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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Ms. Magalie R. Salas, Secretary
Federal Communications Commission
1919 M Street, N.W.
Room 222
Washington, D.C. 20554

Re: Federal-State Joint Board on Universal Service CC Docket No. 96-45, Forward-Looking Mechanism for High Cost Support for non-Rural LECs CC Docket No. 97-160, DA 98-1587

Dear Ms. Salas:

Enclosed please find a diskette formatted in IBM-compatible format using WordPerfect 5.1, in a read-only mode, containing the Comments of AT&T Corp. filed on August 28, 1998 in the above matter.

Respectfully yours,

Anisha A. Abrol

1 August 28, 1998 (3:30pm)

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OFFICE OF THE SECRETARY

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
Federal-State Joint Board on Universal Service	)	CC Docket No. 96-45
Forward-Looking Mechanism for High Cost Support for Non-Rural LECs	)	CC Docket No. 97-160
Common Carrier Bureau Seeks Comment on Model Platform Development	)	DA 98-1587

COMMENTS OF AT&T CORP.
ON MODEL PLATFORM DEVELOPMENT ISSUES

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COMMENTS OF AT&T CORP.
ON MODEL PLATFORM DEVELOPMENT ISSUES

Pursuant to the Commission's Public Notice,[1] AT&T Corp. ("AT&T") hereby submits its comments on the designated universal service cost model platform development issues.

INTRODUCTION

AT&T endorses the Commission's efforts to incorporate in its selected universal service cost estimation mechanism the most accurate algorithms and approaches to cost modeling from each of the three proposed universal service cost models and to bring this phase of the universal service proceeding to a close.[2] At the same time, however, AT&T's support for this

[1] Public Notice, Common Carrier Bureau Seeks Comment on Model Platform Development, DA 98-1587 (rel. August 7, 1998) ("Notice")

[2] The three models are the HAI Model ("HAI"), the Benchmark Cost Proxy Model ("BCPM"), and the Hybrid Cost Proxy Model ("HCPM").

hybridization of cost models is premised on two critical conditions. First, the Commission should choose a particular algorithm or approach only if the record contains substantial evidence demonstrating that the approach as implemented will produce reasonable cost estimates using "real world" data. In particular, while many promised characteristics of the HCPM may be desirable in theory, that model's algorithms should not be incorporated in the selected universal service mechanism until it can be shown that those algorithms will perform as promised in the selected mechanism using actual customer location data. Second, the Commission should adopt a "road" surrogating customer location algorithm for customers without actual geocode points only if it also adopts the AT&T-proposed enhancements to correct for the facts that some roads do not contain any customers and that even populated roads do not exhibit equal customer densities.

In these comments, AT&T has restricted the scope of its analysis to the new issues presented in the Notice.[3] Based on the existing record in this proceeding, the HAI Model is the only current model that is complete and that has been thoroughly tested with real world geocode data. Thus, the HAI Model should provide the base platform for the selected cost mechanism, and the Commission should import algorithms from the BCPM or the HCPM only to the extent the relevant model's proponents have demonstrated on the record that the algorithm or approach in question is not only logically sound and significantly more accurate than its HAI counterpart, but also is workable and produces reasonable results using real world data. Hybridization based

[3] AT&T incorporates by reference the evidence and arguments regarding customer location data, customer grouping, the design of distribution and feeder plant, and other platform issues that it has provided in past filings and presentations to the Commission. Those filings include comments and reply comments filed in Federal-State Joint Board on Universal Service, CC Docket Nos. 96-45, 97-160 (1997) on August 8, 1997, August 18, 1997, September 2, 1997,

(. . . continued)

on preliminary speculation that an alternative algorithm will generate reasonable estimates may lead to delay and inaccuracy that can only harm the customers who will be the eventual recipients and financiers of universal service support.

I. THE SELECTED COST MECHANISM SHOULD USE GEOCODE DATA SUPPLEMENTED WITH SURROGATE GEOCODE LOCATIONS ONLY WHERE GEOCODE DATA IS UNAVAILABLE.

AT&T and MCI have repeatedly demonstrated the superiority of geocode data over any method that estimates customer location using census block or other demographic data,[4] a position echoed by "[m]any commenters from across the spectrum of the industry." Notice at 3. Unfortunately, geocode data are not always available and a cost model therefore must use surrogates for some customer locations.

The Bureau has requested comment on the possibility of using a "road" surrogate customer location approach which "assum[es] that those customers in a census block that cannot be geocoded are distributed along both the internal and peripheral roads in the Census block." Notice at 3. AT&T agrees that a road-based customer location approach is reasonable but, unless implemented carefully will result in cost overestimation. This is because many roads do not contain any customers and that even roads with customers frequently do not exhibit uniform customer dispersion. See Ex Parte Letter from Richard N. Clarke, AT&T, to Magalie Roman Salas, FCC, dated December 23, 1997. In its March 2, 1998 ex parte letter, AT&T discussed an enhanced approach that would augment the logic of the BCPM road algorithm with more

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(continued . . .)
September 10, 1997, September 24, 1997, October 3, 1997, October 17, 1997, October 27, 1997, June 1, 1998 and June 12, 1998, as well as numerous ex parte submissions.

[4] See, e.g., June 12, 1998 Reply Comments of AT&T and MCI.

realistic assumptions regarding customer density. More specifically, different roads would be weighted differently for the purpose of placing "unlocated" customers. See Ex Parte Letter from Michael Lieberman, AT&T, to Magalie Roman Salas, FCC, dated March 2, 1998. In other words, the enhanced road-based approach would model some types of roads with greater customer densities than others, just as they exist in the real world. Failure to implement this or a similar enhancement to the uniform density approach will result in insufficient identification of customer clustering and inflated universal service subsidies.

II. THE SELECTED COST MECHANISM SHOULD USE THE HAI/PNR CLUSTERING UNLESS THE HCPM'S ALGORITHM IS SHOWN TO MAKE CLEAR IMPROVEMENTS WHEN APPLIED TO ACTUAL CUSTOMER LOCATION DATA.

As the Bureau recognizes (Notice at 4), the HAI/PNR clustering algorithm, which relies on actual and, when necessary, surrogate geocode data, has clear advantages over the BCPM gridding approach. As the Bureau further notes, the HAI Model sponsors and PNR made their clustering algorithm publicly available on the record months ago for parties to examine (id.), and, the evidence submitted in this proceeding demonstrates that the HAI/PNR clustering algorithm provides the best framework for estimating the forward-looking cost of outside plant.[5]

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[5] AT&T and MCI have previously demonstrated to the Commission the flaws in the Minimum Spanning Tree and random customer location analyses conducted by Sprint and the Commission staff, which some parties have suggested indicate that the Hatfield Model does not build sufficient distribution plant. To the contrary, the Sprint and staff analyses are likely to overstate the amount of distribution plant required to serve a group of customers. See Ex Parte Letter from Richard N. Clarke, AT&T, to Magalie Roman Salas, FCC, dated June 10, 1998. The Minnesota Department of Public Service recently submitted to the FCC supplemental testimony by Department witness Mr. Wes Legursky on the Minimum Spanning Tree analysis. See Ex Parte Letter from J. Jeffery Oxley, Minnesota, to Magalie Roman Salas, FCC, dated August 11, 1998. Mr. Legurksy further explains how Minimum Spanning Tree analysis can overstate the amount of required outside plant. Finally, with respect to state proceedings where loop length data have been made available, AT&T and MCI have demonstrated in ex parte submissions that the HAI

(. . . continued)

The Bureau has also sought comment on the relative merits of the HCPM clustering algorithm currently under development by the Commission's staff. Notice at 4. While it is possible that the new HCPM clustering algorithm will perform well – and, conceivably, might provide the best clustering approach, the HCPM algorithm has yet to be tested with actual customer location data instead of randomly assigned customer locations. As AT&T and MCI have explained to the Commission, randomly located geocode points are not a good proxy for actual geocode data. See Ex Parte Letter from Richard N. Clarke, AT&T, to Magalie Roman Salas, FCC, dated June 10, 1998. That is because, on average, a set of random locations will approximate a uniform population distribution. Actual customer locations, however, rarely mimic a uniformly distributed population. Instead, customers form clusters around infrastructure and natural geographic features such as roads and rivers. And clustering is likely to occur at multiple levels with subclusters forming inside larger clusters.[6] Until the HCPM clustering algorithm has been tested with actual data and subjected to the same degree of scrutiny already applied to the HAI/PNR clustering algorithm, AT&T cannot endorse use of the HCPM clustering algorithm in the Commission's selected universal service cost mechanism.

(continued . . .)
Model builds more than enough plant to reach all customer locations. See, e.g., Ex Parte Letter from Richard N. Clarke, AT&T, to Magalie Roman Salas, FCC, dated May 5, 1998.

[6] The Maryland test data offered by the Commission, for example, are a set of randomly located geocode points within each of the populated Census Blocks in that state. Hence, the data set's population distribution characteristics will deviate significantly from those contained in the HAI geocode data, which are based primarily on actual customer locations. The test data, then, will exhibit far less clustering than that captured by the HAI Model and actually present in Maryland.

III. THE COMMISSION SHOULD USE THE HCPM'S DISTRIBUTION AND FEEDER PLANT DESIGN ALGORITHMS ONLY ONCE ITS DEVELOPERS HAVE SUBSTANTIATED THE REASONABLENESS OF ITS APPROACH AND RESULTS.

AT&T and MCI have discussed extensively the efficacy of the HAI distribution and feeder algorithms in their previous comments (see, e.g., Sept. 24, 1997 Comments of AT&T and MCI; October 3, 1997 Reply Comment of AT&T and MCI), and AT&T continues to support the HAI Model for calculating distribution and feeder costs. The Notice seeks further comment on the HCPM outside plant approach. To be sure, the description of the HCPM distribution and feeder algorithms in the Notice (at 5-6) sounds promising. As with the HCPM clustering algorithm, however, the record does not yet contain sufficient evidence to evaluate the performance of the HCPM distribution and feeder cost methodology. Until AT&T has had the opportunity to examine both the types of outside plant engineered by the HCPM as well as the sufficiency of the amount of outside plant equipment generated by the model (using actual customer location data and consistent input values), AT&T cannot opine on HCPM's accuracy as a costing tool. This is especially true because AT&T's preliminary runs of the model using the Commission's Maryland test data set strongly suggest significant inconsistencies in the model's performance.

AT&T again must reiterate the necessity of evaluating the HCPM using actual customer location data and consistent input values. While random or preliminary test data may be useful in beginning to evaluate a model's performance, it does not provide the needed basis for benchmarking the HCPM relative to other models such as the HAI and BCPM that have been provisioned with their complete data sets.

AT&T remains committed to working with the Bureau to provide data for and to improve the HCPM's outside plant modules. Once AT&T has had the opportunity to examine the

HCPM, results generated with debugged logic and actual customer location data it will be positioned to evaluate the overall reasonableness of its engineering and economic performance.

CONCLUSION

For the foregoing reasons, the Commission should adopt the HAI Model as the base platform for a geocode model for estimating universal service costs. If the Commission wishes to use a "road" surrogating algorithm for locating customers lacking an actual geocode point, that algorithm should be augmented to allow for variable customer densities along different types of roads. In addition, the Commission should use HCPM algorithms only once that model's logic and results have been thoroughly scrutinized by the industry, and have been tested using actual rather than randomly generated customer locations and using consistent input values.

Respectfully submitted,
AT&T CORP.

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August 28, 1998

CERTIFICATE OF SERVICE

I, Scott M. Bohannon, do hereby certify that on this 28th day of August, 1998, I caused a copy of the foregoing Comments of AT&T Corp. on State Universal Service Cost Studies to be served upon each of the parties listed on the attached Service List by U.S. First Class mail, postage prepaid.

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Scott M. Bohannon

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