

# **LOOP MODULE**

## **VERSION 3**

**Default Values**

**WASHINGTON**

**Qwest Corporation**

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**LOOP MODULE DEFAULT VALUES**  
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## **1. Overview**

This document provides descriptions of the loop inputs available to the Qwest Integrated Cost Model (ICM) users and the default values assigned to those inputs. Also included is the source of the data that was used to establish these values. The data is based on the TELRIC economic guidelines. Thus, where current activities are reflective of what would be experienced within the TELRIC structure, that information will be included. Conversely, if the forward-looking equipment/activities/designs are not being implemented on a widespread basis, subject matter experts were consulted to develop an estimate of the appropriate values.

As new or additional data is gathered it will be included in this document.

## **2. Distribution Plant Mix**

**Description:** The distribution plant mix inputs are used to determine the portion of the distribution cable structure that will be assumed to be aerial versus buried versus underground. Aerial cable is placed on poles. Pole structure consists of poles, anchors, guy wires and the labor to place them. Buried cable is placed directly in the ground through a variety of methods. Those methods range from plowing to various cut & restore methods to directional boring. Underground cable is placed in a conduit system. The conduit system is made up of ducts and splicing chambers or pull-boxes. The inputs are adjustable for the aerial and buried percentages. The underground percentages are equal to the remainder of 100% minus the sum of the aerial and buried percentages.

**Plant Mix**

<b>Density Zone</b>	<b>Underground</b>	<b>Buried</b>	<b>Aerial</b>
0 to 5	3%	83%	14%
5 to 100	3%	84%	13%
100 to 200	4%	86%	10%
200 to 650	6%	84%	10%
650 to 850	10%	80%	10%
850 to 2,550	22%	68%	10%
2,550 to 5,000	32%	58%	10%
5,000 to 10,000	42%	48%	10%
10000 +	59%	38%	3%

**Support:** The default inputs are based on the assumption that the percentage aerial that exists in the current network is the maximum that would occur in a forward-looking network. Aerial is being used to a lesser extent in the current network due to aesthetic and maintenance concerns. Data from Qwest records indicate that aerial cabling constitutes approximately 11.5% of the total sheath miles of outside plant cabling.

### **3. Distribution Structure Sharing**

**Description:** The sharing percentages represent the amount of the structure costs that are assigned to the incumbent and will be included in the average investment developed by the model. Structure costs are the costs associated with excavation and restoration, duct systems and pole structures. The sharing percentages reflect the fact that there will be a reduction in placing costs due to either trench provided by a land developer or multiple facility providers using the same poles, trenches or conduit systems. With trench provided by a developer, the only cost experienced by the facility provider is the cost of laying the cable in the open trench. Where a single structure is used by multiple providers, the up-front costs of constructing the structure would be reduced by the amount paid by parties other than incumbent.

#### **Structure Sharing**

<b>Density Zone</b>	<b>Underground</b>	<b>Buried</b>	<b>Aerial</b>
0 to 5	95%	80%	50%
5 to 100	95%	80%	50%
100 to 200	95%	80%	50%
200 to 650	95%	80%	50%
650 to 850	95%	80%	50%
850 to 2,550	95%	80%	50%
2,550 to 5,000	95%	80%	50%
5,000 to 10,000	95%	80%	50%
10000 +	95%	80%	50%

**Support:** Qwest joint trench information for recent years shows that, even in a growth network, 20% sharing of buried plant (80% assigned to the ILEC) is an optimistic projection of sharing opportunities. The joint trench data is biased toward plant placed in new developments with more potential for sharing. If it is assumed that all of the joint buried footages are shared by three facility providers and it is assumed that the same level of sharing could be achieved in a replacement network, the buried sharing input would be approximately 85%. The Qwest default of 80% provides a liberal amount of sharing. Aerial plant has more potential for sharing as the structure is accessible after construction. The sharing assumption still must reflect the amount of upfront costs that the ILEC will be able to avoid. The Qwest defaults for aerial sharing take into account the fact that there will be areas that have power, telephone and cable television facilities on a pole as well as situations where, due to differences in network footprints, a pole line has only telephone facilities. Furthermore, it must be noted that while power and telephone often have joint ownership agreements, cable television typically pays attachments fees (not upfront construction costs) and that those fees represent only a small fraction of the structure costs. The underground sharing percentages are based on observations by outside plant subject matter experts that little if any sharing occurs in the construction of conduit systems for local loop. Even if one were to count leasing of ducts as sharing, leased duct space accounts for less than 1% of the total Qwest duct footages.

#### **4. Distribution Cable Sizing Factors**

**Description:** The distribution cable sizing factors are used to determine the cable size that will be selected to serve a quantity of demand. The default input is 50% for all density zones. This input assures that the distribution cabling provides at least two pairs per living unit. The demand within each cluster is divided by the sizing factor. The program selects the first cable that exceeds the result of that calculation.

**Default values:**

Density Zone	Sizing Factor
0 to 5	50%
5 to 100	50%
100 to 200	50%
200 to 650	50%
650 to 850	50%
850 to 2,550	50%
2,550 to 5,000	50%
5,000 to 10,000	50%
10000 +	50%

**Support:** The default input fills are based on Qwest network guidelines of a minimum of two pairs per site. This sizing is also supported by the AT&T Outside Plant Engineering Handbook, August 1994, page 3-11. This document states that interfaced secondary cables should be sized at two pairs per residential location.

#### **5. Pole Investments**

**Description:** The pole investments include the installation and material costs for a 35 foot Class 5 pole and a weighting of anchors.

**Default values:**

Material	\$190.26
Installation Labor	\$319.07
Total Investments	\$509.33

**Support:** The material costs include the pole and an anchor on every 10<sup>th</sup> span. The labor includes a weighting between roadside and interior placements. The costs for the material and labor are derived from the latest contracts Qwest has with equipment and construction vendors.

**6. Conduit Investments**

**Description:** The conduit investments are for a 4” pvc duct and for inner-duct. The spare duct factor is the number of empty ducts that will be placed adjacent to ducts required for underground cable placement. The costs for actual construction of the trench and placement of the ducts are included in the placement costs, not in the conduit investments. The placement costs associated with the inner-duct are for pulling the inner-duct into the 4” pvc duct.

**Default values:**

Conduit material	\$0.84
Inner-duct and placing	\$0.28
Spare duct factor	1

**Support:** The material costs are derived from the current contracts Qwest has with equipment vendors.

**7. Distribution Copper Cable Costs**

**Description:** The distribution copper cable costs are a weighted average of the costs for underground, buried and aerial copper cables. The cable costs include material, supply, engineering, splicing, and exempt material. The weighting is based on the user adjustable inputs for plant mix.

**Default values:**

<b>Cable Size (pairs)</b>	<b>Underground</b>	<b>Buried</b>	<b>Aerial</b>
4200	\$26.66	\$26.41	<del>\$27.82</del> <u>26.51</u>
3600	\$20.66	\$20.17	<del>\$20.51</del> <u>21.82</u>
3000	\$17.82	\$17.21	<del>\$17.67</del> <u>18.98</u>
2400	\$14.59	\$13.86	<del>\$14.44</del> <u>15.75</u>
1800	\$11.88	\$11.03	<del>\$11.73</del> <u>13.04</u>
1200	\$8.66	\$7.68	<del>\$8.50</del> <u>9.81</u>
900	\$7.62	\$6.61	<del>\$7.47</del> <u>8.78</u>
600	\$5.56	\$4.46	<del>\$5.40</del> <u>6.71</u>
400	\$4.67	\$3.77	<del>\$4.74</del> <u>5.87</u>
200	\$2.99	\$2.02	<del>\$3.06</del> <u>4.18</u>
100	\$2.26	\$1.26	<del>\$2.33</del> <u>3.45</u>
50	\$1.91	\$0.89	<del>\$1.98</del> <u>3.10</u>
25	\$1.48	\$0.44	<del>\$1.55</del> <u>2.67</u>
12	\$1.48	\$0.44	<del>\$1.55</del> <u>2.67</u>
6	\$1.48	\$0.44	<del>\$1.55</del> <u>2.67</u>

**Support:** The cable material costs are provided by the Qwest network organization. They are based on the latest prices Qwest is paying for these components.

### 9. Serving Area Interfaces (SAIs)

**Description:** The cost per item for Serving Area Interfaces (SAI) or cross-connect boxes. The SAI is the connection point between feeder cables and distribution cables and provides flexibility in assignment of pairs.

**Default values:**

SAI Costs	
Size (Lines)	Cost
7,200	\$13,008
5,400	\$10,218
3,600	\$7,080
2,400	\$5,104
1,800	\$4,349
1,200	\$2,947
900	\$2,634
600	\$2,020
400	\$1,811
200	\$1,796
100	\$1,317
50	\$1,235

**Support:** The SAI costs are provided by the Qwest network organization. They are based on the latest prices Qwest is paying for these components.

### 9. Feeder Cable Sizing Factor

**Description:** The sizing factor provides for additional capacity above the current demand in that feeder section. This allows for administrative pairs as well as maintenance and growth spares.

**Default values:**

Feeder Sizing Factor	
Density Zone	Sizing Factor
0 to 5	80%
5 to 100	80%
100 to 200	80%
200 to 650	80%
650 to 850	80%
850 to 2,550	80%
2,550 to 5,000	80%
5,000 to 10,000	80%
10000 +	80%



**Support:** Actual realized utilizations are in the range of 65%. The 80% sizing factor develops a conservative estimate (usually in the low 70%<sup>s</sup>) of spare capacity required to efficiently operate the feeder network.

## **10. Feeder Plant Mix**

**Description:** The feeder plant mix inputs are used to determine the portion of the feeder cable structure that will be assumed to be aerial versus buried versus underground. Aerial cable is placed on poles. Pole structure consists of poles, anchors, and the labor to place them. Buried cable is placed directly in the ground through a variety of methods. Those methods range from plowing to various cut & restore methods to directional boring. Underground cable is placed in a conduit system. The conduit system is made up of ducts and splicing chambers or pull-boxes. The inputs are adjustable for the aerial and buried percentages. The underground percentages are equal to the remainder of 100% minus the sum of the aerial and buried percentages.

**Feeder Plant Mix**

<b>Density Zone</b>	<b>Underground</b>	<b>Buried</b>	<b>Aerial</b>
0 to 5	9%	76%	15%
5 to 100	9%	76%	15%
100 to 200	9%	76%	15%
200 to 650	23%	63%	14%
650 to 850	42%	48%	10%
850 to 2,550	61%	34%	5%
2,550 to 5,000	73%	24%	3%
5,000 to 10,000	83%	15%	2%
10000 +	88%	10%	2%

**Support:** The default inputs are based on the assumption that the percentage aerial that exists in the current network is the maximum that would occur in a forward-looking network. Aerial is being used to a lesser extent in the current network due to aesthetic and maintenance concerns. Data from Qwest records indicate that aerial cabling constitutes approximately 11.5% of the total sheath miles of outside plant cabling.

## **11. Feeder Structure Sharing**

**Description:** The sharing percentages represent the amount of the structure costs that are assigned to the incumbent and will be included in the average investment developed by the model. Structure costs are the costs associated with excavation and restoration, duct systems and pole structures. The sharing percentages reflect the fact that there will be a reduction in placing costs due to either trench provided by a land developer or multiple facility providers using the same poles, trenches or conduit systems. With trench provided by a developer, the only cost experienced by the facility provider is the cost of laying the cable in the open trench. Where a single structure is used by multiple providers, the up-front costs of constructing the structure would be reduced by the amount paid by parties other than incumbent.

### **Structure Sharing**

<b>Density Zone</b>	<b>Underground</b>	<b>Buried</b>	<b>Aerial</b>
0 to 5	95%	80%	50%
5 to 100	95%	80%	50%
100 to 200	95%	80%	50%
200 to 650	95%	80%	50%
650 to 850	95%	80%	50%
850 to 2,550	95%	80%	50%
2,550 to 5,000	95%	80%	50%
5,000 to 10,000	95%	80%	50%
10000 +	95%	80%	50%

**Support:** Qwest joint trench information for recent years shows that, even in a growth network, 20% sharing of buried plant (80% assigned to the ILEC) is an optimistic projection of sharing opportunities. The joint trench data is biased toward plant placed in new developments with more potential for sharing. If it is assumed that all of the joint buried footages are shared by three facility providers and it is assumed that the same level of sharing could be achieved in a replacement network the buried sharing input would be approximately 85%. The Qwest default of 80% provides a liberal amount of sharing. Aerial plant has more potential for sharing as the structure is accessible after construction. The sharing assumption still must reflect the amount of upfront costs that the ILEC will be able to avoid. The Qwest defaults for aerial sharing take into account the fact that there will be areas that have power, telephone and cable television facilities on a pole as well as situations where, due to differences in network footprints, a pole line has only telephone facilities. Furthermore, it must be noted that while power and telephone often have joint ownership agreements, cable television typically pays attachments fees (not upfront construction costs) and that those fees represent only a small fraction of the structure costs. The underground sharing percentages are based on observations outside plant subject matter experts that little if any sharing occurs in the construction of conduit systems for local loop. Even if one were to count leasing of ducts as sharing, leased duct space accounts for less than 1% of the total Qwest duct footages.

## 12. Feeder Copper Cable Costs

**Description:** The feeder copper cable costs used by the model are a weighted average of the costs for underground, buried and aerial copper cables. The cable costs include material, supply, engineering, splicing, and exempt material. The weighting is based on the user adjustable inputs for plant mix.

**Default values:**

**Copper Cable Costs**

Cable Size (pairs)	Underground	Buried	Aerial
4200	\$26.66	\$26.41	<del>\$26.51</del> <u>27.82</u>
3600	\$20.66	\$20.17	<del>\$20.51</del> <u>21.82</u>
3000	\$17.82	\$17.21	<del>\$17.67</del> <u>18.98</u>
2400	\$14.59	\$13.86	<del>\$14.44</del> <u>15.75</u>
1800	\$11.88	\$11.03	<del>\$11.73</del> <u>13.04</u>
1200	\$8.66	\$7.68	<del>\$8.50</del> <u>9.81</u>
900	\$7.62	\$6.61	<del>\$7.47</del> <u>8.78</u>
600	\$5.56	\$4.46	<del>\$5.40</del> <u>6.71</u>
400	\$4.67	\$3.77	<del>\$4.74</del> <u>5.87</u>
200	\$2.99	\$2.02	<del>\$3.06</del> <u>4.18</u>
100	\$2.26	\$1.26	<del>\$2.33</del> <u>3.45</u>
50	\$1.91	\$0.89	<del>\$1.98</del> <u>3.10</u>
25	\$1.48	\$0.44	<del>\$1.55</del> <u>2.67</u>
12	\$1.48	\$0.44	<del>\$1.55</del> <u>2.67</u>
6	\$1.48	\$0.44	<del>\$1.55</del> <u>2.67</u>

**Support:** The cable material costs are provided by the Qwest network organization. They are based on the latest prices Qwest is paying for these components.

## 13. Feeder Fiber Cable Costs

**Description:** The feeder fiber cable costs used by the model are a weighted average of the costs for underground, buried and aerial fiber cables. The cable costs include material, supply, engineering, splicing, and exempt material. The weighting is based on the user adjustable inputs for plant mix.

**Default values:**

**Fiber Cable Costs**

Cable Size (fibers)	Underground	Buried	Aerial
288	\$5.50	\$5.26	\$9.79
216	\$4.42	\$4.19	\$7.42
144	\$3.31	\$3.81	\$6.68
96	\$2.56	\$3.06	\$5.22
72	\$2.18	\$2.69	\$4.48
48	\$1.81	\$2.31	\$3.68
36	\$1.65	\$2.15	\$3.31
24	\$1.48	\$1.99	\$2.97
12	\$1.32	\$1.94	\$2.60

6	\$1.24	\$1.91	\$2.41
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**Support:** The cable material costs are provided by the Qwest network organization. They are based on the latest prices Qwest is paying for these components.

#### **14. DLC Sizing Factors**

**Description:** The DLC sizing factors provide for an allocation of spare capacity when selecting the initial system size or channel unit quantity. The line demand is divided by the sizing factor. The next larger system size is then selected. In the case of channel units, the result is divided by the channel unit capacity and rounded up to the next whole unit.

**Default values:**

DLC System	80%
DLC Channel Units	90%

**Support:** DLC systems come in discrete sizes (similar to larger copper feeder cables) and are sized to allow for 3 to 5 years growth. Channel units come in small increments (singles, duals, or quads) and are placed for 12 to 18 months growth and consequently use a sizing factor closer to 100%.

#### **15. DLC System and Channel Unit Costs**

**Description:** The DLC system costs include the central office equipment, the remote terminal equipment and, in the case of systems equal or larger than 2016 lines, controlled environmental chambers or vaults. The system costs do not include the individual circuit channel units. Those costs are added to the system costs based on the location demand.

**Default values:**

<b>System - Lines</b>	<b>System Cost</b>	<b>POTS Cost</b>	<b>Coin Cost</b>	<b>ISDN Cost</b>	<b>DS1 Cost</b>
8,064	\$473,396	\$200.40	\$755.63	\$672.97	\$696.62
7,392	\$417,250	\$200.40	\$755.63	\$672.97	\$696.62
6,720	\$402,833	\$200.40	\$755.63	\$672.97	\$696.62
6,048	\$372,826	\$200.40	\$755.63	\$672.97	\$696.62
5,376	\$360,081	\$200.40	\$755.63	\$672.97	\$696.62
4,704	\$345,665	\$200.40	\$755.63	\$672.97	\$696.62
4,032	\$291,875	\$200.40	\$755.63	\$672.97	\$696.62
3,360	\$279,130	\$200.40	\$755.63	\$672.97	\$696.62
2,688	\$274,987	\$200.40	\$755.63	\$672.97	\$696.62
2,016	\$165,655	\$200.40	\$755.63	\$672.97	\$696.62
1,344	\$88,264	\$200.40	\$755.63	\$672.97	\$696.62

672	\$68,814	\$200.40	\$755.63	\$672.97	\$696.62
384	\$55,466	\$162.48	\$415.04	\$888.61	\$665.53
192	\$72,946	\$162.48	\$415.04	\$888.61	\$665.53
32	\$21,294	\$508.40	\$776.41	\$635.53	\$665.53

**Support:** The equipment costs are derived from the current contracts Qwest has with equipment vendors.

## **16. Buried Placement Activity Costs**

**Description:** The placement costs are the contracted costs for various activities involving placement of buried plant. The placement costs are added to the cost of buried cable on a per cable foot basis. The cost added is a weighted average of the costs of each activity. This weighting is unique to each density zone. The weightings are discussed below in the Placement Percentages section.

**Default values:**

Density Zone	Trench and Backfill	Plow	Cut & Restore Concrete	Hand Dig Trench	Directional Boring	Cut & Restore Asphalt	Cut & Restore Sod
0 to 5	\$2.55	\$2.28	\$16.48	\$5.51	\$14.64	\$17.55	\$3.63
5 to 100	\$2.55	\$2.28	\$16.48	\$5.51	\$14.64	\$17.55	\$3.63
100 to 200	\$2.55	\$2.28	\$16.48	\$5.51	\$14.64	\$17.55	\$3.63
200 to 650	\$2.55	\$2.28	\$16.48	\$5.51	\$14.64	\$17.55	\$3.63
650 to 850	\$2.55	\$2.28	\$16.48	\$5.51	\$14.64	\$17.55	\$3.63
850 to 2,550	\$2.55	\$2.28	\$16.48	\$5.51	\$14.64	\$17.55	\$3.63
2,550 to 5,000	\$2.55	\$2.28	\$16.48	\$5.51	\$14.64	\$17.55	\$3.63
5,000 to 10,000	\$2.55	\$2.28	\$16.48	\$5.51	\$14.64	\$17.55	\$3.63
10000 +	\$2.55	\$2.28	\$16.48	\$5.51	\$14.64	\$17.55	\$3.63

**Support:** The costs for the various activities are drawn from the latest contracts Qwest Network has for placement of buried plant. Where a state has multiple contractors the number is a weighted average of the different prices. The weighting is based on the number of lines in the areas served by each contractor. Where there are variations on a single activity (e.g. trench - 24", 30' & 36"), those prices are weighted together based on an estimate of their occurrence.

## **17. Buried Placement Percentages**

**Description:** The placement percentages are used to weight together the various activities involving placement of buried plant. The cost is applied to the structure distances and the buried plant mix percentages. The weighting is unique to each density zone.

**Default values:**

Density Zone	Trench and Backfill	Plow	Cut & Restore Concrete	Hand Dig Trench	Directional Boring	Cut & Restore Asphalt	Cut & Restore Sod
0 to 5	3%	95%	0%	0%	0%	2%	0%
5 to 100	3%	95%	0%	0%	0%	2%	0%
100 to 200	32%	28%	3%	4%	20%	6%	7%
200 to 650	32%	28%	3%	4%	20%	6%	7%
650 to 850	30%	0%	5%	5%	45%	10%	5%
850 to 2,550	30%	0%	5%	5%	45%	10%	5%
2,550 to 5,000	30%	0%	10%	5%	30%	10%	15%
5,000 to 10,000	30%	0%	10%	5%	30%	10%	15%
10000 +	25%	0%	15%	5%	20%	20%	15%

**Support:** The activity percentages are a mix of placement methods that would be used to replace the existing network as well as grow it during the current feeder planning period. The percentages are based on interviews with outside plant engineers who were responsible for cable rehab work. The question to the engineers was phrased to address the type of activities that they would expect to use when cable placement is done in mature, existing areas. Data was also drawn from Qwest experience in placing plant for a Broadband trial in Omaha, NE. In addition, a citywide CATV rebuild in one of the Qwest states provided support to the utilization of boring in mature areas. The weighted average result of applying the activity percentages to the activity costs is shown below.

Density Zone	Weighted Average Cost
0 to 5	\$2.60
5 to 100	\$2.60
100 to 200	\$6.41
200 to 650	\$6.41
650 to 850	\$10.39
850 to 2,550	\$10.39
2,550 to 5,000	\$9.38
5,000 to 10,000	\$9.38
10000 +	\$10.37

## **18. Underground Placement Activity Costs**

**Description:** The placement costs are the contracted costs for various excavation and restoration activities associated with the construction of underground conduit systems. These costs do not include the actual duct and manhole costs. The placement costs are applied against the total structures distances and the underground plant mix percentages.

### **Default values:**

<b>Density Zone</b>	<b>Trench and Backfill</b>	<b>Rocky Trench</b>	<b>Cut &amp; Restore Concrete</b>	<b>Hand Dig Trench</b>	<b>Directional Boring</b>	<b>Cut &amp; Restore Asphalt</b>	<b>Cut &amp; Restore Sod</b>
0 to 5	\$6.74	\$19.34	\$20.66	\$12.24	\$29.99	\$22.09	\$7.82
5 to 100	\$6.74	\$19.34	\$20.66	\$12.24	\$29.99	\$22.09	\$7.82
100 to 200	\$6.74	\$19.34	\$20.66	\$12.24	\$29.99	\$22.09	\$7.82
200 to 650	\$6.74	\$19.34	\$20.66	\$12.24	\$29.99	\$22.09	\$7.82
650 to 850	\$6.74	\$19.34	\$20.66	\$12.24	\$29.99	\$22.09	\$7.82
850 to 2,550	\$6.74	\$19.34	\$20.66	\$12.24	\$29.99	\$22.09	\$7.82
2,550 to 5,000	\$6.74	\$19.34	\$20.66	\$12.24	\$29.99	\$22.09	\$7.82
5,000 to 10,000	\$6.74	\$19.34	\$20.66	\$12.24	\$29.99	\$22.09	\$7.82
10000 +	\$6.74	\$19.34	\$20.66	\$12.24	\$29.99	\$22.09	\$7.82

**Support:** The costs for the various activities are drawn from the latest contracts Qwest Network has for placement activities. Where a state has multiple contractors the number is a weighted average of the different prices. The weighting is based on the number of lines in the areas served by each contractor. Where there are variations on a single activity (e.g. trench - 24", 30' & 36"), those prices are weighted together based on an estimate of their occurrence.

## **19. Underground Placement Percentages**

**Description:** The placement percentages are used to weight together the various activities involving placement of underground conduit systems. The cost is applied to the structure distance and the underground plant mix percentages. The weighting is unique to each density zone.

**Default values:**

Density Zone	Trench and Backfill	Rocky Trench	Cut & Restore Concrete	Hand Dig Trench	Directional Boring	Cut & Restore Asphalt	Cut & Restore Sod
0 to 5	44%	0%	0%	1%	0%	55%	0%
5 to 100	44%	0%	0%	1%	0%	55%	0%
100 to 200	44%	0%	0%	1%	0%	55%	0%
200 to 650	27%	0%	5%	3%	0%	65%	0%
650 to 850	21%	0%	5%	4%	0%	70%	0%
850 to 2,550	14%	0%	5%	5%	6%	70%	0%
2,550 to 5,000	5%	0%	10%	5%	10%	70%	0%
5,000 to 10,000	5%	0%	10%	5%	10%	70%	0%
10000 +	0%	0%	10%	5%	15%	70%	0%

**Support:** The activity percentages are a mix of placement methods that would be used to replace the existing network as well as grow it during the current feeder planning period. The percentages are based on interviews with outside plant engineers who were responsible for cable rehab work. The question to the engineers was phrased to address the type of activities that they would expect to use when cable placement is done in mature, existing areas. Data was also drawn from Qwest experience in placing plant for a Broadband trial in Omaha, NE. In addition, a citywide CATV rebuild in one of the Qwest states provided support to the utilization of boring in mature areas. The weighted average result of applying the activity percentages to the activity costs is shown below.

Density Zone	Weighted Average Cost
0 to 5	\$15.24
5 to 100	\$15.24
100 to 200	\$15.24
200 to 650	\$17.58
650 to 850	\$18.40
850 to 2,550	\$19.85
2,550 to 5,000	\$21.48
5,000 to 10,000	\$21.48
10000 +	\$22.64



## **20. Drop Lengths**

**Description:** The drop wire is the facility that extends from the nearest distribution terminal to the customer's premises. The lengths for the drop wire are broken out by density zone.

**Default values:**

<b>Drop Length</b>	
<b>Density Zone</b>	<b>Drop Length</b>
0 to 5	300
5 to 100	300
100 to 200	200
200 to 650	200
650 to 850	70
850 to 2,550	70
2,550 to 5,000	50
5,000 to 10,000	50
10000 +	50

**Support:** The drop lengths are a function of the lot size. These are Qwest wide default length inputs. When applied to the state specific mix of density zones they produce a statewide average drop length of approximately 100 to 120 feet. Surveys of existing drops in 8 Qwest states produced an average of 143 feet. The state survey averages are conservative as they exclude drops in excess of a certain length.

## **21. Drop Placement Costs**

**Description:** The drop placement costs are the total costs for placement of the aerial drop and the per foot trenching costs for the buried drop.

**Default values:**

<b>Drop Placement Costs</b>		
<b>Density Zone</b>	<b>Aerial (per drop)</b>	<b>Buried (per foot)</b>
0 to 5	\$61.68	\$1.75
5 to 100	\$61.68	\$1.75
100 to 200	\$61.68	\$1.75
200 to 650	\$61.68	\$1.75
650 to 850	\$61.68	\$1.75
850 to 2,550	\$61.68	\$1.75
2,550 to 5,000	\$61.68	\$1.75
5,000 to 10,000	\$61.68	\$1.75
10000 +	\$61.68	\$1.75

**Support:** The drop placement costs are taken from the latest contracts Qwest has with outside plant construction vendors.

## **22. Drop Wire Material Costs**

**Description:** The drop wire material costs are the per foot costs for aerial and buried drop wires. The buried drops are 3 pair facilities and the aerial drops are 2 pair facilities.

**Default values:**

	<b>Cost per foot</b>	<b>Pairs</b>
Buried	\$0.11	3
Aerial	\$0.15	2

**Support:** The material costs are derived from the current contracts Qwest has with equipment vendors.

## **23. Network Interface Device (NID) Costs**

**Description:** The NID costs include the NID material and the labor to place the NID and terminate the drop wires.

**Default values:**

	<b>Cost per foot</b>
Material	\$17.46
Placement	\$25.05
Total NID	\$42.50

**Support:** The material costs are derived from the current contracts Qwest has with equipment vendors.

## **24. Drop and Splice Terminal Costs**

**Description:** The terminal costs are the installed costs for the terminals that connect the distribution plant to the drop wires. The drop terminal costs are divided by 2.9 locations to develop a per location cost. The splice terminals are used for slicing distribution cabling to entrance cables serving multi-tenant locations.

**Default values:**

	<b>Cost</b>
Buried	\$96.06
Aerial	\$94.28
Splice	\$36.65

**Support:** The material costs are derived from the current contracts Qwest has with equipment vendors.

## **25. Building Cable Costs**

**Description:** The cost per foot for building copper cables, including material, supply, engineering, placing and splicing.

**Default values:**

<b>Cable Size</b>	<b>Cost</b>
4200	\$26.88
3600	\$20.88
3000	\$18.04
2400	\$14.81
1800	\$12.10
1200	\$8.87
900	\$7.84
600	\$5.77
400	\$4.86
200	\$3.17
100	\$2.45
50	\$2.10
25	\$1.66
12	\$1.66
6	\$1.66

**Support:** The material costs are derived from the current contracts Qwest has with equipment vendors.

## **26. Building Terminal Costs**

**Description:** The installed cost per building terminal. For terminals larger than 100 pairs, additional 100 pair increments are added to the 100 pair item.

**Default values:**

<b>Size</b>	<b>Cost</b>
100	\$655.71
50	\$634.00
25	\$527.62

**Support:** The material costs are derived from the current contracts Qwest has with equipment vendors.