Exhibit No. _____ (TLS-1T)
Docket No. UT-023003
Witness: Thomas L. Spinks

BEFORE THE WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

In the Matter of Review of Unbundled Loop and Switching Rates and Review of the Deaveraged Zone Rate Structure.	DOCKET NO. UT-023003

DIRECT TESTIMONY OF

THOMAS L. SPINKS

STAFF OF
WASHINGTON UTILITIES AND
TRANSPORTATION COMMISSION

June 26, 2003

Q. Please state your name and business address.

A. My name is Thomas Spinks, my business address is 1300 South Evergreen Park Drive Southwest, P.O. Box 47250, Olympia, Washington 98504. My e-mail address is tspinks@wutc.wa.gov.

Q. By whom are you employed and in what capacity?

A. I am employed by the Washington Utilities and Transportation Commission as a Regulatory Consultant.

Q. What are your education and experience qualifications?

A. My qualifications are provided as Exhibit TLS-2.

Q. What is the purpose of your testimony?

A. I provide updated total element long-run incremental cost (TELRIC) estimates for certain unbundled network element (UNE) rate elements and propose deaveraged zone loop costs consistent with the Commission's purpose for this docket. In opening this docket, the Commission intended to "review UNE rates that may be set too high or too low based on their direct costs." *Third Supplemental Order*, ¶ 11. I updated the cost estimates primarily by updating to the current version of the generic cost model, using more current line counts and updated loop length studies. I combined these updates

with input values previously determined by the Commission to produce the Staff cost estimates that I present in this testimony.

Q. How is your testimony organized?

A. My testimony consists of three sections. First, I testify regarding cost proxy models and recommend that the Commission adopt cost estimates based on the current version of the HAI model. Second, I review prior Commission decisions regarding cost model inputs and discuss changes I made to certain inputs used by the Commission in prior proceedings. Finally, I present cost results including a proposal for deaveraging certain UNE costs into zones, and for certain wirecenters, a further deaveraging of costs beyond zones to the "core-fringe" level.

COST PROXY MODELS

Q. What are cost proxy models?

A. In the Eighth Supplemental Order in Docket UT-960369, the Commission described a cost model as follows:

> [A]n analytical model is a simplified representation of some aspects of the real world. Analysts use models to organize the complexity of the real world into some orderly form. Models are, by definition, simplifications or abstractions which omit some information. A model can be a very powerful analytical tool. It can act as a microscope or a telescope which may enable the analyst to focus in on the key aspects of a situation and

thereby to solve problems that, in the absence of a model, would be hopelessly complex.

In the Matter of the Pricing Proceeding for Interconnection, Unbundled Elements, Transport and Termination, and Resale, Docket Nos. UT-960369 et al., Eighth Supplemental Order, ¶ 21 (April 16, 1998) (Generic Cost Order).

At a structural level, cost proxy models are sets of mathematical equations that utilize engineering and network design information to estimate required quantities of materials and labor necessary to provide the service or element of service under study. Once the model estimates the required quantities of materials and labor, it combines these quantities with the unit prices of the materials and labor to produce a total investment required for the service or element. Finally, the model applies cost factors to the total investment to develop monthly recurring charges for the service or element.

Q. What did the Commission decide regarding cost models in the generic cost proceeding, Docket Nos. UT-960369 et al?

A. In the Generic Cost Order, the Commission concluded that none of the current versions of the loop cost models submitted in the proceeding should be adopted for future proceedings. Generic Cost Order, ¶ 35. While the Commission found it could not adopt any of the models, it made plain its continued support for open models, specifically citing the Hatfield and BCPM models. *Id.* ¶ 36.

Q. What did the Commission decide regarding cost models in the universal service proceeding, Docket No. UT-980311(a)?

A. In the Tenth Supplemental Order in Docket UT-980311(a) the Commission stated that it considered both the BCPM 3.1 and HAI 5.0a models to be much better cost models than their predecessors. *In the Matter of Determining Costs for Universal Service*, Docket No. UT-980311(a), Tenth Supplemental Order, ¶ 36. However, the Commission concluded that both models were still flawed and neither provided accurate estimates of the costs of providing telecommunications services in Washington. *Id.* ¶ 331. The Commission identified one area of particular concern—the failure of both models to pass the Minimum Spanning Tree (MST) test in the least dense zone. *Id.* ¶¶ 124-42.

Q. Which cost model will Staff use to develop revised loop cost estimates?

A. Staff continues to believe that the HAI model best meets the Commission's criteria that cost models be transparent, rational, stable, consistent, and have an understandable approach. *See, e.g.*, *Washington Utils. & Transp. Comm'n v. US West Communications, Inc.*, Docket No. UT-950200, Ninth Supplemental Order at 80-86 (April 11, 1996); *Washington Utils. & Transp. Comm'n v. US West Communications, Inc.*, Docket Nos. UT-941464, et al., Fourth Supplemental Order Rejecting Tariff Filings and Ordering Refiling; Granting Complaints, In Part, at 88-91 (Oct. 31, 1995).

At the beginning of this docket, in early 2002, the current version of the model was HAI 5.2a. HAI 5.2a included several important modifications from the HAI 5.0a version that Staff had used in the universal service cost proceeding, which are discussed below. In March 2003, a new version of HAI was released for Washington, the HAI 5.3. I will provide loop cost estimates using the new 5.3 version of the HAI model.[1] I also recommend that the Commission adopt this model for use in this docket.

Q. How did the HAI 5.2a address the Commission's concerns about the cost models used in prior proceedings?

A. The HAI model documentation describes the changes between the HAI 5.0 and the HAI 5.2(a) in section 2 of the documentation. One of the changes to the distribution module includes an option to ensure that the model produces enough distribution route distance to reach the corners of cluster rectangles where customers may be located. This change addresses the MST issue. In addition, Staff has modified the distribution module to adjust automatically distance-sensitive investments for differences between the average loop length produced by the model and the average loop lengths reported by each ILEC. The HAI model documentation also states that the switching module has been modified to incorporate host and remote wirecenters automatically, and to

[1] In accordance with the HAI model license agreement, Staff will not assert that the resulting cost estimates are a product of the HAI model because we have modified the model's programming.

incorporate the investment values for Bell Operating Companies and ICO switches adopted by the FCC in the USF inputs order. Finally, the expense module has been revised to incorporate the effect of deferred taxes on cost, which the Commission had found appropriate in the Tenth Supplemental Order in Docket UT-960369 et al. as well as Equal Life Group depreciation procedure.

Q. Are there other differences between the HAI 5.2(a) and HAI 5.3 models?

In addition to retaining the changes made in 5.2(a) previously discussed, the HAI 5.3 explicitly models high capacity loops in the network.

Q. Are there any other issues that need to be addressed regarding the HAI 5.3?

A. Yes. One of the remaining problems with cost estimates produced by the model is the accuracy of the TNS geo-coded data. In Minnesota, the public service commission staff consultants checked the accuracy of the cluster data with respect to assignment and location. The results of that study found that out of some 8,700 clusters, over 1,000 had inaccuracies of some sort that required correction. As discussed later in this testimony, I have checked cluster assignments in certain locations in Washington and found a similar error rate in Washington data. Staff commits to undertake the work to identify and correct any deficiencies in the Washington cluster data if the Commission decides the model is otherwise acceptable. A second concern is that the HAI 5.3 version does

not support the cluster level cost module from prior versions. I was able to work around this problem by producing cluster level costs using the HAI 5.2(a) for purposes of this testimony. The HAI cluster cost module needs to be updated to support future work that requires cluster level data.

HAI COST MODEL INPUTS

Q. What issues have been identified with the HAI model inputs in past proceedings?

A. In Docket UT-960369 et al. where the parties presented the Hatfield Model 3.1, the Commission identified issues with the methods used by the Hatfield team to collect data from outside plant contractors, drop costs and lengths, the fiber/copper breakpoint, special access loops, customer location accuracy and resulting loop lengths, switching costs, and a number of other user-adjustable input choices. In Docket UT-980311(a), the universal service cost docket, Commission identified input issues with the HAI 5.0(a) including structure mix, structure sharing, failure to meet minimum spanning tree lengths, and switching investment levels.

Q. What changes did you make to the default inputs in the HAI 5.3?

A. I adopted the input choices that the Commission found appropriate in Dockets Nos. UT-960369 and UT-980311(a), with certain exceptions discussed below. Exhibit ___

(TLS-4) shows the differences between the HAI 5.3 default inputs and the inputs I used in developing the updated UNE costs for Qwest and Verizon in this docket.

Q. Please describe the changes you made to input values that varied from inputs used in prior Commission decisions.

A. In the Qwest run, I corrected two depreciation lives and two future net salvage value errors to reflect the lives and salvage values authorized by the Commission in Docket UT-951425. In the Verizon run, depreciation lives and salvage values were updated to reflect lives and salvage values authorized by the Commission in Docket UT-992009. In this docket, I did not make input adjustments for Special Access lines that the Commission had made in prior cases because HAI 5.3 now explicitly models high capacity services. I did not make input adjustments for switching costs that the Commission had made in prior cases because the HAI uses more recent switch cost data from a FCC study. I also did not adjust inputs for hard/soft rock placement multipliers as the Commission had done in Docket UT-980311(a) because the HAI placement multipliers have been increased and cannot be input on a density zone basis. Finally, I did not make the same adjustments for cable costs that the Staff had proposed and the Commission had accepted in prior cases, because the HAI cable cost inputs reflect more current cable cost information.

COST MODEL RESULTS AND DEAVERAGING PROPOSALS

Q. What network element costs did you estimate using the HAI model?

A. I estimated the costs for the following network elements, which are set forth in Attachment A of the Third Supplemental Order in this docket:

- 2 and 4-wire analog loops
- 2-wire non-loaded loops
- Sub-loops
- NID
- Analog Port w/local switching

Q. How does Staff propose that wirecenter costs be deaveraged into zones?

A. Staff proposes to continue using the five zone scheme that the Commission adopted in Phase 3 of Docket UT-960369. Since that time, AT&T has developed a zone optimizer program that creates three zones having minimum variance within each zone. Staff's understanding is that the optimizer program has been vetted and found acceptable in other Qwest states. Staff has taken the three zone optimizer and expanded it to create five zones for use in Washington. The zone optimizer program and output is included in the Staff Workpapers CD-ROM. *See* Ex. ___ (TLS-3).

Q. What are the proposed statewide average and zone rates for 2-wire analog loops?

A. The deaveraged zone loop rates for Qwest and Verizon, are as follows:

	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5
Qwest	$10.78	$11.64	$13.82	$21.24	$36.49
Verizon	$11.13	$12.84	$15.80	$21.29	$55.49

Exhibit ___ (TLS-4) shows the wirecenter assignments to each zone. The statewide average 2-wire analog loop costs are $13.73 and $16.99 for Qwest and Verizon respectively. The supporting calculations are found in files Qw_calculations.xls and Vz_calculations.xls under tabs "ave.loop cost" and "5_zones" in the staff workpapers CD-ROM.

Q. What are your proposed zone rates for 4-wire analog loops?

A. I developed the 4-wire loop rates using the 1.85 and 1.50 factors for Qwest and Verizon respectively that were ordered by the Commission in Docket UT-960369 and are as follows:

	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5
Qwest	$19.94	$21.53	$25.57	$39.29	$67.51
Verizon	$16.70	$19.25	$23.70	$31.94	$83.24

Q. What rates do you propose for non-loaded loops?

A. The non-loaded loop rates are shown as follows:

	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5
Qwest	$5.87	$6.97	$8.90	$16.54	$29.10
Verizon	$6.24	$7.74	$10.69	$15.43	$44.76

The supporting calculations are found in files Qw_calculations.xls and Vz_calculations.xls under tab "NL_loops" in the staff workpapers CD-ROM.

Q. What ratios do you propose for sub-loop elements?

A. The Qwest and Verizon feeder and distribution ratios are shown below. The supporting calculations are found in files Qw_calculations.xls and Vz_calculations.xls under tab "subloops" in the Staff workpapers CD-ROM.

	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5
Qwest Feeder	.382	.368	.316	.272	.296
Qwest Distribution	.618	.632	.684	.728	.704
Verizon Feeder	.403	.379	.317	.322	.482
Verizon Distribution	.597	.621	.683	.678	.518

Q. What rates do you propose for ports with local switching?

A. The proposed rates for ports including flat-rated local switching are as follows:

	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5
Qwest	$2.70	$2.41	$2.65	$2.70	$5.03
Verizon	$2.65	$2.84	$2.84	$3.54	$7.83

The tariffed port rate is currently $1.34 for both Qwest and Verizon. The reason for the increase in the port rate between this study and prior studies is that flat-rated usage is now included in the port rate in the HAI 5.3 model. This change to the model is consistent with prior Staff testimony in the pricing phase of the earlier generic proceeding and is consistent with the Commission's Seventeenth Supplemental Order in Docket UT-960369 et al., where the Commission stated: "The Commission prefers a capacity-charge concept because it better reflects the cost structure of the telecommunications network." *In the Matter of the Pricing Proceeding for Interconnection, Unbundled Elements, Transport and Termination, and Resale*, Docket Nos. UT-960369 et al., Seventeenth Supplemental Order, at 5 (Aug. 30, 1999). Staff recommends the Commission adopt the port charges that include a flat-rated usage charge. In addition, as can be seen from the rate spread between zones, there are material differences in costs between zones. Therefore, I also propose that the combined port and switching rate element be

deaveraged into five zones. The supporting calculations are found in files Qw_calculations.xls and Vz_calculations.xls under tab "port_sw_cost" in the staff workpapers CD-ROM.

Q. What rates do you propose for the NID?

A. The monthly rate for the NID is $.45 for both Qwest and Verizon. The supporting calculations are found in files Qw_calculations.xls and Vz_calculations.xls under tab "NID" in the staff workpapers CD-ROM.

Q. Is Staff also proposing additional wirecenter deaveraging?

A. Yes, Staff is proposing that certain wirecenters exhibiting a strong core-fringe cost relationship be further deaveraged into a core and fringe zone scheme rather than the entire wirecenter being assigned to a single zone. The genesis for this proposal is a Petition that was filed with the WUTC by Fairpoint Communications on September 4, 2001 (UT-011220-P), asking the Commission to change the zone classifications for certain wirecenters. The petition identified nine Qwest wirecenters that were characterized as large, exceeding 100 square miles, with dense urban cores having sufficient access lines to qualify for inclusion in a less costly density zone. The wirecenters identified in the petition are Aberdeen, Bellingham, Lacey, Moses Lake, Olympia, Pasco, Port Angeles,

Walla Walla, and Yakima. While Fairpoint withdrew its petition shortly after filing, and has since ceased doing business in Washington, the issue raised in the petition is important for competition in Washington and the Commission should consider it in this proceeding.

Q. What was the issue raised by Fairpoint's petition?

A. CLECs that operate in areas outside the high-density Seattle-Tacoma metropolitan area pay higher unbundled loop rates because the wirecenters are classified in higher cost density zones. There are a number of wirecenters serving mid-size cities like Olympia, Pasco, and Port Angeles where the population size and density are such that loop costs should be low enough to allow the CLEC to compete in the city. However, the service area of the wirecenters serving these cities also serves a large rural area such that the average loop cost in the wirecenter results in a zone 4 or 5 classification, which are the two highest cost zones in the state. This makes it uneconomic for the CLEC to operate in the lower cost, denser areas in the cities. Staff is concerned with the inability of CLECs to compete in areas where population size and density should allow them to operate economically because meaningful competition will not occur in these areas of the state where market entry is

justified economically. In order to address this concern, Staff is proposes that certain wirecenters be disaggregated into core and fringe zones.

Q. How do you propose the Commission determine the core and fringe zone boundaries?

A. The Commission should determine the core area as the area defined by the city limits of the city contained in the wirecenter and the fringe area as the area outside the city limits but within the wirecenter serving area.

Q. How did you separate wirecenter costs into the core and fringe zones?

A. The HAI model produces cost output disaggregated to the cluster level. The cluster data represent serving areas for groups of customer locations. The clusters are identified by the census block groups (CBGs) in which they are located. The loop cost outputs by clusters are first identified from the HAI 5.2(a)[2] model workfile. The cluster loop cost data are then separated between clusters contained inside, outside, and spanning the city limits, then reaggregated to develop loop costs for serving within the city limits versus outside the city limits. The core and fringe area costs were then determined for Qwest and Verizon

wirecenters, and Staff selected wirecenters that exhibited a strong difference between core and fringe area costs for disaggregation. For Qwest, 15 wirecenters covering 13 cities qualified for inclusion while Verizon had none. The Qwest wirecenters that qualified for further deaveraging were placed into the appropriate zones by separately including the core and fringe costs and lines in the zone optimizer program. The output from the zone optimizer includes the core and fringe pieces of the wirecenter in the zone appropriate for its cost. Ex. ___ (TLS-4). The wirecenter assignments to zones shows, for instance, that the city of Aberdeen (ABRDWA_C) is assigned to zone 1 while the Aberdeen rural area (ABRDWA_F) is in zone 3.

Q. How did you identify the location of the loop cost cluster data relative to the city limits?

A. Staff used the ArcView 3.2a GIS software program along with Bureau of Census data for census block groups and Washington State Department of Transportation data on city boundaries and roads to accurately locate city limits, census block groups and cluster data relative to one another. The CBG data layer is overlaid with the city boundary data layer to identify CBGs relative to the city

[2] The HAI 5.3 does not include an updated cluster module for determining cluster loop costs so cluster investment values were calculated using HAI 5.2 cluster module. The calculations are shown in

limits. The cluster data centroids and cluster areas are projected and overlaid on the city and CBG data to determine whether they are correctly located and to visually determine whether clusters are contained wholly or partially within city limits. The software, files and data used for the analysis are provided on the Staff Workpapers CD-ROM. Maps showing the city limits, CBGs, and cluster centroids for the selected wirecenters are shown in the file "MAPS.pdf" in the Staff workpapers.

Q. Were any of the cluster data you examined found to be incorrectly located?

A. Yes. Each data cluster position is located by its bearing and distance from the wirecenter. After determining the necessary adjustments to properly project the clusters, the location of the cluster centroid was checked to see if it was located in the CBG it is assigned to. For each wirecenter where core-fringe deaveraging is being proposed, I checked the cluster locations to see if they were located within its assigned CBG. I found two kinds of location errors associated with data clusters that were not correctly located. The first is rotation error. Rotation errors are noted when a cluster is not correctly located but it can be moved to its proper location by changing only the bearing angle. This type of error does not cause any change in cost if it is corrected. The second type of error occurs when

Exhibit TLS-3, the Staff Workpapers.

the cluster cannot be properly located unless the radial distance between the wirecenter and the cluster is changed. If the radial distance of a cluster needs to be changed to properly locate the cluster, the cost of the cluster will also be higher or lower depending on whether the correct radial distance is closer or farther from the wirecenter. With the exception of the Aberdeen wirecenter, there were very few errors in the clusters involving changes to radial distance. The Aberdeen wirecenter had 16 clusters that were incorrectly located such that the radial distance had to be adjusted. In order to correct the radial distance measurement, I used the software program measuring tool to measure the correct distance between the wirecenter and the CBG associated with the cluster. The cluster data base file was then updated with the revised radial distances to calculate corrected cost estimates.

Q. Do you have any further testimony at this time?

A. No.