Loam
CRV-SIL	1	Very Cherty & Silt Loam
CRV-SL	1	Very Cherty & Sandy Loam
CRV-VFS	1	Very Cherty & Very Fine Sand
CRV-VFSL	1	Very Cherty & Very Fine Sandy Loam
CRX	1	Extremely Cherty
CRX-C	1	Extremely Cherty & Clay
CRX-CL	1	Extremely Cherty & Clay Loam
CRX-COS	1	Extremely Cherty & Course Sand
CRX-COSL	1	Extremely Cherty & Course Sandy Loam

CRX-FS	1 Extremely Cherty & Fine Sand
CRX-FSL	1 Extremely Cherty & Fine Sandy Loam
CRX-L	1 Extremely Cherty & Loamy
CRX-LCOS	1 Extremely Cherty & Loamy Course Sand
CRX-LFS	1 Extremely Cherty & Loamy Fine Sand
CRX-LS	1 Extremely Cherty & Loamy Sand
CRX-MPT	1 Extremely Cherty & Mucky Peat
CRX-MUCK	1 Extremely Cherty & Muck
CRX-S	1 Extremely Cherty & Sand
CRX-SC	1 Extremely Cherty & Sandy Clay
CRX-SCL	1 Extremely Cherty & Sandy Clay Loam
CRX-SIC	1 Extremely Cherty & Silty Clay
CRX-SICL	1 Extremely Cherty & Silty Clay Loam
CRX-SIL	1 Extremely Cherty & Silt Loam
CRX-SL	1 Extremely Cherty & Sandy Loam
CRX-VFS	1 Extremely Cherty & Very Fine Sand
CRX-VFSL	1 Extremely Cherty & Very Fine Sandy Loam
DE	0 Diotomaceous Earth
FB	0 Fibric Material
FINE	0 Fine
FL	0 Flaggy
FL-C	0 Flaggy & Clay
FL-CL	0 Flaggy & Clay Loam
FL-COS	0 Flaggy & Course Sand
FL-COSL	0 Flaggy & Course Sandy Loam
FL-FS	0 Flaggy & Fine Sand
FL-FSL	0 Flaggy & Fine Sandy Loam
FL-L	0 Flaggy & Loamy
FL-LCOS	0 Flaggy & Loamy Course Sand
FL-LFS	0 Flaggy & Loamy Fine Sand
FL-LS	0 Flaggy & Loamy Sand
FL-MPT	0 Flaggy & Mucky Peat
FL-MUCK	0 Flaggy & Muck
FL-S	0 Flaggy & Sand
FL-SC	0 Flaggy & Sandy Clay
FL-SCL	0 Flaggy & Sandy Clay Loam
FL-SIC	0 Flaggy & Silty Clay
FL-SICL	0 Flaggy & Silty Clay Loam
FL-SIL	0 Flaggy & Silt Loam
FL-SL	0 Flaggy & Sandy Loam
FL-VFS	0 Flaggy & Very Fine Sand
FL-VFSL	0 Flaggy & Very Fine Sandy Loam
FLV	1 Very Flaggy
FLV-C	1 Very Flaggy & Clay
FLV-CL	1 Very Flaggy & Clay Loam
FLV-COS	1 Very Flaggy & Course Sand
FLV-COSL	1 Very Flaggy & Course Sandy Loam
FLV-FS	1 Very Flaggy & Fine Sand
FLV-FSL	1 Very Flaggy & Fine Sandy Loam
FLV-L	1 Very Flaggy & Loamy
FLV-LCOS	1 Very Flaggy & Loamy Course Sand
FLV-LFS	1 Very Flaggy & Loamy Fine Sand

FLV-LS	1 Very Flaggy & Loamy Sand
FLV-MPT	1 Very Flaggy & Mucky Peat
FLV-MUCK	1 Very Flaggy & Muck
FLV-S	1 Very Flaggy & Sand
FLV-SC	1 Very Flaggy & Sandy Clay
FLV-SCL	1 Very Flaggy & Silty Clay
FLV-SIC	1 Very Flaggy & Silty Clay
FLV-SICL	1 Very Flaggy & Silt Clay Loam
FLV-SIL	1 Very Flaggy & Silt Loam
FLV-SL	1 Very Flaggy & Sandy Loam
FLV-VFS	1 Very Flaggy & Very Fine Sand
FLV-VFSL	1 Very Flaggy & Very Fine Sandy Loam
FLX	1 Extremely Flaggy
FLX-C	1 Extremely Flaggy & Clay
FLX-CL	1 Extremely Flaggy & Clay Loam
FLX-COS	1 Extremely Flaggy & Course Sand
FLX-COSL	1 Extremely Flaggy & Course Sandy Loam
FLX-FS	1 Extremely Flaggy & Fine Sand
FLX-FSL	1 Extremely Flaggy & Fine Sandy Loam
FLX-L	1 Extremely Flaggy & Laomy
FLX-LCOS	1 Extremely Flaggy & Loamy Course Sand
FLX-LFS	1 Extremely Flaggy & Loamy Fine Sand
FLX-LS	1 Extremely Flaggy & Loamy Sand
FLX-MPT	1 Extremely Flaggy & Mucky Peat
FLX-MUCK	1 Extremely Flaggy & Muck
FLX-S	1 Extremely Flaggy & Sand
FLX-SC	1 Extremely Flaggy & Sandy Clay
FLX-SCL	1 Extremely Flaggy & Sandy Clay Loam
FLX-SIC	1 Extremely Flaggy & Silty Clay
FLX-SICL	1 Extremely Flaggy & Silty Clay Loam
FLX-SIL	1 Extremely Flaggy & Silt Loam
FLX-SL	1 Extremely Flaggy & Sandy Loam
FLX-VFS	1 Extremely Flaggy & Very Fine Sand
FLX-VFSL	1 Extremely Flaggy & very Fine Sandy Loam
FRAG	0 Fragmental Material
FS	0 Fine Sand
FSL	0 Fine Sandy Loam
G	0 Gravel
GR	0 Gravelly
GRC	0 Course Gravelly
GR-C	0 Gravel & Clay
GR-CL	0 Gravel & Clay Loam
GR-COS	0 Gravel & Course Sand
GR-COSL	0 Gravel & Coarse Sandy Loam
GR-FS	0 Gravel & Fine Sand
GR-FSL	0 Gravel & Fine Sandy Loam
GR-L	0 Gravel & Loamy
GR-LCOS	0 Gravel & Loamy Course Sand
GR-LFS	0 Gravel & Loamy Fine Sand
GR-LS	0 Gravel & Loamy Sand
GR-MPT	0 Gravel & Mucky Peat
GR-MUCK	0 Gravel & Mucky

GR-S	0 Gravel & Sand
GR-SC	0 Gravel & Sandy Clay
GR-SCL	0 Gravel & Sandy Clay Loam
GR-SIC	0 Gravel & Silty Clay
GR-SICL	0 Gravel & Slity Clay Loam
GR-SIL	0 Gravel & Slity Loam
GR-SL	0 Gravel & Sandy Loam
GR-VFSL	0 Gravel & Very Fine Sandy
GR-VFSL	0 Gravel & Very Fine Sandy Loam
GRF	0 Fine Gravel
GRF-C	0 Fine Gravel & Clay
GRF-CL	0 Fine Gravel & Clay Loam
GRF-COS	0 Fine Gravel & Course Sand
GRF-COSL	0 Fine Gravel & Coarse Sandy Loam
GRF-FS	0 Fine Gravel & Fine Sand
GRF-FSL	0 Fine Gravel & Fine Sandy Loam
GRF-L	0 Fine Gravel & Loamy
GRF-LCOS	0 Fine Gravel & Loamy Course Sand
GRF-LFS	0 Fine Gravel & Loamy Fine Sand
GRF-LS	0 Fine Gravel & Loamy Sand
GRF-MPT	0 Fine Gravel & Mucky Peat
GRF-MUCK	0 Fine Gravel & Mucky
GRF-S	0 Fine Gravel & Sand
GRF-SC	0 Fine Gravel & Sandy Clay
GRF-SCL	0 Fine Gravel & Sandy Clay Loam
GRF-SIC	0 Fine Gravel & Silty Clay
GRF-SICL	0 Fine Gravel & Slity Clay Loam
GRF-SIL	0 Fine Gravel & Slity Loam
GRF-SL	0 Fine Gravel & Sandy Loam
GRF-VFSL	0 Fine Gravel & Very Fine Sandy
GRF-VFSL	0 Fine Gravel & Very Fine Sandy Loam
GRV	1 Very Gravelly
GRV-C	1 Very Gravelly & Clay
GRV-CL	1 Very Gravelly & Clay Loam
GRV-COS	1 Very Gravelly & Course Sand
GRV-COSL	1 Very Gravelly & Coarse Sandy Loam
GRV-FS	1 Very Gravelly & Fine Sand
GRV-FSL	1 Very Gravelly & Fine Sandy Loam
GRV-L	1 Very Gravelly & Loamy
GRV-LCOS	1 Very Gravelly & Loamy Course Sand
GRV-LFS	1 Very Gravelly & Loamy Fine Sand
GRV-LS	1 Very Gravelly & Loamy Sand
GRV-MPT	1 Very Gravelly & Mucky Peat
GRV-MUCK	1 Very Gravelly & Mucky
GRV-S	1 Very Gravelly & Sand
GRV-SC	1 Very Gravelly & Sandy Clay
GRV-SCL	1 Very Gravelly & Sandy Clay Loam
GRV-SIC	1 Very Gravelly & Silty Clay
GRV-SICL	1 Very Gravelly & Slity Clay Loam
GRV-SIL	1 Very Gravelly & Slity Loam
GRV-SL	1 Very Gravelly & Sandy Loam
GRV-VFSL	1 Very Gravelly & Very Fine Sandy

GRV-VFSL	1	Very Gravelly & Very Fine Sandy Loam
GRX	1	Extremely Gravelly
GRX-C	1	Extremely Gravelly & Clay
GRX-CL	1	Extremely Gravelly & Clay Loam
GRX-COS	1	Extremely Gravelly & Course Sand
GRX-COSL	1	Extremely Gravelly & Coarse Sandy Loam
GRX-FS	1	Extremely Gravelly & Fine Sand
GRX-FSL	1	Extremely Gravelly & Fine Sandy Loam
GRX-L	1	Extremely Gravelly & Loamy
GRX-LCOS	1	Extremely Gravelly & Loamy Course Sand
GRX-LFS	1	Extremely Gravelly & Loamy Fine Sand
GRX-LS	1	Extremely Gravelly & Loamy Sand
GRX-MPT	1	Extremely Gravelly & Mucky Peat
GRX-MUCK	1	Extremely Gravelly & Mucky
GRX-S	1	Extremely Gravelly & Sand
GRX-SC	1	Extremely Gravelly & Sandy Clay
GRX-SCL	1	Extremely Gravelly & Sandy Clay Loam
GRX-SIC	1	Extremely Gravelly & Silty Clay
GRX-SICL	1	Extremely Gravelly & Slity Clay Loam
GRX-SIL	1	Extremely Gravelly & Slity Loam
GRX-SL	1	Extremely Gravelly & Sandy Loam
GRX-VFSL	1	Extremely Gravelly & Very Fine Sandy
GRX-VFSL	1	Extremely Gravelly & Very Fine Sandy Loam
GYP	1	Gypsiferous Material
HM	0	Hemic Material
ICE	1	Ice or Frozen Soil
IND	1	Indurated
L	0	Loam
LCOS	0	Loamy Course Sand
LFS	0	Loamy Fine Sand
LS	0	Loamy Sand
LVFS	0	Loamy Very Fine Sand
MARL	0	Marl
MEDIUM COL	0	Medium Course
MK	0	Mucky
MK-C	0	Mucky & Clay
MK-CL	0	Mucky & Clay Loam
MK-COS	0	Mucky & Course Sand
MK-COSL	0	Mucky & Coarse Sandy Loam
MK-FS	0	Mucky & Fine Sand
MK-FSL	0	Mucky & Fine Sandy Loam
MK-L	0	Mucky & Loamy
MK-LCOS	0	Mucky & Loamy Course Sand
MK-LFS	0	Mucky & Loamy Fine Sand
MK-LS	0	Mucky & Loamy Sand
MK-MPT	0	Mucky & Mucky Peat
MK-MUCK	0	Mucky & Mucky
MK-S	0	Mucky & Sand
MK-SC	0	Mucky & Sandy Clay
MK-SCL	0	Mucky & Sandy Clay Loam
MK-SIC	0	Mucky & Silty Clay
MK-SICL	0	Mucky & Slity Clay Loam

MK-SIL	0	Mucky & Slity Loam
MK-SL	0	Mucky & Sandy Loam
MK-VFSL	0	Mucky & Very Fine Sandy
MK-VFSL	0	Mucky & Very Fine Sandy Loam
MPT	0	Mucky Peat
MUCK	0	Muck
PEAT	0	Peat
PT	0	Peaty
RB	1	Rubbly
RB-FSL	1	Rubbly Fine Sandy Loam
S	0	Sand
SC	0	Sandy Clay
SCL	0	Sandy Clay Loam
SG	0	Sand & Gravel
SH	0	Shaly
SH-C	0	Shaly & Clay
SH-CL	0	Shaly & Clay Loam
SH-COS	0	Shaly & Course Sand
SH-COSL	0	Shaly & Coarse Sandy Loam
SH-FS	0	Shaly & Fine Sand
SH-FSL	0	Shaly & Fine Sandy Loam
SH-L	0	Shaly & Loamy
SH-LCOS	0	Shaly & Loamy Course Sand
SH-LFS	0	Shaly & Loamy Fine Sand
SH-LS	0	Shaly & Loamy Sand
SH-MPT	0	Shaly & Mucky Peat
SH-MUCK	0	Shaly & Mucky
SH-S	0	Shaly & Sand
SH-SC	0	Shaly & Sandy Clay
SH-SCL	0	Shaly & Sandy Clay Loam
SH-SIC	0	Shaly & Silty Clay
SH-SICL	0	Shaly & Slity Clay Loam
SH-SIL	0	Shaly & Slity Loam
SH-SL	0	Shaly & Sandy Loam
SH-VFSL	0	Shaly & Very Fine Sandy
SH-VFSL	0	Shaly & Very Fine Sandy Loam
SHV	1	Very Shaly
SHV-C	1	Very Shaly & Clay
SHV-CL	1	Very Shaly & Clay Loam
SHV-COS	1	Very Shaly & Course Sand
SHV-COSL	1	Very Shaly & Coarse Sandy Loam
SHV-FS	1	Very Shaly & Fine Sand
SHV-FSL	1	Very Shaly & Fine Sandy Loam
SHV-L	1	Very Shaly & Loamy
SHV-LCOS	1	Very Shaly & Loamy Course Sand
SHV-LFS	1	Very Shaly & Loamy Fine Sand
SHV-LS	1	Very Shaly & Loamy Sand
SHV-MPT	1	Very Shaly & Mucky Peat
SHV-MUCK	1	Very Shaly & Mucky
SHV-S	1	Very Shaly & Sand
SHV-SC	1	Very Shaly & Sandy Clay
SHV-SCL	1	Very Shaly & Sandy Clay Loam

SHV-SIC	1 Very Shaly & Silty Clay
SHV-SICL	1 Very Shaly & Slity Clay Loam
SHV-SIL	1 Very Shaly & Slity Loam
SHV-SL	1 Very Shaly & Sandy Loam
SHV-VFSL	1 Very Shaly & Very Fine Sandy
SHV-VFSL	1 Very Shaly & Very Fine Sandy Loam
SHX	1 Extremely Shaly
SHX-C	1 Extremely Shaly & Clay
SHX-CL	1 Extremely Shaly & Clay Loam
SHX-COS	1 Extremely Shaly & Course Sand
SHX-COSL	1 Extremely Shaly & Coarse Sandy Loam
SHX-FS	1 Extremely Shaly & Fine Sand
SHX-FSL	1 Extremely Shaly & Fine Sandy Loam
SHX-L	1 Extremely Shaly & Loamy
SHX-LCOS	1 Extremely Shaly & Loamy Course Sand
SHX-LFS	1 Extremely Shaly & Loamy Fine Sand
SHX-LS	1 Extremely Shaly & Loamy Sand
SHX-MPT	1 Extremely Shaly & Mucky Peat
SHX-MUCK	1 Extremely Shaly & Mucky
SHX-S	1 Extremely Shaly & Sand
SHX-SC	1 Extremely Shaly & Sandy Clay
SHX-SCL	1 Extremely Shaly & Sandy Clay Loam
SHX-SIC	1 Extremely Shaly & Silty Clay
SHX-SICL	1 Extremely Shaly & Slity Clay Loam
SHX-SIL	1 Extremely Shaly & Slity Loam
SHX-SL	1 Extremely Shaly & Sandy Loam
SHX-VFSL	1 Extremely Shaly & Very Fine Sandy
SHX-VFSL	1 Extremely Shaly & Very Fine Sandy Loam
SI	0 Silt
SIC	0 Silty Clay
SICL	0 Silty Clay Loam
SIL	0 Silt Loam
SL	0 Sandy Loam
SP	0 Sapric Material
SR	0 Stratified
ST	0 Stony
ST-C	0 Stony & Clay
ST-CL	0 Stony & Clay Loam
ST-COS	0 Stony & Course Sand
ST-COSL	0 Stony & Coarse Sandy Loam
ST-FS	0 Stony & Fine Sand
ST-FSL	0 Stony & Fine Sandy Loam
ST-L	0 Stony & Loamy
ST-LCOS	0 Stony & Loamy Course Sand
ST-LFS	0 Stony & Loamy Fine Sand
ST-LS	0 Stony & Loamy Sand
ST-MPT	0 Stony & Mucky Peat
ST-MUCK	0 Stony & Mucky
ST-S	0 Stony & Sand
ST-SC	0 Stony & Sandy Clay
ST-SCL	0 Stony & Sandy Clay Loam
ST-SIC	0 Stony & Silty Clay

ST-SICL	0 Stony & Slity Clay Loam
ST-SIL	0 Stony & Slity Loam
ST-SL	0 Stony & Sandy Loam
ST-VFSL	0 Stony & Very Fine Sandy
ST-VFSL	0 Stony & Very Fine Sandy Loam
STV	1 Very Stony
STV-C	1 Very Stony & Clay
STV-CL	1 Very Stony & Clay Loam
STV-COS	1 Very Stony & Course Sand
STV-COSL	1 Very Stony & Coarse Sandy Loam
STV-FS	1 Very Stony & Fine Sand
STV-FSL	1 Very Stony & Fine Sandy Loam
STV-L	1 Very Stony & Loamy
STV-LCOS	1 Very Stony & Loamy Course Sand
STV-LFS	1 Very Stony & Loamy Fine Sand
STV-LS	1 Very Stony & Loamy Sand
STV-MPT	1 Very Stony & Mucky Peat
STV-MUCK	1 Very Stony & Mucky
STV-S	1 Very Stony & Sand
STV-SC	1 Very Stony & Sandy Clay
STV-SCL	1 Very Stony & Sandy Clay Loam
STV-SIC	1 Very Stony & Silty Clay
STV-SICL	1 Very Stony & Slity Clay Loam
STV-SIL	1 Very Stony & Slity Loam
STV-SL	1 Very Stony & Sandy Loam
STV-VFSL	1 Very Stony & Very Fine Sandy
STV-VFSL	1 Very Stony & Very Fine Sandy Loam
STX	1 Extremely Stony
STX-C	1 Extremely Stony & Clay
STX-CL	1 Extremely Stony & Clay Loam
STX-COS	1 Extremely Stony & Course Sand
STX-COSL	1 Extremely Stony & Coarse Sandy Loam
STX-FS	1 Extremely Stony & Fine Sand
STX-FSL	1 Extremely Stony & Fine Sandy Loam
STX-L	1 Extremely Stony & Loamy
STX-LCOS	1 Extremely Stony & Loamy Course Sand
STX-LFS	1 Extremely Stony & Loamy Fine Sand
STX-LS	1 Extremely Stony & Loamy Sand
STX-MPT	1 Extremely Stony & Mucky Peat
STX-MUCK	1 Extremely Stony & Mucky
STX-S	1 Extremely Stony & Sand
STX-SC	1 Extremely Stony & Sandy Clay
STX-SCL	1 Extremely Stony & Sandy Clay Loam
STX-SIC	1 Extremely Stony & Silty Clay
STX-SICL	1 Extremely Stony & Slity Clay Loam
STX-SIL	1 Extremely Stony & Slity Loam
STX-SL	1 Extremely Stony & Sandy Loam
STX-VFSL	1 Extremely Stony & Very Fine Sandy
STX-VFSL	1 Extremely Stony & Very Fine Sandy Loam
SY	1 Slaty
SY-C	1 Slaty & Clay
SY-CL	1 Slaty & Clay Loam

SY-COS	1 Slaty & Course Sand
SY-COSL	1 Slaty & Coarse Sandy Loam
SY-FS	1 Slaty & Fine Sand
SY-FSL	1 Slaty & Fine Sandy Loam
SY-L	1 Slaty & Loamy
SY-LCOS	1 Slaty & Loamy Course Sand
SY-LFS	1 Slaty & Loamy Fine Sand
SY-LS	1 Slaty & Loamy Sand
SY-MPT	1 Slaty & Mucky Peat
SY-MUCK	1 Slaty & Mucky
SY-S	1 Slaty & Sand
SY-SC	1 Slaty & Sandy Clay
SY-SCL	1 Slaty & Sandy Clay Loam
SY-SIC	1 Slaty & Silty Clay
SY-SICL	1 Slaty & Slity Clay Loam
SY-SIL	1 Slaty & Slity Loam
SY-SL	1 Slaty & Sandy Loam
SY-VFSL	1 Slaty & Very Fine Sandy
SY-VFSL	1 Slaty & Very Fine Sandy Loam
SYV	1 Very Slaty
SYV-C	1 Very Slaty & Clay
SYV-CL	1 Very Slaty & Clay Loam
SYV-COS	1 Very Slaty & Course Sand
SYV-COSL	1 Very Slaty & Coarse Sandy Loam
SYV-FS	1 Very Slaty & Fine Sand
SYV-FSL	1 Very Slaty & Fine Sandy Loam
SYV-L	1 Very Slaty & Loamy
SYV-LCOS	1 Very Slaty & Loamy Course Sand
SYV-LFS	1 Very Slaty & Loamy Fine Sand
SYV-LS	1 Very Slaty & Loamy Sand
SYV-MPT	1 Very Slaty & Mucky Peat
SYV-MUCK	1 Very Slaty & Mucky
SYV-S	1 Very Slaty & Sand
SYV-SC	1 Very Slaty & Sandy Clay
SYV-SCL	1 Very Slaty & Sandy Clay Loam
SYV-SIC	1 Very Slaty & Silty Clay
SYV-SICL	1 Very Slaty & Slity Clay Loam
SYV-SIL	1 Very Slaty & Slity Loam
SYV-SL	1 Very Slaty & Sandy Loam
SYV-VFSL	1 Very Slaty & Very Fine Sandy
SYV-VFSL	1 Very Slaty & Very Fine Sandy Loam
STX	1 Extremely Stony
STX-C	1 Extremely Stony & Clay
STX-CL	1 Extremely Stony & Clay Loam
STX-COS	1 Extremely Stony & Course Sand
STX-COSL	1 Extremely Stony & Coarse Sandy Loam
STX-FS	1 Extremely Stony & Fine Sand
STX-FSL	1 Extremely Stony & Fine Sandy Loam
STX-L	1 Extremely Stony & Loamy
STX-LCOS	1 Extremely Stony & Loamy Course Sand
STX-LFS	1 Extremely Stony & Loamy Fine Sand
STX-LS	1 Extremely Stony & Loamy Sand

STX-MPT	1	Extremely Stony & Mucky Peat
STX-MUCK	1	Extremely Stony & Mucky
STX-S	1	Extremely Stony & Sand
STX-SC	1	Extremely Stony & Sandy Clay
STX-SCL	1	Extremely Stony & Sandy Clay Loam
STX-SIC	1	Extremely Stony & Silty Clay
STX-SICL	1	Extremely Stony & Slity Clay Loam
STX-SIL	1	Extremely Stony & Slity Loam
STX-SL	1	Extremely Stony & Sandy Loam
STX-VFSL	1	Extremely Stony & Very Fine Sandy
STX-VFSL	1	Extremely Stony & Very Fine Sandy Loam
UNK	0	Unknown
UWB	1	Unweathered Bedrock
VAR	0	Variable
VFS	0	Very Fine Sand
VFSL	0	Very Fine Sandy loam
WB	1	Weathered Bedrock

Aerial Sharing (Plant Sharing Tables)

Density	Poles: % Telco
0	0.33
5	0.33
100	0.33
200	0.33
650	0.33
850	0.33
2550	0.33
5000	0.33
10000	0.33

Buried Sharing (Plant Sharing Tables)

Excavation Activity	Urban: % Telco	Suburban: % Telco	Rural: % Telco
Backhoe Trench	0.8	0.8	0.95
Bore Cable	0.8	0.8	0.95
Cut & Restore Asphalt	0.8	0.8	0.95
Cut & Restore Concrete	0.8	0.8	0.95
Cut & Restore Sod	0.8	0.8	0.95
Free Trench (i.e. Developer)	0.33	0.33	0.5
Hand Dig Trench	0.8	0.8	0.95
Plow	1	1	1
Push Pipe & Pull Cable	0.8	0.8	0.95
Rocky Plow	1	1	1
Rocky Trench	0.8	0.8	0.95
Trench & Backfill	0.8	0.8	0.95

Media Sharing (Plant Sharing Tables)

Cable Size	Cable Structure %	Fiber Structure %
0	0.5	0.5
200	0.5	0.5
900	0.5	0.5
2400	0.5	0.5
4200	0.5	0.5
>4200	0.5	0.5

Underground Sharing (Plant Sharing Tables)

Excavation Activity	Urban Shared Percer	Suburb Shared Perc	Rural Shared Percent Assigned to Telephon
Backhoe Trench	0.85	0.9	0.98
Bore Cable	0.85	0.9	0.98
Cut & Restore Asphalt	0.85	0.9	0.98
Cut & Restore Concrete	0.85	0.9	0.98
Cut & Restore Sod	0.85	0.9	0.98
Free Trench (i.e. Developer)	0.33	0.33	0.33
Hand Dig Trench	0.85	0.9	0.98
Push Pipe & Pull Cable	0.85	0.9	0.98

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Plant Mix (Engineering Rules)

Density Lower Range	Density Upper Range	Density Group	Cost Family	Water Table	Bedrock Depth	Terrain Difficulty	Percent Aerial	Percent Buried	Percent Underground	Order of Processing
0	100000000	*	*	1000	1000	*	0.65	0.25	0.1	1
0	100000000	Rural	Dist	1000	1000	*	0.75	0.25	0	2
0	100000000	Suburban	Dist	1000	1000	*	0.65	0.3	0.05	3
0	100000000	Urban	Dist	1000	1000	*	0.65	0.3	0.05	4
0	100000000	Rural	Fdr	1000	1000	*	0.75	0.25	0	5
0	100000000	Suburban	Fdr	1000	1000	*	0.75	0.1	0.15	6
0	100000000	Urban	Fdr	1000	1000	*	0.75	0.1	0.15	7
0	100000000	*	*	15	1000	*	1	0	0	8
0	100000000	*	*	1000	3	*	1	0	0	9
5000	10000	*	*	1000	1000	*	0	0	1	10

Underground Spacing (Engineering Rules)

Structure	Type or Size	Spacing	Description
Manholes	1	300	Distance between vault/pullboxes placed for one cable.
Manholes	2	600	Distance between vaults/handholes placed for two cables.
Manholes	3	600	Distance between small vault/manholes placed for three or four cables.
Manholes	5	600	Distance between large vault/manholes placed for five or more cables.

Outside Contractor Use (Engineering Rules)

Network Element	Use Contractor Labor
BuildingCable	Y
Conduit	Y
DLC-COT	N
DLC-RT	N
DropAndNID	Y
DTBT	Y
FDI	Y
FITL	N
Manhole	Y
Media	Y
ONU	N
Poles	Y
SONET	N
Trench	Y

GIS Rules (Engineering Rules)

Rule	Value	UOM
AALineDesignLimit	2000	Lines
AALineMinimumLimit	10	Lines
BTDTToFDIXover	50	HH
CopperLengthDesignLimit	12000	Feet
CopperLengthHardLimit	18000	Feet
DLCLengthDesignLimit	12000	Feet
DLCLengthHardLimit	18000	Feet
DLCLineDesignLimit	672	Lines
DLCLineInitialExtPct	10	
DLCLineMinimumLimit	25	Lines
DTBTHHDesignLimit	6	HH
FDILineDesignLimit	900	Lines
FDIToDLCXoverBus	50	DS0
FDIToDLCXoverTotal	100	DS0
MaxDropLen	700	Feet
MinimizeTotDistFDICost	Yes	Text
NIDToBTDTXover	6	Lines
NumberNodesPerRing	5	Nodes
UseActualCustomerLocations	Yes	Text
UseActualNetworkLocations	No	Text

Network Rules (Engineering Rules)

Rule	Value	UOM
AA24/26GaugeXover	3000	Feet
BuildToWhat	Household	Text
CSA24/26GaugeXover	500	Feet
CustomerGrowthFactor	0	Percent
DesignPairsPerHU	2	Pairs
DistributionSizingRoutine	PairsPerHo	Text
DS1XoverToFOatLot	12	DS1s
FDICableDesignPairsPerHU	1.5	Factor
HiCapNodesPerSONETRing	6	Nodes
MaximumCUCableSize	3000	Pairs
MaximumFOSize	216	Strands
MinFDIToDLCAANDistance	8	Feet
MinFOStrandsPerONU	1	Strands
MinFOStrandsPerRing	6	Strands
MinimumCUCableSize	25	Pairs
MinimumFOSize	12	Strands
MinimumPairsPerBusiness	4	Pairs
PoleSizeWithoutSharing	30	Feet
PoleSizeWithSharing	45	Feet
SonetFDRNumNodesPerRing	4	Nodes
TR008BusConcentrationRatio	1	
TR008ResConcentrationRatio	2	
TR303BusConcentrationRatio	3	
TR303ResConcentrationRatio	4	
WaterDepthCev/HutXover	12	Feet

Description

Design Limit for the number of lines to place in a Allocation Area served from a central office on copper cable. - Not a Hard Limit
Design breakpoint at which the length of the copper cable will be extended to minimize number of FDIs placed. For lines more than limit an additional FDI is placed.
Crossover to installation of an FDI at the customer premise in lieu of placing NID, DT, or BT.
The maximum copper distance from customers to the central office (CO).
For Customers served by CO (no DLC), the maximum length of copper. Hard LImit
Design Limit for the length of copper cable from the customer to the DLC - Not a Hard Limit
Maximum limit for the length of copper cable from the customer to the DLC. - HARD limit
Design Limit for the number of lines to place in a DLC-RT. This limit also sizes Carrier Serving Areas (CSA). - Not a Hard Limit

Design breakpoint at which the length of the copper cable will be extended to minimize number of DLCs placed. For lines more than limit, a DLC is placed.
Design Limit for number of Household to string off of a DT - Not a Hard Limit
Design Limit for the number of feeder lines ("IN" cable size) to place in a FDI - Not a Hard Limit
Crossover to include the installation of a DLC on the customer premise based on total business lines. An indoor FDI is placed with the DLC
Crossover to include the installation of a DLC on the customer premise based on total lines. An indoor FDI is placed with the DLC
Maximum length of a service drop.
In determining the number and location of the FDIs, minimize the total cost of the FDI's and Distribution cable in a DA.
Crossover to installation of a building terminal (BT) in lieu of a NID and a distribution terminal (DT) at the customer premise.
Number of Nodes, including central office node (COT) and remote terminals, on a feeder Sonet/DLC fiber ring.
Where available, use the actual geocoded customer locations.
Where available, use the actual geocoded network plant locations.

Description

The maximum length of 26 gauge cable beyond which 24 gauge cable is placed when customers are served on copper from the central office.
In building the distribution network, what unit should the model design to.
The maximum length of 26 gauge cable beyond which 24 gauge cable is placed within a CSA.
A one time growth adjustment for sizing cable and electronics.
Number of distribution pairs committed to housing units.
In sizing the distribution cable, what should the basis be.
Maximum number of DS1 services at one location served on copper. Beyond this limit fiber and electronics are placed.
The factor applied to working lines for sizing "IN" pair requirements of FDI/SAIs.
The number of HiCap nodes on a SONET ring
The maximum size of copper cable that is placed.
The maximum size of fiber cable that is placed.
Minimum distance between an FDI and a DLC/AAN
Minimum fiber strands placed per ONU.
Minimum fiber strands placed per fiber ring. The fiber strands are shared by all nodes on ring.
The minimum size of copper cable that is placed.
The minimum size of fiber cable that is placed.
The minimum number of distribution pairs committed to business location.
The size of pole required when there is no sharing with power. However, sharing with CATV is possible.
The size of pole required when pole is shared with other company.
Maximum number of nodes on a wideband SONET ring. Includes CO node.
The concentration ratio applied to Business services served from DLC on a TR008system.
The concentration ratio applied to Residential services served from DLC on a TR008system.
The concentration ratio applied to Business services served from DLC on a TR303system.
The concentration ratio applied to Residential services served from DLC on a TR303system.
The minimum depth of water at which a CEV is not practical. Equal to or less than this depth, a hut will be placed.

FDI and BT Engineering (Engineering Rules)

Rule Name	Rule
CrossOverfrom66to303	Cross-over from 66 type to 303 type (In Pairs)
BTOutInRatio	Indoor building terminal In/Out Ratio
FDIOutInRatioIndoor	Indoor SAI In/Out Ratio
FDIOutInRatioOutdoor	Outdoor SAI In/Out Ratio

FITL (Engineering Rules)

Density Lower Range	Density Upper Range
0	5
5	100
100	200
200	650
650	850
850	2550
2550	5000
5000	10000
10000	100000000

Value
900
2
2
3

Use FITL
N
N
N
N
N
N
N
N
N

DLC Technology (Engineering Rules)

Integrated/Universal	Lower Limit on DSO's	Upper Limit on DSO's	Density Lower Range	Density Upper Range	Order Of Processing
Integrated008	0	0	0	100000000	1
ONU	0	24	0	100000000	2
Universal	25	400	0	100000000	3
Integrated303	401	100000	0	100000000	4

Electronic and Fiber Sizing (Engineering Rules)

Equipment	Engineering Fill	Description
DistCUFill	1	Copper distribution utilization.
DistFOFill	1	Fiber distribution utilization.
DLCCOTFill	0.88	COT DLC plug-in utilization.
DLCRTFill	0.88	Remote Terminal DLC plug-in utilization.
DTFill	0.85	Distribution terminal utilization.
ElectronicFill	0.95	Fill for all electronics other than DLC. E.g. SONET Terminals.
FDIFill	0.9	FDI "IN" count utilization.
FdrCUFill	0.83	Copper feeder utilization.
FdrFOFill	0.83	Fiber feeder utilization.
SonetRTFill	0.9	SONET RT utilization

Excavation Cost Density Adjustment (Engineering Rules)

Plant Type	Density Group	Adjustment Factor
Buried	Rural	1
Underground	Rural	1
Buried	Suburban	1
Underground	Suburban	1
Buried	Urban	1
Underground	Urban	1

Aerial Structure Spacing (Engineering Rules)

Plant Type	Size	Spacing	Description
Poles	25	225	The average distance between 25 ft poles.
Poles	30	225	The average distance between 30 ft poles.
Poles	35	225	The average distance between 35 ft poles.
Poles	40	225	The average distance between 40 ft poles.
Poles	45	225	The average distance between 45 ft poles.
Poles	50	225	The average distance between 50 ft poles.
Poles	55	225	The average distance between 55 ft poles.
Poles	60	225	The average distance between 60 ft poles.
Anchor	NA	675	The average distance between anchors.
Guy (all types)	NA	675	The average distance between guys. Should be the same as anchor spacing.

Building Cable Rules (Engineering Rules)

Rule	Value	Description
AvgLengthEntra	10	The average length of building entrance cable from building entrance location to first indoor terminal or FDI or MPOE.
AvgLengthFloor	25	The average distance of riser cable or intrabuilding cable between terminals within a building beyond the first terminal/FDI.
AvgLinesPerFlo	10	The average number of working lines terminated at each terminal beyond the first terminal/FDI.
PctBSTCabledE	0.5	A percent of buildings where a Telco owns the riser/intrabuilding facilities.

Copper Cable Sizing (Engineering Rules)

Density	Feeder	Distribution
0	0.85	0.8
5	0.85	0.8
100	0.85	0.8
200	0.85	0.8
650	0.85	0.8
850	0.85	0.8
2550	0.85	0.8
5000	0.85	0.8
10000	0.85	0.8

FDI Splicing Hours (Splicing And Placing Hours)

Item	Closure and Setup (hours)	Cross Connects (hours/100)	Splice (hours/100)
FDIAerial	1.5	1	0.75
FDIBuried	1.5	1	1
FDIIndoor	2	1	1
FDIUnderground	1.5	1	0.5

Media Splicing and Placing Hours (Splicing And Placing Hours)

Item	Closure and Setup (hours)	Placing (hours/100 ft)	Splice (hours/100 pairs or hours/strand)
AerialCU	1.5	3.75	0.75
AerialFO	16	1	0.25
Bldg/RiserCU	1.5	4.25	0.75
Bldg/RiserFO	16	1	0.25
BuriedCU	2	1	1
BuriedFO	16	1	0.25
FITLPower	1	1	0
UndergroundCU	3.5	3.25	0.5
UndergroundFO	16	1	0.25

Underground Installation (Splicing And Placing Hours)

Structure	Type or Size	Telco Placing Labor Hours	Telco Contract Admin. & Inspect Labor Hrs.
Manholes		1	0.01
Inner Duct	1"	0.01	0.01
Inner Duct	1.25"	0.01	0.01
Manholes		2	10
Manholes		3	20
Manholes		5	32
Duct	CU	0.01	0.01
Duct	FO	0.04	0.01

DTBT Splicing and Placing Hours (Splicing And Placing Hours)

DTBT Size	Closure and Setup (Hrs)	Cross Connects (Hrs/100)	Splice (Hrs/100)
25	1.5	1	0.75
50	1.5	1	1
100	2	1	1
200	1.5	1	0.5
300	1.5	1	0.5
400	1.5	1	0.5
600	1.5	1	0.5
900	1.5	1	0.5

Excavation Inspection (Splicing And Placing Hours)

Structure	Type or Size	Telco Contract Admin. & I	Description
Excavation	Buried	0.01	Per foot.
Excavation	Underground	0.01	Per foot.

FDI Placing Hours (Splicing And Placing Hours)

FDI Size	Aerial	Buried	Indoor	Underground
50	1	1	1	1
100	1	1	1	1
200	1	1	1	1
300	1	1	1	1
400	2	2	2	2
600	2	2	2	2
900	2	2	2	2
1000	2	2	2	2
1200	2	2	2	2
1400	3	3	3	3
1500	3	3	3	3
1800	3	3	3	3
2100	3	3	3	3
2400	3	3	3	3
2700	3	3	3	3
3000	4	4	4	4
3300	4	4	4	4
3600	4	4	4	4
4200	4	4	4	4
4800	4	4	4	4
5400	4	4	4	4
7200	4	4	4	4

Service Description (Lookup Tables)

Service Code	Service	Service Category	Preferred Media	Extended Range Cutover	Pair Equivalence	DSO Equivalence	Service Class	Channel Unit / Plug-In type	Clustered
a	R1	SW	CU	14800	1	1	Res	POTS	Yes
b	B1	SW	CU	14800	1	1	Bus	POTS	Yes
c	CENTREX	SW	CU	14800	1	1	Bus	CENTREX	Yes
d	DCS	SW	CU	14800	1	1	Bus	POTS	Yes
e	COIN REGULAR	SW	CU	14800	1	1	Bus	COIN	Yes
h	DIGITAL DATA 2W	NSW	CU	18000	1	1	Bus	NSW-VGSS	Yes
i	DIGITAL DATA 4W	NSW	CU	18000	2	2	Bus	4-WIRE	Yes
j	VG ANALOG 2W	NSW	CU	14800	1	1	Bus	POTS	Yes
k	VG ANALOG 4W	NSW	CU	14800	2	2	Bus	4-WIRE	Yes
m	ISDN-BUSINESS	SW	CU	14800	1	3	Res	BRI-ISDN	Yes
n	ISDN-BUSINESS	SW	CU	14800	1	24	Bus	BRI-ISDN	Yes
p	PBX	SW	CU	14800	1	1	Bus	PBX	Yes
t	DS1 T1 CIRCUIT	WIDEBAND	CU	18000	2	24	Bus	HDSL	Yes

Aerial Structural Placing Hours (Splicing And Placing Hours)

Plant Type	Size	Telco Placing Hou	Inspection Hours for Contract Labor
Poles	25	3	0.25
Poles	30	3	0.25
Poles	35	3	0.25
Poles	40	4	0.25
Poles	45	4	0.25
Poles	50	4	0.25
Poles	55	4	0.25
Poles	60	4	0.25
Anchor	NA	2	0.25
Guy (all types)	NA	1	0.25

Drop Placing Hours (Splicing And Placing Hours)

Item	Placing (Hrs/100 Ft)	Travel (Hrs)
AerialCU	0.75	0.15
BuriedCU	1.5	0.15
NIDCU	0.5	0.15

Density Classification (Lookup Tables)

Density Classification	Density Lower Range	Density Upper Range	Density Group
1	0	5	Rural
2	5	100	Rural
3	100	200	Rural
4	200	650	Suburban
5	650	850	Suburban
6	850	2550	Suburban
7	2550	5000	Suburban
8	5000	10000	Urban
9	10000	100000000	Urban

Cost Family (Lookup Tables)

Cost Element	Cost Family
BLDGCABLE	Dist
CO	Fdr
DLC-COT	Fdr
DLC-RT	Fdr
Drop	Dist
DT-FDI	Dist
DTBT	Dist
FDI	Fdr
FDI-DLC	Fdr
NID	Dist
ONU	Fdr

Customer Type (Lookup Tables)

Customer Type ID	Customer Type
B	Multi-line Business
C	Coin
P	Pbx
R	Residential
S	Single-line Business
X	Centrex
Y	Special

Component (Lookup Tables)

Component Code	Cost Type
AerialCU	VS
AerialCU24G	VS
AerialFO	VS
BuildingCU	VS
BuildingCU24G	VS
BuildingFO	VS
Buried Suburban Excavation Act	VS
BuriedCU	VS
BuriedCU24G	VS
BuriedFO	VS
BuriedTrenchCU	S
BuriedTrenchCU24G	S
BuriedTrenchFO	S
Conduit	S
DLCCOT	VS
DLCRT	VS
IntrabuildingCU	VS
IntrabuildingCU24G	VS
IntrabuildingFO	VS
NIDCU	VS
NIUCU	VS
Pole	S
UndergroundCU	VS
UndergroundCU24G	VS
UndergroundFO	VS

Underground Contract Labor (Contract Labor)

Structure	Type or Size		Contract Labor Cost
Duct	CU		0.68
Duct	FO		0.68
Inner Duct	1"		0.8
Inner Duct	1.25"		0.8
Manholes		1	65
Manholes		2	300
Manholes		3	3400
Manholes		5	3400

Contract Labor for Media (Contract Labor)

Item	Closure and Setup (Cost)	Placing (Cost/ ft)	Splice (Cost/100 pairs or per strand)	Telco Admin & Inspect (Hrs)
AerialCU	58	0.84	150	0.5
AerialFO	120	0.84	40	0.5
Bldg/RiserCU	58	0.84	150	0.5
Bldg/RIserFO	120	0.84	40	0.5
BuriedCU	400	0.55	150	0.5
BuriedFO	400	1.05	40	0.5
FITLPower	58	0.84	150	0.5
UndergroundCU	140	1.2	150	0.5
UndergroundFO	135	1.2	40	0.5

Drop/NID Contract Labor (Contract Labor)

Cost Element	Plant Type	Contract Labor Cost	Telco Inspect Hrs
Drop	Aerial	0.27	0.25
Drop	Buried	1.4	0.25
NID	NID	29.5	0.25

Excavation Contract Labor (Contract Labor)

Excavation Activity	Contract Labor Cost Buried	Contract Labor Cost Underground
Backhoe Trench	3.25	3.25
Bore Cable	20	20
Cut & Restore Asphalt	20.32	20.32
Cut & Restore Concrete	25.32	25.32
Cut & Restore Sod	4.25	4.25
Free Trench (i.e. Developer)	0	0
Hand Dig Trench	8.25	8.25
Plow	1.28	1.28
Push Pipe & Pull Cable	20	20
Rocky Plow	1.28	1.28
Rocky Trench	11.6	11.6
Trench & Backfill	3.25	3.25

Contract Labor for FDI Placing (Contract Labor)

FDI Size	Aerial (Cost)	Buried (Cost)	Indoor (Cost)	Underground (Cost)
50	195	600	315	600
100	195	600	315	600
200	195	600	315	600
300	195	600	315	600
400	195	600	315	600
600	195	600	315	600
900	195	600	315	600
1000	195	600	315	600
1200	195	600	315	600
1400	195	600	315	600
1500	195	600	315	600
1800	195	600	315	600
2100	195	600	315	600
2400	195	600	315	600
2700	195	600	315	600
3000	195	600	315	600
3300	195	600	315	600
3600	195	600	315	600
4200	195	600	315	600
4800	195	600	315	600
5400	195	600	315	600
7200	195	600	315	600

Contract Labor for FDI Splicing (Contract Labor)

Item	Closure and Setup	Cross Connec	Splice (Cost/100)	Telco Admin & Inspect (Hrs)
FDIAerial	60.27	405	150	0.5
FDIBuried	400	405	150	0.5
FDIIndoor	400	405	150	0.5
FDIUnderground	400	405	150	0.5

Material Loading (Labor Rates And Loadings)

Factor	Rate
Miscellaneous Material	0.05
Engineering Percent	0.15
Supply Expense	0.05
Tax	0.08
MiscellaneousAerMaterial	0.05
MiscellaneousBurMaterial	0.05
MiscellaneousUgMaterial	0.05
MiscellaneousElecMaterial	0.02

Aerial Contract Labor (Contract Labor)

Plant Type	Size	Contract Labor Cost	Telco Inspect Hrs
Poles	25	165	0.25
Poles	30	165	0.25
Poles	35	165	0.25
Poles	40	270	0.25
Poles	45	270	0.25
Poles	50	270	0.25
Poles	55	270	0.25
Poles	60	270	0.25
Anchor	NA	120	0.15
Guy (all types)	NA	20	0.15

Contract Labor for DTBT (Contract Labor)

DTBT Size	Closure ar	Cross Connects (Cost/100)	Telco Admin & Inspect (Hrs)
25	48	405	0.5
50	48	405	0.5
100	48	405	0.5
200	48	405	0.5
300	48	405	0.5
400	48	405	0.5
600	48	405	0.5
900	48	405	0.5

Indoor FDI Terminal Primitives (Material)

Plant Type	Type	Item	Capacity	Material Cost	Description
Indoor FDI Terminals	FDI66Connector	66 -type Punch-Down Connector Blocks (50 pair)	50	$5.00	FDI 66 Connector Capacity and the material cost of equipment.
Indoor FDI Terminals	FDIBackboard	Backboard (In) (200 pair)	200	$15.00	FDI BackBoard Capacity and the material cost of equipment.
Indoor FDI Terminals	FDI189Protector	189 type Protector (100 pair)	100	$400.00	FDI 189 type Protector Capacity and the material cost of equipment.
Indoor FDI Terminals	FDI303Connector	303 type connector (100 pair includes coils)	100	$500.00	FDI 303 type Connector Capacity and the material cost of equipment.
Indoor FDI Terminals	FDI303Rack	Iron Racks for 303 (per 100 pair)	100	$25.00	FDI 303 frame capacity and the material cost of equipment.

NID/NIU (Material)

Plant Type	Type or Size	Material Cost	Description
NID	6	18.64	Material cost of equipment for terminating narrowband services.
NIDIntandProt	1	0	Material cost of the NID Interface and Protector per line terminated
NIU	1	150	Material cost of equipment for terminating DS1 services.

Underground Material (Material)

Structure	Item	Type or Size		Material Cos	Description
Manholes	SB 30"x12"		1	168.13	Material cost of one vault/pull box that accomodates one cable.
Manholes	HH 3x5 or 4x6		2	947	Material cost of one vault/handhole that accomodates two cables.
Manholes	PTS 65 (6x8x4)		3	1485	Material cost of one vault/manhole that accomodates three or four cables.
Manholes	38Y (6x12x7)		5	2690.11	Material cost of one vault/manhole that accomodates five or more cables.
Duct	1-PTS-77-4"	CU		0.86	Per foot material cost of one 4 inch plastic duct for copper cables.
Inner Duct	1 1/4"	FO		0.31	Per foot material cost of one 1 1/4 inch inner-duct for fiber cables.
Inner Duct	1"	FO		0.19	Per foot material cost of one 1 inch inner-duct for fiber cables.
Duct	1-4" w/3 in-Du	FO		1.35	Per foot material cost of one 4 inch plastic duct and 3 inner-ducts for fiber cables.

Labor Rate (Labor Rates And Loadings)

Type	Rate/Hour	Labor Rate
Engineering	44.81	Engineering Plant or Test Direct Labor Costs/Hr
Estimators	44.81	Estimators/Posting
Inspectors	44.81	Inspectors (Contract Administration-46)
LAC	31.72	Assignment (LAC)
Placing	31.72	Placing (44) Plant Direct Labor Costs per Hour
Splicing	34.2	Splicing (43) Plant Direct Labor Costs per Hour

FITL Power (Material)

Plant Type	Type or Size	Material Cost
Power Cable for FITL (22Gauge)	25	0.35
Power Cable for FITL (22Gauge)	50	0.5
Power Cable for FITL (22Gauge)	100	0.85

Fiber Cable (Material)

Plant Type	Type or Size	Material Cost
Aerial	6	0.28
Aerial	12	0.33
Aerial	18	0.46
Aerial	24	0.46
Aerial	30	0.46
Aerial	32	0.68
Aerial	36	0.68
Aerial	44	0.89
Aerial	48	0.89
Aerial	60	1.1
Aerial	72	1.3
Aerial	84	1.52
Aerial	96	1.71
Aerial	108	2.68
Aerial	120	2.96
Aerial	132	3.25
Aerial	144	3.36
Aerial	156	3.68
Aerial	168	4.11
Aerial	216	5.08
Buried	6	0.28
Buried	12	0.33
Buried	18	0.46
Buried	24	0.46
Buried	30	0.46
Buried	32	0.68
Buried	36	0.68
Buried	44	0.89
Buried	48	0.89
Buried	60	1.1
Buried	72	1.3
Buried	84	1.52
Buried	96	1.71
Buried	108	2.68
Buried	120	2.96
Buried	132	3.25
Buried	144	3.36
Buried	156	3.83
Buried	168	4.11
Buried	216	5.08
Riser/Intrabuilding	6	0.28
Riser/Intrabuilding	12	0.33
Riser/Intrabuilding	18	0.46
Riser/Intrabuilding	24	0.46
Riser/Intrabuilding	30	0.46
Riser/Intrabuilding	32	0.68
Riser/Intrabuilding	36	0.68
Riser/Intrabuilding	44	0.89
Riser/Intrabuilding	48	0.89
Riser/Intrabuilding	60	1.1
Riser/Intrabuilding	72	1.3
Riser/Intrabuilding	84	1.52
Riser/Intrabuilding	96	1.71
Riser/Intrabuilding	108	2.68
Riser/Intrabuilding	120	2.96
Riser/Intrabuilding	132	3.25
Riser/Intrabuilding	144	3.36
Riser/Intrabuilding	156	3.83
Riser/Intrabuilding	168	4.11
Riser/Intrabuilding	216	5.08
Underground	6	0.28
Underground	12	0.33
Underground	18	0.46
Underground	24	0.46
Underground	30	0.46
Underground	32	0.68
Underground	36	0.68
Underground	44	0.89
Underground	48	0.89
Underground	60	1.1
Underground	72	1.3
Underground	84	1.52
Underground	96	1.71
Underground	108	2.68
Underground	120	2.96
Underground	132	3.25
Underground	144	3.36
Underground	156	3.83
Underground	168	4.11
Underground	216	5.08

FDI Terminals (Material)

Plant Type	Type or Size	Material Cost
Aerial	50	687.5
Aerial	100	703.41
Aerial	200	911.9
Aerial	300	1018.79
Aerial	400	1125.67
Aerial	600	1560.73
Aerial	900	1905.38
Aerial	1000	2286.72
Aerial	1200	2668.05
Aerial	1400	2674.09
Aerial	1500	2674.09
Aerial	1800	2674.09
Aerial	2100	2844.45
Aerial	2400	3014.82
Aerial	2700	3090.94
Aerial	3000	3532.05
Aerial	3300	4497.92
Aerial	3600	4497.92
Aerial	4200	4889.61
Aerial	4800	4889.61
Aerial	5400	5578.05
Aerial	7200	6350
Buried	50	687.5
Buried	100	703.41
Buried	200	911.9
Buried	300	1018.79
Buried	400	1125.67
Buried	600	1560.73
Buried	900	1905.38
Buried	1000	2286.72
Buried	1200	2668.05
Buried	1400	2674.09
Buried	1500	2674.09
Buried	1800	2674.09
Buried	2100	2844.05
Buried	2400	3014.82
Buried	2700	3090.94
Buried	3000	3532.05
Buried	3300	4497.92
Buried	3600	4497.92
Buried	4200	4889.61
Buried	4800	4889.61
Buried	5400	5578.05
Buried	7200	6350
Indoor	1	0
Underground	50	687.5
Underground	100	703.41
Underground	200	911.9
Underground	300	1018.79
Underground	400	1125.67
Underground	600	1560.73
Underground	900	1905.38
Underground	1000	2286.72
Underground	1200	2668.05
Underground	1400	2674.09
Underground	1500	2674.09
Underground	1800	2674.09
Underground	2100	2844.05
Underground	2400	3014.82
Underground	2700	3090.94
Underground	3000	3532.05
Underground	3300	4497.92
Underground	3600	4497.92
Underground	4200	4889.61
Underground	4800	4889.61
Underground	5400	5578.05
Underground	7200	6350

DTBT Material (Material)

Plant Type	Type or Size	Material Cost
Aerial	25	154.74
Aerial	50	385.05
Aerial	100	703.41
Aerial	200	703.41
Aerial	300	703.41
Aerial	400	703.41
Aerial	600	703.41
Aerial	900	703.41
Buried	25	270.2
Buried	50	385.05
Buried	100	703.41
Buried	200	703.41
Buried	300	703.41
Buried	400	703.41
Buried	600	703.41
Buried	900	703.41

Drop (Material)

Plant Type	Type or Size	Material Cost
Aerial	2	0.09
Aerial	6	0.19
Buried	2	0.09
Buried	5	0.19

Copper Cable 26 gauge (Material)

Plant Type	Type or Size	Material Cost
Aerial	25	0.18
Aerial	50	0.38
Aerial	100	0.53
Aerial	200	0.98
Aerial	300	1.47
Aerial	400	1.9
Aerial	600	2.92
Aerial	900	4.33
Aerial	1200	5.75
Aerial	1500	7.19
Aerial	1800	8.63
Aerial	2100	11.1
Aerial	2400	12.69
Aerial	2700	14.27
Aerial	3000	17.26
Aerial	3600	23.54
Aerial	4200	27.46
Buried	25	0.2
Buried	50	0.34
Buried	100	0.61
Buried	200	1.05
Buried	300	1.53
Buried	400	2.03
Buried	600	3.01
Buried	900	4.39
Buried	1200	5.79
Buried	1500	7.24
Buried	1800	8.69
Buried	2100	10.33
Buried	2400	11.81
Buried	2700	13.28
Buried	3000	17.26
Buried	3600	23.54
Buried	4200	27.46
Riser/Intrabuilding	25	0.18
Riser/Intrabuilding	50	0.38
Riser/Intrabuilding	100	0.53
Riser/Intrabuilding	200	0.98
Riser/Intrabuilding	300	1.47
Riser/Intrabuilding	400	1.9
Riser/Intrabuilding	600	2.92
Riser/Intrabuilding	900	4.33
Riser/Intrabuilding	1200	5.75
Riser/Intrabuilding	1500	7.19
Riser/Intrabuilding	1800	8.63
Riser/Intrabuilding	2100	11.1
Riser/Intrabuilding	2400	12.69
Riser/Intrabuilding	2700	14.27
Riser/Intrabuilding	3000	17.26
Riser/Intrabuilding	3600	23.54
Riser/Intrabuilding	4200	27.46
Underground	25	0.18
Underground	50	0.44
Underground	100	0.53
Underground	200	0.98
Underground	300	1.47
Underground	400	1.9
Underground	600	2.92
Underground	900	4.33
Underground	1200	5.75
Underground	1500	7.19
Underground	1800	8.63
Underground	2100	11.1
Underground	2400	12.69
Underground	2700	14.27
Underground	3000	17.26
Underground	3600	23.54
Underground	4200	27.46

Citizens Telecommunications of Tennessee, LLC.
Overview of Activity Based Cost Study

I. Scope

The ABC study focuses on labor costs associated with repair and maintenance. The study identifies operating expenses associated with UNE loop components.

II. Study Benefits

In the previous filing, the maintenance expenses were developed using historical factors to apply to equipment investments. The ABC study directly identifies the majority of expenses for maintenance tasks, thereby decreasing the use of a maintenance factor.

III. Study Process

Expenses:
- Identify and drive department resources to activities
- Identify and develop labor rates with appropriate expense loadings
- Classify activity as recurring volume sensitive or volume insensitive

Activities:
- Identify work groups
- Identify type of function(s) performed by work groups
- Identify work activities for each group
- Develop labor time for work activities
- Identify frequency of occurrence for activities

Cost Drivers:
- Identify cost drivers for each activity (customers, lines, trouble tickets)
- Calculate costs for each activity
- Associate costs to Unbundled Network Elements

- Please see flow chart on attached page

IV. ABC Study Data Sources

- Resources identified with assistance from Citizens Operations SMEs
- Contacts established via phone calls, e-mails, and FAX
- Standardized data requests were developed
- Data requests were completed by resources identified
- Data reviewed for completeness and accuracy

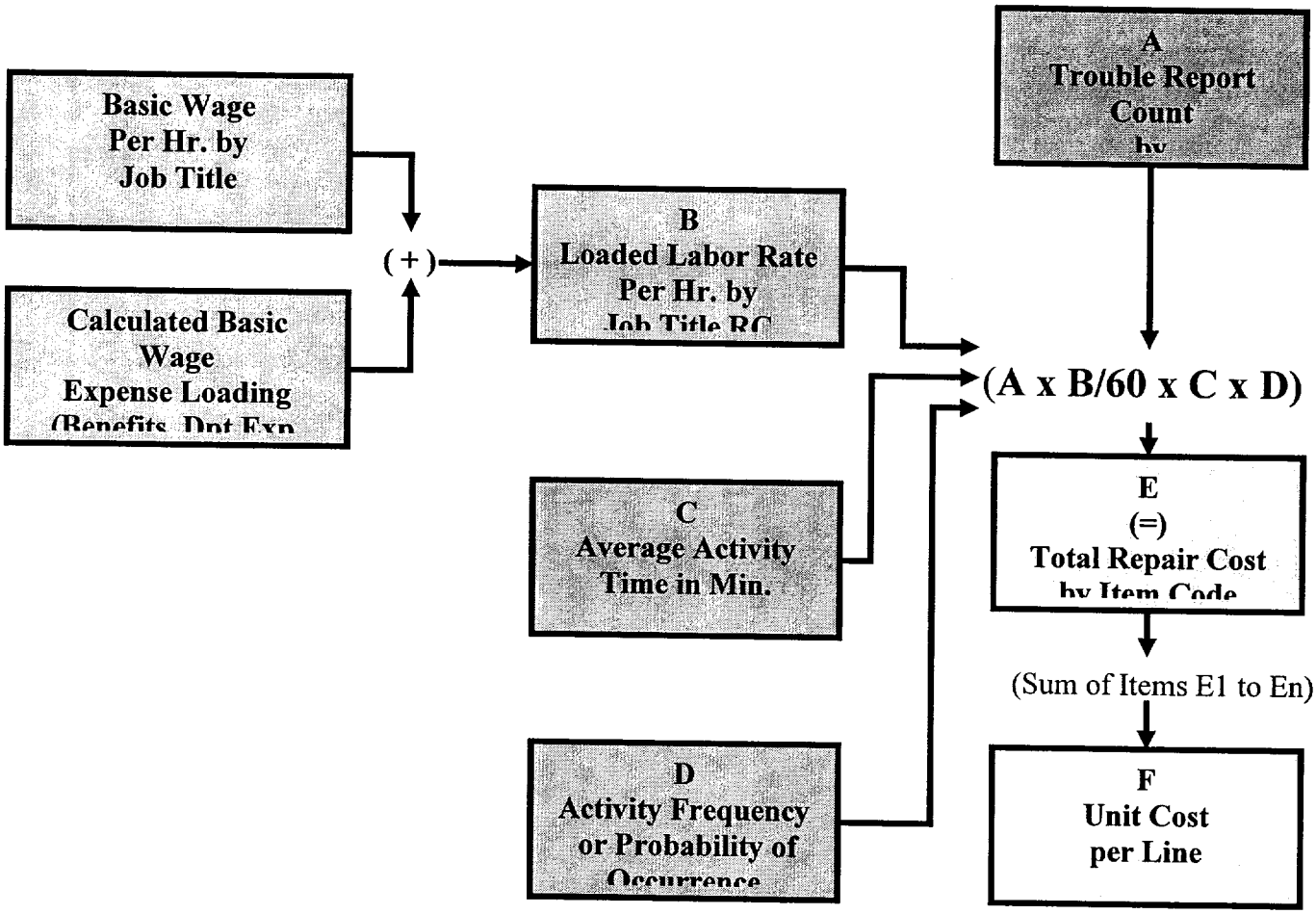
V. ABC Calculation Process

EXCEL Spreadsheets chosen as primary calculation tool

Three Primary Spreadsheets were developed for:

- Calculating Labor Rates
- Calculating Labor Costs per Activity
- Calculating Other Operating Expenses

VI. Diagram of ABC Calculation Process



I. Annual Cost Factors Descriptions

This section contains brief descriptions of the annual cost factors used in Citizens' payphone cost study. The result of each of these factors is shown on the following page.

Equipment Depreciation – The depreciation lives used in the cost study are the estimated economic lives of each particular asset using Citizens whole life estimates per its 1996 annual report.

Equity / Debt ratios – The ratios used are from end year 1998.

Cost of Money – The ROI or cost of money factor utilizes the PUC allowed rate of return (11.25% for Tenn-GTE and 10.85% for Tenn-Volunteer State) and levelizes the investment over the economic life of the asset. Annual straight-line depreciation is used to arrive at the levelized values.

Equipment Maintenance – As noted on the results sheets, the maintenance expense is no longer a factor based approach for Loop and Network Interface Device and Port Cost Elements. Citizens has developed an activity based cost study (based on 1998 actual repair functions) that replaces the factor approach.

Income tax rate (Effective) – The effective tax rate is developed based upon the taxes paid on the allowed return noted above.

Property tax rate – The property tax rate is a factor based on property taxes paid divided by taxable property, plant, and equipment (PP&E) for 1996.

Citizens Communications Company of Tennessee, LLC.

Annual Charge Factors

UPDATED

Part 32 Acct.	Description	Equipment Deprec. A	Equity % B	Debt % C	Return on Investment D	** Equipment Maintenance Factor E	Income Tax Rate F	Property Tax Rate G	Gross Receipts Tax Rate H	Annual Charge I (see below)	Monthly Charge J = (I / 12)
2212	CENTRAL OFFICE EQUIPMENT	0.0580	0.4951	0.5049	0.0681	0.0319	0.6367	0.00925	0.0000	18.88%	1.6%
2231	RADIO	0.0980	0.4951	0.5049	0.0640	0.0000	0.6367	0.00925	0.0000	19.15%	1.6%
2232	CIRCUIT EQUIPMENT	0.0990	0.4951	0.5049	0.0650	0.0000	0.6367	0.00925	0.0000	19.38%	1.6%
2351	PAYSTATIONS	0.1180	0.4951	0.5049	0.0688	0.0000	0.6367	0.00925	0.0000	21.78%	1.8%
2411	POLES	0.0583	0.4951	0.5049	0.0673	0.0000	0.6367	0.00925	0.0000	15.60%	1.3%
2421.2	AERIAL CABLE	0.0540	0.4951	0.5049	0.0681	0.0000	0.6367	0.00925	0.0000	15.28%	1.3%
2423.2	BURIED CABLE	0.0578	0.4951	0.5049	0.0732	0.0000	0.6367	0.00925	0.0000	16.34%	1.4%
2422.2	UNDERGROUND CABLE	0.0524	0.4951	0.5049	0.0691	0.0000	0.6367	0.00925	0.0000	15.25%	1.3%
2421.1	AERIAL FIBER CABLE	0.0390	0.4951	0.5049	0.0747	0.0000	0.6367	0.00925	0.0000	14.65%	1.2%
2422.1	UNDERGROUND FIBER CABLE	0.0309	0.4951	0.5049	0.0803	0.0000	0.6367	0.00925	0.0000	14.58%	1.2%
2423.1	BURIED FIBER	0.0350	0.4951	0.5049	0.0791	0.0000	0.6367	0.00925	0.0000	14.82%	1.2%
2431	AERIAL WIRE	0.1542	0.4951	0.5049	0.0485	0.0000	0.6367	0.00925	0.0000	22.72%	1.9%
2441	CONDUIT	0.0168	0.4951	0.5049	0.0869	0.0000	0.6367	0.00925	0.0000	14.04%	1.2%
2220	OPERATOR SYSTEMS	0.0891	0.4951	0.5049	0.0826	0.0000	0.6367	0.00925	0.0000	20.69%	1.7%

Annual Charge Factor = (Equipment Depreciation + ((Equity + Debt) * ROI) + ~~Equipment Mtce.~~ + (Equity * ROI * Income Tax) + Property Tax) * (1 + Gross Receipts tax)

** Source for Equipment Maintenance expense is an activity based cost study

Net effect= (ROI + Depr exp.+ inc. tax + Prop tax) * 1+GRT

Citizens Communications Company of The Volunteer State, Inc.

Annual Charge Factors

UPDATED

Part 32 Acct.	Description	Equipment Deprec.	Equity %	Debt %	Return on Investment	** Equipment Maintenance Factor	Income Tax Rate	Property Tax Rate	Gross Receipts Tax Rate	Annual Charge	Monthly Charge
		A	B	C	D	E	F	G	H	I (see below)	J = (I / 12)
2212	CENTRAL OFFICE EQUIPMENT	0.0645	0.4951	0.5049	0.0624	0.0235	0.6367	0.01544	0.0000	18.55%	1.5%
2231	RADIO	0.0961	0.4951	0.5049	0.0621	0.0000	0.6367	0.01544	0.0000	19.31%	1.6%
2232	CIRCUIT EQUIPMENT	0.1030	0.4951	0.5049	0.0612	0.0000	0.6367	0.01544	0.0000	19.89%	1.7%
2351	PAYSTATIONS	0.1204	0.4951	0.5049	0.0654	0.0000	0.6367	0.01544	0.0000	22.19%	1.8%
2411	POLES	0.0861	0.4951	0.5049	0.0484	0.0000	0.6367	0.01544	0.0000	16.52%	1.4%
2421.2	AERIAL CABLE	0.0520	0.4951	0.5049	0.0661	0.0000	0.6367	0.01544	0.0000	15.43%	1.3%
2423.2	BURIED CABLE	0.0694	0.4951	0.5049	0.0644	0.0000	0.6367	0.01544	0.0000	16.96%	1.4%
2422.2	UNDERGROUND CABLE	0.0400	0.4951	0.5049	0.0732	0.0000	0.6367	0.01544	0.0000	15.17%	1.3%
2421.1	AERIAL FIBER CABLE	0.0433	0.4951	0.5049	0.0685	0.0000	0.6367	0.01544	0.0000	14.88%	1.2%
2422.1	UNDERGROUND FIBER CABLE	0.0286	0.4951	0.5049	0.0781	0.0000	0.6367	0.01544	0.0000	14.68%	1.2%
2423.1	BURIED FIBER	0.0333	0.4951	0.5049	0.0765	0.0000	0.6367	0.01544	0.0000	14.94%	1.2%
2431	AERIAL WIRE	0.0833	0.4951	0.5049	0.0714	0.0000	0.6367	0.01544	0.0000	19.27%	1.6%
2441	CONDUIT	0.0167	0.4951	0.5049	0.0833	0.0000	0.6367	0.01544	0.0000	14.16%	1.2%
2220	OPERATOR SYSTEMS	0.1000	0.4951	0.5049	0.0761	0.0000	0.6367	0.01544	0.0000	21.56%	1.8%

Annual Charge Factor = (Equipment Depreciation + ((Equity + Debt) * ROI) + ~~Equipment Mtce.~~
+ (Equity * ROI * Income Tax) + Property Tax) * (1 + Gross Receipts tax)

** Source for Equipment Maintenance expense is an activity based cost study

Net effect= (ROI + Depr exp.+ inc. tax + Prop tax) * 1+GRT

I. Model Output/Results

A. *CostMap Wireline Model Output Results*

The attached sheets are representative of the Investment output of the CostMap Wireline Model as well as the application of Annual Cost Factors to arrive at Monthly TELRICs.

Citizens Telecommunications Company of Tennessee, LLC.
& The Volunteer State
Cost of Service for Paystation Lines

PRODUCT	Estimated Monthly LRIC	Estimated TSLRIC plus Service SpecificOverheads	Estimated TSLRIC plus Corporate Overheads
Payphone Lines			
Citizens Communications Company of Tennessee, LLC.			
Service Line [1]	$12.17	$14.69	$17.63
Coin Supervision enabled line card	$3.09	$4.11	$5.31
	$15.26	$18.80	$22.94
Citizens Communications Company of the Volunteer State, Inc.			
Service Line	$15.62	$19.50	$23.71
Coin Supervision enabled line card	$3.09	$4.14	$5.28
	$18.71	$23.64	$28.99

(1) Measured service - does not include switching & shared transport costs

Citizens Communications Company of Tennessee, LLC.

Payphone cost of service development

		Investment	Annual Cost Factor	Average Utilization	Estimated monthly LRIC	Loaded Investment	Service Specific Overheads	Estimated TSLRIC plus Service SpecificOverheads	Corporate Overheads	Estimated TSLRIC plus Corporate Overheads
		(a)	(b)	(c)	(d)=(a*b*c)/12	(e = d / b * 12)	(f)	(g = d + f)	(h)	(I = g + h)
Dist	Network Interface Device - aerial	$14.51	15.28%	0.43	0.078874352	6.194	0.033	0.112	0.038557619	0.150
Dist	Network Interface Device - buried	$27.88	16.34%	0.20	0.074575689	5.478	0.029	0.104	0.034103056	0.138
Dist	Drop Wire- aerial cable	$0.18	15.28%	64.32	0.148146588	11.634	0.062	0.210	0.072421257	0.283
Dist	Drop Wire- buried cable	$1.28	16.34%	28.08	0.488990582	35.922	0.192	0.681	0.223612728	0.904
Dist	Distribution/Building terminal - aerial	$35.63	15.28%	0.52	0.238153537	18.702	0.100	0.338	0.116421031	0.454
Dist	Distribution/Building terminal - buried	$48.90	16.34%	0.24	0.16284956	11.963	0.064	0.227	0.074470216	0.301
Dist	Distribution/Building terminal - intrabuilding	$19.71	15.28%	0.12	0.028921623	2.271	0.012	0.0410	0.014138296	0.055
Dist	DT to FDI- aerial 26GA cable	$0.02	15.28%	18.81	0.004808516	0.378	0.002	0.007	0.002350636	0.009
Dist	DT to FDI- aerial 24GA cable	$0.02	15.28%	3338.87	0.71203131	55.916	0.298	1.010	0.348075533	1.358
Dist	DT to FDI- buried 26GA cable	$0.02	16.34%	8.68	0.002909706	0.214	0.001	0.004	0.001330593	0.005
Dist	DT to FDI- buried 24GA cable	$0.02	16.34%	1413.73	0.341238609	25.068	0.134	0.475	0.156046556	0.631
Dist	DT to FDI- trenching	$0.02	16.34%	1422.40	0.42440071	31.177	0.166	0.591	0.194076132	0.785
Dist	DT to FDI- conduit/manholes	$31.09	14.04%	0.31	0.111551435	9.536	0.051	0.162	0.059359337	0.222
Dist	DT to FDI- poles	$1.06	15.60%	16.79	0.230516139	17.732	0.095	0.325	0.11037813	0.435
Dist	DT to FDI- underground 26GA cable	$0.03	15.25%	1.44	0.000570888	0.045	0.000	0.001	0.000279688	0.001
Dist	DT to FDI- underground 24GA cable	$0.02	15.25%	182.56	0.047857579	3.766	0.020	0.068	0.023446239	0.091
Dist	Building- intrabuilding cable 26GA	$0.43	15.28%	7.54	0.041738102	3.278	0.017	0.05922	0.020403614	0.080
Dist	Building- intrabuilding cable 24GA	$0.11	15.28%	6.90	0.009352513	0.734	0.004	0.013	0.004571963	0.018
Dist	Building- building cable 26GA	$0.34	15.28%	0.03	0.000139398	0.011	0.000	0.00020	6.81447E-05	0.000
Fdr	Building- building cable 24GA	$0.37	15.28%	1.54	0.007277204	0.571	0.003	0.01033	0.003557451	0.014
Fdr	Building- building cable FO	$5.29	14.65%	0.74	0.047554271	3.895	0.021	0.06833	0.024249044	0.093
Dist	Feeder Distribution Interface- aerial FDI	$15.85	15.28%	0.46	0.092545604	7.268	0.039	0.13131	0.045240792	0.177
Dist	Feeder Distribution Interface- buried FDI	$17.48	16.34%	0.15	0.03636781	2.672	0.014	0.05062	0.016630801	0.067
Dist	Feeder Distribution Interface- indoor FDI	$23.45	15.28%	0.05	0.014513739	1.140	0.006	0.021	0.007095021	0.028
Fdr	Feeder Distribution Interface- aerial FDI	$15.85	15.28%	0.24	0.047675284	3.744	0.020	0.06765	0.023305998	0.091
Fdr	Feeder Distribution Interface- buried FDI	$17.49	16.34%	0.08	0.018734888	1.376	0.007	0.02608	0.008567362	0.035
Fdr	Feeder Distribution Interface- indoor FDI	$23.47	15.28%	0.03	0.007476758	0.587	0.003	0.011	0.003655003	0.014
Fdr	FDI to DLC- aerial cable 26GA	$0.01	15.28%	1.66	0.0001742	0.014	0.000	0.00025	8.51575E-05	0.000
Fdr	FDI to DLC- aerial cable 24GA	$0.01	15.28%	35.63	0.0046808	0.368	0.002	0.00664	0.002288203	0.009
Fdr	FDI to DLC- buried cable 26GA	$0.01	16.34%	0.22	2.40807E-05	0.002	0.000	0.00003	1.1012E-05	0.000
Fdr	FDI to DLC- buried cable 24GA	$0.01	16.34%	5.85	0.000931815	0.068	0.000	0.00130	0.000426114	0.002
Fdr	FDI to DLC- trenching	$0.00	16.34%	6.07	0.000310367	0.023	0.000	0.00043	0.000141929	0.001
Fdr	FDI to DLC- conduit/manholes	$6.21	14.04%	0.01	0.000827987	0.071	0.000	0.00121	0.000440593	0.002
Fdr	FDI to DLC- poles	$0.13	15.60%	0.19	0.0003171826	0.024	0.000	0.00045	0.000151877	0.001
Fdr	FDI to DLC- underground cable 26GA	$0.01	15.25%	0.55	5.90837E-05	0.005	0.000	0.00008	2.89461E-05	0.000
Fdr	FDI to DLC- underground cable 24GA	$0.01	15.25%	6.30	0.000836066	0.066	0.000	0.00119	0.000409603	0.002
Fdr	DLC Remote Terminal- Common ONU	$0.09	19.38%	1.00	0.001532579	0.095	0.001	0.00204	0.000590749	0.003
Fdr	DLC Remote Terminal- Hardwired Integrated	$31.80	19.38%	1.00	0.513474536	31.795	0.170	0.683	0.197924389	0.881
Fdr	DLC Remote Terminal- Hardwired ONU	$1.23	19.38%	1.00	0.019788117	1.225	0.007	0.026	0.007627546	0.034
Fdr	DLC Remote Terminal- Hardwired Universal	$32.58	19.38%	1.00	0.526136631	32.579	0.174	0.700	0.202805132	0.903
Fdr	DLC Remote Terminal- plug-in (integrated) Coin	$0.14	19.38%	166.00	0.370561694	22.946	0.122	0.493	0.142837067	0.636
Fdr	DLC Remote Terminal- plug-in (integrated) Coin ext.	$0.14	19.38%	6.00	0.013393796	0.829	0.004	0.018	0.005162786	0.023
Fdr	DLC Remote Terminal- plug-in (ONU) Coin	$0.13	19.38%	1.00	0.002147354	0.133	0.001	0.003	0.000827721	0.004
Fdr	DLC Remote Terminal- plug-in (ONU) Coin ext.	$0.13	19.38%	1.00	0.002147354	0.133	0.001	0.00286	0.000827721	0.004
Fdr	DLC Remote Terminal- plug-in (universal) Coin	$0.14	19.38%	155.00	0.346006401	21.425	0.114	0.460	0.13337196	0.594
Fdr	DLC Remote Terminal- plug-in (universal) Coin ext.	$0.14	19.38%	14.00	0.031252191	1.935	0.010	0.042	0.0120465	0.054
Fdr	DLC to CO- aerial 26GA cable	$0.01	15.28%	611.23	0.078703137	6.181	0.033	0.112	0.038473921	0.150
Fdr	DLC to CO- aerial fiber	$0.00	14.65%	8053.05	0.225319447	18.457	0.098	0.324	0.114895697	0.439
Fdr	DLC to CO- buried 26GA cable	$0.01	16.34%	105.62	0.014899095	1.095	0.006	0.021	0.006813275	0.028
Fdr	DLC to CO- buried fiber	$0.00	14.82%	2400.90	0.08270322	6.695	0.036	0.118	0.041678618	0.160
Fdr	DLC to CO- buried trench copper	$0.00	16.34%	105.62	0.001050893	0.077	0.000	0.001	0.000480567	0.002
Fdr	DLC to CO- buried trench fiber	$0.00	14.82%	2400.90	0.132362993	10.716	0.057	0.190	0.066704859	0.256
Fdr	DLC to CO- conduit/manholes fiber	$1.55	14.04%	0.80	0.014435934	1.234	0.007	0.021	0.007681725	0.029
Fdr	DLC to CO- conduit/manholes copper	$3.26	14.04%	0.16	0.006236309	0.533	0.003	0.009	0.003318498	0.012
Fdr	DLC to CO- poles fiber	$0.17	15.60%	40.27	0.090930163	6.994	0.037	0.128	0.043540124	0.172
Fdr	DLC to CO- poles copper	$0.04	15.60%	3.06	0.001701747	0.131	0.001	0.002	0.000814848	0.003
Fdr	DLC to CO- underground 26GA cable	$0.01	15.25%	98.12	0.013200357	1.039	0.006	0.019	0.006467079	0.025
Fdr	DLC to CO- underground fiber	$0.00	14.58%	283.45	0.005272742	0.434	0.002	0.008	0.002702265	0.010
Fdr	DLC COT- common	$6.79	19.38%	1.00	0.109717807	6.794	0.036	0.146	0.042291931	0.188
Fdr	DLC COT- hardwired- all	$9.90	19.38%	1.00	0.159810907	9.896	0.053	0.213	0.061600866	0.274
Fdr	DLC COT- hardwired- integrated	$1.59	19.38%	1.00	0.02574389	1.594	0.009	0.034	0.009923264	0.044
Fdr	DLC COT- plug-in (integrated) PBX	$0.03	19.38%	174.00	0.070548931	4.369	0.023	0.09385	0.027193859	0.121
Fdr	DLC COT- plug-in (universal) PBX	$0.11	19.38%	169.00	0.309492548	19.164	0.102	0.41172	0.119297296	0.531
	TOTAL LOOP COST:				$ 6.60	$ 470.41		$ 9.11		$ 12.03
	Maintenance Expense- Activity Based Study				$ 3.22			$ 3.22		$ 3.22
	Total Loop Cost with Maintenance				**$ 9.81**			**$ 12.32**		**$ 15.25**
	Coin Port	$191.52	19.38%	1.00	3.09	$191.52	1.022	4.115	1.192178179	5.307
	Total Cost of Coin Port:				**$ 3.09**			**$ 4.11**		**$ 5.31**
	Billing Expense	$2.36	12.0	1.00	2.36	$2.36	0.013	2.368	0.014659797	2.382
	Total Cost of Billing:				**$ 2.36**			**$ 2.37**		**$ 2.38**
	Total Cost of Payphone Access Line:				$ 15.26			$ 18.80		$ 22.94

Citizens Communications Company of Tennessee, LLC.

PBX cost of service development units: 924

CostFamily	CostElem	NodeServiceCount	CostComp	PlantType	Length	Units	UnitsUOM	CostUOM	Mtrl Total	EFI Total	TelricMtrl	Mtrl@Cap	TelricEFI	EFI@Cap
Dist	NID	576	NIDAerialCU	NID	0	0.426861	Terminals	Pair	4580.9506	11514.71	4.957738745	1.326100649	12.4618084	4.8679272
Dist	NID	576	NIDBuriedCU	NID	0	0.196518	Terminals	Pair	2032.8113	5109.697	2.200012229	0.610503355	5.52997533	4.8679282
Dist	DROP	576	AerialCU	Aerial	64	64.31835	Feet	Pair	4265.3452	14576.89	4.616174459	2.570575866	15.7758586	9.0634226
Dist	DROP	576	BuriedCU	Buried	28	28.08159	Feet	Pair	1845.4659	55841.42	1.997257468	1.105601623	60.4344365	34.816312
Dist	DTBT	711	AerialCU	Aerial	0	0.524836	Terminals	Pair	13830.0119	19534.03	14.96754535	7.78711645	21.1407253	10.915156
Dist	DTBT	711	BuriedCU	Buried	0	0.244645	Terminals	Pair	10493.4674	10163.7	11.35656645	6.073491883	10.9996776	5.8896584
Dist	DTBT	213	IntrabuildingCU	Intrabuildin	0	0.11526	Terminals	Pair	1828.1958	2631.348	1.978566883	0.931089935	2.84777922	1.3401343
Dist	DT-FDI	n/a	AerialCU	Aerial	19	18.81472	Feet	Pair	152.2584	467.9244	0.164781818	9.68E-02	0.50641169	0.2808143
Dist	DT-FDI	n/a	AerialCU24G	Aerial	3339	3338.865	Feet	Pair	40214.3146	74165.4	43.5219855	21.38462316	80.2655845	34.531421
Dist	DT-FDI	n/a	BuriedCU	Buried	9	8.675703	Feet	Pair	71.0692	278.3453	7.69E-02	0.045146645	0.3012395	0.1686043
Dist	DT-FDI	n/a	BuriedCU24G	Buried	1414	1413.728	Feet	Pair	18232.4444	28856.32	19.73208268	10.00096569	31.2297834	15.066887
Dist	DT-FDI	n/a	BuriedTrenchCU	BuriedTrench	0	1422.403	TrnchFeet	Pair	0	78311.25	0	0	84.7524332	31.177054
Dist	DT-FDI	n/a	Conduit	Underground	0	0.306672	Manholes	Pair	3126.2735	14542.74	3.383412879	1.686387662	15.7389001	7.8492994
Dist	DT-FDI	n/a	Pole	Aerial	0	16.7884	Poles	Pair	18103.4336	31190.95	19.59246061	6.511977056	33.7564344	11.219543
Dist	DT-FDI	n/a	UndergroundCU	Underground	1	1.442478	Feet	Pair	11.6688	61.157	1.26E-02	7.43E-03	6.62E-02	3.75E-02
Dist	DT-FDI	n/a	UndergroundCU24G	Underground	182	182.5609	Feet	Pair	1847.737	4307.904	1.999715368	1.133036147	4.66223387	2.6334479
Dist	BLDGCABLE	71	IntrabuildingCU	Intrabuildin	8	7.535173	Feet	Pair	216.4464	4797.016	0.234249351	0.138021645	5.19157576	3.1396847
Dist	BLDGCABLE	142	IntrabuildingCU24G	Intrabuildin	7	6.899351	Feet	Pair	70.7747	883.153	7.66E-02	5.43E-02	0.95579329	0.6801558
Fdr	BLDGCABLE	3	BuildingCU	Building	0	3.25E-02	Feet	Pair	0.3764	16.3531	4.07E-04	2.47E-04	1.77E-02	1.07E-02
Fdr	BLDGCABLE	142	BuildingCU24G	Building	2	1.536797	Feet	Pair	16.3008	738.0123	1.76E-02	1.21E-02	0.79871461	0.5593812
Fdr	BLDGCABLE	68	BuildingFO	Building	1	0.735931	Feet	DS0	2.7695	530.3744	3.00E-03	2.02E-02	0.57399827	3.8752494
Dist	FDI	856	AerialCU	Aerial	0	0.458571	Terminals	Pair	2410.6257	5087.987	2.608902273	2.30337197	5.50647944	4.9642636
Dist	FDI	856	BuriedCU	Buried	0	0.152857	Terminals	Pair	803.5367	1975.714	0.869628463	0.767800758	2.13821829	1.903828
Dist	FDI	68	IndoorCU	Indoor	0	4.86E-02	Terminals	Pair	565.1305	1019.548	0.611613095	0.406321429	1.10340682	0.7334471
Fdr	FDI	856	AerialCU	Aerial	0	0.236234	Terminals	Pair	1241.8363	2621.08	1.34397868	1.18660487	2.83666613	2.5573503
Fdr	FDI	856	BuriedCU	Buried	0	7.87E-02	Terminals	Pair	413.9454	1017.789	0.447992857	0.395532468	1.10150325	0.9807579
Fdr	FDI	68	IndoorCU	Indoor	0	0.025022	Terminals	Pair	291.1283	525.2225	0.315073918	0.2093171	0.56842262	0.3778351
Fdr	FDI-DLC	n/a	AerialCU	Aerial	2	1.655844	Feet	Pair	10.0909	4.4245	1.09E-02	9.49E-03	4.79E-03	4.19E-03
Fdr	FDI-DLC	n/a	AerialCU24G	Aerial	36	35.63474	Feet	Pair	278.6321	122.3563	0.301549892	0.255772186	0.13242024	0.1118126
Fdr	FDI-DLC	n/a	BuriedCU	Buried	0	0.220779	Feet	Pair	1.331	0.5372	1.44E-03	1.26E-03	5.81E-04	5.09E-04
Fdr	FDI-DLC	n/a	BuriedCU24G	Buried	6	5.849026	Feet	Pair	53.9716	21.7221	5.84E-02	4.89E-02	2.35E-02	0.0195524
Fdr	FDI-DLC	n/a	BuriedTrenchCU	BuriedTrench	0	6.069805	TrnchFeet	Pair	0	31.1401	0	0	3.37E-02	2.28E-02
Fdr	FDI-DLC	n/a	Conduit	Underground	0	1.14E-02	Manholes	Pair	14.5554	71.903	1.58E-02	1.19E-02	7.78E-02	0.0588784
Fdr	FDI-DLC	n/a	Pole	Aerial	0	0.186453	Poles	Pair	11.7592	20.2701	1.27E-02	8.96E-03	2.19E-02	0.015438
Fdr	FDI-DLC	n/a	UndergroundCU	Underground	0	0.547619	Feet	Pair	3.3552	1.5976	3.63E-03	3.14E-03	1.73E-03	1.51E-03
Fdr	FDI-DLC	n/a	UndergroundCU24G	Underground	6	6.297619	Feet	Pair	48.1717	22.1278	5.21E-02	4.50E-02	2.39E-02	2.08E-02
Fdr	DLC-RT	2	CommonONU	Common	0	0	*	DS0	135.1429	46.7736	0.14625855	7.05E-02	5.06E-02	2.44E-02
Fdr	DLC-RT	172	HardwiredINTEGRATED	Hardwired	0	0	*	DS0	27882.9109	9438.188	30.1763105	23.65482608	10.2144889	8.1404248
Fdr	DLC-RT	2	HardwiredONU	Hardwired	0	0	*	DS0	1769.8607	576.6275	1.915433658	0.923418398	0.62622024	0.3018968
Fdr	DLC-RT	169	HardwiredUNIVERSAL	Hardwired	0	0	*	DS0	53574.0975	18062.47	57.980625	24.14654616	19.5481265	8.432762
Fdr	DLC-RT	166	Plug-inINTEGRATED	Plug-in	0	166	COIN	Service	27930.0003	4256.114	30.22727305	19.91161017	4.60618377	3.0342249
Fdr	DLC-RT	6	Plug-inINTEGRATED	Plug-in	0	6	COINX	Service	1330.0002	202.6722	1.439394156	0.719696753	0.21934221	0.1096708
Fdr	DLC-RT	1	Plug-inONU	Plug-in	0	1	COIN	Service	639.6	97.526	0.692207792	0.115367965	0.10554762	1.76E-02
Fdr	DLC-RT	1	Plug-inONU	Plug-in	0	1	COINX	Service	639.6	97.526	0.692207792	0.115367965	0.10554762	1.76E-02
Fdr	DLC-RT	155	Plug-inUNIVERSAL	Plug-in	0	155	COIN	Service	41895.0009	6384.169	45.34091006	18.59216613	6.90927413	2.8331618
Fdr	DLC-RT	14	Plug-inUNIVERSAL	Plug-in	0	14	COINX	Service	4655.0003	709.3523	5.037879113	1.679292424	0.76769729	0.2558985
Fdr	DLC-CO	n/a	AerialCU	Aerial	611	611.2346	Feet	Pair	3646.8477	2372.815	3.94680487	3.741922835	2.56798106	2.4386594
Fdr	DLC-CO	n/a	AerialFO	Aerial	8053	8053.053	Feet	DS0	5243.6152	11810.87	5.674908225	5.674908225	12.7823296	12.78233
Fdr	DLC-CO	n/a	BuriedCU	Buried	106	105.62	Feet	Pair	610.0687	458.2461	0.660247511	0.623999242	0.49593734	0.4705086
Fdr	DLC-CO	n/a	BuriedFO	Buried	2401	2400.904	Feet	DS0	1654.7078	4531.838	1.790809307	1.790809307	4.90458647	4.9045865
Fdr	DLC-CO	n/a	BuriedTrenchCU	BuriedTrench	0	105.62	TrnchFeet	Pair	0	68.1492	0	0	7.38E-02	7.72E-02
Fdr	DLC-CO	n/a	BuriedTrenchFO	BuriedTrench	0	2400.904	TrnchFeet	DS0	0	9899.587	0	0	10.7138387	10.715697
Fdr	DLC-CO	n/a	Conduit	Underground	0	0.798476	Manholes	DS0	158.5387	981.6945	0.17157868	0.17157868	1.06243994	1.0624399
Fdr	DLC-CO	n/a	Conduit	Underground	0	0.163541	Manholes	Pair	91.9855	389.7442	9.96E-02	0.104462121	0.42180108	0.4286327
Fdr	DLC-CO	n/a	Pole	Aerial	0	40.26526	Poles	DS0	2373.4894	4089.368	2.568711472	2.568711472	4.42572305	4.4257231
Fdr	DLC-CO	n/a	Pole	Aerial	0	3.056173	Poles	Pair	43.8431	75.5547	4.74E-02	4.81E-02	8.18E-02	8.28E-02
Fdr	DLC-CO	n/a	UndergroundCU	Underground	98	98.12484	Feet	Pair	580.0683	429.1725	0.627779545	0.597081494	0.4644724	0.4418121
Fdr	DLC-CO	n/a	UndergroundFO	Underground	283	283.4474	Feet	DS0	93.1591	307.9503	0.100821537	0.100821537	0.33327955	0.3332795
Fdr	DLC-COT	343	Common*all	Common	0	0	*ALL	DS0	6719.55243	2210.935	7.272242884	5.111935417	2.39278714	1.6819851
Fdr	DLC-COT	343	Hardwired*all	Hardwired	0	0	*ALL	DS0	13620.2399	5697.589	14.74051936	6.776357143	6.16622205	3.1194167
Fdr	DLC-COT	174	HardwiredIntegrated	Hardwired	0	0	*SW	DS0	1767.09452	558.2256	1.912439953	1.211418831	0.60414031	0.3826883
Fdr	DLC-COT	174	Plug-inIntegrated	Plug-in	0	174	COIN	Service	3313.724	799.1981	3.586281385	3.286316883	0.86493301	1.0821976
Fdr	DLC-COT	169	Plug-inUniversal	Plug-in	0	169	COIN	Service	32718.0021	5002.863	35.40909318	16.62259491	5.41435346	2.5417307

Proprietary and Confidential

Date: 07/28/2000

Average Loop Length = 16,676

Citizens Communications Company of The Volunteer State, Inc.

Paystation cost of service development

		Investment	Annual Cost Factor	Average Utilization	Estimated monthly LRIC	Loaded Investment	Service Specific Overheads	Estimated TSLRIC plus Service SpecificOverheads	Corporate Overheads	Estimated TSLRIC plus Corporate Overheads
		(a)	(b)	(c)	(d)=(a*b*c)/12	(e = d / b * 12)	(f)	(g = d + f)	(h)	(I = g + h)
Dist	Network Interface Device - aerial	$14.41	15.43%	0.57	0.105036767	8.168	0.046	0.151	0.04980451	0.201
Dist	Network Interface Device - buried	$28.35	16.96%	0.25	0.101724551	7.196	0.040	0.142	0.043878766	0.186
Dist	Drop Wire- aerial cable	$0.21	15.43%	106.59	0.29200837	22.707	0.128	0.420	0.138459458	0.558
Dist	Drop Wire- buried cable	$1.65	16.96%	44.91	1.049254644	74.224	0.417	1.466	0.452594761	1.919
Dist	Distribution/Building terminal - aerial	$35.64	15.43%	0.64	0.293532293	22.825	0.128	0.422	0.139182045	0.561
Dist	Distribution/Building terminal - buried	$48.78	16.96%	0.29	0.201919633	14.284	0.080	0.282	0.087097797	0.369
Dist	Distribution/Building terminal - intrabuilding	$21.66	15.43%	0.03	0.009276869	0.721	0.004	0.0133	0.004398745	0.018
Dist	DT to FDI- aerial 24GA cable	$0.02	15.43%	4337.99	0.92024032	71.559	0.402	1.322	0.436343574	1.758
Dist	DT to FDI- buried 24GA cable	$0.02	16.96%	1724.95	0.405647808	28.695	0.161	0.567	0.174975706	0.742
Dist	DT to FDI- trenching	$0.03	16.96%	1724.95	0.618246487	43.735	0.246	0.864	0.266679897	1.131
Dist	DT to FDI- conduit/manholes	$32.99	14.16%	0.28	0.108590153	9.202	0.052	0.160	0.056112807	0.216
Dist	DT to FDI- poles	$1.34	16.52%	21.69	0.399509198	29.027	0.163	0.563	0.176994945	0.740
Dist	DT to FDI- underground 24GA cable	$0.02	15.17%	167.37	0.041927877	3.318	0.019	0.061	0.020229066	0.081
Dist	Building- intrabuilding cable 26GA	$0.18	15.43%	3.97	0.009410025	0.732	0.004	0.014	0.004461882	0.018
Dist	Building- intrabuilding cable 24GA	$0.14	15.43%	1.92	0.003480085	0.271	0.002	0.005	0.001650126	0.007
Fdr	Building- building cable 24GA	$0.45	15.43%	0.51	0.002938416	0.228	0.001	0.00422	0.001393287	0.006
For	Building- building cable FO	$5.29	14.88%	0.15	0.010099984	0.814	0.005	0.015	0.004965646	0.020
Dist	Feeder Distribution Interface- aerial FDI	$16.24	15.43%	0.49	0.101815542	7.917	0.044	0.14628	0.048277126	0.195
Dist	Feeder Distribution Interface- buried FDI	$17.92	16.96%	0.16	0.041160277	2.912	0.016	0.05751	0.017754437	0.075
Dist	Feeder Distribution Interface- indoor FDI	$20.03	15.43%	0.01	0.002627243	0.204	0.001	0.004	0.00124574	0.005
Fdr	Feeder Distribution Interface- aerial FDI	$16.24	15.43%	0.25	0.052450038	4.079	0.023	0.07536	0.024869848	0.100
Fdr	Feeder Distribution Interface- buried FDI	$17.92	16.96%	0.08	0.021203847	1.500	0.008	0.02963	0.009146254	0.039
Fdr	Feeder Distribution Interface- indoor FDI	$20.13	15.43%	0.01	0.001354147	0.105	0.001	0.002	0.000642086	0.003
Fdr	FDI to DLC- aerial cable 26GA	$0.01	15.43%	0.06	6.53283E-06	0.001	0.000	0.00001	3.09762E-06	0.000
Fdr	FDI to DLC- aerial cable 24GA	$0.01	15.43%	16.83	0.002302481	0.179	0.001	0.003	0.001091751	0.004
Fdr	FDI to DLC- buried cable 26GA	$0.01	16.96%	0.01	9.42892E-07	0.000	0.000	0.00000	4.06715E-07	0.000
Fdr	FDI to DLC- buried cable 24GA	$0.01	16.96%	2.66	0.000454341	0.032	0.000	0.001	0.000195979	0.001
Fdr	FDI to DLC- trenching	$0.00	16.96%	2.67	0.000171049	0.012	0.000	0.00024	7.37819E-05	0.000
Fdr	FDI to DLC- conduit/manholes	$5.50	14.16%	0.01	0.000408762	0.035	0.000	0.00060	0.000211224	0.001
Fdr	FDI to DLC- poles	$0.15	16.52%	0.08	0.0001793391	0.013	0.000	0.00025	7.94528E-05	0.000
Fdr	FDI to DLC- underground cable 26GA	$0.01	15.17%	0.01	1.32198E-06	0.000	0.000	0.00000	6.37817E-07	0.000
Fdr	FDI to DLC- underground cable 24GA	$0.01	15.17%	3.77	0.000504272	0.040	0.000	0.001	0.000243297	0.001
Fdr	DLC Remote Terminal- Hardwired Integrated	$57.70	19.89%	1.00	0.956462116	57.697	0.324	1.280	0.351819886	1.632
Fdr	DLC Remote Terminal- Hardwired Universal	$65.60	19.89%	1.00	1.087525211	65.604	0.368	1.456	0.40002943	1.856
Fdr	DLC Remote Terminal- plug-in (integrated) Coin	$0.65	19.89%	67.00	0.727478184	43.884	0.246	0.974	0.267591666	1.242
Fdr	DLC Remote Terminal- plug-in (universal) Coin	$0.65	19.89%	43.00	0.466888984	28.164	0.158	0.625	0.171737935	0.797
Fdr	DLC Remote Terminal- plug-in (universal) Coin ext.	$0.65	19.89%	7.00	0.076005183	4.585	0.026	0.102	0.027957338	0.130
Fdr	DLC to CO- aerial 26GA cable	$0.01	15.43%	596.62	0.068929719	5.360	0.030	0.099	0.032683897	0.132
Fdr	DLC to CO- aerial fiber	$0.00	14.88%	14591.09	0.310174502	25.009	0.140	0.451	0.152496952	0.603
Fdr	DLC to CO- buried 26GA cable	$0.01	16.96%	86.09	0.010538901	0.746	0.004	0.015	0.004545943	0.019
Fdr	DLC to CO- buried fiber	$0.00	14.94%	3480.15	0.107610481	8.645	0.049	0.156	0.052713035	0.209
Fdr	DLC to CO- buried trench copper	$0.00	16.96%	86.09	0.000739046	0.052	0.000	0.001	0.000318787	0.001
Fdr	DLC to CO- buried trench fiber	$0.00	14.94%	3480.15	0.149976627	12.048	0.068	0.218	0.073466108	0.291
Fdr	DLC to CO- conduit/manholes fiber	$0.67	14.16%	4.37	0.034818967	2.951	0.017	0.051	0.017992331	0.069
Fdr	DLC to CO- conduit/manholes copper	$3.55	14.16%	0.55	0.022949927	1.945	0.011	0.034	0.011859131	0.046
Fdr	DLC to CO- poles fiber	$0.12	16.52%	72.96	0.125212985	9.097	0.051	0.176	0.05547323	0.232
Fdr	DLC to CO- poles copper	$0.03	16.52%	2.98	0.001357086	0.099	0.001	0.002	0.000601231	0.003
Fdr	DLC to CO- underground 26GA cable	$0.01	15.17%	328.84	0.051455102	4.071	0.023	0.074	0.024825695	0.099
Fdr	DLC to CO- underground fiber	$0.00	14.68%	1383.55	0.013215152	1.080	0.006	0.019	0.006587155	0.026
Fdr	DLC COT- common	$10.20	19.89%	1.00	0.169121004	10.202	0.057	0.226	0.062208561	0.289
Fdr	DLC COT- hardwired- all	$14.86	19.89%	1.00	0.24633541	14.860	0.083	0.330	0.090610694	0.420
Fdr	DLC COT- hardwired- integrated	$2.85	19.89%	1.00	0.047198923	2.847	0.016	0.063	0.017361398	0.081
Fdr	DLC COT- plug-in (integrated) Coin	$0.12	19.89%	67.00	0.129344606	7.803	0.044	0.173	0.047577425	0.221
Fdr	DLC COT- plug-in (universal) Coin	$0.54	19.89%	50.00	0.445375408	26.867	0.151	0.59626	0.163824497	0.760
	TOTAL LOOP COST:				$ 10.05	$ 688.35		$ 13.91		$ 18.11
	Maintenance Expense- Activity Based Study				$ 3.22			$ 3.22		$ 3.22
	Total Loop Cost with Maintenance				**$ 13.26**			**$ 17.13**		**$ 21.33**
	Coin Line Card	$186.57	19.89%	1.00	3.09	186.574	1.048	4.141	1.137666082	5.278
	Total Cost of Coin Port:				**$ 3.09**			**$ 4.14**		**$ 5.28**
	Billing Expense	$2.36	12.00	1.00	2.355	2.355	0.013	2.368	0.014360037	2.383
	Total Cost of Billing Expense:				**$ 2.36**			**$ 2.37**		**$ 2.38**
	Total Cost of Payphone Access Line:				**$ 18.71**			**$ 23.64**		**$ 28.99**

Citizens Communications Company of The Volunteer State, Inc.

Paystation cost of service development units: 195

CostFamily	CostElem	NodeServiceCount	CostComp	PlantType	Length	Units	UnitsUOM	CostUOM	Mtrl Total	EFI Total	TelricMtrl	Mtrl@Cap	TelricEFI	EFI@Cap
Dist	NID	160	NIDAerialCU	NID	0	0.566667	Terminals	Pair	1670.5591	4199.14	8.566969744	1.760428205	21.5340523	6.4073518
Dist	NID	160	NIDBuriedCU	NID	0	0.253846	Terminals	Pair	725.666	1824.041	3.721364103	0.788610256	9.35405641	6.4073667
Dist	DROP	160	AerialCU	Aerial	107	106.5939	Feet	Pair	1659.4786	6321.666	8.510146667	4.674450769	32.418798	18.032456
Dist	DROP	160	BuriedCU	Buried	45	44.91	Feet	Pair	687.1203	25396.43	3.523693846	1.955094359	130.238095	72.268995
Dist	DTBT	182	AerialCU	Aerial	0	0.640513	Terminals	Pair	3497.0246	4940.385	17.93345949	9.506057436	25.3353062	13.319352
Dist	DTBT	182	BuriedCU	Buried	0	0.292821	Terminals	Pair	2563.3083	2483.51	13.14517077	7.249755385	12.7359492	7.0340041
Dist	DTBT	13	IntrabuildingCU	Intrabuildin	0	3.33E-02	Terminals	Pair	122.5437	176.3784	0.628429231	0.295730256	0.90450462	0.4256497
Dist	DT-FDI	n/a	AerialCU24G	Aerial	4338	4337.985	Feet	Pair	11802.2274	18616.97	60.52424308	28.27342	95.4716354	43.285527
Dist	DT-FDI	n/a	BuriedCU24G	Buried	1725	1724.95	Feet	Pair	5134.1787	6847.667	26.32912154	12.42767333	35.1162395	16.267782
Dist	DT-FDI	n/a	BuriedTrenchCU	BuriedTrench	0	1724.95	TmchFeet	Pair	0	20470.64	0	0	104.977647	43.734648
Dist	DT-FDI	n/a	Conduit	Underground	0	0.278955	Manholes	Pair	836.8089	4071.469	4.291327692	1.56911641	20.8793256	7.6332041
Dist	DT-FDI	n/a	Pole	Aerial	0	21.68993	Poles	Pair	4901.8014	8445.472	25.13744308	10.66004872	43.3101144	18.366555
Dist	DT-FDI	n/a	UndergroundCU24G	Underground	167	167.3728	Feet	Pair	422.5847	930.3254	2.167101026	1.046077949	4.77089949	2.2714241
Dist	BLDGCABLE	3	IntrabuildingCU	Intrabuildin	4	3.974359	Feet	Pair	18.1304	167.3573	9.30E-02	7.15E-02	0.85824256	0.6602344
Dist	BLDGCABLE	10	IntrabuildingCU24G	Intrabuildin	2	1.923077	Feet	Pair	4.7361	72.3206	2.43E-02	1.62E-02	0.37087487	0.2544154
Fdr	BLDGCABLE	10	BuildingCU24G	Building	1	0.512821	Feet	Pair	1.2028	59.8061	6.17E-03	4.39E-03	0.30669795	0.2241046
Fdr	BLDGCABLE	3	BuildingFO	Building	0	0.153846	Feet	DS0	0.0439	8.4294	2.25E-04	4.23E-03	4.32E-02	0.81012
Dist	FDI	192	AerialCU	Aerial	0	0.487385	Terminals	Pair	548.6185	1129.82	2.813428205	2.573486154	5.79395077	5.3438077
Dist	FDI	192	BuriedCU	Buried	0	0.162462	Terminals	Pair	182.8721	435.2349	0.937805641	0.857833846	2.23197385	2.0538369
Dist	FDI	3	IndoorCU	Indoor	0	1.02E-02	Terminals	Pair	21.5005	30.0795	0.110258974	8.48E-02	0.15425385	0.1194974
Fdr	FDI	192	AerialCU	Aerial	0	0.251077	Terminals	Pair	282.6235	582.0253	1.449351282	1.325731282	2.98474513	2.7528441
Fdr	FDI	192	BuriedCU	Buried	0	8.37E-02	Terminals	Pair	94.2078	224.2114	0.483116923	0.441910256	1.14980205	1.0580462
Fdr	FDI	3	IndoorCU	Indoor	0	5.23E-03	Terminals	Pair	11.0761	15.4955	5.68E-02	4.37E-02	7.95E-02	6.16E-02
Fdr	FDI-DLC	n/a	AerialCU	Aerial	0	6.15E-02	Feet	Pair	0.0988	0.0422	5.07E-04	3.56E-04	2.16E-04	1.52E-04
Fdr	FDI-DLC	n/a	AerialCU24G	Aerial	17	16.83077	Feet	Pair	29.4194	13.3389	0.150868718	0.12394359	6.84E-02	5.51E-02
Fdr	FDI-DLC	n/a	BuriedCU	Buried	0	8.21E-03	Feet	Pair	0.0132	0.0052	6.77E-05	4.82E-05	2.67E-05	1.85E-05
Fdr	FDI-DLC	n/a	BuriedCU24G	Buried	3	2.662564	Feet	Pair	5.5272	2.3493	2.83E-02	2.27E-02	1.20E-02	9.44E-03
Fdr	FDI-DLC	n/a	BuriedTrenchCU	BuriedTrench	0	2.670769	TmchFeet	Pair	0	3.9861	0	0	2.04E-02	1.21E-02
Fdr	FDI-DLC	n/a	Conduit	Underground	0	6.30E-03	Manholes	Pair	1.6712	8.6004	8.57E-03	5.64E-03	4.41E-02	2.90E-02
Fdr	FDI-DLC	n/a	Pole	Aerial	0	8.45E-02	Poles	Pair	1.5089	2.6011	7.74E-03	4.79E-03	1.33E-02	8.24E-03
Fdr	FDI-DLC	n/a	UndergroundCU	Underground	0	1.23E-02	Feet	Pair	0.0198	0.0092	1.02E-04	7.08E-05	4.72E-05	3.38E-05
Fdr	FDI-DLC	n/a	UndergroundCU24G	Underground	4	3.768205	Feet	Pair	6.5451	2.8859	3.36E-02	2.77E-02	1.48E-02	1.22E-02
Fdr	DLC-RT	67	HardwiredINTEGRATED	Hardwired	0	0	*	DS0	11616.6195	3902.174	59.57240769	42.93598359	20.0111477	14.76135
Fdr	DLC-RT	50	HardwiredUNIVERSAL	Hardwired	0	0	*	DS0	13003.6664	4383.241	66.68546872	48.99348615	22.4781569	16.610058
Fdr	DLC-RT	67	Plug-inINTEGRATED	Plug-in	0	67	COIN	Service	12635.0005	1925.385	64.79487436	38.08118513	9.87376872	5.8029903
Fdr	DLC-RT	43	Plug-inUNIVERSAL	Plug-in	0	43	COIN	Service	11305.0002	1722.712	57.97436	24.44016359	8.83442205	3.7243072
Fdr	DLC-RT	7	Plug-inUNIVERSAL	Plug-in	0	7	COINX	Service	1995	304.008	10.23076923	3.978631282	1.55901539	0.6062826
Fdr	DLC-CO	n/a	AerialCU	Aerial	597	596.6231	Feet	Pair	771.8966	341.5506	3.958444103	3.722762051	1.75154154	1.6372923
Fdr	DLC-CO	n/a	AerialFO	Aerial	14591	14591.09	Feet	DS0	1439.7423	3437.015	7.383293846	7.383293846	17.6257174	17.625717
Fdr	DLC-CO	n/a	BuriedCU	Buried	86	86.08667	Feet	Pair	105.9692	50.3542	0.543431795	0.507552821	0.25822667	0.2379672
Fdr	DLC-CO	n/a	BuriedFO	Buried	3480	3480.151	Feet	DS0	420.4307	1265.299	2.156054872	2.156054872	6.48871385	6.4887138
Fdr	DLC-CO	n/a	BuriedTrenchCU	BuriedTrench	0	86.08667	TmchFeet	Pair	0	13.3352	0	0	0.06838564	0.05228
Fdr	DLC-CO	n/a	BuriedTrenchFO	BuriedTrench	0	3480.151	TmchFeet	DS0	0	2348.961	0	0	12.0459533	12.048206
Fdr	DLC-CO	n/a	Conduit	Underground	0	4.374531	Manholes	DS0	69.974	505.4095	0.358841026	0.358841026	2.59184359	2.5918436
Fdr	DLC-CO	n/a	Conduit	Underground	0	0.548065	Manholes	Pair	52.1682	231.6752	0.267529231	0.354525128	1.18607795	1.5903344
Fdr	DLC-CO	n/a	Pole	Aerial	0	72.95546	Poles	DS0	651.5001	1122.499	3.341026154	3.341026154	5.75640564	5.7564056
Fdr	DLC-CO	n/a	Pole	Aerial	0	2.983115	Poles	Pair	9.1604	15.79	4.70E-02	3.62E-02	0.08097436	6.24E-02
Fdr	DLC-CO	n/a	UndergroundCU	Underground	329	328.839	Feet	Pair	396.8096	408.8068	2.034921026	1.993445128	2.09644513	2.0778892
Fdr	DLC-CO	n/a	UndergroundFO	Underground	1384	1383.547	Feet	DS0	59.4798	151.1733	0.305024615	0.305024615	0.77524769	0.7752477
Fdr	DLC-COT	117	Common*all	Common	0	0	*ALL	DS0	1743.31537	573.6037	8.940078803	7.676272991	2.94155727	2.5257316
Fdr	DLC-COT	117	Hardwired*all	Hardwired	0	0	*ALL	DS0	2918.4803	1272.975	14.96656564	10.17563077	6.52807795	4.6842325
Fdr	DLC-COT	67	HardwiredIntegrated	Hardwired	0	0	*SW	DS0	505.278033	159.6171	2.591169402	2.163699145	0.81854906	0.6835145
Fdr	DLC-COT	67	Plug-inIntegrated	Plug-in	0	67	COIN	Service	1185.1793	292.7139	6.077842564	5.869646667	1.50109692	1.9328985
Fdr	DLC-COT	50	Plug-inUniversal	Plug-in	0	50	COIN	Service	8179.5008	1250.716	41.94615795	23.30341026	6.41392564	3.5632821

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