HOPPING GREEN SAMS & SMITH
PROFESSIONAL ASSOCIATION
ATTORNEYS AND COUNSELORS
123 SOUTH CALHOUN STREET
POST OFFICE BOX 6526
TALLAHASSEE, FLORIDA 32314
(850) 222-7500
FAX (850) 224-8551
FAX (850) 425-3415

JAMES S. ALVES
BRIAN H. BIBEAU
KATHLEEN BLIZZARD
RICHARD S. BRIGHTMAN
KEVIN B. COVINGTON
PETER C. CUNNINGHAM
RALPH A. DEMEO
THOMAS M. DEROSE
RANDOLPH M. GIDDINGS
WILLIAM H. GREEN
KIMBERLY A. GRIPPA
WADE L. HOPPING
GARY K. HUNTER, JR.
JONATHAN T. JOHNSON
ROBERT A. MANNING
FRANK E. MATTHEWS
RICHARD D. MELSON

ANGELA R. MORRISON
GABRIELLE E. NIETO
GARY V. PERKO
MICHAEL P. PETROVICH
DAVID L. POWELL
WILLIAM D. PRESTON
CAROLYN S. RAFFIELD
DOUGLAS S. ROBERTS
GARY P. SAMS
TIMOTHY G. SCHOENWALDER
ROBERT P. SMITH
CHERYL G. STUART
P. STEVE SYKES
T. KENT WETHERELL, II

OF COUNSEL
ELIZABETH C. BOWMAN

Writer's Direct Dial No.
(904) 425-2313

August 3, 1998

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RECORDS AND REPORTING

Ms. Blanca S. Bayó
Director, Records and Reporting
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, FL 32399-0850

Re: Cost of Basic Local Service -- Docket No. 980696-TP

Dear Ms. Bayó:

Enclosed for filing on behalf of MCI Telecommunications Corporation (MCI) are:

1. The original and 15 copies of the direct testimony of James W. Wells, Jr., including exhibits. 08114-98

Enclosed for joint filing on behalf of MCI and AT&T Communications of the Southern States, Inc. are:

1. The original and 15 copies of the direct testimony of Don J. Wood. 08115-98

2. The original and 15 copies of a separate bound volume containing exhibits DJW-1 to DJW-5 to the testimony of Mr. Wood.

3. One copy of Mr. Wood's Exhibit DJW-6, which is a CD-ROM containing Version 5.0a of the HAI model. At staff's request, two copies of this CD-ROM are being provided separately to Mr. Dowds.

By copy of this letter, these documents are being provided to the parties on the attached service list. If you have any questions, please call.

Very truly yours,

Richard D. Melson

RDM/mee
cc: See attached Certificate of Service
Mr. Dowds

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CMU 1 Dowds
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SEC 1
WAS ____
OTH ____

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a copy of the foregoing was furnished to the following parties by U.S. mail or Hand Delivery (*) this 3rd day of August, 1998.

Will Cox (*)
Division of Legal Services
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, FL 32399

Charles J. Beck
Deputy Public Counsel
Office of Public Counsel
c/o The Florida Legislature
111 West Madison Street
Room 812
Tallahassee, Fl 32399

Tracy Hatch, Esquire
AT&T
101 N. Monroe Street, Suite 700
Tallahassee, Fl 32301

Joseph A. McGlothlin
Vicki Gordon Kaugman
McWhirter, Reeves, McGlothlin
Davidson, Rief & Bakas, P.A.
117 S. Gadsden Street
Tallahassee, FL 32301

Floyd R. Self, Esq.
Messer, Caparello & Self, P.A.
215 S. Monroe St. Ste 701
Tallahassee, FL 32301

Mr. Brian Sulmonetti
WorldCom, Inc.
1515 S. Federal Hgy, Suite 400
Boca Raton, Florida 33432

Robert G. Beatty
Nancy B. White
c/o Nancy H. Sims
150 S. Monroe St., Suite 400
Tallahassee, FL 32301

Michael A. Gross
Office of The Attorney General
PL-01 The Capitol
Tallahassee, FL 32399-1050

Kimberly Caswell
GTE Florida Incorporated
P.O. Box 110, FLTC0007
Tampa, FL 33601-0110

Patrick Knight Wiggins
Donna L. Canzano
Wiggins & Villacorta, P.A.
2145 Delta Boulevard
Suite 200
P.O. Drawer 1657
Tallahassee, FL 32302

Steve Brown
Intermedia Communications Inc,.
3625 Queen Palm Drive
Tampa, FL 33619-1309

David B. Erwin
127 Riversink Road
Crawfordville, FL 32327

Tom McCabe
P.O. Box 189
Quincy, Florida 32353-0189

Mark Ellmer
P.O. Box 220
502 Fifth Street
Port St. Joe, Florida 32456

Robert M. Post, Jr.
P.O. Box 227
Indiantown, Florida 34956

Kelly Goodnight
Frontier Communications
180 South Clinton Avenue
Rochester, NY 14646

Lynn B. Hall
Vista-United Telecommunications
P.O. Box 10180
Lake Buena Vista, FL 32830

J. Jeffry Wahlen
Ausley & McMullen
P.O. Box 391
Tallahassee, FL 32302

Lynne G. Brewer
Northeast Florida Telephone Co.
P.O. Box 485
Macclenny, FL 32063-0485

Harriet Eudy
ALLTEL Florida, Inc.
P.O. Box 550
Live Oak, FL 32060

Laura L. Gallagher
Vice President-Regularoty Affairs
Florida Cable Tel. Asso.
310 N. Monroe Street
Tallahassee, FL 32301

Kenneth A. Hoffman, Esq.
John R. Ellis, Esq.
Rutledge, Ecenia, Underwood,
Purnell & Hoffman, P.A.
P.O. Box 551
Tallahassee, FL 32301

Paul Kouroupas
Michael McRae, Esq.
Teleport Com. Group, Inc.
2 Lafayette Centre
1133 Twenty-First Street, N.W.
Suite 400
Washington, DC 20036

Suzanne F. Summerlin, Esq.
1311-B Paul Russell Rd., Ste.201
Tallahassee, FL 32301

Charles J. Rehwinkel
Sprint-Florida, Incorporated
P.O. Box 2214
MS: FLTLH00107
Tallahassee, FL 32316

Norman H. Horton, Jr.
Messer, Caparello & Self, Esq.
215 S. Monroe Street
Suite 701
Tallahassee, FL 32301-1876

James C. Falvey, Esq.
e.spire(TM) Communications, Inc.
133 National Business Parkway
Suite 200
Annapolis Junction, MD 20701

Peter M. Dunbar, Esq.
Barbara D. Auger, Esq.
Pennington, Moore, Wilkinson,
Bell & Dunbar, P.A.
P.O. Box 10095
Tallahassee, FL 32302

Carolyn Marek
Vice President of Regulatory Affairs
P.O. Box 210706
Time Warner Communications
Nashville, TN 37221

Nico O. Pa

Attorney

110807.1
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ORIGINAL

BEFORE THE

FLORIDA PUBLIC SERVICE COMMISSION

DIRECT TESTIMONY OF

DON J. WOOD

ON BEHALF OF

MCI TELECOMMUNICATIONS CORPORATION and
AT&T COMMUNICATIONS OF THE SOUTHERN STATES, INC.

Docket No. 980696-TP

August 3, 1998

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Don J. Wood, and my business address is 914 Stream Valley Trail, Alpharetta, Georgia, 30022. I provide consulting services to the ratepayers and regulators of telecommunications utilities.

Q. PLEASE DESCRIBE YOUR BACKGROUND AND EXPERIENCE.

A. I received a BBA in Finance with distinction from Emory University and an MBA with concentrations in Finance and Microeconomics from the College of William and Mary. My telecommunications experience includes employment in a management capacity at both a Regional Bell Operating Company ("RBOC") and an Interexchange Carrier ("IXC").

I was employed in the local exchange industry by BellSouth Services, Inc. in its Pricing and Economics, Service Cost Division. My responsibilities included performing cost analyses of new and existing services, preparing documentation for filings with state regulatory commissions and the Federal Communications Commission ("FCC"), developing methodology and computer models for use by other analysts, and performing special assembly cost studies. I was then employed in the interexchange industry by MCI Telecommunications Corporation, as Manager of Regulatory Analysis for the Southern Division. In this capacity I was responsible for the development and implementation of regulatory policy for operations in the southern U. S. I then served as a Manager in the Economic Analysis and Regulatory Affairs Organization, where

I participated in the development of regulatory policy for national issues.

Q. HAVE YOU PREVIOUSLY PRESENTED TESTIMONY BEFORE STATE REGULATORY COMMISSIONS?

A. Yes. I have testified on telecommunications issues before the regulatory commissions of twenty-five states, Puerto Rico, the District of Columbia, state courts, and have presented comments to the FCC. A listing of my previous testimony is attached as Exhibit____(DJW-1). I have presented testimony to this Commission on costing issues on a number of previous occasions.

Q. PLEASE DESCRIBE YOUR EXPERIENCE REVIEWING COST MODELS AND METHODOLOGIES.

A. While employed in the BellSouth Service Cost organization, I had the opportunity to work with a number of cost models and to analyze and review the manner in which these models were used in the cost development process. Since that time, I have reviewed cost studies performed by each of the Regional Bell Operating Companies ("RBOCs") and other Tier 1 local exchange companies ("LECs"), including United, GTE, and Centel. When such materials have been provided, my review has included an evaluation of the methodologies, computer models and spread sheets, and inputs/assumptions used.

I have also been asked by regulators to develop detailed rules to be used

by the incumbent LECs when performing cost studies pursuant to a forward-looking, incremental cost methodology. My proposed costing rules have been adopted and implemented in both Delaware and Wyoming.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to present Release 5.0a of the HAI Model sponsored by AT&T of the Southern States, Inc. ("AT&T") and MCI Telecommunications Corporation ("MCI"). The documentation attached to my testimony describes the Model, including all inputs and assumptions, in detail.

After an exhaustive review, I have concluded that the HAI Model is the most accurate and reliable means of developing the information that the Commission needs in order to determine the "total forward-looking cost, based upon the most recent commercially available technology and equipment and generally accepted design and placement principles, of providing basic local telecommunications service" as indicated in Section 364.025 (4) (b) of the Florida Statutes.

More generally, the HAI Model provides an accurate and reliable means of determining the economic cost of providing basic local telecommunications service specific to discreet geographic areas within the state. For purposes of this proceeding, the HAI Model was used to generate these costs at the v ire center level; in other words, the cost of providing basic local telecommunications service calculated by the Model and attached to my

testimony is specific to the unique characteristics of the area served by each incumbent LEC central office.

My recommendation that the Commission utilize the HAI Model to calculate the total forward looking costs of basic local telecommunications service is based on my conclusion that it calculates costs based on sound economic costing principles, including the criteria established by the FCC in its Order in CC Docket 96-45, and calculates costs in a manner that is consistent with the definition of basic local telecommunications service in Section 364.02 (2) of the Florida Statutes.

Q. WHAT STEPS MUST A COST MODEL PERFORM CORRECTLY IN ORDER TO ACCURATELY CALCULATE THE COST THAT AN EFFICIENT PROVIDER WOULD INCUR IN ORDER TO PROVIDE BASIC LOCAL TELECOMMUNICATIONS SERVICE?

A. There are two fundamental steps that a cost model must perform in order to accurately calculate costs. First, because the costs of a local network are a direct function of where customers are located in relation to the serving wire center, the cost model must accurately determine customer locations. A means of accurately locating customers is essential if the two primary cost drivers of local loop costs -- loop length and customer density -- are to be correctly incorporated. Second, the cost model must connect those customers with the serving central office using network facilities that are efficient and which reflect

the most recent commercially available technology.

By correctly performing these two fundamental steps, a cost model can determine the network investment necessary for an efficient provider to serve a specific geographic area.

Q. HAVE OTHER STATE COMMISSIONS IN THE REGION CHOSEN TO RELY ON THE HAI MODEL TO CALCULATE THE COST OF BASIC LOCAL TELECOMMUNICATIONS SERVICE IN ORDER TO DETERMINE THE AMOUNT OF UNIVERSAL SERVICE FUNDING REQUIRED?

A. Yes. Both the Kentucky and Louisiana Commissions have recently chosen to rely on the HAI Model.

At p. 10 of its May 22, 1998 Order in Administrative Case No. 360, the Kentucky Public Service Commission stated that it "adopts the HAI Model to establish the Kentucky USF and determines that the HAI Model complies with the FCC's criteria." The Kentucky Commission went on to describe that its decision was based on the ability of the HAI Model to perform the fundamental tasks described above. Specifically, the Kentucky Commission found that "the HAI Model more accurately locates customers" (p. 10), and that "the HAI Model produces a reasonable and accurate estimate of the average loop length for all loops in the study area. The customer location and loop methodology used to determine the loop lengths are explained in detail in the HAI Model

documentation" (p.11).

The Kentucky Commission went on to state its conclusion that, after more accurately locating customers, the HAI Model develops an estimate of the "costs incurred by an efficient carrier building a network using actual technology and costs," and that "the model correctly applies a long run assumption by treating the ILECs' embedded cost structure, except for the location of wire centers, as variable and avoidable" (p.12).

The Louisiana Public Service Commission has also elected to rely on the HAI Model. In its April 20, 1998 Order No. U-20883 Subdocket-A, the Louisiana Commission voted to unanimously adopt the Staff's Final Recommendation. The Staff's Final Recommendation urges the use of the HAI Model rather than the BCPM for reasons consistent with those articulated by the Kentucky Commission. Specifically, the Louisiana Staff found at p. 8 that the HAI Model more accurately locates customers in nonrural areas: "Based upon the evidence presented in this proceeding, Staff believes that the Hatfield approach to locating nonrural customers is superior to BCPM's method that makes basic, but reasonable, assumptions regarding customer location. Nevertheless, the BCPM does not locate customers...Clearly, a model that actually locates customers is more accurate than one that estimates customer locations." After an extensive analysis of the performance of each model in locating rural customers, the Louisiana Staff concluded that in rural areas "the Hatfield Model is more accurate than the BCPM" (p. 11). In summary, the

Louisiana Staff found that the HAI Model "more accurately locates customers in the more urban areas and that it is as accurate or more accurate at locating customers in the more rural areas than the BCPM" (p. 27).

The Louisiana Staff also concluded that, once customers are located, the HAI Model does a better job at designing a forward looking local network to serve those customers: "Staff believes that the Hatfield Model more accurately reflects the least cost, most efficient, and reasonable technology for providing the supported services," and that "the engineering design standards used in the Hatfield Model are superior to the ones used in the BCPM" (pp. 22-23, 27). The Louisiana Staff concluded that "in this regard, the Hatfield Model better meets the FCC's criteria" (p.27). Again, each of these Staff conclusions was unanimously adopted by the Louisiana Commission.

Q. WHAT IS YOUR ASSESSMENT OF THE HAI MODEL?

A. After a thorough review of both the HAI Model and its supporting documentation, I have concluded that the results of the HAI Model represent the most accurate and verifiable costs for universal service cost calculations. These results are calculated in compliance with sound economic costing principles generally and specifically comply with the FCC's stated cost standards. The results are based on inputs that are specific to the operating territory of BellSouth, GTE, United, and Centel in Florida, but are appropriately independent of each incumbent LEC's embedded network and

operations. In addition, the degree of precision in Release 5.0a of the HAI Model far exceeds that available through competing models -- including the most recent release of the BCPM -- or earlier releases of the HAI Model. The HAI Model is able to more accurately locate customers (in contrast, BCPM does not actually locate a single customer), and then uses this customer location information to better design a local network that is based on the most recent commercially available technology and equipment and generally accepted design and placement principles.

Q. PLEASE DESCRIBE THE INFORMATION ABOUT THE HAI MODEL THAT YOU ARE PROVIDING WITH YOUR TESTIMONY.

A. I have attached a number of documents to my testimony which provide an extensive and detailed description of the HAI Model, including its calculation algorithms, inputs and assumptions, and operation. It is simply not feasible to include the level of detail included in these documents within the body of my testimony. Such detailed information is essential, however, to a complete understanding of any cost model, including the HAI Model, the BCPM, or any other model considered by the Commission. For any model that will be considered in this proceeding, the Commission and Staff should require this level of detailed information regarding calculations, inputs, and model operation.

First, the HAI *Model Description* document, attached as

Exhibit___(DJW-2), provides details regarding the Model's purpose, usefulness, and operational mechanics. This documentation of the HAI Model also includes four Appendices, A through D, which describe in further detail the development and use of the Florida-specific database underlying the Model and the user-definable inputs to the Model.

I have also attached as Exhibit___(DJW-3) the *HAI Inputs Portfolio*, or "HIP." The HIP describes in more detail the source of the inputs and assumptions to the Model, and also includes four appendices: Appendix A graphically describes the configuration of the interoffice network used by the Model, Appendix B describes the basis for the Model's assumptions regarding structure sharing, and Appendix C provides additional detail regarding the development of expense-related assumptions used in the Model. Appendix D includes a description of the basis for adjustments made specifically to network operations expenses in order to ensure that they are forward-looking in nature.

Exhibit___(DJW-4) is the HAI Model Automation Description and User Guide. This document provides detailed, step-by-step instructions for successfully loading and running the HM.

Exhibit___(DJW-6) is complete and functioning copy of the HAI Model, including a copy of the runs of the Model used to produce the costs of basic local exchange telecommunications service sponsored by AT&T and MCI in this proceeding.

This extensive documentation and the Model software should permit the

Commission and Staff to conduct a full review of the HAI Model. In addition, the Model is based on the principles of public access and complete disclosure, which should further facilitate the Commission's evaluation.

This principle of public access and complete disclosure is applied in the following ways:

The HAI Model software, including all inputs necessary to duplicate the results sponsored by AT&T and MCI in this proceeding, is available. Release 5.0a of the HAI Model is attached as Exhibit___(DJW-6). The availability of the Model makes it possible for the Commission, Staff, and incumbent LECs to gain an understanding of how the HAI Model works, to review all inputs and assumptions, and to determine which inputs and assumptions have a significant effect on the Model outputs.

The HAI Model is designed around a user-friendly interface and the documentation includes complete instructions for running the Model. A graphical user interface permits even inexperienced users to run the Model, review input values, and conduct sensitivity analysis on a simple "point and click" basis. The *Automation Description and User Guide* (Exhibit___(DJW-4)) contains complete instructions for loading the Model onto a personal computer, conducting runs, and adjusting inputs for sensitivity analysis. The Model permits the user to run and store up to 9,999 different scenarios (up from 99 scenarios in Release 4.0), allowing complete sensitivity analysis of the Model inputs to be conducted with unprecedented ease.

A complete list and detailed description of the inputs and assumptions used in the HAI Model is provided as a part of the Model documentation. Appendix B to the HAI Model Documentation, entitled *Inputs, Assumptions, and Default Values* lists the default values for the user definable inputs and assumptions and explains what each value is intended to represent. Such a listing makes review and understanding of the inputs to the Model a straight-forward process, and the accompanying explanations make validation of the inputs possible. In addition, the *HAI Inputs Portfolio* (Exhibit___(DJW-3)) provides a description of the basis for the default values selected for these inputs, and in many cases describes how the publicly available data was identified and collected.

A complete description of the process used by the HAI Model to calculate the costs associated with universal service funding requirements, including the calculations and algorithms used, is provided as part of the Model documentation. The process used by the Model to calculate costs is described in detail in the HM *Model Description*, Exhibit___(DJW-2). In addition, appendices to the documentation provide additional detail regarding the sources of the input data used, describes the data tables present in the Model, and describes and explains the input fields used.

Q. YOU STATED THAT THE HAI MODEL COMPLIES WITH THE FCC'S CRITERIA FOR STATE-CONDUCTED ECONOMIC COST STUDIES.

PLEASE EXPLAIN HOW IT DOES SO.

A. The FCC adopted 10 requirements in paragraph 250 of its May 7, 1997 Order in CC Docket No. 96-45 in order to ensure consistency in the calculations of universal service support at the state and federal levels. Following is a listing of the FCC criteria and a description of how the HAI Model meets each of these criteria. For clarity, I have divided a number of the FCC criteria into sub parts in those cases in which one criteria contains multiple requirements.

(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.

The HAI Model utilizes the least cost, most efficient technology that is currently being deployed by incumbent LECs, including digital loop carrier systems, digital switching, fiber rings for interoffice transport, and signalling system 7. In those parts of the network in which different technologies may be more efficient in different situations (the feeder portion of the local loop, for example), the Model examines each individual case and chooses the technology that is most efficient in each case. Release 5.0a of the HAI Model contains additional capabilities for such "dynamic modelling." For example, the HAI Model can now (if so requested by the user) adjust the mix of aerial and buried plant in response to geographic conditions in order to ensure that the most efficient structure type is used in a given area.

(1a) A model must include the incumbent LECs' wire centers as the center of the loop network and the outside plant should terminate at the incumbent LECs' current wire centers.

The HAI Model assumes the existing locations of the incumbent LECs' wire centers. The location of these switching locations is taken from the latest version of the Local Exchange Routing Guide ("LERG"), which is maintained by Bellcore. The distance between wire centers is also developed using data from the LERG. All loops developed in the Model are engineered to terminate on the existing incumbent LEC wire centers.

(1b) The loop design incorporated into a forward-looking economic cost study should not impede the provision of advanced services.

Release 5.0a of the HAI Model replaces the coarse-gauge cable and load coils present in previous versions with T-1 technology. As a result, even the longest loops (those greater than 18,000 feet) can fully accommodate advanced services, including ISDN and other high speed data applications. The HAI Model conducts explicit tests of the outside plant facilities that it models in order to ensure that these parameters are not exceeded.

(1c) Wire center line counts should equal actual incumbent LEC wire center line counts, and the study's or model's average loop length should reflect the incumbent carrier's actual average loop length.

Line counts at the wire center level are estimated by the HAI Model based on demographic data, and the state-wide totals for both residence and business lines are normalized to the totals reported by the incumbent LECs in ARMIS and the NECA USF Loops filing. The current release of the Model has the capability to normalize residence and business line counts at the wire center level, if this data is provided by the incumbent LEC. The Model also can be used to develop average loop lengths at the wire center level, so that this information can be validated.

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

The Model developers have systematically identified all elements necessary to provide universal service, at a sufficiently disaggregated level of detail to allow costs to be assigned to each element.

(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 HAI Model is designed to accurately estimate the costs that an efficient carrier would incur to provide service in the geographic area being

studied. In other words, the costs developed by the Model are constrained by the geographic and demographic characteristics of the area being studied, but are not constrained by the embedded characteristics of the Incumbent LEC's network or operations. In doing so, the Model correctly applies a long run assumption by treating the incumbent LEC's embedded cost structure -- except for the location of wire centers -- as variable and avoidable.

This treatment of costs is consistent with sound economic cost principles and the requirements of this paragraph of the FCC Order.

(3a) The study or model must be based on the current cost of purchasing facilities and equipment (rather than list prices).

The developers of the HAI Model have identified public sources of information regarding the prices (net of applicable discounts) of network facilities and equipment, although equipment vendors have been reluctant to provide the information for this purpose. For many inputs to the Model, the judgement of subject matter experts with extensive experience in the acquisition of network facilities and equipment has been used and this judgement has been validated using vendor information where available. All facility and equipment prices used as inputs to the Model are based on discounted, rather than list, prices.

(4) The rate of return must be either the authorized federal rate of return on

interstate services or the state's prescribed rate of return for intrastate services.

The HAI Model accepts cost of debt, cost of equity, and percentage of debt as direct inputs through the graphical user interface; either federal or state values can be easily accommodated. The Model has been run using the proposed intrastate cost of capital described in the testimony of John Hirschleifer.

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

The HAI Model allows the user to separately input state-specific projected lives and net salvage values. The values used in the Model in this proceeding reflect the lives and salvage values adopted in the three-way meetings between the FCC, Commission, and incumbent LEC, where those values fall within the FCC range. Any values from the three-way meetings that fall outside of the FCC range have been adjusted to the nearest end-point of the range. The recommended values for depreciation lives and net salvage values are contained in the testimony of Mike Majoros.

(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 residence lines. Such inclusion will permit the cost study or model to

reflect the economies of scale associated with the provision of these services.

The HAI Model develops costs based on the total demand for network elements, including loops, switching, and interoffice transport. Total demand includes the demand created by residence (first and additional lines), business (single and multi-line), public (coin) , and special access services. By designing a forward-looking network based on total demand, the HAI Model properly includes economies of scale.

(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 HAI Model systematically assigns so-called "joint and common" costs to the services and/or network elements being studied. Expenses that have traditionally (and incorrectly) been treated as fixed overheads have been directly assigned as variable expenses in proportion to investments or line counts as appropriate. The treatment of these costs in the Model helps to ensure that the joint and common costs caused by the provision of non-supported services are not inappropriately included in the costs reported for supported services.

(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 complete Model software has been provided to the Commission, Staff, and other parties on a CD-ROM (Exhibit___DJW-6)). The Model can be run and sensitivity analyses can be performed to determine the impact on the results if inputs or assumptions are changed. In addition, all parties are being provided with the *Model Documentation* which describes the Model calculations and inputs in detail, the *HAI Inputs Portfolio*, which describes in detail the inputs to the Model and the basis for their development, and the *Automation Description and User Guide*, which includes complete instructions for using the HAI Model.

(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 crossover points, and terrain factors.

Each of the types of data listed is an input to the Model that can be reviewed and changed by the user. In addition, each of the Model's cells containing formulae is unlocked, making it possible for the user to m ke direct changes to both calculations and inputs. The graphical user interface to the

Model makes it a simple task for the user to run and store up to 9,999 different "what-if" scenarios in order to determine the impact of a wide range of input values.

(10) The cost study or model must deaverage support calculations to the wire center serving area at least, and, if feasible, to even smaller areas such as a Census Block Group.

The HAI Model can calculate and display universal service results by wire center, line density zone, or Census Block Group (even though Release 5.0a of the HAI Model calculates costs based on actual customer locations and not at the CBG level, the calculated costs can be aggregated at any one of three levels depending on the user's selection). As a result, the Commission can be provided with information regarding the total state universal service funding requirements or can consider such requirements for distinct geographic areas. The cost results prepared for this proceeding are specific to each incumbent LEC wire center.

Q. YOU STATED PREVIOUSLY THAT RELEASE 5.0a OF THE HAI MODEL PROVIDES A NUMBER OF ENHANCEMENTS THAT INCREASE THE LEVEL OF PRECISION OF THE RESULTS. PLEASE DESCRIBE THESE ENHANCEMENTS.

A. While previous releases of the HAI Model represented the most accurate

forward-looking economic cost data available to date, the Model has undergone additional development work in order to capture differences in the cost of providing basic local telecommunications service in different geographic areas of the state with an even greater degree of precision. While a complete list of enhancements is contained at pages 4-8 of the HAI *Model Description*, two enhancements of Release 5.0a warrant special attention.

First, attempts to criticize the HAI Model during arbitration and subsequent generic cost proceedings have focused almost exclusively on the unit of disaggregation of study data. Previous releases of the HAI Model calculated costs at the level of the Census Block Group, or CBG. While such an approach is clearly preferable to the simple statewide averages produced by the BellSouth cost studies presented in those proceedings, there was a recognition by the HAI Model developers that even greater precision could be gained when calculating costs by identifying the actual location of individual residence and business end users. Such an approach has been incorporated into Release 5.0a of the HAI Model. By developing costs based on the actual locations of most customers, this release of the HAI Model provides a degree of precision in its results that simply cannot be duplicated by a model such as the BCPM which uses a more simplistic approach of arbitrarily distributing end users along roadways or within an artificial grid structure.

Second, the current release of the HAI Model permits "dynamic modelling" for a number of network facilities. Rather than developing costs

based on the type of facility or structure most likely to occur under certain conditions, the HAI Model can now evaluate the characteristics of the geographic area being studied to determine the most economic and efficient means of serving the area. This capability adds a degree of both accuracy and precision not found in a "static" model such as the BCPM which cannot make such adjustments.

Q. WHAT COSTS ARE INCLUDED BY THE HAI MODEL WHEN CALCULATING UNIVERSAL SERVICE FUNDING REQUIREMENTS?

A. The HAI Model includes all of the costs associated with basic local telecommunications service as defined in Section 364.02 (2) of the Florida Statutes, and as defined by the Federal-State Joint board on Universal Service in the FCC's CC Docket 96-45. All costs that would be incurred by an efficient provider on a forward looking basis to provide basic local telecommunications service pursuant to these definitions are included by the HAI Model, and are developed using a process that captures the cost differences of serving different geographic areas with unprecedented precision.

Q. WHAT COST INFORMATION ARE YOU PROVIDING TO THE COMMISSION?

A. The cost information that I am providing has been produced by running the HAI Model on a wire center-specific basis for the areas served by BellSouth,

GTE, United, and Centel. The output of the Model, attached as Exhibit___(DJW-5), shows the cost of providing basic local telecommunications service and how this cost varies by wire center.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes.