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

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| In the Matter of<br>Implementation of the Cable Act Reform Provisions of the Telecommunications Act of 1996 | )<br>)<br>)<br>)<br>)<br>) | CS Docket No. 96-85 |

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**ERRATA**

The "Petition for Clarification and Reconsideration" of National Association of Telecommunications Officers and Advisors; National Association of Counties; United States Conference of Mayors and Montgomery County, Maryland contained minor non-substantive typographical and textual errors. Accordingly, counsel requests that attached, complete and corrected copy of the Petition, be substituted for the August 2, 1999 filing.

Respectfully submitted,

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**ERRATA**
**PETITION FOR CLARIFICATION AND RECONSIDERATION**

**NATIONAL ASSOCIATION OF TELECOMMUNICATIONS OFFICERS AND ADVISORS; NATIONAL ASSOCIATION OF COUNTIES; UNITED STATES CONFERENCE OF MAYORS AND MONTGOMERY COUNTY, MARYLAND**


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## SUMMARY

The Commission should clarify its interpretation of § 624(e) of the Cable Act. Congress intended only a limited preemption of local franchise authority when it added "No State or franchising authority may prohibit, condition, or restrict a cable system's use of the type of subscriber equipment or any transmission technology" to Section 624. The Commission should conform its ruling to Congressional intent and take the least intrusive preemption of local government authority possible. Otherwise, the Commission will cause conflict with other sections of the Cable Act and frustrate important public benefits currently received through specific facilities and equipment negotiated with cable operators through the formal Cable Act Renewal process as well as informally renewed franchises.

Local governments must be able to establish and enforce specific design and operational requirements for facilities and equipment in order to be able to establish franchise requirements that are fair and reasonable. For example, it is hard to decide whether a franchisee requires a 10 year franchise or a shorter franchise without having some sense of what investment the franchisee will make in its system. A community may be willing to reduce Public, Educational, and Governmental ("PEG") obligations that would otherwise apply if an operator is in fact planning to fully rebuild its system using modern technologies but may be unwilling to strike that balance if it is unclear what the operator will actually do. Indeed, without an enforceable commitment, the community will be unable to decide whether a balance is even required. Likewise, it is difficult to decide whether a franchisee's renewal proposal meets cable-related needs and interests unless the franchisee can be required to do that which it promises to do. While a community could no doubt phrase franchise requirements vaguely (the system must be able to provide additional channels without substantial additional construction; the system must

be highly reliable compared to other modern cable systems), the problem for both the franchisee and the community is that this leaves it unclear what *exactly* must be done to satisfy these standards. The Commission should take a narrow view of the 624(e) language, limiting its effect to signal cable system scrambling requirements and the use of specific set-top box designs, while encouraging local governments to negotiate cable franchises that will accelerate the deployment of advanced cable system technology such as fiber optics and broadband digital transmission.

The Commission should clarify that existing franchising agreements are grandfathered and not affected by the Commission's ruling. And, to the extent that the Commission reads the Section to have any preemptive effect, the Commission's *Order*[1] should apply only to requirements imposed unilaterally by regulatory ordinance, and not to items voluntarily agreed to by an operator, or contained in a renewal proposal submitted by an operator in connection with the renewal process set out in Section 626. This is consistent with the structure of the Cable Act, minimizes the conflict between Cable Act sections created by the Commission's earlier decision, and allows cable operators and communities to resolve franchising issues in a sensible way.

The Commission should also use this opportunity to clarify a number of terms related to the sunset of federal regulation of the CPS tier of service.

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[1] Report and Order, *In the Matter of Implementation of Cable Act Reform Provisions of the Telecommunications Act of 1996*, CS Docket No. 96-85, released March 29, 1999 ¶ 189 (hereafter ("*Order*")).

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## INTRODUCTION

The National Association of Telecommunications Officers and Advisors; National Association of Counties; United States Conference of Mayors and Montgomery County, Maryland, by their attorneys, respectfully request that the Commission clarify and reconsider the *Report and Order* ("*Order*"), in the above-captioned matter, released on March 29, 1999. The Commission's interpretation of the term "transmission technology" does not conform with Congressional intent and will hinder the development of advanced telecommunications networks.

### BACKGROUND

The 1984 Cable Act carefully balances the federal and local responsibility in overseeing the behavior of cable operators. The Cable Act left primary authority for regulating and franchising

cable systems with local governments. While Congress established certain "national standards" that help govern the franchising process, Congress also made it clear that localities retained the authority to regulate cable so long as the regulation was not inconsistent with the Cable Act. To put it another way, the Cable Act confirmed local authority over cable, subject to certain limited, federal requirements.

In 1996 Congress amended Section 624 to add language that states that a state or local government may not "prohibit, condition, or restrict a cable system's use of any type of subscriber equipment or any transmission technology." At the same time, however, Congress adopted Section 601(c), which made it quite clear that the 1996 Act was *not* intended to have broad preemptive effect. The new law, in other words, was to be construed specifically, and narrowly, to preserve local and state authority.

In its original order, the FCC has, in some respects, recognized this point. Nonetheless, it has interpreted the "transmission technology" provision in a way that is at best vague, and that fails to recognize some of the obvious legal and practical problems created by this interpretation. One of the central goals of the Cable Act was to ensure that cable operators be required to provide the services, facilities and equipment required to meet the cable-related needs and interests of the community.[2] The needs and interests of local subscribers include such things as state-of-the-art access to local governmental proceedings, educational classes and educational services. The Act incorporates provisions which permit Local Franchising Authorities ("LFAs") to require such things as public, educational and governmental access channels, equipment and capital support, as

[2] Congress was concerned that cable operators remain responsive to local needs and interests, as the renewal provisions of the Cable Act make clear. *See* 47 U.S.C. § 546.

well as the provision of institutional networks ("I-Net").[3] In addition, the Act makes fully enforceable any proposal, and all of the included terms by a cable operator submitted in the formal renewal process.[4]

It is axiomatic that whether those needs and interests *can* be met is dependent upon the system hardware and facilities used.[5] Therefore, the first step in ensuring that the cable-related needs and interests of a community are met is to ensure that the cable system is capable of meeting those needs and interests, and if not, to define what changes are required to satisfy the cable-related needs and interests of the community.[6] Traditionally, it has been the Local Franchising Authorities, that negotiate and enforce the franchise requirements that specify how, what and when the cable operators construct, maintain and upgrade cable systems in a manner which will provide quality service and meet local needs and interests.

The normal franchise contract that is negotiated between the LFA and cable operator contains minimal equipment capabilities and equipment loading or build-out density requirements.

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[3] Section 611 of the Act permits an LFA to require that channel capacity be designated for public, educational, or governmental use, and channel capacity on institutional networks be designated for educational or governmental use and may enforce any franchise requirement regarding the providing or use of such channel capacity. 47 U.S.C. § 531. *See also* 47 U.S.C. §396(a)(Congressional declaration of policy regarding Public Broadcasting Corporation).

[4] 47 U.S.C. § 546(b)(2) allows the LFA to "require" this "upgrade of the cable system. 47 U.S.C. § 546(c)(1)(D) permits denial of the renewal proposal if it is not "reasonable to meet the future cable-related community needs and interests..."

[5] "Along with the quality of maintenance, the design of the cable system is one of the two most important factors in the signal quality and reliability of a subscriber's cable service." *See* Declaration of Andrew Afflerbach ("Afflerbach Declaration") attached as Exhibit A at ¶9.

[6] In order to provide local subscribers with quality cable service different local communities will have different or unique ground water, ambient temperature, and population distribution characteristics that require each local cable system to have a unique design and different equipment to both minimize cost to the operator and preserve maximum signal quality and reliability to the consumer. The local franchising authority ("LFA") is in the best position to determine whether the design and equipment and facilities proposed by the operator will in fact address local circumstances.

Attached is the Montgomery County, Maryland franchise which was renewed in 1998.[7] This was a freely negotiated franchise and reflects the efforts of the operator and the LFA to reduce the operator's obligations to specific, predictable and enforceable terms. Both sides decided that equipment requirements such as fiber optic facilities with nodes serving a maximum number of homes was key to investor and regulator certainty. It is possible, of course, that a system could be built without using fiber optics that was just as reliable; just as able to respond to customer needs; and just as capable of expansion without substantial additional right-of-way construction. But, without knowing WHAT was being built, the County could not set a reasonable construction schedule; and without having a standard for acceptance, the operator could not know whether its planned system design would actually satisfy needs and interests, to the County's satisfaction.

This example illustrates the norm in cable operator/LFA franchise documents. In order to ensure that a cable operator's system is constructed and upgraded in a manner that is

[7] In Montgomery County, Maryland, Prime Communications agreed to build a 750 Mhz hybrid fiber-coaxial (HFC) system, with up to 1500 subscribers per node. The operator will initially provide up to 82 analog channels, with 200 Mhz reserved for digital uses. The system will be designed to allow the operator to increase or decrease the amount of capacity devoted to digital uses, as subscriber demand may dictate. *See* Exhibit B; another such example is Fairfax County, Virginia where Media General has agreed to provide an HFC system serving an average of no more than 2000 subscribers per node, with no more than ten amplifiers in a cascade. *See* Exhibit C; *see also*, Afflerbach Declaration at ¶¶ 9, 12, 13.

predictable, reliable and enforceable, an LFA generally will ask for equipment and facility specifications for the system, as well as equipment density and bandwidth availability on a per-subscriber basis. This system of negotiation also works well for the operator. It avoids the risks of administrative discretion as the LFA complains about the operator's failure to meet performance design that are difficult to measure, both in absolute and temporal terms. The current contracts avoid unnecessary regulatory uncertainty for both sides.[8]

The negotiation process allows LFAs and cable operators the opportunity to negotiate the minimum equipment and facility requirements for the proposed cable system and specific terms for upgrades to an existing cable system in a way that will not only meet the basic needs and interests of cable subscribers in general but will address the unique needs and interests of the particular local community. By exercising their authority over system design issues the LFA ensures that its community is served by a cable system that meets its unique local needs and interests and at the same time promotes the growth of advanced, high capacity networks.

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[8] This issue is quite different than the signal quality and transmission standards that the Commission has promulgated with the cooperation of the LFAs. For signal quality standards, the Commission relies on LFAs to monitor and enforce its rules governing cable systems signal transmission standards. 47 C.F.R. Part 76. The LFAs have not objected to this system. All sides recognize the Commission simply lacks the resources to monitor and enforce its signal transmission standards itself. However, in the current case, the cable industry's broad interpretation of "transmission technology" would gut current and future franchise negotiations and would hamstring the application of the Commission's own technical standards as a practical matter. *See* Report and Order *In the Matter of Implementation of Cable Act Reform Provision of the Telecommunications Act of 1996* , CS Docket No. 96-85, released March 29, 1999 ¶ 131. *See also* 7 FCC Rcd 2021 at ¶ 12 (1992); *see also* Afflerbach Declaration at ¶¶ 5-9. The Commission must also recognize that its technical standards are really only designed to measure the quality of the signal being delivered at a particular point in time (the FCC allows an operator to correct errors found, and makes no effort to determine whether signals are being disrupted on a regular basis). The Commission's technical standards do not address, and were not intended to address various matters such a s system reliability and functionality; such matters have been most effectively enforced through system design requirements.

## REGULATORY BACKGROUND

Pursuant to Section 624(e) of the Communications Act, the Commission adopted technical standards in 1992 that govern the picture quality performance of cable television systems.[9] Prior to enactment of the 1996 Act, Section 624(e) permitted an LFA to require as part of a franchise (including a modification, renewal, or transfer thereof) provisions for the enforcement of the standards prescribed by the Commission and permitted the LFA to apply to the Commission for a waiver to impose standards that are *more stringent* than the standards prescribed by the Commission.[10]

Section 301(e) of the 1996 Act amended Section 624(e) by replacing this language with the following language :

> No State or franchising authority may prohibit, condition, or restrict a cable system's use of any type of subscriber equipment or any transmission technology.[11]

The Commission's rules dictate specific technical standards and formerly provided for enforcement by LFAs[12] and that, in some instances, an operator could negotiate with its LFA for standards less stringent than otherwise prescribed by the Commission's rules.[13] In its *Notice*,[14], the Commission seeking comment on the overall scope and meaning of Section 624(e) of the Communications Act, as amended by Section 301(e) of the 1996 Act, inquired as to the effect of this provision on the existing rules as well as on the cable franchising, renewal and transfer processes.

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[9] *See* 47 C.F.R., Part 76, Subpart K.

[10] 1992 Cable Act § 16(a), 106 Stat. 1490.

[11] 1996 Act, § 301(e), 110 Stat. 116; 47 U.S.C. § 544(e).

[12] 47 C.F.R. § 76.601-76.630.

[13] 47 C.F.R. § 76.605 (Notes 1 and 2).

In an *Interim Order* implementing these amendments to Section 624(e), the Commission eliminated language in the rules that permitted an LFA to apply to the Commission for a waiver to impose more stringent cable technical standards than the standards prescribed by the Commission and replaced it with the new language from Section 301(e) of the 1996 Act.[15]

In March of 1999 the Commission issued its *Order* in this proceeding, adopting final rules regulating cable television service and cable system operators pursuant to Sections 301 and 302 of the 1996 Act, including rules related to Section 624(e).

## I. THE COMMISSION SHOULD CLARIFY THAT THE REFERENCE TO "CABLE TRANSMISSION TECHNOLOGY" IN SECTION 624(e) REFERS ONLY TO SIGNAL TRANSMISSION FORMATS AND SET-TOP BOXES.

In the 1996 Act, Congress amended § 624(e) of the Cable Act to read "No State or franchising authority may prohibit, condition, or restrict a cable system's use of the type of subscriber equipment or any transmission technology."[16] The Commission, in its *Order* [17] has misconstrued the term "transmission technology" to include all of the facilities and equipment

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[14] Notice, 11 FCC Rcd at 5962.

[15] Note 6 to Section 47 C.F.R. 76.605 now reads: "No State or franchising authority may prohibit, condition, or restrict a cable system's use of any type of subscriber equipment or any transmission technology."). In the *Interim Order*, 11 FCC Rcd at 5941, the Commission eliminated language in the Commission's rules that permitted an LFA to apply to the Commission for a waiver to impose more stringent cable technical standards than the standards prescribed by the Commission and replaced it with the new language from Section 301(e) of the 1996 Act . Note 6 to Section 47 C.F.R. 76.605

[16] Section 301(e) of the 1996 Act. The provision also deleted the following language from the Cable Act:

> A franchising authority may require as part of a franchise (including a modification, renewal, or transfer thereof) provisions for the enforcement of the standards prescribed under the is subsection. A franchising authority may apply to the Commission for a waiver to impose standards that are more stringent than the standards prescribed by the Commission under this subsection.

[17] Report and Order, *In the Matter of Implementation of Cable Act Reform Provisions* of the Telecommunications Act of 1996 , CS Docket No. 96-85, released March 29, 1999 ¶ 189.

used to create a cable system as well as the specific modulation or communications format of the signal transmission. This sweeping preemption of local regulatory authority has no basis in Congressional intent or sound policy.

Such a reading goes far beyond the actual language of the statute. It is clear from the existing statutory framework and events occurring in the cable industry at the time that Congress amended Section 624 that Congress was concerned about a specific, and very limited problem: signal scrambling. Congress did not intend the term "transmission technology" to be broadly construed. Since there is no evidence that Congress intended the far-reaching interpretation of § 624(e) adopted by the Commission, the Commission is bound by court precedent to adopt the most narrow interpretation possible, consistent with giving the language utility and meaning.[18]

Further, the most reasonable interpretation of the amendment to § 624(e) is that Congress intended to prevent local franchising authorities from adopting their own standards regarding subscriber premises equipment such as converter boxes used to descramble cable signals. Therefore, the Commission should exercise its discretion, follow court precedent on preemption and reconsider the definition of transmission technology set forth in its *Order*.

### A. Congress Enacted Section 624(e) in Response to Signal Scrambling Problems.

The amendment of Section 624(e) was a response to the controversy over Time Warner's plans to force subscribers to lease more expensive converters simply to continue receiving CPS tier programming.[19] When read in context, it becomes evident that the amendment to § 624(e) was inserted to deal with this specific problem regarding converter boxes and scrambling.

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[18] *Cipollone v. Liggett Group, Inc.*, 505 U.S. 504 (1992).

[19] *See, e.g System Notes*, Multichannel News, Feb. 13,1995, at 30. *Time Warner Retreats on Set-Top Requirements for Subscribers*, Multichannel News, March 27, 1995 at 2. *Cf.* Committee on Science, Technology and Energy of the New Hampshire House of Representatives. *Memorandum Opinion and Order*, DA 96-260, (Feb. 29, 1996) (interpreting § 624).

Congress wanted to give the operator freedom to select what, if any signals it would scramble and the technology it would use for scrambling and descrambling. That is why the language was inserted as substitute for the preexisting signal standards language. The amendment left untouched franchising authorities' broad authority over cable system facilities and equipment. The Commission's broad construction of the term "transmission technology" includes much more than signal formats and particular subscriber premises equipment. There is no evidence that Congress intended the far-reaching interpretation of § 624(e) adopted by the Commission. Since, nothing in the statute or the legislative history suggests any foundation for any broader interpretation the revised provision should be read narrowly[20]

### B. The Commission's Construction of "Transmission Technology" Conflicts with Other Sections of the Statute.

The Commission's *Order* states that the 1996 amendments to Section 624(e) of the Cable Act were intended to prohibit local governments from prohibiting or restricting the use of "<u>any</u> transmission technology."[emphasis added.] The *Order* states that the term "transmission technology" has been used to include both the transmission medium (*i.e.*, microwave, satellite, coaxial cable, twisted pair copper telephone line, and fiber optic systems) and the specific modulation or communications format (i.e., analog or digital).[21] This definition, however,

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[20] *Rice v. Santa Fe Elevator Corp.,* 331 U.S. 218, 230 (1947) (consideration of issues arising under the Supremacy Clause "start[s] with the assumption that the historic police powers of the States [are] not to be superseded by . . . Federal Act unless that [is] the clear and manifest purpose of Congress. *"), see also, Malone v. White Motor Corp.,* 435 U.S. 497, 504 (1978) (quoting *Retail Clerks v. Schermerhorn*, 375 U.S. 96, 103 (1963)) ("'[t]he purpose of Congress is the ultimate touchstone'" of preemption analysis'").

[21] The Commission prohibits LFAs from specifying transmission technology, but fails to mention the effect that this prohibition will have on small LFAs. The Commission's construction of "transmission technology" could have a extremely deep impact on small (and other) communities. Not only does this failure violates the IRFA it ignores the fact that such a construction of "transmission technology" will have a disproportionately large impact on small communities, because these communities are often the least likely to have the resources and

ignores the existing statutory framework in which the Section appears and makes the remaining language that explicitly authorizes LFA enforcement of any "facilities and equipment" requirements in a franchise a nullity in certain critical respects. Section 624(e) must be construed in a manner that preserves all of the language in the section. This is only possible if the term "transmission technology" is read as subordinate to the "signal quality" language, and as not applying to the general cable system design, including equipment and facility requirements.

Section 624(b)(1)[22] explicitly provides local communities' with authority to require cable system facilities and equipment requirements in a request for renewal proposals. Even more importantly, Section 624(b)(2) permits an LFA to enforce "any" facilities and equipment requirement contained in a franchise agreement. Congress did not amend, much less repeal, these sections when it amended § 624(e); there is no indication that its amendment of § 624(e) was not intended to interfere in with the rights conferred in these sections.

The requirements of Sections 624(b)(1) and 626(b)(2) are an integral part of the franchise granting and renewal process.[23] Moreover, it is hard to imagine how that process could proceed to conclusion if an operator cannot be required to describe the system that it plans to build, and then to build the specific system it promises to construct. Under Section 626, an operator is required to submit a proposal for a cable system that reasonably satisfies the cable-related needs

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specialized advice that may be required, in light of the Commission's construction, to get the needs and interests of their local community met. In fact, the Commission's claim that these kind of negotiations require no "specialized skills" (Report and Order at 182) from LFAs is erroneous, this new prohibition will most likely impose upon small LFAs burdens in both time and cost.

[22] Section 624(b)(1) permits LFAs to establish, to the extent that they are related to the establishment or operation of a cable system, requirements for facilities and equipment in its request for proposals for a franchise and for renewal proposals. 47 U.S.C. § 544(b)(1).

and interests of the community. Because the manner in which the system is designed clearly affects its function, it is impossible to assess a proposal without knowing what system is proposed, in some detail. Suppose, for example, a reliable system is required to meet cable-related needs and interests. How can one decide whether the system will be reliable unless one knows whether it will include, *e.g.*, back-up power? Reliability is a function in part of active components; so without knowing whether the system uses fiber, or coaxial cable, or string, it is hard to assess whether the system proposed will actually be reliable. Likewise, assuming an operator proposes to build a system with a particular design, the community must evaluate that design – and if an operator could build something completely different than what was proposed, the renewal evaluation would become meaningless.[24]

It is a settled canon of statutory interpretation that language must be interpreted so as not to conflict with other sections of the same statute.[25] The Commission's construction of the term "transmission technology" and its reading of Section 624(e) clearly conflict with §§ 624(b)(1) and 626(b)(2). Therefore, the Commission should reconsider this broad construction of transmission and restrict narrow its construction of the term to permit a reading in a manner which would not prohibit the exercise of an LFAs authority under Sections 624(b)(1) and Section 626(b)(2) to facilities and equipment requirements. Congress must be taken at its word and Section 624(e) must be read only to refer to franchising authority regulation of subscriber equipment and related, specific transmission techniques such as scrambling.

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[23] 47 U.S.C. § 546(b)(2).

[24] *See* NYPS Comments at 23 (Section 626's reference to 624 does not limit the "fundamental authority to require channel capacity for the distribution of video programming").

[25] *See Consolidated Rail Corp. v. United States*, 896 F.2d 574, 579 (D.C. Cir. 1990) ("effect must be given, if possible to every word clause and sentence of a statute"); *see also*, *Natural*

In addition, Section 626 (Renewal) provides specific guidance to both cable operators and LFAs on the process for offer, review and acceptance of specific cable operator proposals to address future community needs and interests. Section 626(b)(2) states the LFA "may require" .... "material ... including proposals for an upgrade of the cable system." And the proposal may be rejected by the LFA if it concludes the operator will not "provide the services, facilities, and equipment as set forth in the operator's proposal..." [emphasis added] The Commission should not make the statutory language irrelevant.

### C. The Nation Is Well-Served By Local Government Negotiations That Specify Whether A Cable System's Use of Fiber Optics And Digital Capability For Advanced Cable Systems.

The Nation, as well as local communities, is well served by the system that allows LFAs to negotiate with cable operators over the specific, most -cost effective design of a system that can bring advanced cable services to communities. These negotiations usually focus on when and where a cable system uses fiber versus coaxial cable or builds equipment that is capable of high capacity, broadband digital signals best effectuates the public policy of Congress and the Commission. LFAs advance the goals of Congress in the 1996 Federal Telecommunications Act to promote the deployment of advanced networks through its negotiation of franchise agreements that require construction of advanced, high speed, high capacity networks throughout communities.[26] LFAs should be encouraged, not preempted, from requiring better, more modern

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*Resources Defense Council v. U.S.*, 822 F.2d 104, 113 (D.C. Cir. 1987) (It is "illegitimate for the judiciary [or agencies].. to tear asunder a specific provision which Congress saw fit to enact.").

[26] *See,* Subsection 706(a) of the 1996 Act requires the Commission to "encourage the deployment on a reasonable and timely basis of advanced telecommunications capability to all Americans (including, in particular, elementary and secondary schools and classrooms) by utilizing, in a manner consistent with the public interest, convenience and necessity, price cap regulation, regulatory forbearance, measures that promote competition in the local telecommunications market, or other regulating methods that remove barriers to infrastructure investment." 1996 Act § 706(a), 110 Stat. 153.

networks. This is particularly important when you consider that "[s]ignal quality "performance standards are lax and below the quality of consumer television, videocassette recorder, digital satellite, and DVD equipment."[27] In fact, it is LFAs, through such negotiated franchise requirements, that have been instrumental in promoting system upgrades and improvements throughout the history of cable.[28]

If local governments are denied the power to negotiate detailed cable system specifications it is difficult to see how system upgrades will occur in a timely fashion in many communities, if at all.[29] Inconsistent customer service and signal reliability will again become the norm, particularly in those areas where the companies do not see any short-term revenue enhancement from upgrading to fiber optic or other advanced network designs. This risk is greatest in the urban core and in rural communities, the very entities the FCC is most concerned about in the "digital divide". Prohibiting LFAs from such negotiations diminishes the likelihood that equality of service in rural areas and center city residential areas can be achieved. Similarly, there will be a likelihood of less capable platforms upon which institutional networks can be overlaid.

One context in which an LFAs ability to negotiate design specifications of a system such as fiber optic and digital capability is particularly important is in negotiations for the provision of community I-Nets.[30] Many local communities are faced with increasing demand for services, for

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[27] Afflerbach Declaration at ¶ 5.

[28] *See, e.g.*, Indianapolis Comments at 4 ("It is in actuality, the LFAs who are the impetus for the deployment of new technology, subscriber happiness and competition").

[29] *See* Declaration of Andrew Afflerbach at ¶ 12.

[30] For example, an I-Net that is constructed without fiber optics or with a hybrid fiber-coaxial design is inherently less reliable and more limited than a fully fiber-optic I-Net. Many non-fiber optic I-Nets provide poor signal quality and unacceptable reliability. Only an I-Net constructed with fiber optics can provide the reliability of leased telecommunications services.

these local communities appropriately designed I-Nets could potentially provide a solution by providing for scalable, high-quality data, video, and voice services.[31] Such design decisions as the fiber optics and digital capability will impact the usefulness of these systems to the community. It is important that an LFA must have the ability to negotiate such things for instance, when a cable operator rebuilds its subscriber network with a fiber optic backbone since it creates the opportunity for installation of additional fiber optics for I-Net services.[32] Furthermore, since every community has different internal networking requirements the franchising authority, the government, and the schools must be able to determine their specific needs. If the LFA cannot negotiate for these provisions, the operator may build an I-Net that is not useful to the community, wasting the subscribers' money, instead of saving money and benefiting the community.[33]

It is not a satisfactory answer to look to quality of service standards for relief. Neither the FCC nor LFAs have the full-time capability of monitoring the signal quality and reliability at every point on every cable system. We learn about problems after the fact. Our knowledge is largely determined by customer complaints—too late to take the actual engineering measurements to prove a violation of standards. In other words, a world that depends solely on signal quality standards to create incentives in the cable operators to upgrade their networks won't work.

While the cable industry believes only it should decide when to invest capital to improve a system in a particular community, neither the Commission nor the LFA can accept this interpretation of the Cable Act. As long as the cable operator is not experiencing truly

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[31] *See,* Afflerbach Declaration at ¶ 14.

[32] Afflerbach Declaration at ¶13.

[33] Afflerbach Declaration at ¶ 17.

meaningful competition in a particular market, the operator will maximize its profits, but may not have the economic incentive to provide high quality service to all subscribers. The Commission and the LFA both need to have in place the contractual, regulatory, and enforcement tools necessary to ensure the operator does what was promised and what the community deserves and needs. The most efficient and least costly way to ensure that service quality is acceptable and that problems do not arise in the first place it to permit LFAs to continue negotiating system requirements that ensure state-of-the art equipment and facilities are built.

## II. THE COMMISSION SHOULD CLARIFY THAT EXISTING FRANCHISING AGREEMENTS ARE NOT PREEMPTED.

It has been three years since Section 624(e) was signed into law. LFAs and cable operators have negotiated and entered into franchise agreements based upon market necessities and common, reasonable interpretation of the statute. In addition many, if not all, major franchises renewed since the adoption of the Act have included provisions for specific equipment and facilities to be provided as upgrades. In its *Order* the Commission, noting that they have received no formal complaints from any party claiming Section 624(e) has been violated" stated that "[g]iven these settled contractual arrangements, nothing in this *Order* is intended automatically to preempt or affect the enforceability of existing franchise agreements. [34] The Commission should make it clear that existing franchise agreement provisions which may be held to be impermissible under the Commission's *Order* are not preempted.

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[34] *See, e.g., Pan American Life insurance Co. v. Blue Cross and Blue Shield*, 127 F.3d 1099 (4th Cir. 1997) (unpublished disposition, per curium) (finding that voluntary agreement was enforceable, even if agreement was based on parties' mistaken belief that ERISA did not preempt state statute); *E. Norman Peterson Marital Trust v. Commissioner of Internal Revenue*, 78 F.3d 795 (2d Cir. 1996).

It would be patently unfair for those provisions of the franchise agreements negotiated by the parties and relied upon by the parties, some for as long as three years, to be struck from existing franchise agreements while the remainder of the agreement is enforced-- to do so would almost assuredly result in a "piecemeal abrogation of existing franchise agreements."[35] Furthermore, while these provisions, which the parties believed were permissible, might be an impermissible regulation of transmission technology under the Commission's *Order*, simply striking them "without the opportunity for renegotiation, would violate the framework that Congress established in Section 624 because "it would deprive local communities of their legitimate rights to regulate facilities and equipment under Section 624(b). It would find that because they inadvertently stepped over the line that divides Section 624(b) and Section 624(e), that they have lost *all* of their rights under Section 624(b) for the length of the franchise term. Local communities should not pay such a high price for the Commission's indefensible delay." [36]

Denying the ability of local governments to negotiate, include, and enforce such provisions in existing agreements will also upset and unbalance arms-length agreements and will cause significant and expensive litigation to the detriment of the franchise authorities, the cable companies, and ultimately, the subscribers.

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[35] *See* Report and Order, *In the Matter of Implementation of Cable Act Reform Provision of the Telecommunications Act of 1996*, CS Docket No. 96-85, statement of Commissioner Tristani, released March 29, 1999.

[36] *See* Report and Order, *In the Matter of Implementation of Cable Act Reform Provision of the Telecommunications Act of 1996*, CS Docket No. 96-85, statement of Commissioner Tristani, released March 29, 1999.

## III. THE COMMISSION SHOULD CLARIFY THAT THE ORDER APPLIES ONLY TO REQUIREMENTS IMPOSED BY ORDINANCE AND NOT TO THE FORMAL RENEWAL PROCESS OR ITEMS VOLUNTARILY AGREED TO BY AN OPERATOR.

While the Commissions *Order* states that states or LFAs may not *enact* and *enforce* technical standards that *differ*[37] from those established by the Commission there is no mention of the applicability of this section to negotiated agreements between the cable operators and the LFA." As pointed out above, there is nothing in Section 624(e) of the Cable Act, nor in the Commission's own rules that would suggest that LFAs may not *negotiate* technical standards and requirements.

Congress intended to prevent the imposition of patchwork of regulations on cable operators however, there is a distinction between the imposition of facilities and equipment requirements by an LFA upon a cable operator and the commitment of a cable operator to certain facilities and equipment requirements either through the formal renewal process of a proposal to build or as a result of negotiations between the two parties, or pursuant to Section 626.

Although the Commission has determined that Congress has prohibited the imposition of technical standards relating to transmission technology it does not automatically follow that Congress intended to prohibit LFAs from negotiating facilities and equipment requirements. In fact, there are other provisions of the Act in which Congress has prohibited or limited LFA authority to impose certain requirements

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[37] Prior to the 1992 Cable Act's addition of the permissive enforcement language in Section 624(e), LFAs were the primary enforcers of cable operator technical standards, and the language added in the 1992 Cable Act did nothing to change that status.[37] The Commission, has long recognized the importance of, and relied upon, local enforcement in the area of technical standards. The Commission's *Order* establishes this prohibition only for technical standards that differ from federal standards.

unilaterally upon a cable operator have also made it clear that the LFA does have the authority to enforce the same requirements when included in a final franchise, whether that franchise is negotiated, or established through the Section 626 process. Section 611 of the Act is one such example. Subsection 611(b) states that "[a] franchising authority may in its request for proposals require as part of a franchise, and may require as part of a cable operator's proposal for a franchise renewal..., rules and procedures for the *use of the channel capacity* designated pursuant to this section." Section (c), however, clearly indicates that LFAs may "enforce any requirement in any franchise regarding the *providing or use* of such channel capacity."

The Commission must also recognize that regulatory renewal proposals by the operator and franchise negotiations address a whole range of issues, from the design issues discussed in the Afflerbach Declaration, to customer service standards, to the form of the agreement to indemnification insurance provisions. All of these factors are part of the mix, and the ability to address design issues directly affects a community's willingness and ability to agree to a specific franchise term, if an operator commits to an advanced system design, a community is likely to be willing to agree to a longer term because the system is more likely to provide adequate service over the long term.[38]

Finally, preserving an LFAs ability to negotiate technical standards will allow a LFA the ability to bargain for and receive higher standards than the cable operator may have utilized if the

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[38] There is a distinction between what a franchising authority may include in a request for a franchise proposal, and what it may enforce when included in a franchise agreement. Compare Setion 624(b)(1) and (2). Thus, even if one assumed that in a request for a rfenewal proposal, the community was prohibited from requiring a specific design, it would not follow that the community was prohibited from enforcing design requirements when included in a final franchise, for reasons described above.

operator simply made his own choice, particularly in areas where the operator does not face meaningful competitive pressures to improve the quality of its service.

## IV. THE COMMISSION SHOULD RECONSIDER SEVERAL RATE REGULATION ISSUES

The Commission should reconsider its construction of "offer" in its new effective competition test since such a construction could actually lead to a situation where a local exchange carrier ("LEC") can provide effective competition before it is providing service at all. In its *Order*, the Commission sets out a new test for effective competition which requires a cable operator to show that a LEC or LEC-affiliated MVPD or an MVPD using the facilities of a LEC or its affiliate "offers" comparable video programming services in the franchise area of an unaffiliated cable operator.[39] However, the Commission's construction of "offer" as utilized in this test merely required that the provider have the *potential* to provide service in the near future, not that the provider actually be providing the service. Such a construction essentially eviscerates the effective competition test.

We also believe that the Commission's small cable operator standards are impractical and that the Commission should reconsider these standards. While attempts to limit unnecessary paperwork and filings to the FCC by small operators may make a certain deal of economic and regulatory sense, eliminating the ability of the LFA to require the information it needs in order to determine what is actually going on is counterproductive to the goal of reasonably expanding rural and small markets and to ensuring that these markets have reasonably priced service reasonably equivalent to major market service. Small market cable systems will be the last to

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[39] Report and Order, *In the Matter of Implementation of Cable Act Reform Provision of the Telecommunications Act of 1996*, CS Docket No. 96-85, released March 29, 1999 ¶¶3-15.

see effective competition and it is these subscribers that are most in need of effective protection from monopoly power of the cable operator.

Last, the Commission should reconsider the procedure for determining whether a cable operator's bulk discounts to multiple dwelling units ("MDUs") are predatory, as set forth in its *Order*. This procedure for predatory pricing complaints inappropriately places the initial burden of showing that a discounted price is predatory on LFAs. The procedure in the Commission's order requires first that a complainant make a prima facie showing of predatory pricing on the part of the cable operator before the cable operator is required to show that its discounted price is not predatory.[40] It is cable operators who should bear the initial burden of showing that their MDU pricing meets the antitrust test for predatory pricing, rather than starting with the LFA and moving to the operator. LFAs simply do not have access to all of the information needed to make such a showing.

## CONCLUSION

For the reasons stated above, the Commission should revise and clarify its construction of the term "transmission technology" and more narrowly construe the phrase to that which Congress intended: subscriber equipment and related, specific transmission techniques such as scrambling. The Commission should encourage LFAs to negotiate agreements that specify cable systems should use modern state of the art equipment to accelerate deployment of advanced systems everywhere, including inner cities and rural areas. The Commission should clarify that existing and future franchising agreements which LFAs and cable operators freely negotiate and which require specific equipment and facility designs, or design provisions

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[40] Report and Order, *In the Matter of Implementation of Cable Act Reform Provision of the Telecommunications Act of 1996*, CS Docket No. 96-85, released March 29, 1999 ¶112.

included in franchises that are established through the formal renewal process, are not preempted. And the Commission should use this opportunity to clarify a number of administrative details in its cable rate regulation rules as modified by this *Order*.

Respectfully submitted,

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August 2, 1999
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**EXHIBIT A**

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

| | | |
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| In the Matter of<br>Implementation of the Cable Act Reform Provisions of the Telecommunications Act of 1996 | )<br>)<br>)<br>)<br>)<br>) | CS Docket No. 96-85 |

**DECLARATION OF ANDREW L. AFFLERBACH, PH.D., IN SUPPORT OF COMMENTS OF NATIONAL ASSOCIATION OF TELECOMMUNICATIONS OFFICERS AND ADVISORS; NATIONAL ASSOCIATION OF COUNTIES; UNITED STATES CONFERENCE OF MAYORS; NATIONAL LEAGUE OF CITIES AND MONTGOMERY COUNTY, MARYLAND**

I, Andrew Afflerbach, Ph.D., declare as follows:

1. I submit this Declaration in support of the Comments of the National Association of Telecommunications Officers and Advisors (NATOA) and Montgomery County, Maryland. I am fully competent to testify to the facts set forth herein, and if called as witness, would testify to them.

2. I have a Bachelors of Arts degree in physics from Swarthmore College and Masters of Science and Doctor of Philosophy degrees in astrophysics from the University of Wisconsin in Madison.

3. I am Vice President of Columbia Telecommunications Corporation, a telecommunications engineering company providing consulting and integration services for over sixteen years. I have supervised proof-of-performance testing in numerous communities around the United States. I have provided technical guidance and assistance in negotiations of dozens of cable franchise renewals. I provided expert witness testimony for franchise renewal. I have advised local governments about the technical aspects of requiring "open access" for multiple Internet providers on cable systems. I have extensive experience in the use and planning of computer networks and advanced networking applications. I plan, design, and oversee construction of telecommunications networks for government and educational institutions. I advise local governments in planning infrastructure improvements to attract high-technology companies to depressed urban areas.

4. I co-chair NATOA's Technology Committee. I am an elected fellow of the scientific honor society Sigma Xi, a member of the Society of Cable Television

Engineers (SCTE), and a member of the Institute of Electrical and Electronic Engineers (IEEE) and its Computer Society. I have published articles about cable upgrades and institutional networks for the International City/County Management Association (ICMA). I am on the George Washington University Continuing Engineering Education Program faculty, the University of Maryland Instructional Television faculty, and am an instructor for the Intelligent Transportation System seminar series and for the COMNET conferences. I have published a number of scientific articles in peer-reviewed academic journals.

5. Significant reliability and signal quality problems occurred in approximately one-half of the cable systems where I have observed tests. In many other systems, the signal quality is just above the minimum standard set in the Code of Federal Regulations Sections 76.601 and 76.605. These problems exist despite the requirement for twice-yearly Proof of Performance tests. We also note that the performance standards are lax and below the quality of consumer television, videocassette recorder, digital satellite, and DVD equipment.

6. The performance of cable systems as represented in final proof test results is often not indicative of the performance of the system for the typical subscriber. In order to comply with federal regulations, the operator is required to pass the proof tests at selected test points and selected channels within its system, but does not test every location and channel in the system. In the event that the test results initially do not comply with the FCC performance standards, many operators believe they are permitted to spend weeks repairing the system and believe they are permitted to retest at that test point without any requirement to record the failed result.

7. In a recent proof test overseen by my company, twenty-seven percent of the proof test points had at least one measurement fail to comply with FCC performance standards in a suburban county of approximately 70,000 subscribers. This level of performance is common in my experience. On the occasions where I have chosen new test points on the day of the test, the system is even more likely to fail, because the portions of the system serving the proof test points are often prepared in advance of testing.

8. Many subscribers regularly receive signal quality worse than or barely in compliance with the performance standards of the FCC. This is evident from the signal quality I observe at randomly-selected test points and from the failures I observe in the first rounds of proof-of-performance testing.

9. Along with the quality of maintenance, the design of the cable system is one of the two most important factors in the signal quality and reliability of a subscriber's cable service. Therefore, improving system design is one of the most effective ways to bring a system into compliance with FCC performance standards for all subscribers on all channels. A system improves in performance when the cable operator incorporates fiber optics, builds in sufficient backup

power, remotely monitors system status, and replaces older active devices and cable. The design determines the maximum attainable signal quality for subscribers and the mean time between system failures. Many operators recognize the importance of design and are upgrading and rebuilding their systems. Franchising authorities have been able to address subscriber complaints by negotiating upgrades in system design.

10. In my experience, franchising authorities do not attempt to design the operator's cable system or dictate the use of specific types of equipment or vendors. The franchising authorities negotiate for improvements in signal quality, reliability, and to maximize the scalability and ability of the cable system to upgrade. The franchising authorities believe that it is their responsibility to subscribers to negotiate for these items during a renewal or upgrade. To this end, the franchising authority may describe a "model system" that would provide the desired level of reliability and quality. Ideally, as negotiations continue, the operator and the franchising authority freely agree to a technical description of an upgraded system, based on the needs of subscribers and engineering done by the operator.

11. The technical description of the system in the new franchise agreement should provide the signal quality and reliability desired by the franchising authority and subscribers, but with the detailed engineering and design done by the operator. For example, one franchising authority of a 250,000-subscriber system suggested a model system with 750 MHz or more provided over a single cable, reduction of amplifier cascades, and replacement of microwave links with fiber optics. At the end of negotiations, the franchising authority and operator agreed that the same level of performance and reliability would be provided by renovating the existing dual-cable system, but incorporating fiber optics and cascade reduction as suggested by the franchising authority. The final agreement included a system designed by the operator that provided the standards of performance and reliability that the franchising authority requested. The franchising authority did not dictate the design of the network, but, by agreeing to specific technical provisions within the agreement, was able to guarantee an improvement in the system for subscribers.

12. If a franchising authority were unable to incorporate into a franchise agreement any description of the amount of fiber optics ("node size") or other technical parameters, it would instead need to seek more cumbersome and intrusive means of attaining signal quality and reliability for subscribers. For example, the franchising authority may need to frequently test the system at subscriber's homes.

13. The design of the cable-TV subscriber network may have a significant impact on the capability and performance of an Institutional Network (I-Net) built for the government, institutional, and educational community. For example, when a cable operator rebuilds its subscriber network with a fiber optic backbone, it

creates the opportunity for installation of additional fiber optics for I-Net services. If the operator is only building limited fiber optics for its subscriber network, then the I-Net will be more limited or it will be more costly, since in that case it would require extensive construction of separate dedicated fiber outside the operator's bundle. The cost per foot of co-located fiber optics is only five to ten percent that of fiber constructed in a dedicated cable, because the majority of the cost of fiber construction is in labor, not materials.

14. Local governments and school districts have unique and expensive telecommunications requirements. They cover wide geographic areas, communicate extensively internally, and face limited budgets for staffing and construction of buildings. Communities cope with increases in demands for services by using information technologies and distributing resources electronically. The I-Net provides the potential for scalable, high-quality data, video, and voice services for governments, schools, and institutions. Numerous communities are using I-Nets for a wide range of activities including interactive education, video conferencing, video arraignment, Geographic Information Systems (GIS), computer-assisted design (CAD), Internet access, surveillance, joint databases, traffic cameras, and sharing of computer resources.

15. Only an I-Net constructed with fiber optics can provide the reliability of leased telecommunications services. A fiber optic I-Net enables governments and schools to operate video and other high-bandwidth services at a small fraction of the cost of leased switched video solutions. The savings in cost enable communities with limited budgets to operate interactive education, providing classes to multiple schools that were previously available only in one school. The I-Net enables a fire department to train staff at multiple stations without requiring remote stations to be taken out of service to attend a training session. The I-Net also extends the eyes and ears of public safety officers to points throughout the community.

16. An I-Net that is constructed without fiber optics or with a hybrid fiber-coaxial design is inherently less reliable and more limited than a fully fiber-optic I-Net. Many non-fiber optic I-Nets provide poor signal quality and unacceptable reliability. The interactive education and training applications on the least-reliable non-fiber I-Nets have been discontinued, and the video conferencing abandoned. As data networking becomes more critical, governments and schools will typically not operate their networks over a non-fiber I-Net and will spend their limited funds on leased telecommunications services instead.

17. Every community has different internal networking requirements. Some require the quality and capability of fiber optics throughout the community. Others have more limited needs that can instead be served by a hybrid fiber coaxial system to many locations. Some communities have no need for an I-Net. It is therefore important that the franchising authority, the government, and the schools be able to determine their specific needs. Taking cost into account, the franchising

authority must be able to negotiate for the type of services it requires and incorporate the requirements for quality, reliability and bandwidth into the franchise agreement in order to build an effective I-Net for the community. The terms may include technology type, service level agreement, bandwidth requirement, or other criteria mutually acceptable to the franchising authority and the operator. If the local government cannot negotiate for these provisions, the operator may build an I-Net that is not useful to the community, wasting the subscribers' money, instead of saving money and benefiting the community.

**Verification**

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief, and that this declaration was executed on August 2, 1999, in Columbia, Maryland.

Andrew L. Afflerbach

Andrew L. Afflerbach

**EXHIBIT B**

may be required to meet the needs and interests of the community in light of the costs during the remaining term of the franchise.

(2) To ensure that the Franchisee is carrying out its responsibilities hereunder, the Franchisee shall be required to submit a report on cable technology to the County every three years during the Franchise term. Each report shall describe developments in cable technology, and whether, how, and by what date the Franchisee plans to incorporate those technological developments into the System. In addition, the report shall describe the effect of those developments on public, educational, and governmental use of the Cable System, and the effect and compatibility of those technological changes on consumer electronic equipment. The report also shall describe how other cable companies have incorporated or are planning to incorporate the technological developments into their Systems and the estimated timetable for doing so.

(d) *System Rebuild:* Within four years after the effective date of this Agreement, the Franchisee shall complete a System Rebuild providing at least the following capabilities:

(1) The rebuilt System shall have a minimum bandwidth capacity of 750 MHz on all active components. at least 750 MHz for all existing passive components, and at least 1 GHz for all new or replaced passive components; an analog bandwidth of 550 MHz; and shall initially have a minimum analog Channel capacity of at least 82 Channels, downstream to all Subscribers, and a minimum digital capacity of 200 MHz. If the Franchisee subsequently decides to change the amount of capacity allocated to analog programming, the Franchisee shall notify the County in writing at least sixty (60) days prior to the effective date of the proposed change.

(2) The System backbone connections shall utilize fiber optic links (headend to hubs, hubs to hubs, and hubs to nodes). The System shall be designed and engineered with redundant paths between the headend and all hubs. Fiber optic nodes, segmented into distinct service areas, shall be constructed to serve coaxial copper cable passing no more than 1,500 dwelling units per node. Individual nodes may serve cable passing a *de minimis* number of dwelling units in excess of 1,500, provided there is no effect on the performance characteristics of the node.

(3) The Franchisee shall design the system so that channel capacity may be readily expanded and digital programming delivered to Subscribers through digital video compression or similar appropriate technology without compromising signal or service quality or requiring significant alterations, upgrading or reconstruction.

(4) The rebuilt System shall provide two-way capability. Except as provided elsewhere in this Agreement, Franchisee, in its sole discretion, may activate such capability based on economic and technical considerations.

(5) The Franchisee may offer high-speed cable modems as a Cable Service.

(6) The Franchisee shall offer service to all Montgomery County residences and businesses subject to Section 4(b).

(7) Service shall be provided to all of the City of Takoma Park.

(8) Other Specifications. The rebuilt System shall further have the minimum technical characteristics and specifications described in Proposed CTM Upgrade Parameters, attached as Exhibit C hereto.

(e) *System Architectural Design Review Process.*

# EXHIBIT C

## PROPOSED CTM UPGRADE PARAMETERS

### General

The Montgomery County design incorporates some unique challenges. The distances to be covered, the variable densities (from urban in the Southeastern to rural in the North and West) to be served, and the demographic interests of the community (widest possible range of services) combine to present situations not always seen in these proportions.

Throughout the document we attempt to describe a "best-fit" logic that balances the need for financially responsible plant renewal, the need for sensitive consumer logistics, and the need to accomplish other telecom objectives of the franchise authority.

### Synopsis

The renewal platform will be a 750Mhz HFC architecture with fiber trunking, standby powering, and flexibility in accommodating future digital initiatives of the cable industry. Node size will average between 1000 and 1500, but will not be a design constraint, as trafficking and load demand issues are managed in other ways. The consumer impact of the renewal is carefully considered, with contractor selection and methodology optimized for the least practical disruption. Service, in general, is affected for the daylight hours only, on only the day and in the area under reconstruction.

### Supporting Discussion

Detailed discussion follows, to the extent possible for this stage of the activity.

### Fiber Architecture

The architecture of the fiber distribution system impacts flexibility, performance and cost.

The planned system will employ 1319 nm. YAG transmitters to serve some Hubs, and some hubs will be fed with 1550 nm. transmitters utilizing Erbium Doped Fiber Amplifiers (EDFA's) to optically repeat signals at the hubs as they were originally generated at the Headend. This method offers the greatest efficiencies relative to cost and performance.

Recent experience and laboratory testing with Harmonic Lightwaves dispensed with concerns relative to the use of the 1550 nm. Window in non-Dispersion Shifted Fiber. Also Stimulated Brillouin Scattering (SBS) suppression was demonstrated, alleviating concerns over the issue of SBS, as well as other issues of fiber nonlinearity.

**Fiber to Hubs**

The walk out of fiber routes to the Hub sites will be completed for both preferred alternate routes. These routes are preliminary routes at this time in distance and type of construction required (aerial vs. underground), and are approximately 450 miles.

We are presently using the following criteria to determine fiber count estimates. The total count is the sum of:

*Fiber Counts*

1. CATV = N This is the identifier for the number of fibers required to service the currently planned node sites. This will accommodate the design criteria of 4 trunk amps and 3 line extenders in cascade (nominal).

2. CAP = S We will utilize this identifier to indicate the number of fibers required for a CAP effort. This will be held separate from the Telephony or the apartment application for the purpose of this work.

3. Hotel = H This is being used to indicate the capacity required for hotel services in the Backbone fiber that will feed the Hubs for the purpose of delivering Near Video on Demand or other (future) hotel services.

4. Future Nodes = F The growth pattern for new construction is known and with the input from the Commercial Development Department, we can accurately estimate the needs for future Nodes and Hubs; this will be identified by "F".

5. Contingency = C Contingency fibers will be added in the transport backbone to accommodate any possible future plans of reduction in Node sizes.

6. Telephony – T We will assess all of the apartment complexes and will allocate capacity for targeted share tenant offerings.

7. Return = R The return calculation includes (1) one fiber per node through the Backbone to the Head End. This calculation may be balanced with the progress of a return "Stacker" becoming available which would allow us to multiplex a number of return node fibers on one return hub fiber. Costs are not the dominant variable here, but rather reverse data multiplexing and headroom issues are.

8. Bulk "extra" or standard capacity. We will add a future quantity of fibers, generally about 30%, unassigned for now. We call this tern "B".

9. Telecom needs of the County: capacity here is reserved for the shared sheath Inet plant to accommodate the needs of the County. We call this term "G".

**Performance**

The entire system performance budget, in decibels, is allocated up between the Headend to Hub, Hub to node, and the coaxial plant.

A. Hub Performance

In an optical repeat system, Hub performance is 54 to 55 dB c/n ratio, with –65 dB distortions. In an electrical repeat system, Hub performance would range from 57 to 58 dB c/n ratio prior to remodulation, with –65 dB distortions.

B. Node Performance

In an optical repeat system, node performance would range from 50 to 51.5 dB c/n ratio with –65 dB distortions. In an electrical repeat system, node performance would range from 50 to 51.5 dB c/n ratio with –62 dB distortions due to remodulation.

C. System Performance (Pre-Converter)

Worst case Carrier to Noise ratio would be 47 dB with –52 dB CTB and –51 dB CSO at the input to the converter. Since all distortions are calculated with CW carriers, real world distortion performance would be better by about 6 dB.

**Future Issues**

Diagnostics or status monitoring has typically been a manufacturer specific product. There is currently a movement underway to integrate various manufacturer's systems under common protocol known as SNMP (Simple Network Management Protocol).

Currently we are evaluating various status monitoring systems in operation for the fiber network. The industry is divided over whether diagnostic effort is best done from digital terminal (modems and digital converter) initiatives or by the monitoring of plant components. We are sympathetic to the argument that diagnostics from terminals are more illustrative of actual conditions, and may be better suited to comparisons and isolation of trouble points.

**Contractor Decorum**

We intend to select only contractors for the upgrade work that have experience in urban systems reconstruction, and have engineering services to include balance and continuity assurance. The fiber overlays are in place before the coaxial plant is disturbed, and only the sections affected for

that day are disturbed, with same day signal restoration. This process has been used before successfully, and, together with design flexibility for maximal facilities reuse, is sensitive to the consumer issues of work done in the utility easements and the time of disruption.

**EXHIBIT C**

*(c)* *Integration of Advancements in Technology.* During the franchise term, the Grantee shall maintain and improve its existing facilities in accordance with accepted cable industry practices.

*(d)* *System Upgrade.* The Grantee shall complete a System Upgrade in accordance with the schedule set forth in subsection 6(f) providing at least the following characteristics:

(1) no microwave links in the distribution system from the headend, except as a backup to wireline systems;

(2) replacement of the current AML microwave link with fiber, in order to achieve reliable downstream transmission and a two-way system with acceptable noise and distortion properties;

(3) redundant routing between each hub site and headend of the upgraded Grantee's Cable System;

(4) segmentation of the system so that sufficient capacity is available for interactive services;

(5) Hybrid fiber-coaxial ("HFC") architecture, with fiber-optic cable at least to the feeder, so that no more than an average of 2,000 homes passed per dual coaxial cable are served from any fiber node (except that if Grantee uses single cable in any locations, there shall be no more than an average of 1,000 homes passed per fiber node), and with the return path activated on both cables where dual cables are used;

(6) designed and built to no more than ten coaxial amplifiers (excluding any such amplifier that serves only a single subscriber) per coaxial cable in each cascade from the node;

(7) a capacity rating of at least 550 MHz for all active components obtained on or after the Effective Date of this Agreement and at least 450 MHz for active components obtained prior to the Effective Date of this Agreement, and a rating of at least 750 MHz for all passive components obtained on or after the Effective Date;

(8) computer-controlled audio leveling equipment, capable of sampling and controlling the entire audio frequency spectrum for each channel and of sampling over time, provided that Grantee reserves the right to discontinue use of this equipment if such equipment adversely affects the operation of Grantee's Cable System.

*(e) System Design Submission Process.* At least two weeks prior to the date construction of any upgrade of a segment of Grantee's Cable System is scheduled to commence, the Grantee shall submit to the County a system design and construction plan for that segment, which shall be subject to change and include at least the following elements:

(1) Design type, trunk and feeder design, and location of hubs, nodes, and amplifiers;

(2) Distribution system equipment to be used;

(3) Locations and design types for standby power.

The system design will be shown on construction-scale maps. To the extent that the Grantee revises its plan prior to construction, the Grantee shall submit a revised plan. The Grantee's submission of such plans and maps shall not operate to waive any rights of Grantee, and neither the County's receipt of such plans and maps and comments thereon, nor any comments it provides to the Grantee, shall operate to waive any rights of the County.