DOCKET FILE COPY ORIGINAL

RECEIVED

9 1998

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C 20554

ORIGINAL

| | |
|---|---|
| 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 State Forward-Looking Cost Studies For Universal Service Support | DA 98-1055; APD No. 98-1 |

**REPLY COMMENTS OF AT&T CORP.**
**ON STATE UNIVERSAL SERVICE COST STUDIES**

David L. Lawson
Scott M. Bohannon
1722 I Street, N.W.
Washington, D.C. 20006
(202) 736-8034

Mark C. Rosenblum
Peter H. Jacoby
Room 3245H1
295 North Maple Avenue
Basking Ridge, New Jersey 07920
(908) 221-2631

Attorneys for AT&T Corp.

July 9, 1998

No. of Copies rec'd 0+9
List A B C D E

## TABLE OF CONTENTS

Page

INTRODUCTION ..... 1

I. THE COMMENTS DEMONSTRATE THAT THE HAI MODEL IS THE ONLY UNIVERSAL SERVICE COST MODEL THAT SATISFIES THE COMMISSION'S REQUIREMENTS ..... 3

A. The Criticisms Of The HAI Model Are Without Merit ..... 4

1. Most alleged "flaws" attributed to the HAI Model simply reflect a failure to read the model's documentation or the submissions by AT&T and MCI in this proceeding ..... 4

2. The HAI Model engineers sufficient distribution plant to serve actual customer locations in rural and urban areas ..... 9

3. The HAI Model conservatively estimates the cost an efficient carrier would incur to provide stand-alone universal service ..... 11

B. The Commission Should Accept The Hawaii, Kentucky, Louisiana, and Minnesota Cost Studies Provided That Those States Can Substantiate The Reasonableness Of Certain Input Value Changes They Made Or, Alternatively, If They Recalculate Their Universal Service Costs Using The Default Input Values ..... 15

C. The BCPM Requires Critical Algorithmic And Input Value Modifications Before The Commission Should Accept Any Cost Studies Relying On It ..... 16

II. THE COMMENTS CONFIRM THAT THE MICHIGAN AND ILLINOIS COST STUDIES VIOLATE THE COMMISSION'S UNIVERSAL SERVICE COST CRITERIA ..... 18

III. THE COMMENTS REVEAL VIRTUAL UNANIMOUS AGREEMENT THAT THE COMMISSION SHOULD REJECT THE PUERTO RICO COST STUDY ..... 20

CONCLUSION ..... 23

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 State Forward-Looking Cost Studies For Universal Service Support | ) | DA 98-1005; APD No. 98-1 |

**COMMENTS OF AT&T CORP.**
**ON STATE UNIVERSAL SERVICE COST STUDIES**

Pursuant to the Commission's Public Notice.[1] AT&T Corp. ("AT&T") hereby submits its reply comments on the state universal service cost models proposed by Hawaii, Illinois, Indiana, Kentucky, Louisiana, Michigan, Minnesota, Montana, Nebraska, North Carolina, Puerto Rico, and South Carolina and filed with the Commission on May 26, 1998.

## INTRODUCTION

The comments submitted on the twelve state universal service cost studies confirm two facts that AT&T has stressed throughout the Commission's universal service cost model

[1] Public Notice, Common Carrier Bureau Seeks Comment on State Forward-Looking Cost Studies for Universal Service Support, DA 98-1055 (rel. June 4, 1998) ("Notice").

proceedings. First, the HAI model is the only model that satisfies the Commission's cost study criteria. In addition to providing exhaustive documentation, analysis and commentary to demonstrate that this is so, AT&T and other HAI supporters have repeatedly refuted the same baseless criticisms leveled by GTE, U S WEST, BellSouth and other HAI detractors. Rather than respond, these incumbent local exchange carriers' ("LECs") have again chosen simply to repeat themselves. And, once again, one need look no further than the HAI Model Description[2] to confirm that the majority of their complaints rest on blatant mischaracterizations of the HAI model.

The incumbents also feign ignorance of the *ex parte* filling made by AT&T and MCI on June 10, 1998 responding fully to the incumbents' purported "discovery" of a flaw in the HAI model distribution engineering module. Thus, rather than attempt to rebut AT&T's responses to their initial allegations, the incumbents merely restate those allegations. At the same time, the incumbents carefully avoid any side-by-side comparison of the HAI model's distribution module to their own favored BCPM, recognizing that many of their criticisms of the HAI model apply with even greater force to the BCPM and that any such comparison would only highlight the BCPM's inadequacies. See, e.g., Compliance Proceeding for Implementation of the Texas High Cost Universal Service Plan, "AT&T Communications of the Southwest, Inc. and MCI Telecommunications Corp.'s Additional Supplemental Direct Testimony of Robert A. Mercer and John C. Klick" (Texas PUC June 30, 1998) (Attachment A) ("Mercer/Klick Testimony") (demonstrating that the BCPM engineers loops in excess of the 18,000 feet, but the HAI model

[2] AT&T and MCI ex partes filed February 3, 1998 and February 4, 1998.

does not). Thus, for example, although the HAI model may not have actual geocode information for *all* customers, the BCPM cannot boast any.

Second, the comments submitted to the Commission leave no doubt that incumbent LECs remain committed to recovering their embedded costs through the federal universal service fund. GTE (at 3) provides a prime example, faulting the HAI model for not using "*today's* technology, efficiency levels, and prices." (emphasis in original) The comments and cost studies submitted by incumbent LECs include both overt and subtle admissions that embedded cost recovery plays a central role in their analyses. Without question, incumbents' legacy networks have played an essential role in the BCPM development. Likewise, the Illinois and Michigan cost studies clearly incorporate historic architecture and costs. For these and other reasons, the cost studies relying on the BCPM (Indiana, Montana, Nebraska, North Carolina, Puerto Rico, and South Carolina) as well as the Illinois and Michigan cost studies are flatly inconsistent with the Commission's cost study criteria and should be rejected.

## I. THE COMMENTS DEMONSTRATE THAT THE HAI MODEL IS THE ONLY COST MODEL THAT SATISFIES THE COMMISSION'S UNIVERSAL SERVICE COST STUDY REQUIREMENTS.

As AT&T stated in its initial comments (at 4-12), the record in this proceeding is replete with evidence demonstrating that the HAI model is the best available method for estimating universal service costs. The Hawaiian Consumer Advocate reached the same conclusion: the Hatfield Model "is clearly the better of the alternatives available . . . and it satisfies the" Commission Universal Service cost study criteria. State of Hawaii Department of Commerce and Consumer Affairs, Division of Consumer Advocacy Consumer Advocate at 1-2. It is not

surprising, then, that the state commissions of Hawaii. Kentucky, Louisiana and Minnesota used the HAI model in conducting their state universal service cost studies.

A few incumbent carriers once again attack the HAI model, but, for the most part, they simply repeat arguments that AT&T and MCI have thoroughly refuted in previous submissions to the Commission. These alleged "flaws" of the HAI model can be grouped into three categories. First, the vast majority of these criticisms unambiguously are factually incorrect and reflect a complete disregard of the HAI Model Description and the numerous comments, reply comments, and ex parte submissions made by AT&T and MCI that confirm these mischaracterizations of the model. Second, a few parties, through a misinterpretation or misunderstanding of the HAI plant distribution algorithms or the underlying geocode data, incorrectly assert that the HAI model does not engineer sufficient distribution plant. Third, some incumbents fault the HAI model for not including costs which the model properly treats as outside the scope of universal service.

### A. The Criticisms Of The HAI Model Are Without Merit.

#### 1. Most alleged "flaws" attributed to the HAI Model simply reflect a failure to read the model's documentation or the prior submissions by AT&T and MCI in this proceeding.

GTE (at 9) claims that the HAI model creates clusters that violate its own 1,800 line per distribution area limit.[3] If GTE had taken the time to read the HAI Model Description (at n.32), it

[3] GTE (at 8) also suggests that the HAI model is flawed because it sometimes uses geographically large clusters containing large customer lots. GTE ignores that this geographic arrangement tends to increase universal service costs because the distribution algorithm will operate as if the customers are maximally dispersed, forcing the model to include more distribution plant. And GTE's suggestion (at 8) that drop lengths may be too short in these large clusters also lacks merit. Neither the HAI developers nor GTE knows how long actual drop lengths will be in those clusters and AT&T has repeatedly demonstrated the reasonableness of its default drop lengths. See, e.g., AT&T and MCI October 3, 1997 Reply Comments at 4. Further, it is not clear that GTE and other incumbent LECs will bear the drop costs for customers with large lots. Incumbent LECs (continued. . .)

would have seen that this possibility can arise in two situations. First, PNR did not know how many public and special access lines were in an area when it generated clusters for the HAI model. When those lines are included, the total number of lines may be pushed over 1,800. HAI Model Description (at n.32). Second, sometimes a single location such as a business complex that must be contained in a single cluster will have over 1,800 lines. Id. In both cases, the model estimates universal service costs to be higher, not lower, as GTE implies, because additional DLC and fiber optic feeder equipment is installed in any clusters exceeding 1,800 lines, thereby generating greater capital outlays.[4]

GTE (at 13) cites the portion of its comments (Section II.B) addressing the 1,800 line cluster limit for the proposition that the HAI model will generate loop lengths in excess of 18,000 feet. In fact, GTE fails to demonstrate anywhere in its comments that this scenario is possible. Nor could it.[5] The HAI model never produces loop lengths greater in length than 18,000 feet. If a cluster would violate this rule, the model breaks up that cluster in multiple distribution areas. HAI Model Description at 42. Further, GTE apparently knew this claim was inaccurate when it wrote it -- at page 40 of its comments, GTE states that the "serving area size remains optimized

---

(. . . continued)
frequently require homeowners and developers to pay for lengthy drops and other distribution plant in these circumstances

[4] The HAI model limits clusters to 1,800 lines, where possible, to reflect the fact that as the number of lines grows, the economies of scale from serving all lines on a single DLC decreases while the advantages of installing another DLC at a different location to reduce distribution costs increases. These potential cost savings cannot be realized in either of the two degenerate cluster scenarios just described.

[5] In contrast, the BCPM commonly engineers loops longer than its 12,000 feet specification, and some even longer than 18,000 feet. Mercer/Klick Testimony at 20

for maximum copper loop lengths of 18,000 feet[.]" See also GTE at n.72 ("No point in a cluster may be more than 18,000 feet distant . . . from the cluster's centroid.").[6]

Similarly, GTE (at 13) states that the CSA standard must be adhered to in the design of a universal service network. At page 34 of its comments, however, GTE explicitly admits that the current CSA standard is designed to ensure the provision of repeaterless digital data service ("DDS"), a service that goes well beyond the scope of universal service. Moreover, even advanced services outside the scope of universal service can still be provided over a network that does not fulfill the CSA standard in every respect.

Another GTE mischaracterization (at 9) is that HAI clusters may have unrealistically high lines densities. Again, GTE has ignored the HAI Model Description (at 40-41, n. 42) which addresses this issue. In particular, the HAI Model Description states that the lines density of a cluster is given by the lines density of its predominant CBG. If just the area of the cluster is taken into account, the lines density will appear artificially high because significant amounts of empty space between clusters would be excluded from the calculation.

GTE makes other disingenuous claims. For example, according to GTE (at 17), the HAI model does not use the correct wire center lines counts for GTE in Hawaii and Kentucky. The HAI model, however, can incorporate the correct line counts by wire center if GTE makes that information available for inclusion in the model. GTE, having refused to do so, is the source of

[6] GTE (at 40) is correct that when the user reduces the maximum analog total distance parameter in the HAI Distribution Module, the modeled network is not fully optimal. But this limitation results in a cost overstatement. When the user reduces the maximum analog loop length, the HAI Distribution Module must break up some clusters into multiple distribution areas to ensure that the new maximum loop length is not exceeded.

any problem. GTE (at 19) also characterizes the HAI model's ability to let users specify the type of switch at each wire center (remote, host, or stand-alone) as "useless" because the Hawaii, Kentucky, and Minnesota commissions did not use this model feature. Essentially, GTE faults the model for having greater flexibility. GTE also ignores entirely AT&T and MCI's previous comments (August 8, 1997 at 5-9) and reply comments (August 17, 1997 at 7-8) where they demonstrated that no optimization was necessary because the cost of an optimal configuration is already captured by the model. Hawaii, Kentucky, and Minnesota apparently recognized that there was no need to make any adjustments.

Further, GTE simply regurgitates a number of false criticisms that it has previously raised and that AT&T and MCI have rebutted. GTE does not even attempt to respond to these counter arguments. The repeated allegations include:

- GTE claims (at 15) that "John Lynott, a sponsor of AT&T's non-recurring cost model, has stated that the use of T-1 DLCs on copper loops under any circumstances cannot be considered forward-looking in a digital loop environment." GTE at 15. Mr. Lynott said no such thing, and AT&T and MCI refuted this claim in their June 12, 1998 Reply Comments (at 9).

- GTE claims (at 17) that the HAI model has "a spurious switching investment curve" and "disregards acceptable switch engineering guidelines." GTE at 17. AT&T and MCI rebutted this amorphous claim at length in their August 8, 1997 Comments and August 17, 1997 Reply Comments.

- Contrary to GTE's claim (at 19-20), the HAI model uses an efficient plant mix. GTE at 19-20. In fact, the HAI model both uses an efficient default plant mix and allows the user to dynamically adjust the plant mix. See AT&T and MCI September 24, 1997 Comments; AT&T and MCI October 3, 1997 Reply Comments.

- The HAI model does include adequate costs for rights-of-way, huts, and environmental vaults used to house DLC equipment. Compare GTE at 21 with AT&T and MCI October 27, 1997 Reply Comments.

- The HAI model does use sufficiently long default drop lengths. Compare GTE at 21 with AT&T and MCI October 3, 1997 Reply Comments.[7]

- The HAI model uses many inputs based on the opinion of outside plant and engineering experts -- not unverifiable, biased opinions as GTE (at 25) asserts. See AT&T and MCI June 1, 1998 Comments; AT&T and MCI June 12, 1998 Reply Comments.

- The HAI model does not improperly ignore potential customers (see GTE at 28) but rather ensures that if only 95 percent of the households in an area have telephone service, those customers will not pay inflated costs to serve the other 5 percent of the households who do not actually have service. See AT&T and MCI September 2, 1997 Comments; AT&T and MCI September 10, 1997 Reply Comments.

- AT&T and MCI have submitted empirical evidence to show that the HAI model includes a reasonable forward-looking joint and common cost markup. Nevertheless, GTE (at 29) maintains that the HAI model sponsors simple want their number to be "accepted at face value." See HAI Inputs Portfolio at 122; AT&T ex parte filed March 18, 1997.

- The HAI model is open and verifiable as AT&T and MCI have repeatedly demonstrated throughout this proceeding. GTE (at 31) should not be permitted to complain that it has not examined the PNR and other data when GTE did not request that data when it was at PNR. Indeed, it appears that GTE has avoided reviewing as much of the HAI model's supporting documentation as possible. In addition, GTE cannot credibly claim (at 40) that it has been unable to examine the HAI model's cluster engineering algorithms when it has had access to the source code for over six months.

- GTE (at 31-32) incorrectly alleges that the HAI model designers have ignored appropriate engineering standards. See AT&T and MCI October 17, 1997 Comments; AT&T and MCI October 27, 1997 Reply Comments.

- The HAI model uses appropriate structure sharing assumptions for a competitive environment and has supported its assumptions with documentation contrary to GTE's claims (at 38). See AT&T and MCI September 24, 1997 Comments; AT&T and MCI October 3, 1997 Reply Comments.

---

[7] In criticizing the HAI model's drop lengths, GTE (at 21) states that the HAI engineering team conducted an industry survey regarding the necessary distances. As HAI Input Portfolio (at 13) explains, however, the model's drop lengths were based on Bellcore studies, not an industry survey.

GTE (at 37) even goes so far as to conduct an extremely simplistic analysis designed to convey the false impression that each generation of the HAI model has produced lower costs. But GTE's results are based on one of the largest most urban operating companies in the country – GTE California (with over 4 million access lines, serving predominantly Los Angeles) – and thus fail to account for the generally increasing costs that the successive HAI model versions have produced in less dense areas that are the focus of universal service.

Ultimately, GTE barely even attempts to disguise its motives in repeatedly raising challenges to the HAI model regardless of their veracity. On pages 35 and 36 of its comments, GTE states that the HAI model cannot be correct because GTE currently receives implicit subsidies of $32 million and $90 million in Hawaii and Kentucky respectively, while the HAI model would generate only $9.2 million and $36 million in subsidies for those states. In short, GTE intends for the universal service fund to insulate it from requirements to operate efficiently and to ensure its continued supracompetitive profits and embedded cost recovery.

### 2. The HAI Model engineers sufficient distribution plant to serve actual customer locations in rural and urban areas.

GTE (at 6) criticizes the HAI Model because it does not have perfect geocode information for all customer locations.[8] But "56 percent, 66 percent, and 76 percent" (id.) are far better than no accurate customer locations. The BCPM cannot use geocode data and GTE has not made available its own customer location data. If GTE's claim that the HAI model's customer location data and algorithms so vastly understate universal service costs had merit, one would have

[8] GTE (at n.18) claims that the Metromail database originally included only 74.4 million addresses, but this has never been Metromail's contention, only GTE's. Metromail has documented directly that its database contained 98.2 million addresses. AT&T and MCI ex parte filed December 23, 1997.

expected GTE to confirm this with the information already in its possession regarding customer location. The HAI Model is capable of using any documented and verifiable actual customer location information, but GTE has provided none since this proceeding commenced over 18 months ago.

Surprisingly, U S WEST, which sponsors a model that does not incorporate geocode data, levels a similar criticism. In particular, U S WEST states that the HAI model only geocoded 8.5 percent of actual customer locations in three Montana test counties. U S WEST at 6. But U S WEST is guilty of omission, having failed to point out that over 61 percent of customer locations in Montana have precise geocode data in the HAI database, or that U S WEST's preferred Benchmark Cost Proxy Model does not incorporate any actual customer locations.

Finally, Sprint (at 2) claims that it "has discovered a systematic and significant bias in the HAI distribution plant module." In their June 9, 1998 and June 10, 1998 *ex parte* presentation and filing to the Commission, AT&T and MCI demonstrated that Sprint is incorrect. See AT&T and MCI ex parte filed June 10, 1998. Specifically, the Sprint analysis failed to consider several factors that undermine its conclusion.[9] See Mercer/Klick Testimony at 1-20. First, Sprint did not explain that a Minimum Spanning Tree is not the minimum plant distance required to serve a customer cluster. Second, the PNR clusters use surrogate geocode data points that are placed on the boundary of the customer's Census Block thereby increasing the modeled customer dispersion beyond the likely actual customer dispersion. Third to account for drop lengths, actual geocode data points are already offset by 50 feet from their road centerline toward the customer's house.

[9] GTE also conducted the same flawed Minimum Spanning Tree analysis.

Sprint failed to correctly adjust for drop lengths. Fourth, Sprint did not consider that customers are further clustered within a cluster. If Sprint's analysis is corrected for these four errors, it can be shown that the HAI model produces sufficient distribution plant in lower density areas and slightly excess amounts of distribution plant in more densely populated areas.

### 3. The HAI Model conservatively estimates the cost an efficient carrier would incur to provide stand-alone universal service.

GTE and other incumbent LECs also attempt to inflate the universal service subsidies that they will receive and that their competitors will fund by bootstrapping into universal service cost studies and models costs that have nothing to do with universal service or already recovered through an alternative mechanism. In addition, these incumbents attempt to increase universal service cost estimates by merely speculating that competition will increase their cost of capital and shorten asset lives. None of these contentions are correct

**E911 costs.** Although GTE (at 23) is correct that the HAI model does not include the specific investments and operating costs for emergency services, GTE as usual leaves out a number of critical details. First, GTE fails to mention that the HAI model constructs a network capable of supporting emergency services. Second, and more fundamentally, GTE conveniently forgets the special assessments already imposed on customers to cover emergency service costs. Hence, if the HAI model included investments and costs for emergency services, GTE and other incumbent LEC would double recover -- once from the special assessments and again from the universal service fund.

**Unbundled network element costs.** It is no secret that GTE clearly wants the universal service fund to guarantee it recovery of all of its costs. In this regard, GTE (at 22) criticizes the HAI model for not including costs associated with building, testing, and maintaining unbundled

network elements. While AT&T agrees that building, testing, and maintaining unbundled network elements is important to the future of local competition, costs associated with those activities are unrelated to universal service and should not be recovered from the universal service fund.[10]

**ADSL services.** GTE (at 14-15) contends that the cost of ADSL services also should be borne by the universal service fund. As an initial matter, ADSL, designed to make broadband services available over traditional copper loops, is not properly included in the cost of universal service because the capabilities of ADSL far exceed those specified by the Commission for universal service support. This does not mean, however, that subsidies calculated to support a basic telephone network will not subsidize ADSL. Quite the contrary, ADSL largely involves installing additional electronics on existing copper loops. Thus, to the extent that a customer's loop costs are subsidized, ADSL provided over that loop will be subsidized as well. In all events, GTE has ignored AT&T and MCI's *ex parte* filings of January 6, 1998 and February 27, 1998 that demonstrate the feasibility of providing ADSL services using the engineering specifications applied by the HAI model. See AT&T and MCI ex parte filed January 6, 1998; AT&T and MCI ex parte filed February 27, 1998. Indeed, GTE (at n. 37) acknowledges that 18,000 foot loops could carry at least 1.5 megabits per second. Given that this speed is not currently available to *any* customers, even GTE's unreasonably low estimate seems more than satisfactory for universal service purposes.[11]

---

[10] In fact, the HAI model does incorporate such costs in different of its output reports designed to show the costs of unbundled network elements.

[11] GTE also fails to mention that ADSL currently cannot be used in conjunction with loops served off of DLC systems.

**Cost of capital.** Aliant and other incumbent LECs attempt to convince the Commission that the possible onset of competition "is likely to increase systematic risk and thereby raise the cost of capital." Aliant at 7 [12] Aliant proposes to measure its "competitive" cost of capital by looking to airline industry data, which it claims is a valid proxy for telecommunications companies' cost of capital because both industries had previously been regulated and are now deregulated. Aliant at 7. Aliant uses a simple statistical technique to conclude that "there was no statistically significant difference between levels of risk" in the two industries prior to deregulation and then uses an autoregressive, moving average or ARMA model coupled with the Capital Asset Pricing Model to project its cost of capital (12.61 percent). Id. Given the absence of detail Aliant provided on this statistical process, it is difficult to ascertain all of its shortcomings. For example, Aliant did not specify what data were actually being used or describe the application of justification for the ARMA model.

It is nevertheless very clear that Aliant's analysis has many fatal flaws. To begin with, Aliant should have tested to see whether or not the two industries had the same costs of capital *prior* to "deregulation."[13] In addition, if Aliant wanted to use the airline industry's cost of capital

---

[12] Aliant never attempts to explain how an increase in telecommunications competition can increase systematic or market wide risk. If anything, competition would increase idiosyncratic risk. Because idiosyncratic risk can be diversified away, Aliant and other incumbent LECs would not be entitled to a higher cost of capital. Stephen A. Ross, Randolf W. Westerfield, Jeffrey F. Jaffe, Corporate Finance at 317-332 (3rd edition, 1993).

[13] In statistics, an alternative hypothesis is tested against the null hypothesis. In this case, the null hypothesis would be that the airline and telephone industries had different costs of capital prior to deregulation. No one would suspect that such different industries would have the same cost of capital even when they were both regulated, especially considering that, unlike incumbent LEC local telephone monopolies, there was substantial non-price competition among airlines prior to deregulation as well as price competition with surface modes of transport.

as a proxy, its should have been consistent and used the airline industry's more competitive cost structure as well. For example, the overhead factor in the airline industry is only 6 percent (MCI at 35), much lower than the 10.4 percent rate advocated by the HAI model sponsors and the even greater overhead factors the incumbent LECs seek to use. Finally, Aliant should have also determined what cost of capital would have emerged using the Discounted Cash Flow or DCF method. It is well known that data limitations frequently cause CAPM to produce higher cost of capital estimates than DCF, which is why AT&T has advocated averaging the results of the two. In short, Aliant's cost of capital methodology and its results are highly suspect and certainly inadequate to justify the enormous increase in cost of capital Aliant seeks.

**Depreciation.** AT&T demonstrated in its comments on June 1, 1998 and reply comments on June 12, 1998 that universal service cost studies should use the Commission's prescribed asset lives and net salvage values. No party to the universal service proceeding has ever offered more than mere speculation as to why competition might shorten asset lives. See, e.g., U S WEST at 13-14. AT&T, on the other hand, has repeatedly demonstrated that the current process for determining deprecation rates is more reliable than speculation and that there is good reason to believe that asset lives will not shorten and may actually *increase* in some instances. See AT&T and MCI October 17, 1997 Comments at 21, AT&T and MCI October 27, 1997 Reply Comments at 10. Lacking any substantive response, BellSouth (at 3) attempts to sidestep the issue by relying on the Commission's 1994 prescribed asset lives for AT&T. But this comparison is meaningless because the assets used by incumbent LECs are both different in kind and different in use than those employed by AT&T. For example, AT&T's long distance network is an

interoffice network composed almost entirely of digital fiber optic cable.[14] Copper cable, however, remains very cost effective and useful in a local network for subscriber loops. Also, AT&T primarily uses tandem switches, rather than local switches, and the uses of and traffic patterns and relevant capacity constraints on those switches are very different. In short, efficient long distance networks will use different assets and face different competitive and technological constraints than efficient local networks, and, consequently, the depreciation rates appropriate for estimating long distance network costs cannot be borrowed for use in calculating the cost of a universal service network for local services.

### B. The Commission Should Accept The Hawaii, Kentucky, Louisiana, and Minnesota Cost Studies Provided That Those States Can Substantiate The Reasonableness Of Certain Input Value Changes They Made Or, Alternatively, If They Recalculate Their Universal Service Costs Using The Default Input Values.

As AT&T stated in its initial comments (at 5), Hawaii, Kentucky, Louisiana, and Minnesota are to be commended on their decision to use the HAI model in determining universal service costs. AT&T (at 5-12) also illustrated how on some occasions, the states made improper adjustments to the default inputs -- adjustments that contravene forward-looking economic cost estimation. These include: (i) unjustifiably inflated drop lengths (Louisiana, Minnesota); (ii) distribution plant mixes that do not comport with efficient, forward-looking practices (Minnesota); (iii) excessively high joint and common costs that are inconsistent with a universal service carrier operating in a competitive environment (Hawaii and Minnesota); (iv) costs of capital above the incumbent carriers' actual costs of capital (Kentucky, Louisiana, and

[14] Metallic cables previously in AT&T's network for supporting analog transmissions have been almost completely retired.

Minnesota); and (v) inefficient structure sharing levels (Kentucky, Louisiana, and Minnesota). AT&T reiterates the need for these states to either substantiate the reasonableness of these changes or to return those inputs to their default values.

### C. The BCPM Requires Critical Algorithmic And Input Value Modifications Before The Commission Should Accept Any Cost Studies Relying On It.

AT&T (at 12-17) also reiterated in its opening comments several critical shortcomings of the BCPM. Most notably, the BCPM does not use geocode data, making it impossible to model customer locations as accurately as the HAI Model.[15] The BCPM violates the Commission's cost study criteria in other ways as well, by, for example, including embedded cost recovery[16] and using unreasonably low cable fill factors. Moreover, the BCPM relies on complicated, proprietary models and data making it easier for the model's sponsor to disguise the fact that its cost estimation routines are rooted in the incumbent LECs' embedded networks. Not surprisingly, then, states like Indiana and Montana who used the BCPM only did so reluctantly. AT&T Comments at 3.

MCI's comments confirm these shortcomings and also identify many more. For example, the BCPM's distribution algorithms ignore how population is clustered (MCI at 8), designs artificially small serving areas and therefore install too much DLC equipment (id. at 10-13), does not properly model feeder and subfeeder network requirements (id. at 13-15), and, by relying on improper customer location assumptions, does not build the correct amount of distribution plant

---

[15] MCI at 6-7 ("The BCPM does not attempt to determine the physical location of customers in designing its network" and instead "relies upon a series of allocations that distribute all customers in a Census Block ('CB') to a grid network that is arbitrarily overlaid on each CB[.]").

[16] MCI at 20 ("The BCPM switching, transport, and signaling modules are all based on the embedded network configurations.").

needed to serve customers at their actual locations. Id. at 15-18. MCI also demonstrates how the BCPM fails to use forward-looking technology. More specifically, the BCPM sponsors as well as Montana, Nebraska, North Carolina, and South Carolina have never provided any support for the overhead factors they applied, nor have they demonstrated that the inputs they used are actually forward-looking and not simply a reflection of current incumbent practices. Id. at 35.[17] Indeed, by South Carolina's own admission, many of the BCPM inputs used in its study, such as structure sharing, fill factors, cable prices, and many costs are embedded and not forward-looking as the Commission requires. Id. at 26.

Moreover, MCI confirms that the BCPM is not open as the Commission requires. It relies on proprietary models like SCIS or SCM to determine switching costs, models that are "highly complex and extremely sensitive to the ILEC-designated inputs, which are unknown and undocumented." MCI at 22. SCIS, for example, apparently uses at least "50 SCIS/MO setup inputs, 22 setup inputs per technology, and an additional 200 user-specified office parameters for each host office." Id. at 23 (citing Direct Testimony of David Garfield on behalf of BellSouth Telecommunications, Inc., Docket No. 7061-U at 17 (Georgia PSC, April 30, 1997)). None of these inputs have been identified, much less supported with accompanying workpapers and justifications. MCI at 23. The Commission should not countenance the BCPM's "just trust us" approach, especially when the BCPM's switch cost inputs appear to generate significantly higher switch costs than even those generated by U S WEST's switch-specific SCM inputs. See id. at 24.

[17] See also MCI at 31 ("The current mix of aerial, underground and buried plant undoubtedly reflects economic and policy trade-offs that are no longer relevant.").

Finally, in violation of the Commission criteria that "[a]ny network function or element, such as . . . signaling, necessary to produce supported services must have an associated cost" (Universal Service Order ¶ 250), the BCPM does not actually model signaling costs. MCI at 24. Clearly, then, the comments submitted in this proceeding demonstrate that any state universal service cost study relying on the BCPM must be rejected.

## II. THE COMMENTS CONFIRM THAT THE MICHIGAN AND ILLINOIS COST STUDIES VIOLATE THE COMMISSION'S UNIVERSAL SERVICE COST CRITERIA.

In its initial comments (at 17-20), AT&T urged the Commission to reject the universal cost studies submitted by Illinois and Michigan. MCI was the only other party to address those two state cost studies in any detail and it reached the same conclusions as AT&T. First, both studies have significant embedded cost features. MCI at 36; AT&T at 19-20. Unlike both the HAI Model and the BCPM, the cost studies conducted by Ameritech and GTE make no downward adjustment to their embedded network operations expenses. MCI at 34. They also use embedded fill factors, a particularly egregious assumption given the "practice of abandoning plant in place, but continuing to carry it as 'available' as long as even a single pair in the cable is in use." Id. at 33. Ameritech included even more of its embedded costs by incorrectly assuming that an efficient carrier would engage in no sharing of poles and conduit facilities and by calculating its switch costs based on *1991* vendor prices. Id. at 44.

Second, Ameritech's Facilities Analysis Model ("AFAM") does not place the SAI in the optimal, least-cost manner. MCI at 36; AT&T at 19. "Specifically, [AFAM's] default placement [of the SAI on the distribution area boundary] ignores the critically important trade-off between

the relatively lower costs for feeder facilities and higher costs for distribution facilities." MCI at 39. This shortcoming results in substantial cost inflation "for longer loops that tend to be the subject of universal service concerns." Id. at 37. Further undermining the validity of the Illinois and Michigan cost studies, Ameritech's AFAM does not select among aerial, buried, and underground cables according to forward-looking, least cost principles. Id. at 37.

Third, AT&T (at 18) demonstrated that the Illinois and Michigan per line costs cannot both be correct because Ameritech used closing factors in Michigan, but not in Illinois. Michigan acknowledged that Ameritech used these closure factors improperly and therefore generated inaccurate results. See AT&T at 18. Worse still, Ameritech made no attempt to correct per line costs in Illinois. Id. Consequently, as MCI concluded, "the use of these factors only serves to quantify the extent to which Ameritech's cost models inflate the true forward-looking economic cost of loops." MCI at 43.

Fourth, the Illinois and Michigan cost studies rely on Ameritech's shared and common costs factors which were based on a new study conducted by Arthur Andersen. That study contains over 7,000 pages of sub-studies and work papers, and parties to the Michigan and Illinois universal service proceedings have not had adequate time to examine this study. MCI at 47. Given that Arthur Andersen's last study was found by Michigan to be seriously flawed (see Case No. U-11280, "Order," at 18-19 (July 14, 1997); MCI at 48), this new voluminous study cannot form the basis for a reliable shared and common cost allocation factor.

Fifth, as AT&T discussed (at 19), the GTE study was no better. Most importantly, GTE never made its COSTMOD study available for examination and verification of its results. Hence, while it is clear that the COSTMOD was not designed to deaverage costs at the wire center level,

other ways in which COSTMOD may have violated the Commission's cost study criteria are very difficult to identify.

In order to prevent GTE and Ameritech from receiving unquestionably excessive universal service subsidies in Illinois and Michigan to the detriment of their would-be competitors or more needy telephone companies, the Commission must reject the cost studies submitted by those states.

## III. THE COMMENTS REVEAL VIRTUAL UNANIMOUS AGREEMENT THAT THE COMMISSION SHOULD REJECT THE SERIOUSLY FLAWED PUERTO RICO COST STUDY.

The criticisms of the Puerto Rico cost study are so universal and convincing that AT&T will only briefly recap them here. Except for PRTC, every party addressing the Puerto Rico cost study condemned it. Indeed, even Sprint (at 4), a sponsor of the BCPM model used by Puerto Rico, "[found] it necessary to question the inputs utilized in the performance" of Puerto Rico's cost study. By arbitrarily modifying the BCPM input values, Puerto Rico produced an expenses per line cost of $26.68 -- more than twice as higher as the BCPM default value. Sprint at 4. And even if such an astronomically high cost estimate was not facially suspect, the Commission would have to reject the cost study because the closed process by which the cost study was developed was procedurally unsound, lacked the requisite detail, and apparently violated both federal and Puerto Rican telecommunications laws. See Association of Competitive Telecommunication Providers ("APCT") at 3; Celpage, Inc. ("Celpage") at ii; AT&T at n.14.

The Puerto Rico cost study also plainly violates the many of the Commission's criteria. APCT at 5. In particular, Puerto Rico "has used embedded rather than forward-looking

expenses." APCT (Decl. of A. Daniel Kelley) at 1; see also Celpage at ii; Cellular Communications of Puerto Rico, Inc. ("CCPR") at 2. For example, Puerto Rico replaced the BCPM's default expense inputs with values very close to PRTC's embedded cost levels, and several expense inputs used were actually *higher* than PRTC's embedded expenses. Id. at 3. Puerto Rico also "inappropriately and unreasonably relied on information that embodies PRTC's past operational inefficiencies, not the 'forward-looking economic cost' required by the Commission's Universal Service orders." Centennial at 2. And, as Centennial (at 3-4) notes, the reduction in the percentage of local calls to 54% from the BCPM's default value of 81% reflects the PRTC's billing practice of charging its customers for many "toll" calls which are in fact local calls from a cost perspective. That PRTC's embedded costs exceed forward-looking costs is not surprising given that it is a government owned monopoly. APCT (Decl. of A. Daniel Kelley) at 5. Hence, PRTC has only 163 lines per employee whereas the average U.S. telephone company has 445 lines per employee. Id.

The problems do not stop there. PRTC has repeatedly claimed that unique conditions in Puerto Rico will create higher universal service costs. As the comments reveal, nothing could be further from the truth. "[I]f anything, the unique characteristics of the [Puerto Rico,]" which Puerto Rico never defines, "should lead to lower costs." CCPR at 3. See APCT (Decl. of A. Daniel Kelley) at 6. To begin with, "PRTC's costs of providing universal service should be relatively low, since Puerto Rico is so densely populated." Celpage at 7. The fact that PRTC is a government owned monopoly that is not financed by equity also generates savings in the form of a reduced cost of capital (the government pays its development bondholders only 5.12%, not close to the 11.25% used in the cost study) and the absence of income taxes. APCT (Decl. of A. Daniel

Kelley) at 8-9. Further, in light of Puerto Rico's substantially lower wages, operating expenses should be lower as well. Celpage at 8.

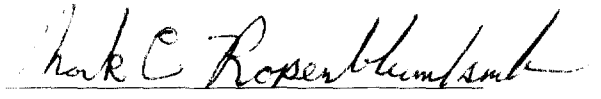
Finally, if the Commission were to accept Puerto Rico's universal service cost study, competition would be dealt a serious blow. Alternative service providers would have to impose a 20% cost increase in telecommunications services just to recover their USF contributions. APCT at 3. Hence CCPR concluded that unless the Puerto Rico study is rejected, consumers will suffer and "an insurmountable barrier to competition" will be created." CCPR at 1.

## CONCLUSION

For the foregoing reasons, the Commission should: (i) direct Hawaii, Kentucky, Louisiana, and Minnesota to revise the inputs they used in the HAI Model if they desire their model to be accepted by the Commission, consistent with the foregoing, and (ii) direct Illinois, Indiana, Michigan, Montana, Nebraska, North Carolina, Puerto Rico, and South Carolina to perform new cost studies that comport with the Commission's universal service cost study criteria if they desire their model to be accepted by the Commission or, in the alternative, use the model chosen by the FCC.

Respectfully submitted,

AT&T CORP.



Mark C. Rosenblum
Peter H. Jacoby
Room 3245H1
295 North Maple Avenue
Basking Ridge, New Jersey 07920
(908) 221-4243

David L. Lawson
Scott M. Bohannon
1722 Eye Street N.W.
Washington, D.C. 20006
(202) 736-8034

Attorneys for AT&T Corp.

July 9, 1998