

**APPENDIX D**  
**Changes Made to BCPM 3.1**  
**For**  
**Washington USF Proceedings, Docket UT-980311(a)**

### **Loop Length Adjustment**

All BCPM 3.1 runs for all parties were done using the Loop Length adjustments provided by the parties. In the case of Sprint, the Loop Length adjustment ratios had been made an internal component of the BCPM 3.1 model provide to the Commission along with Sprint's post hearing brief. In the case of US WEST and GTE an external ***Loop Length Adjustment*** program, provided by both those parties, was run to perform this adjustment. This was done per Par. 270 of the current order.

### **Households**

Per paragraph 90 of the current order the Commission altered the BCPM 3.1 model so that it built plant to households rather than to housing units for all runs performed. The method the Commission chose to make this alteration was based on Sprint's response to Hearing Request No. 9 and was performed as follows:

1. In the **base\_loop3\_erts.csv** file the ratio of total house holds to total housing units, at the grid level, was established.
2. This ratio was then used to adjust the housing unit figures appearing in columns O through X.
3. Following the ratio adjustment, the values in the total house hold column were copied over into the total housing unit column.
4. For the quadrant figures, the values found in the quadrant house hold column were copied over into the relevant quadrant housing unit column.

### **Distribution and Feeder Fill factors**

These were set to the BCPM 3.1 National Default values for all runs on all companies, per paragraph 256 of the current order.

**Density Cable Sizing Factor  
Table**

Density	Feeder	Distribution
0	75.00%	100.00%
6	80.00%	100.00%
101	80.00%	100.00%
201	85.00%	100.00%
651	85.00%	100.00%
851	85.00%	100.00%
2551	85.00%	100.00%
5001	85.00%	100.00%
10001	85.00%	100.00%

**DEPRECIATION AND SALVAGE LIVES**

For US WEST and GTE, the values reported in the Eighth Supplemental Order at Par. 217 were used in the Commission runs. For Sprint the HAI 5.0a national default values were used.

**Table 1: US WEST Service Lives and Future Net Salvage Values**

<u>Acct.</u>	<u>Description</u>	<u>Service life</u>	<u>Future Net Salvage</u>
2112	motor vehicles	9.6	16.00%
2114	Special Purpose Vehicle	14	0.00%
2115	garage work equip	14	0.00%
2116	other work equip	16	9.00%
2121	buildings	33	4.00%
2122	furniture	20	0.00%
2123.1	office equipment	15	0.00%
2123.2	company comp equip	9.9	0.00%
2124	gen purpose equip	5.8	5.00%
2211	analog equip		0.00%
2212	digital switch equipment	17	0.00%
2220	operator systems	12	0.00%
2231	radio systems	15	-3.00%
2232	Circuit Equipment	12	1.00%
2351	public tel term equip	10	5.00%
2362	other term equip	9	0.00%
2611	pole lines	28	-75.00%
2421	Aerial cable met	24	-24.00%
2421	Aerial cable non-met	28	-24.00%
2422	Ungrd cable met	25	-22.00%
2422	Ungrd cable non-met	30	-22.00%
2423	Buried Cable met	22	-7.00%
2423	Buried Cable non-met	28	-7.00%
2426	intra bldg ca met	20	-20.00%
1426	intra bldg ca non-met	28	-20.00%
2431	Aerial wire	8.7	-124.00%
2441	conduit systems	55	-10.00%

**Table 2: GTE's Service Lives and Future Net Salvage Values**

<b>Acct.</b>	<b>Description</b>	<b>Service life</b>	<b>Future Net Salvage</b>
<u>2112</u>	<u>motor vehicles</u>	<u>9.3</u>	<u>20.00%</u>
<u>2115</u>	<u>garage work equip</u>	<u>18</u>	<u>5.00%</u>
<u>2116</u>	<u>other work equip</u>	<u>15</u>	<u>10.00%</u>
<u>2121</u>	<u>buildings</u>	<u>43</u>	<u>0.00%</u>
<u>2122</u>	<u>furniture</u>	<u>20</u>	<u>10.00%</u>
<u>2123.1</u>	<u>office equipment</u>	<u>15</u>	<u>10.00%</u>
<u>2123.2</u>	<u>company comp equip</u>	<u>8</u>	<u>2.00%</u>
<u>2124</u>	<u>gen purpose equip</u>	<u>8</u>	<u>5.00%</u>
<u>2212</u>	<u>digital switch equipment</u>	<u>16.5</u>	<u>3.00%</u>
<u>2220</u>	<u>operator systems</u>	<u>12</u>	<u>-2.00%</u>
<u>2231</u>	<u>radio systems</u>	<u>14</u>	<u>0.00%</u>
<u>2232</u>	<u>Circuit Equipment</u>	<u>12</u>	<u>4.00%</u>
<u>2351</u>	<u>public tel term equip</u>	<u>8</u>	<u>10.00%</u>
<u>2362</u>	<u>other term equip</u>	<u>10</u>	<u>5.00%</u>
<u>2611</u>	<u>pole lines</u>	<u>28</u>	<u>-75.00%</u>
<u>2421</u>	<u>Aerial cable met</u>	<u>21</u>	<u>-27.00%</u>
<u>2421</u>	<u>Aerial cable non-met</u>	<u>30</u>	<u>-5.00%</u>
<u>2422</u>	<u>Underground cable met</u>	<u>26</u>	<u>-15.00%</u>
<u>2422</u>	<u>Ungrd cable non-met</u>	<u>30</u>	<u>-5.00%</u>
<u>2423</u>	<u>Buried Cable met</u>	<u>23</u>	<u>-5.00%</u>
<u>2423</u>	<u>Buried Cable non-met</u>	<u>30</u>	<u>-5.00%</u>
<u>2426</u>	<u>intra bldg ca met</u>	<u>20</u>	<u>-30.00%</u>
<u>1426</u>	<u>intra bldg ca non-met</u>	<u>30</u>	<u>-5.00%</u>
<u>2431</u>	<u>Aerial wire</u>	<u>15</u>	<u>-15.00%</u>
<u>2441</u>	<u>conduit systems</u>	<u>50</u>	<u>-5.00%</u>

**Table 3: Service Lives and Net Salvage Values for Sprint**

<u>Account</u>	<u>Economic Life (years)</u>	<u>Tax Life (years)</u>	<u>Future Net Salvage (percent)</u>
Land	0	0	0%
Motor Vehicle	8.24	3	11%
Special Purpose Vehicles	8.24	3	11%
Garage Work	12.22	5	-11%
Other Work	13.04	5	3%
Building	46.93	31.5	1.9%
Furniture	15.92	5	6.9%
Office Support	10.78	5	7%
General Purpose Computers	6.12	5	3.7%
Switching	16.17	5	3.0%
Circuit/DLC	10.24	5	-2%
Pole	30.25	15	-90.0%
Aerial Copper	20.61	15	-23.030%
Aerial Fiber	26.14	15	-17.53%
Underground Copper	25	15	-18.260%
Underground Fiber	26.45	15	-14.6%
Buried Copper	21.57	15	-8.390%
Buried Fiber	25.91	15	-8.58%
Conduit	56.19	15	-10.3%

**COST OF MONEY AND TAX RATES**

Again, for US WEST and GTE the authorized values, as decided in the Eighth Supplemental Order at Par. 211, were used. For Sprint, the company numbers were used. Staff testified that Sprint's cost of Money and Tax Data comply with Guideline 4 and had not objected to the numbers filed with Sprint's cost study.<sup>1</sup>

**Financial Data for US WEST**

<b><u>Return on Equity</u></b>	<b><u>11.80%</u></b>
<b><u>Debt Rate</u></b>	<b><u>7.27%</u></b>
<b><u>Debt Ratio</u></b>	<b><u>48.00%</u></b>

**Tax Data for USWest**

<b><u>Federal Tax Rate</u></b>	<b><u>35.0%</u></b>
<b><u>State Tax Rate</u></b>	<b><u>0.0%</u></b>
<b><u>Gross Receipts Tax</u></b>	<b><u>0.0%</u></b>
<b><u>Ad Valorem, Insurance, etc.</u></b>	<b><u>0.0%</u></b>
<b><u>Other Tax Rate</u></b>	<b><u>5.0%</u></b>

**Financial Data for GTE**

<b><u>Return on Equity</u></b>	<b><u>11.25%</u></b>
<b><u>Debt Rate</u></b>	<b><u>7.90%</u></b>
<b><u>Debt Ratio</u></b>	<b><u>44.40%</u></b>

**Tax Data for GTE**

<b><u>Federal Tax Rate</u></b>	<b><u>35.0%</u></b>
<b><u>State Tax Rate</u></b>	<b><u>0.0%</u></b>
<b><u>Gross Receipts Tax</u></b>	<b><u>0.0%</u></b>
<b><u>Ad Valorem, Insurance, etc.</u></b>	<b><u>0.0%</u></b>
<b><u>Other Tax Rate</u></b>	<b><u>5.0%</u></b>

**Financial Data for Sprint**

<b><u>Return on Equity</u></b>	<b><u>12.25%</u></b>
<b><u>Debt Rate</u></b>	<b><u>8.8%</u></b>
<b><u>Debt Ratio</u></b>	<b><u>54.41%</u></b>

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<sup>1</sup>For example, Staff witness Roth stated that Sprint complied with guideline 4 with the exception of fill factors. Tr. 898-902

**Tax Data for Sprint**

<b>Federal Tax Rate</b>	<b>35.0%</b>
<b>State Tax Rate</b>	<b>0.0%</b>
<b>Gross Receipts Tax</b>	<b>0.0%</b>
<b>Ad Valorem, Insurance, etc.</b>	<b>0.0%</b>
<b>Other Tax Rate</b>	<b>5.0%</b>

**STRUCTURE FRACTURE SHARING**

For US WEST, Sprint, and GTE, we have used the structure sharing fractions used in the Eighth Supplemental Order. UT-960369 at Par. 76. These appear in table below.

<b>BCPM 3.1 Structure Sharing Fractions Used for all Parties For Feeder and Distribution</b>			
<b>DENSITY</b>	<b>Aerial</b>	<b>Buried</b>	<b>Underground</b>
<b>0-5</b>	62.50%	87.50%	87.50%
<b>6-100</b>	62.50%	87.50%	87.50%
<b>101-200</b>	62.50%	87.50%	87.50%
<b>201-650</b>	50.00%	67.50%	62.50%
<b>651-850</b>	50.00%	67.50%	62.50%
<b>851-2550</b>	50.00%	67.50%	63.00%
<b>2551-5000</b>	35.00%	55.00%	63.00%
<b>5000-10000</b>	35.00%	55.00%	63.00%
<b>10000+</b>	35.00%	55.00%	63.00%

**BURIED CABLE STRUCTURE COST**

For density zones with greater than 100 lines the national default values for activity mix were used in the US WEST and GTE BCPM 3.1 runs. For the Sprint runs the company suggested activity mix was used in these higher density zones. Par. 212.

For the bottom two density zones, the numbers proposed by ILECs were used with the following exceptions: (Par. 213):

- a) For Sprint in the normal category in density zones 0-5 and 6-100 we replaced Sprint's values with values derived from Ex. 241:41;

- b) For US WEST in both the soft and hard rock categories we will replace US WEST's values with values derived from Ex. 241:41.

These changes were made in the structure inputs tab in the following fashion:

- 5) For US WEST the \$3.17 was put in the **Cost Adjustment** column of the 0-5 density zone in the **Soft Rock--Buried Distribution Cable** and the **Soft Rock--Buried Feeder Cable** tables. The total of the \$3.17 was assigned to the **Plow** activity.
- 6) 100% of the activity was assigned to the **Plow** activity, where the \$3.17 had been assigned.
- 7) The formula in the **Weighted Amount Column** was then changed so that *weighted amount = cost adjustment \* %activity \* %assigned telephone*. This formula change was also applied to the **Weighted Amount Column** in the 6-100 line density zone.

The other changes to US WEST's buried cable structure cost suggested above, along with the changes proposed in the tables above to Sprint's buried cable structure cost, were done in the manner outlined above.

### **Cost of Drops**

Drops connect the distribution cable to customers' premises. More specifically, the drop is the cable that extends from the terminal to the network interface device (NID). The buried drop cost input determines the per foot material and placement cost for the buried drop. The aerial drop cost input determines the per foot material and placement cost for the aerial drop. The total investment in the drop is the product of the drop cost input times the drop length.

For the Commission's run of BCPM 3.1, the BCPM 3.1 national default value of \$0.77 per foot for the material cost of aerial drop was substituted for US WEST's proposed value. See order at Par. 226.

For US WEST's buried cable drops, the Commission runs utilized a cost of \$0.85 per foot. See Order at Par. 227.

For GTE and Sprint, the Commission has used the companies' respective recommended inputs in its BCPM 3.1 runs.

### **POLES**

For pole costs the values from Ex. 241:54-59 were utilized in the following manner (Par.



179): \$341.71 for normal soil conditions; \$450.67 for soft rock conditions; and \$523.36 for hard rock conditions.

The costs for Anchors and Guys used were \$36.28, \$54.96 and \$66.52 for the 0-100, 100-2,550, and 2,550+ density zones, respectively. These values were used in all soil types. These were input in the following fashion:

- 1) \$36.28 was input as the base cost for anchors and guys in all soil types.
- 2) For the 100-2,550 density zones the value of  $\$54.96 - \$36.28 = \$18.68$  was entered into the **cost adjustment** column in the **anchors and guys** row for those density zones.
- 3) For the 2,550+ density zones a value of  $\$66.52 - \$36.28 = 30.24$  was entered into the **cost adjustment** column in the **anchors and guys** row for those density zones.

## WIRELESS CAP

The Commission has decided not to impose a wireless cap. Par. 77. Therefore, there were no sensitivity runs performed varying the amount of the cap. Values reported are from the **Uncapped** column of the **Detail** reports. For the wirecenter detail runs the values reported are from the **WCSUMMARY**, BCPM 3.1 report review option.

The exception to this is the case of GTE. GTE's version of BCPM 3.1, as was explained in Par. 189, above, had a flawed **CBG\_ROLLUP** module. Running the GTE version of BCPM 3.1 with this module resulted in **Capped** costs being reported as greater than **Uncapped** costs. Furthermore, the total cost of the subsidy when applied at the wirecenter level was greater than when the subsidy was applied at the grid level. The very opposite of what ought to occur. While we do not pretend to understand what is going wrong with the GTE **CBG\_ROLLUP** module, we do feel that reporting the values from the **Uncapped** column of the **Detail** reports and from the **UNCAPPED\_WCSUMMARY** report do provide a reasonable approximation of the USF costs faced by GTE in its service territory.

## OTHER CHANGES MADE TO BCPM 3.1

The following modifications to BCPM 3.1 were made so that costs could be calculated in a manner that is consistent with the staff recommendation to use a revenue benchmark.

### BCPM 3.1 Global Inputs Table

Adjust "heavy business" loading multiplier to 1

Adjust minimum loading multiplier to 1

BCPM 3.1 State default inputs table

Set ARMIS percent local calls to 100%  
Set ARMIS percent toll calls to 0%  
Set SS7 capacity to basic calls to 100%

BCPM 3.1 Transport Inputs Table

Set percent of Interoffice MOUs that are EAS to 100%

The suggested modifications outlined above are from Sprint's response to Hearing Request No. 009, US WEST's response to Hearing Request No. 003, and from GTE's response to Hearing Request No. 015.

BCPM 3.1 Global Inputs Table

The **Direct Routed Fraction of Local Interoffice Traffic** was adjusted for the number of calls going to a tandem. For this change we utilized the value of 93% suggested by US WEST in their response to Hearing Request No. 003.

BCPM 3.1 State default inputs table

The **Percent of Local Calls that are Interoffice** was adjusted for the number of all calls that are interoffice. For this change we utilized the value of 64% suggested by US WEST in their response to Hearing Request No. 003.

**SWITCHING**

The Commission determined that the estimates provided by exhibit 241 at 124, shown in the table below, must be used in both the HAI 5.0a and BCPM 3.1. Par. 157.

In part 1 of its response to Hearing Request No. 003, suggested a way by which these values might be utilized within the BCPM 3.1 model. However, when this method was tried it was noticed that BCPM 3.1 still appeared to be drawing upon the large switch regression curve data in developing switching costs. Since we could not immediately ascertain why this would be so, it was decided not to utilize the estimates provided by

exhibit 241 at 124 in ut BCPM 3.1 runs.

<b>Switching Investment Function</b>	
Remote Getting Started	193,962.1
Line on remote switch	110.49
Host Getting Started	513,083.8
Line on host switch	107.86

## **OVERHEAD EXPENSES**

The Commission ran three overhead expense scenarios for Sprint, GTE and US WEST. These were:

- 1) The Base run used a total value of \$7.00 as the **Per Line Monthly Operating Expenses for Small, Medium and Large Companies**. This value was input into both the Business and Residence Expense tables found in the **Expense Inputs** tab of the BCPM 3.1 **Inputs** workbook. To arrive at this total expense value the **Network Support Expenses** account was set to zero, all the other accounts, with the exception of the **General Support** account, had a value of \$0.01 input into them. The remainder of the \$7.00, \$6.82, was put into the **General Support** account.
- 2) The Mid run used a total value of \$11.00 as the **Per Line Monthly Operating Expenses for Small, Medium and Large Companies**. This value was input into both the Business and Residence Expense tables found in the **Expense Inputs** tab of the BCPM 3.1 **Inputs** workbook. To arrive at this total expense value the **Network Support Expenses** account was set to zero, all the other accounts, with the exception of the **General Support** account, had a value of \$0.01 input into them. The remainder of the \$11.00, \$10.82, was put into the **General Support** account.
- 3) The High run used a total value of \$15.00 as the **Per Line Monthly Operating Expenses for Small, Medium and Large Companies**. This value was input into both the Business and Residence Expense tables found in the **Expense Inputs** tab of the BCPM 3.1 **Inputs** workbook. To arrive at this total expense value the **Network Support Expenses** account was set to zero, all the other accounts, with the exception of the **General Support** account, had a value of \$0.01 input into them. The remainder of the \$15.00, \$14.82, was put into the **General Support** account.

The Commission made additional changes to Sprint's **Per Line Monthly Operating Expenses for Small, Medium and Large Companies** when performing its Sprint BCPM 3.1 runs. In its runs the Commission utilized the adjusted investment related expense loading factors provided by Sprint in its response to Hearing Request No. 10. These changes were as follows:

**BCPM 3.1 EXPENSE FACTORS FOR SPRINT**

Cost Element	USOAR Account	Filed BCPM 3.1 Expense Factor	Commission Adjusted BCPM 3.1 Expense Factor
Network Support Expense	6110	0.0312	0.0257
COE Switching	6210	0.0343	0.0357
COE Transmission	6230	0.0202	0.0191
Poles	6411	0.0318	0.0127
Aerial Copper Cable	6421.1	0.0608	0.0373
Aerial Fiber Cable	6421.2	0.0033	0.0032
Underground Copper Cable	6422.1	0.0200	0.0123
Underground Fiber Cable	6422.2	0.0360	0.0037
Buried Copper Cable	6423.1	0.0463	0.0373
Buried Fiber Cable	6423.2	0.0031	0.0029
Conduit Investment System	6441	0.0009	0.0006
Other Property Plant	6510	0.0000	0.0000
Network Operations	6530	0.0000	0.0000

**FIBER/COPPER CROSSOVER**

For its BCPM 3.1 runs the Commission used the following values, from Par. 198 of the <sup>Eighth</sup> Supplemental Order, in the **Misc Inputs** tab of the **BCPM 3.1 Inputs** workbook:

**CprMaxDistr**, the maximum length of copper cable in the CBG distribution was changed to 15,000 feet. This value is found in cell C9 of the **Misc Inputs** tab.

The **cable break point** was changed to 12,000 feet. This values is found in cell C15 of the **Misc Inputs** tab.