FINAL REPORT: DISTRICT OF COLUMBIA NEEDS ASSESSMENT

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INSTITUTE FOR THE POSITIVE USE OF TECHNOLOGY (InPUT)

to

OFFICE OF CABLE TELEVISION & TELECOMMUNICATIONS (OCTT) OF THE DISTRICT OF COLUMBIA

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EXECUTIVE SUMMARY

The District of Columbia's efforts to regulate cable television have been characterized by mistakes and lost opportunities for many years. Together, Comcast Cablevision's request for renewal of its cable franchise and Starpower's request for a new cable franchise[1] provide a new opportunity to correct past mistakes and to chart a new course by promoting competition and ensuring responsiveness to community needs.

The shortcomings of the District's approach to cable regulation have been apparent since 1985 when the District agreed to a complete rewrite of the District's original franchise agreement with District Cablevision, Inc. (DCI), just a few months after that agreement first went into effect. These 1985 revisions included reductions in the total channel capacity of the District's cable system from 78 to 54, reductions in access channel capacity from 16 to 6, deletion of virtually all financial support for public services, dramatic reductions in the franchisee's obligation to provide an institutional network for District facilities, and elimination of requirements for eight public access studios. In short, the final franchise agreement was little more than a shadow of the agreement that had been finalized by the District just a few months earlier.

District residents have suffered for many years as a result of the District's mishandling of the franchise process in the early 1980s. Comcast/DC not only was relieved of many of the commitments it had made to the District and its residents, but also failed to comply with a number of the modest requirements of the rewritten franchise and provided inadequate and unresponsive service in many areas. Adverse consequences for District residents have included customer service problems, franchise violations, limited access channel services, no institutional network, and a dated and obsolete infrastructure with high rates and limited choice in programming. To a significant extent, these problems can be traced to misguided experiments with local ownership and with a partnership with the local telephone company.

Local Ownership: A central goal of the District's franchise process in the early 1980s was to grant the franchise to a locally owned cable company. The underlying objective was to provide District entrepreneurs with an opportunity to gain entry into the cable business. In effect, this goal took priority over all other goals, including securing high-quality service for District residents. In large part because of this narrow and restrictive approach, no major cable companies submitted proposals to the District in 1984 when the District accepted franchise proposals for consideration . The local company which was awarded the franchise in early 1985, DCI, was poorly financed and unable to secure financing for construction or start-up of the system. It turned immediately to Tele-Communications, Inc. (TCI), one of its shareholders (and also the nation's largest cable company at the time), for financial backing and management support.

The price for TCI's financial backing was high. At TCI's insistence, the District completely rewrote the franchise agreement in late 1985, reducing the franchisee's obligations and costs in countless ways and eliminating central elements of the bargain that had been struck with DCI just a few months earlier. The District relinquished all but the illusion of local ownership in exchange

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1. Starpower is an overbuilder and has been operating pursuant to an Open Video System (OVS) agreement approved by the mayor in late 1998. OVS is an alternative to conventional cable franchising that was established by Congress in 1996 to encourage competitive alternatives to incumbent cable operators.

for a watered-down agreement. The franchise was transferred to a new partnership, District Cablevision Limited Partnership (DCLP), which was effectively controlled by TCI and locally controlled in name only, while the District was left with a weak franchise that provided very few protections for District residents or public benefits.

Telephone Company Partnership: An equally important mistake was Comcast/DC's[2] decision to enter into an unfavorable partnership with Verizon/DC[3] and the District's tacit endorsement of this arrangement. This arrangement was in large part designed to secure Verizon/DC's political help in obtaining the franchise for DCI. From the beginning, this one-sided arrangement handicapped the cable franchisee both technically and financially and contributed significantly to violations of the franchise and basic requirements of District law. Under this partnership, Chesapeake and Potomac Telephone Company (C&P) (*i.e.,* Verizon/DC), the local affiliate of Bell Atlantic (now known as Verizon), was given the right to design, construct, and own the system's distribution facilities. Comcast/DC paid some $55 million to Verizon/DC at the front end (primarily in the 1986 to 1991 period) to construct these distribution facilities and additional amounts to maintain the system. The cost of this arrangement to both the District and Comcast/DC was and continues to be high. Verizon/DC had no incentive to provide a high-quality system and a disincentive to provide an institutional network (if Verizon/DC had provided an institutional network, the District would have used it as a low- or no-cost alternative to paying millions of dollars to Verizon/DC for similar service). To this day, Comcast/DC does not own most of the cable system's distribution facilities and has no clear-cut right to upgrade the system without Verizon/DC's consent or to provide the improvements in service expected by District residents and, in fact, has no right to use the existing facilities once a determination is made that the "technological useful life" of these dated facilities has run its course.

Future: The District is a technically advanced community, with heavy in-home use of the Internet and strong interest in competition, service improvements, access to advanced services and technologies, and improved and enhanced public services. The District has an opportunity to correct the serious errors of the past and to meet community needs by establishing future-oriented rules for Comcast/DC, Starpower, and all other system providers. For these undertakings to be successful, however, the District must take steps to end the current Verizon/DC-Comcast/DC relationship. At the same time, it must also take steps to ensure that Comcast/DC has the right and the ability to provide a state-of-the-art system and to compete with both Verizon/DC and Starpower.

2. For the sake of simplicity, the incumbent cable operator is referred to in this report by its current name, Comcast/DC. It was known as District Cablevision, Inc., or DCI when the company was first established in 1984. It was reconstituted in late 1985 as District Cablevision Limited Partnership or DCLP and operated under that name from 1985 until January of 2001 when the franchise was transferred to Comcast. It has been operating under the Comcast name since that time.

3. To avoid confusion associated with changes in its name, the local telephone company is referred to in this report by its current name, Verizon/DC.

At a minimum, the District should seek to achieve the following goals in establishing policies for the future:

First, it should foster a truly competitive market, with a choice of two or more cable systems for all District residents, thereby ensuring price and service competition and perhaps imposing some constraints on continued escalation of cable rates.
Second, the District, should require deployment of technically advanced systems which provide access to a full range of advanced services and technologies for all District residents.
Third, it should require significant improvements in the Comcast/DC system while also ensuring Comcast/DC's ability to provide these and future improvements and to compete with Verizon/DC by ending the current Verizon/DC-Comcast/DC relationship.
And fourth, the District should enhance and expand public services by securing funding for a state-of-the-art community-wide public access facility and for state-of-the-art facilities and equipment for government and educational services and by securing a fiber optic network to connect District and other public facilities together (*i.e.*, an institutional network).

The following is a summary of the specific policies which should be implemented to realize the foregoing goals:

GUIDING PRINCIPLES

Guiding principles for the District's regulation of cable television should include: promoting competition; ensuring access to advanced services and technologies; and improving Comcast/DC's performance. First, promoting competition requires taking proactive steps to encourage facilities-based competition, while also providing consistent rules for all system providers, equal access to competition throughout the District, and independent public service operations. Second, ensuring access to advanced services and technologies requires establishing tough initial state-of-the-art requirements for both Comcast/DC and Starpower, ongoing requirements to maintain state-of-the-art systems, and requirements for equal access to system capabilities and services for all District residents. And third, improving Comcast/DC's performance requires ending the current Verizon/DC-Comcast/DC relationship while also requiring Comcast/DC to establish an autonomous state-of-the-art system either by acquiring and rebuilding the existing system's distribution facilities (now owned by Verizon/DC) or by building entirely new distribution facilities.

SYSTEM DESIGN AND OPTICAL CAPABILITIES

Basic System Design: The basic design for the Comcast/DC and Starpower systems (and all other systems) should ensure access for all District residents to full two-way service, a transmission capacity of at least 860 MHz, and optical connections within close proximity of every service location. The current Comcast/DC system is a technically limited system, with no two-way service, transmission capacity of only 450 MHz, and very few fiber optic connections. The Starpower system, in contrast, is a state-of the-art system, with two-way service, transmission capacity of 860 MHz, and extensive deployment of fiber optics throughout the system.

Optical Capabilities: The optical serving areas on all systems should be as small as possible in terms of number of service locations passed. With small optical serving areas, bandwidth sharing and the number of electronic devices between service locations and optical conversion equipment are limited, resulting in high-quality signals and access to high-speed service connections for advanced services. In simple terms, the smaller the optical serving area, the closer each customer is to an optical connection and the speed and power of optical communications. It is this capability that will allow for the emergence of a wide array of new digital communications that require large quantities of bandwidth and are the wave of the future.

Construction specifications for Comcast/DC, Starpower, and any other provider should ensure installation of fiber optic lines and optical nodes on an equitable basis throughout the District's eight wards and equal access to optical capabilities throughout the District. As a general rule, optical serving areas should contain no more than 150 residential units or similar service locations. The current Comcast/DC system makes very little use of fiber optics. The District should require an extensive rebuild of the system to provide access to optical capabilities. The Starpower system is a fiber-based system, with small optical serving areas, but is not currently available to all District residents. The District should require extension of this system to all areas of the District to ensure that all District residents have access to the same competitive alternatives.

Transmission Capacity and Spectrum Allocation: All systems, including both the Comcast/DC and Starpower systems, should provide a transmission capacity of at least 860 MHz. The Comcast/DC system is equipped to provide only 450 MHz (this was a state-of-the-art system about 20 years ago) in most areas it serves and cannot provide 860 MHz service without an extensive rebuild of the system. With a transmission capacity of 860 MHz, the system will be equipped to accommodate current demand for analog services, current and anticipated demand for digital and other advanced services, and institutional services. With an upgrade to 860 MHz service, Comcast/DC's *analog channel capacity* could also be increased from the current 65 to 90 or so channels, thereby providing the analog services desired by District residents and providing access to a sizable package of high-quality services that can be viewed without a converter. (Starpower already provides about 90 analog channels.) In addition, bandwidth of 150-250 MHz should be reserved for *digital transmissions* on both the Comcast/DC and Starpower systems to ensure continued expansion of advanced service offerings. Finally, all systems should be fully equipped for *upstream transmissions* so that interactive, high-speed Internet, and other two-way services will be available to all customers.

HEADENDS AND HUBS, ADVANCED TECHNICAL CAPABILITIES, AND INTERCONNECTIONS

Headends and Hubs: The *headend(s)* for the Comcast/DC, Starpower, any other system should be equipped and operated to ensure high levels of signal quality and reliability and to provide a state-of-the-art platform for deployment of advanced services and technologies. *Interconnections* should be established between both the Comcast/DC system and the Starpower system and designated publicly owned or controlled facilities. District-based facilities which should be connected to each system include the District's wide area network, access interconnect facilities, and institutional network facilities.

DISTRIBUTION LINES AND EQUIPMENT

Improvements in Comcast/DC's distribution lines and equipment are needed both to provide improved service and to establish a platform for deployment of advanced services. Detailed requirements regarding Comcast/DC's implementation of these improvements are especially important because of the poor quality of its existing plant and of the obstacles to upgrading the Comcast/DC plant created by its agreement with Verizon/DC. Similar requirements should also apply to Starpower to ensure that it provides the same high-quality service currently being provided in 80% or so of the District to the remaining areas of the District which are presently unserved by Starpower (chiefly large parts of Adams-Morgan, Capitol Hill, and Georgetown).

Distribution Lines: The design favored by Starpower and other new market entrants for *feeder lines* limits coaxial cable lines to short runs and relies on optical lines for carriage of most traffic. This approach minimizes the number of active electronic devices and passive devices on the system, thereby reducing maintenance problems and traffic congestion and improving signal quality and reliability. Design specifications of this sort should apply to Comcast/DC's system rebuild and to Starpower's completion of its initial system build. Specifically, all feeder lines should be equipped for operation at a minimum of 860 MHz and for subsequent enhancement to 1 GHz operations. All feeder line runs should be limited to no more than 1,500 feet, with no more than two amplifiers in a cascade. Comcast/DC should update and/or replace feeder lines as necessary to meet these standards and provide 860 MHz service throughout the District's eight wards.

Drop lines on the Comcast/DC system tend to be in "poor" condition. Comcast/DC's drop lines should be upgraded and replaced as necessary to provide improved service. In view of strong community interest in competition, the District should take steps to make certain that its policies with respect to *inside wires* do everything possible to ensure high-quality service and encourage customer ownership (and thereby competition).

Distribution Equipment: Clear-cut standards should be established with regard to distribution equipment in each of the following areas:

Power supply systems for Comcast/DC, Starpower, and all other systems should be state-of-the-art systems, which are safe, reliable, scalable, and adaptable; can supply 90 volts of power; and can support future expansion of service offerings. Each system provider's plan for deployment of a power supply system should include maps which specify the site for each power supply unit and

should minimize any adverse environmental and aesthetic impacts.

All *amplifiers* on the Comcast/DC, Starpower, or any other system should be state-of-the-art amplifiers. Specifically, amplifiers should, at a minimum, support active 860 MHz and two-way operations throughout the District's eight wards, be linked together in cascades or runs of no more than two amplifiers (with a preference for one or no amplifiers), and minimize signal distortion.

All *passive devices* should be state-of-the-art equipment. Specifically, passive devices should minimize signal attenuation, loss, ingress, and egress and be fully compatible with 1 GHz and two-way operations and adaptable to support future services.

All systems should include state-of-the-art *status monitoring* systems which are adaptable and equipped to monitor active electronic devices and system performance.

All systems should include state-of-the-art *signal security* systems. Among other things, signal security systems should, to the extent possible, maximize customer service options, minimize home visits for service changes, minimize interference with customer use of consumer electronics equipment, and limit unauthorized reception of service.

CUSTOMER EQUIPMENT

Converters: The ability of franchising authorities to regulate converters is limited by federal law. This limitation does not, however, prevent the District from requiring Comcast/DC, Starpower, and any other system provider to comply with all applicable federal rules and from establishing various other converter-related regulations. Federal rules of particular concern include rules requiring that all new converters provided after December 31, 2004, be "interoperable" and requiring that converters which are compatible with consumer electronics equipment be made available and that written notice be provided to customers of this equipment option.

Advanced Customer Equipment: The ability of franchising authorities to regulate modems and other equipment is limited by federal law in the same way as converters. This limitation does not prevent the District from requiring Comcast/DC, Starpower, and any other system provider to disclose equipment-related information to both customers and the District and to submit regular reports to the District on equipment use and deployment; to encourage system providers to remedy equipment-related problems, provide high-quality equipment, and deploy new equipment on an equitable and consistent basis throughout all areas of the District; or to require system providers to comply with all applicable federal rules, including any relevant rules which are developed with respect to "open access," competition, or interconnection and/or co-location rights.

COMMUNICATIONS SERVICES

Cable and Information Services:

Video Programming: Federal law prohibits most regulation of services delivered over cable systems except for franchise requirements for broad categories of service. With regard to video programming, proposals submitted by Comcast/DC, Starpower, or any other system provider should respond to the interests of District residents in educational, children's, sports, current movie, foreign and international (*e.g.*, European, South American, Middle Eastern), foreign language (*e.g.*, Spanish), and African American programming as well as television stations based in New York City and Baltimore and include other service offerings responsive to other programming interests of District residents. Both Comcast/DC and Starpower should also provide a full complement of about 90 analog signals. Each provider should maintain this package of analog service offerings unless and until it converts to all-digital operations.

In addition, *closed captioning* should be provided for all government access channels and for all other public service and local origination channels to the extent technically feasible and affordable so that hearing-impaired District residents can obtain access to government and other local information. Further, Comcast/DC, Starpower, and any other system provider should comply with all federal closed captioning rules, including all applicable deadlines, and retransmit all closed captioning provided in connection with access channels whether or not required to do so by federal rules. All system providers should comply with all federal *V-chip* requirements and should provide periodic notice (*e.g.*, at least once per year) to customers with respect to rating guidelines and availability of V-chip-equipped receiving equipment so that parents will be able to fully utilize this service option.

Comcast/DC, Starpower, and all other system providers should fully scramble signals of audio and video services to which the customer does not subscribe. They should also provide notice in writing to all subscribers at least once a year and upon installation of the subscriber's right to a *lock-out device* to block reception of unsubscribed-to services.

Audio Services: The audio services provided over all systems should include local information and programming.

Internet, Interactive, and Transactional Services: All systems should include the technical capabilities necessary for Internet, interactive, and transactional services, including such possible service offerings as personal control of program selection and payment options, true video-on-demand, Internet, interactive home learning and training, and on-line transactional services. These capabilities are necessary to provide Comcast/DC and Starpower customers with access to a full array of advanced services as they are deployed.

Telecommunications Services:

Comcast/DC, Starpower, and any other system provider should disclose on a quarterly basis any telecommunications services provided over its system. Any system provider which provides telecommunications service should comply with all District law applicable to telecommunications companies and the provision of telecommunications service. These requirements are necessary

because federal law precludes local regulation of telecommunications services and facilities through cable franchise agreements and cable regulation but allows nondiscriminatory regulation of telecommunications services and facilities through telecommunications laws and ordinances.

PUBLIC SERVICES

District residents have clearly expressed a need for improvements in public services, including increased access channel capacity, increased financial support for public and community services, and an advanced institutional network. The District's franchise agreement with Comcast/DC and its OVS agreement with Starpower include inadequate provisions with respect to public services and have played a large role in denying District residents the benefits of effective and responsive public services. For example, the existing agreements do not provide adequate funding, equipment, and facilities for public access. Similarly, the existing agreements failed to produce an institutional network for the District, resulting in many years of lost benefits and opportunities and unnecessary expenditures for the District and its residents.

Eligible Public Institutions: All District entities and the Public Access Corporation of the District of Columbia (PAC)[4] should be eligible to provide programming and information over access channels. Examples of eligible District entities include the District of Columbia Public Schools (DCPS), University of the District of Columbia (UDC), and District of Columbia Public Libraries (DCPL). In addition, the District, through the District's Office of Cable Television and Telecommunications (OCTT) and the City Council, should retain authority to designate other entities such as the Consortium of Universities and DCPL as eligible public institutions.

Financial Support for Public and Community Services: Substantial increases in funding for access are required due to years of neglect and the limited nature of most existing access operations. Specific needs for the District's access providers include the need to acquire state-of-the-art equipment, to expand and improve existing operations, to establish a community-wide media center for public access, and to develop an institutional network.

Comcast/DC, Starpower, and all other providers should provide financial support for public and community services through a mix of fees designed to ensure fair competition by requiring all providers to contribute in an equitable fashion toward development of a high-tech infrastructure for the District and to provide support for improved government access and other public services. These fees should include: the existing 5% franchise fee; the existing 1% public access fee; and a new $1.40 per subscriber per month fee to provide financial support for public services. Public services have been significantly underfunded in the District for the past 16 years. Proceeds from the $1.40 per subscriber per month fee should be dedicated to help pay for the capital costs of public, educational, and government facilities and equipment for District and other public institutions with limited capabilities. Proceeds from this $1.40 per subscriber per month fee should be allocated and expressly earmarked as follows: 50 cents to the District's Office of Chief Technology Officer (OCTO) (for an institutional network for municipal and other public facilities); 50 cents to PAC; 25 cents to DCPS; and 15 cents to UDC. This fee will initially produce a total of about $2 million per

4. PAC is a nonprofit corporation established by District law and assigned responsibility for the operation of the District's public access channels.

year.

In addition, start-up funds totaling $8.25 million should be provided to jump start long neglected access and institutional network operations, with $3 million for OCTO; $500,000 for OCTT[5]; $2.25 million for PAC; $1.75 million for DCPS; and $750,000 for UDC. Each system provider should be responsible for payment of the portion of these funds which reflects its market share and power as measured by number of customers and years of operation (90% or $7.425 million should be paid by Comcast/DC while 10% or $825,000 should be paid by Starpower).

Access Channel Capacity: A total of 14 downstream analog channels (84 MHz) and 2 analog upstream channels (12 MHz) should be reserved for access use on both the Comcast/DC and Starpower systems and on any other system which offers analog service to customers. In addition, an equivalent amount of digital bandwidth should be reserved for access use on both the Comcast/DC and Starpower systems and on any other system which offers digital service to customers.

Comcast/DC and Starpower currently provide a total of six analog access channels. These six channels should continue to be assigned to their current users (two for PAC, two for OCTT, one for DCPS, and one for UDC). In addition, at least four of the eight proposed additional analog access channels should be assigned immediately to these four existing access providers to meet existing needs (one channel each to PAC, OCTT, DCPS, and UDC). The remaining unassigned new analog access channels (which should total at least four new channels) should be held in reserve by the District for future assignment to public institutions (*e.g.,* the Consortium of Universities, DCPL), but the number of channels held in reserve should be minimized to the extent possible (*i.e.,* they should be assigned to access providers as soon as possible).

In addition, each District institution designated as an access provider (*e.g.,* PAC, OCTT, DCPS, UDC) should be assigned an amount of digital bandwidth for access use roughly equivalent to its allocation of analog channel capacity for access use. Neither Comcast/DC nor Starpower currently provides any digital channel capacity for access use although digital service is likely to dominate service offerings in the not-too-distant future. Providing each of the District's access providers with access to digital bandwidth should enable them to move quickly into the digital world, expand their offerings to include interactive and similar features, and respond to community needs by providing vital public services as interactive in-home learning and training.

In addition, a trigger should be established to require simultaneous transmission of access channels in analog and digital form once digital television gains a significant share of the local market. This requirement will guard against second-class treatment of access channels in a mixed digital-analog environment. Specifically, all access channels should be delivered simultaneously in both analog and digital form once 30% or more of customers subscribe to digital service.

Services for Public Institutions: New standards should be established governing the number of drops, the equipment to be provided, and the services to be provided by Comcast/DC, Starpower, and any other provider at no charge to the District's government offices and other public facilities. Strict regulation is necessary in this area because of Comcast/DC's failure to provide service to some public institutions (*e.g.,* many public libraries) and long delays in providing service to others

5. The proceeds from cable franchise fees paid to the District have been earmarked for OCTT for many years, enabling it to properly equip its studio and significantly reducing OCTT's need for new financial resources.

(*e.g.*, public school buildings). In addition, these requirements should be updated to reflect the evolution in services and the new services being provided over the cable system (*e.g.*, digital service, high-speed Internet service).

At a minimum, these free services should include one drop, one modem, and one digital converter per floor, along with free Internet and free analog and digital cable service, for all District buildings. A 60-day time limit should be established (and strictly enforced) for connecting all unserved District facilities to the Comcast/DC and Starpower systems. In addition, a pool of equipment (one modem per 100 employees and one converter per 50 employees) should be established for service locations where additional equipment is needed.

Special rules with regard to free service should be established for the public libraries, public schools, UDC, and PAC, which take into account the particular characteristics of each institution. Equipment allocations for the public libraries, for example, should be established on the basis of the physical size of and the number of patrons for each facility (*e.g.*, 20 cable modems, 20 cable service outlets, and 20 converters for the Martin Luther King Jr. Memorial Library). Similarly, for each public school, one cable service outlet, one modem, and one converter should be provided per school and for every 300 students. Similar equipment allocation rules should be established for distribution of equipment to UDC and PAC.

Institutional Network: More than 16 years after the District's initial grant of a cable franchise, the District still is not served by an institutional network. This is attributable to various factors, including Comcast/DC's and Verizon/DC's willingness to disregard franchise requirements, ambiguous and poorly drafted franchise agreement, and the District's failure to enforce the franchise agreement. The loss to the District in terms of the public resources and capabilities associated with having access to an operational institutional network is immeasurable. In the absence of an institutional network, the District has relied primarily on Verizon/DC for local communications links and has paid as much as $30 million per year for service in recent years. According to OCTO, the value of lost service opportunities associated with not having an operational institutional network in the 1991 to 1998 period is as much as $12 million and is probably much more.

Now the District, under the leadership of OCTO, is seeking to make up for lost time and ground by establishing a new District-wide broadband infrastructure, which would support voice, video, and data communications, consist of fiber optic rings interconnecting all District facilities, and position the District to provide a wide range of advanced communications services for District facilities. Comcast/DC, Starpower, and all other providers should be partners in designing and building this network but the network should be controlled by the District, with OCTO in charge of establishing network specifications and of managing the network. At a minimum, all District facilities, including schools, libraries, public health, and traffic and transportation facilities, and all PAC facilities should be connected to this new broadband network. The starting point for establishment of this network should be the 541 service locations currently connected to the District's existing wide area network, with eventual connection of all District facilities to the network.

Access Channel Interconnect Facilities: Comcast/DC, Starpower, and any other system provider should provide a state-of-the-art fiber optic network which connects access production and other origination sites, other public institutions, and the institutional network to the provider's system. This network is necessary to transmit access channel programming and information, including live transmissions, to District residents.

The original cable franchise for Comcast/DC did not include requirements for access channel interconnect facilities. Comcast/DC patched together a simple network for the transmission of OCTT's and PAC's signals to Comcast/DC's nearby headend but did not provide any of the other access channel interconnection facilities that were needed by area public institutions. This simple access channel interconnection provided by Comcast/DC contributed to signal quality problems for the District's two public access channels for many years (Comcast/DC recently made significant improvements to this connection). Further, Comcast/DC's access channel interconnection does not carry DCPS's and UDC's signals to the headend (each institution pays for its own connection) and does not carry OCTT's signals from off-site locations (*e.g.*, the council chamber) to OCTT's main facility on 14th Street (OCTT pays for its own connections).

Emergency Alert Service: The Comcast/DC system was not equipped with an operational emergency alert system until July of 1998 although the franchise required Comcast/DC to begin providing emergency alert service in 1986. Comcast/DC finally made this system available to the District government in late 1998 or early 1999 or some 13 years after it was required to do so by the franchise. In view of this failure to comply with basic franchise requirements and the District's planned centralization of essential communications functions in a new unified communications center in Southeast Washington, all new franchises should include clear-cut requirements for emergency alert service which may be operated by the District government in emergency situations and which complies with technical specifications established by OCTO.

Promotional Spots: Comcast/DC provides time slots on some commercial cable networks for television spots provided by OCTT. Improvements in promoting access channels are needed to provide District residents with advance notice of programs and to provide information to District residents with regard to public access training and production opportunities. Opportunities for promotional spots on cable networks should be made available to PAC, DCPS, UDC, and other access channel providers as well as OCTT.

Program Guides: It is difficult for District residents to find out when and what public access and other access programming will be aired on local cable systems. This difficulty is partly due to the fact that program schedules provided by cable operators in daily newspapers and in monthly cable program guides generally do not even list the channel numbers for access channels. Comcast/DC, Starpower, and any other system provider should be required to include program schedule information for access channel programming in program guides and schedules.

FRANCHISE ADMINISTRATION AND REGULATION

Rates: In view of the strong concerns expressed by District residents with regard to rates, the uncertain future of competition, and possible delivery of essential services over cable systems at some time in the future, the District should retain authority to regulate rates to the maximum extent possible. This authority should be retained even though federal law effectively bars any

meaningful rate regulation by local cable franchising authorities at this time. In the future, the federal government could restore authority to local franchising authorities to regulate cable rates or it could reduce some of the existing restrictions on rate regulation.

Reports: Comcast/DC, Starpower, and any other system provider should be required to submit reports and other information to the District to the extent relevant to administration of the franchise, enforcement of customer service standards or requirements, enforcement and implementation of applicable laws, and monitoring construction and performance.

Construction: Comcast/DC, Starpower, and any other system provider should be subject to clear-cut and unambiguous construction schedules and strict enforcement requirements to ensure that all District residents have equal access to the same service options and technical capabilities within a reasonable time period. These requirements are essential because of the fact that neither Comcast/DC nor Starpower currently provides service throughout the District and that all District residents do not have equal access to the same competitive options. Comcast/DC does not, for example, make service available in a significant number of multidwelling unit buildings and in various pockets of the fire zone. Similarly, Starpower does not make service available in many areas of the fire zone.

Also of importance are strict standards and rules for construction and for restoration of the public right-of-way and other affected property. Much of the aerial plant installed in alleyways (and sometimes in streets) in Adams-Morgan, Capitol Hill, Georgetown, and other fire zone neighborhoods by Verizon/DC and Comcast/DC is poorly constructed, with drop lines hanging close to the ground and tangled mazes of drop lines radiating from poles in every direction at a number of locations. These installations should be inspected in connection with the rebuild of the Comcast/DC system, with lines moved to underground locations and/or replaced or rearranged as necessary to reduce visual clutter, improve safety, and comply with the District's Division of Transportation's (DDOT) standards. Aerial installation of cable lines in these areas is inconsistent with longstanding District law and should not be permitted for Starpower (or other providers) unless expressly authorized by DDOT and consistent with District regulations and law.

Use of the Public Right-of-way: The District should establish consistent rules regarding use of the right-of-way and apply these rules to all system providers, including Comcast/DC and Starpower, on a consistent and equitable basis. For example, if the District requires communications companies to make payments into a trust fund to support tech city projects, it should also impose this requirement on cable operators unless the operator is providing equivalent support pursuant to a franchise or comparable arrangement.

Technical and Performance Tests: In view of Comcast/DC's history of signal quality and reliability problems and signal leakage, the District should retain broad authority to develop and implement technical standards and testing procedures. Current federal law imposes sharp restrictions on municipal authority but this authority could be expanded in the future. In addition, Comcast/DC, Starpower, and any other system provider should be required to comply with any applicable federal standards and provide the District with a full complement of mobile testing equipment so that the District has the ability to verify compliance with any technical standards that may be in effect.

Inspection Rights: All plant and facilities of Comcast/DC, Starpower, and any other provider of a cable or similar system should be subject to any DDOT inspection requirements which apply to other users of the public right-of-way. In addition, OCTT should be authorized to inspect all facilities and books and records of Comcast/DC, Starpower, and any other system provider to enforce franchise provisions and other applicable law.

Enforcement Measures: Comcast/DC, Starpower, and any other system provider should be subject to enhanced enforcement measures, including financial penalties, with respect to customer service. These requirements are especially important because of the failure of both Comcast/DC and Starpower to comply with basic legal obligations. Especially important are establishing clearly defined liquidated damages for all significant franchise violations and establishing security funds for quick recovery of liquidated damages and other payments

Performance and State-of-the-art Reviews: Comcast/DC, Starpower, and any other system provider should be subject to strict requirements for annual reviews of performance and biennial reviews of state-of-the-art standards. These procedures will ensure that the District has the ability to enforce the franchise, secure improvements in performance, and ensure deployment of new technology.

Franchise Term: The franchises for Comcast/DC, Starpower, and any other system provider should be short-term franchises unless the provider enters into a binding agreement to make a substantial investment in cable-related system capabilities and/or public services (or produces evidence that it has made such an investment in the prior three years) and the investment to be made (or recently made) by the provider is substantial enough to justify a long-term commitment by the District.

Franchise Extensions: The District should not grant franchise extensions to Comcast/DC, Starpower, or any other system provider unless the District receives tangible and measurable benefits in the form of significant new investments in the system or significant improvement in services or public benefits or unless the District deems a short-term extension to be necessary for legal reasons.

Purchase or Take Over of the System by the District or a Third Party: The District should reserve the right to purchase the Comcast/DC system, the Starpower system, or any other system (or effect the transfer of the system to a third party) at an equitable price (excluding the value of the franchise and taking into account any damage to the District and its residents) if the franchise is terminated for cause. It should also be entitled to acquire the system at fair market value (excluding the value of the franchise) if the franchise expires and is not renewed. In either case, the price to be paid should be established by an appraiser selected by the District.

FRANCHISE FEES AND OTHER COMPENSATION

Franchise Fees: The District should continue to impose a 5% franchise fee on Comcast/DC, Starpower, and any other provider, with all proceeds from these fees (currently totaling about $3.5 million) earmarked for OCTT to cover its regulatory, production, and other activities. The District should also establish strict rules to prevent any circumvention of the obligation to pay franchise fees through third-party or other arrangements. Specifically, a 5% fee should apply to all revenues received by any third party in connection with direct sale or other provision of service over a cable

system or associated activities and services which would be subject to the franchise fee if provided by Comcast/DC, Starpower, or any other franchised system provider.

Public Service Fees: Periodic public service fees to be paid by Comcast/DC, Starpower, and any other system provider should include: (1) a 1% public access fee for PAC; and (2) a $1.40 per subscriber per month fee for the capital costs of public, educational, and government access facilities. Strict enforcement provisions equivalent to those applicable to franchise fees (*e.g.*, audits, reporting requirements) should also be applied to all public service fees.

Costs of Franchise Renewals, Extensions, Transfers, and Modifications: The District is, with increasing frequency, required to incur costs for outside attorneys, consultants, and engineers in order to respond to requests by Comcast/DC and Starpower for regulatory action in connection with requests for franchises, franchise renewals, extensions, approvals of transfers, and modifications in franchises or other agreements. The District has, for example, been required to process three separate requests for approval of transfers or changes of control by Comcast/DC in the past three years. Similarly, it has been required to devote extraordinary resources to Comcast/DC's request for renewal of its franchise and Starpower's request for an initial cable franchise. A system provider who requests or benefits from regulatory activity should reimburse the District for all costs incurred in dealing with any request which requires the assistance of outside attorneys, consultants, or engineers.

Remittance: Payments of franchise fees and public service fees by Comcast/DC, Starpower, any other system provider, and third-party service providers should be subject to identical rules, including requirements to make quarterly payments within 30 days of the close of a quarter.

Enforcement: Strict procedures to enforce franchise fee and other financial obligations are essential in view of Comcast/DC's underpayment of franchise fees and PAC fees in the past. These procedures should apply to Comcast/DC, Starpower, and any other system provider and to third-party service providers to the extent possible to prevent circumvention of financial obligations.

CUSTOMER SERVICE

Customer service standards should be adopted by ordinance or regulation rather than negotiated separately with Comcast/DC, Starpower, and other system providers who may enter the market in the future and should be included in franchise agreements. The same baseline regulatory protections should apply to all providers so that all consumers are given the same protections regardless of the identity of their service provider.

Local Facilities: At a minimum, both Comcast/DC and Starpower should establish one customer service center per quadrant and should aim to establish one in each of the District's eight wards. If either Comcast/DC or Starpower provides customer service and/or dispatching operations from a location outside of the District, it should share the resulting cost savings with District residents by providing improvements in customer service, including 24-hour-a-day access to customer service representatives and emergency repairs. In addition, a core group of trained employees and all necessary equipment and facilities should be based at facilities in the District to ensure responsiveness to local service requirements.

Notice Requirements: Comcast/DC, Starpower, and any other system provider should provide written notice to all customers with regard to price and service options at the time of

installation or service connection and every 12 months. All system providers should provide 30 days' advance notice to all subscribers of upcoming changes in rates, services, or channel numbers by means of a method which provides direct and actual notice to subscribers. (This advance notice should also be provided to the District in writing.) Written notice should also be provided with respect to all subscriber equipment provided by the system provider and the subscriber's right to use equipment provided by third parties. Finally, written notice should be provided with respect to installation practices, including availability of customized installations, the customer's right to install inside wires and attach equipment to the provider's equipment, the customer's right to receive service at any number of outlets, and availability (if any) of maintenance plans for inside wires. All subscriber notices should be submitted to OCTT at least 10 days prior to their distribution to subscribers.

Telephone Service: Reaching Comcast/DC's customer service representatives via the telephone has been a problem for District residents since the inception of cable in the District. This problem is likely to become more important in the future as a wider array of services is delivered over cable systems. At a minimum, Comcast/DC, Starpower, and any other system provider should make telephone service available between 6:00 a.m. and 12 midnight every day of the week. Further, in any case in which a system provider does not provide customer service via a District-based customer service facility, it should provide 24-hour-a-day telephone service.

System providers should take no more than 30 seconds to answer a call in person and no more than 30 seconds to transfer a call to an appropriate representative. Compliance with this standard should be measured on a monthly basis and on the basis of total number of calls made (including calls which receive a busy signal), and this standard should be met for at least 95% of calls every month. All system providers should install TDD equipment on at least one customer service telephone line and provide a customer service representative trained in the use of such equipment.

Billing: The District should establish clear-cut policies to ensure prompt and complete resolution of billing matters by Comcast/DC, Starpower, and other system providers. These policies should include clear guidelines for delivery of bills to customers, payment of credits and refunds, and termination of service. The District should also ban excessive late payment fees (Comcast/DC has, at times, charged a penalty of as much as $5 per month for late payments regardless of the amount of the overdue payment) by limiting late payment fees to no more than 2% of the customer's outstanding balance.

Installations and Disconnections: District residents have complained about Comcast/DC's failure to implement installation and disconnection requests in a timely fashion. Clear ground rules for installation and disconnection work should be established to ensure smooth transitions between providers and to make it easy for customers to add and drop services and equipment.

The District's ineffective access to service rules for residents of multidwelling units should be completely rewritten and replaced by strict new rules which ensure that all occupants of multi-dwelling unit properties (thousands of residents of multidwelling unit buildings in the District cannot obtain service from Comcast/DC) have a clear-cut and enforceable right to obtain access to service provided by all system providers.

Appointment Windows: Clear-cut rules should be established which limit appointment windows for all system providers to no more than three hours.

Signal Outages and Interruptions: As Comcast/DC and Starpower deploy digital, high-speed Internet, and other advanced services, signal reliability will become absolutely essential. A high level of performance should be achievable by deploying the proper technology and establishing clear-cut standards for minimizing signal outages and other service interruptions, including automatic payment to customers of credits for service interruptions of 60 minutes or more.

Response to Service Problems or Interruptions: The District should establish clear-cut rules which ensure a prompt response (the same day if the provider is notified before noon and within 24 hours if notified after noon) to all service problems and interruptions and require an immediate response (within 60 minutes of notification) to service problems and interruptions which affect multiple subscribers.

EMPLOYMENT, TRAINING, AND CONTRACTING

Local Work Force: Comcast/DC, Starpower, and any other system provider should be required to maintain a District-based work force to ensure responsiveness to community needs, with the equivalent of one District-based employee for every 333 customers (for initial District-based work forces of about 300 employees for Comcast/DC and 50 for Starpower). These minimum requirements should be adjusted once every three years to reflect changes in each provider's District-based customer base.

Local Work Force Composition: Longstanding requirements of District law that a majority of the local work force be District residents should be retained, extended to management level employees, and applied to Comcast/DC, Starpower, and all other system providers.

Apprenticeship and Training: Longstanding requirements of District law for apprenticeship programs for District residents should be retained and strengthened and applied to Comcast/DC, Starpower, and all other providers. These requirements are necessary to provide new employment opportunities in the technology sector for disadvantaged local residents.

Contracting Requirements: District law attempts to ensure that 50% of the dollar volume of District contracts are awarded to certified small businesses and that 5% of District contracts are awarded to prime contractors who subcontract a portion of the work to local or disadvantaged business enterprises. District requirements applying similar requirements to cable franchisees and OVS operators should continue to apply to Comcast/DC, Starpower, and any other system provider.

FINAL REPORT:
DISTRICT OF COLUMBIA NEEDS ASSESSMENT

This report provides final recommendations with regard to the minimum requirements which should apply to cable and similar systems in the District of Columbia and to the institutional arrangements and regulatory policies necessary to meet community needs and interests. These recommendations are designed to promote competition throughout the District, provide access to advanced services and technologies for all District residents, and ensure significant improvements in the performance of Comcast Cablevision of the District, LLC (Comcast/DC)[1] and all other providers.

This report contains background materials and data as well as rationales for each recommendation. This report is designed to assist the District in deciding: (1) what provisions to include in a franchise agreement with Comcast/DC, Starpower Communications, LLC (Starpower), and any other provider seeking a franchise or similar authorization; (2) how to respond to Comcast/DC's request for renewal of its franchise (*e.g.*, whether to renew Comcast/DC's franchise through informal negotiations, whether to issue a request for a renewal proposal, whether to commence a formal administrative proceeding to deny renewal); (3) how to respond to Starpower's request for a cable franchise and to similar requests by other possible market entrants (*e.g.*, whether to grant a franchise through informal negotiations, whether to issue a formal request for proposals, what provisions to include in an open video system agreement); and (4) what provisions to include in cable-related ordinances, rules, and regulations.

BACKGROUND

InPUT began the needs assessment process in December of 1998.[2] InPUT's assessment of

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1. For the sake of consistency, both District Cablevision Limited Partnership or DCLP and Comcast Cablevision of the District, LLC, are generally referred to as Comcast/DC throughout this report. The company's legal name was changed from DCLP to Comcast Cablevision of the District, LLC, in early 2001 when it was acquired by Comcast but it is the same company in terms of its legal rights and responsibilities and its operations in the District.

2. InPUT conducted this needs assessment pursuant to RFP 8041-AA-NS-1-LT, issued by the Government of the District of Columbia on February 10, 1998. The District's RFP required InPUT to conduct a wide-ranging assessment of cable-related community needs. Among other things, this RFP required InPUT to: (1) "assess [the] existing cable system [and] its operations" (including a "review [of the system's] design and operation" and an "inspection of facilities and equipment"); (2) "determine franchise compliance and performance problems"; (3) "assess [the incumbent provider's] performance [and its] system's technical and physical capabilities"; and (4) "identify areas where improvement and changes may be needed." Further, the District's RFP required InPUT to prepare a needs assessment report which, among other things: (1) "identif[ies] problems with [the] current cable operator's past performance"; (2) "identif[ies] what is needed to meet the communit[y's] needs"; (3) "identif[ies] interests in [] future cable and other telecommunications technologies"; and (4) "identif[ies] [a range] of options to meet future community needs and interest[s]."

community needs included a mail survey of a sample of District residents,[3] three town hall meetings,[4] a technical review of the system,[5] interviews with community representatives and leaders,[6] four focus groups,[7] an assessment of compliance with the franchise and past performance, and a preliminary report containing InPUT's recommendations.[8] In addition, OCTT has developed a "model franchise agreement,"[9] which has been submitted to Comcast/DC and Starpower for

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3. InPUT completed a report on September 27, 1999, which summarized the results of this survey and is entitled "Survey Report: District of Columbia Needs Assessment." The survey report is referred to in this report as the Survey Report.

4. These town hall meetings took place on May 4 and 18 and June 3, 1999. The May 4 meeting was held at One Judiciary Square, the May 18 meeting took place at the District's studio at the Office of Cable Television and Telecommunications' (OCTT) facilities at 2217 14th Street, N.W., and the June 3 meeting took place at Ballou High School in Southeast Washington. All three meetings were broadcast on City Cable 16 and transcribed by OCTT. Each meeting was open to all District residents and provided District residents with an opportunity to comment on Comcast/DC's performance and their interests with regard to future services. The transcripts of these meetings are referred to in this report as Town Hall Meeting Transcripts.

5. This technical review involved an inspection of Comcast/DC's facilities and facilities for public, educational, and government access, interviews with relevant personnel, and submission of written questions to Comcast/DC. The information supplied by Comcast/DC in response to InPUT's written questions is provided in Appendix A and is referred to as the Technical and Operations Review–Comcast/DC System. In addition, OCTT commissioned a report by William Pohts, entitled "District Cablevision Cable Television System Technical Audit," which provides information on the technical characteristics and performance of the Comcast/DC system and was completed on May 31, 2000. The Pohts report is referred to in this report as the Cable System Technical Audit–Pohts Report.

6. Summaries of these interviews are provided in Appendix B and are referred to in this report as Summaries of Interviews.

7. These focus groups included two groups of high school students (June 4 and July 8, 1999), one group of consumers (July 1, 1999), and one group of senior citizens (May 28, 1999). Summaries of these focus group sessions are provided in Appendix C and are referred to in this report as Summaries of Focus Groups.

8. This preliminary report, entitled "Final Recommendations: District of Columbia Needs Assessment," was completed on August 4, 2000. This final report contains supporting information and updates the final recommendations made in InPUT's August 4, 2000, preliminary report to reflect developments which have taken place since submission of that report to OCTT, including transfer of the franchise from AT&T Broadband to Comcast in January, 2001.

9. This model franchise agreement, dated December 20, 2000, and referred to in this report as the MFA, includes some but not all of the information required by District law. This report supplements the MFA by supplying information needed on such matters as system design and capacity and public, educational, and government access. District law requires OCTT to develop a "model proposed franchise agreement." D.C. Code § 43-1813(a). That law requires the model franchise agreement to cover "matters regarding system construction and operation, including, but not limited to, District regulation and authority over the franchise, programming, public, educational, and municipal access, franchise territory, location of facilities and personnel, system design and capacity, area-wide connection, capacity reserved for leased access, reports and records, maintenance and complaints, ownership and control, police powers of the District, franchise fee, financial and insurance requirements, rights reserved to the District, default and remedies, liquidation (sic) damages, notices, service rates, and all other terms and conditions." D.C. Code § 43-1813(c).

consideration.[10]

The purpose of this needs assessment is twofold. One purpose is to provide the information needed to develop a franchise agreement which responds to the needs and interests of community residents.[11] A second purpose is to provide the documentation required by federal law to deny an incumbent provider's request for renewal of a franchise. Under federal law, a franchising authority may deny a request for renewal of a franchise if it finds that the incumbent operator does not meet any one of four federal tests. Grounds for denial of renewal under federal law include failure to comply with the franchise or applicable law, deficiencies in performance or service quality, lack of financial, legal, or technical ability to provide the system or services proposed in the renewal proposal, or failure to submit a renewal proposal which meets future community needs and interests.[12]

HISTORY

When InPUT began work on the needs assessment in December, 1998, Comcast/DC (then operating under the name of DCLP) was the only cable operator providing service in the District. At about the same time, a second company, Starpower, had recently been authorized by the District to operate pursuant to an open video system (OVS)[13] agreement and was preparing to offer service in certain areas of the District.[14] Since commencement of the needs assessment, a number of significant changes have occurred in both the ownership of the cable franchise and the structure of the cable market in the District.

ORIGINAL CABLE FRANCHISE

Cable Ordinance and Request for Proposals: 1982-83

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10. OCTT also commissioned a review of documents by the law firm of Arnold & Porter. A draft version of this report, dated May 5, 2000, and entitled "Draft Report on Document Search regarding District Cablevision Limited Partnership's Compliance with the Cable Franchise Agreement," was prepared and is referred to in this report as Draft Document Search Report–Arnold & Porter Report.

11. This report includes citations to provisions of the MFA where appropriate. However, the purpose of this report is not to provide a justification for every single provision of the MFA, but rather to highlight key provisions of the MFA. Accordingly, the fact that a particular provision of the MFA is not discussed or cited in this report does not mean that it is not a necessary provision.

12. Cable Communications Policy Act of 1984, as amended (Cable Act) § 626(c); 47 U.S.C. § 546(c).

13. OVS regulation is an alternative to conventional cable franchising and provides a way for providers to enter local markets and provide competition to entrenched cable operators. This mode of operation was authorized in 1996 by federal statute and is governed by various federal requirements, including an obligation to carry programming provided by unaffiliated entities. Cable Act § 653; 47 U.S.C. § 573. *See also* 47 C.F.R. §§ 76.1500-14. A federal appeals court has ruled that local franchising authorities may require OVS providers to obtain franchises. *City of Dallas v. FCC*, 165 F.3rd 341 (5th Cir. 1999).

14. Starpower's initial efforts focused almost entirely on multidwelling units although it had made representations to the District that it also would provide service to single family dwelling units soon after it commenced operations.

The District began the cable franchise process in 1982 by enacting a cable ordinance which established ground rules for the franchise process and cable regulation.[15] The District's cable ordinance established guidelines for awarding cable franchises. This ordinance established a 28-member Cable Design Commission, which was authorized to develop a request for proposals (RFP), a franchise application, and procedures for granting a franchise and to provide other assistance to the City Council in connection with development of a franchise and selection of a franchisee.

Perhaps most important, the ordinance required the District's request for proposals to include a provision requiring decision-makers to give "favorable consideration" to franchise applicants who offered "meaningful minority participation, preferably of a local nature" in their ownership structure,[16] with meaningful minority participation defined as at least 35% minority ownership.[17] While District law did not expressly mandate either local or minority ownership, it discouraged companies which did not meet these ownership goals from submitting proposals. The District issued an RFP on November 18, 1983, which incorporated the minimum requirements of the ordinance, including its ownership requirements. Among other things, the RFP required that the system be a two-way system with at least 60 channels and that the franchisee provide a separate 25-channel institutional network for District institutions.

Award of Franchise to DCI and First Franchise Agreement: 1984-85

Despite two years of preparatory work by the Cable Design Commission, only three companies submitted proposals by the District's February 10, 1984, deadline. All three bidders were thinly capitalized local companies whose only reason for existence was to submit franchise proposals to the District. None of the three companies had any experience in building or operating cable systems or any track record in any other business.

15. D.C. Code §§ 43-1801-49.

16. D.C. Code § 43-1809(a)(11A)(A).

17. D.C. Code § 43-1809(a)(11A)(B).

Two of the bidders had ties to major national cable companies. Tele-Communications, Inc. (TCI), then the nation's largest cable operator, and United Cable Television Corporation, then a major cable company (and was later acquired by TCI), each owned 20% of the stock in District Cablevision, Inc. (DCI). Viacom, which at the time was one of the top ten cable companies,[18] owned 10% of the stock in Capital City Cable (CCC) while Inner City Cable, a minority-owned New York-based cable company owned another 40% of CCC's stock. Although both DCI and CCC had connections to major national cable companies, neither company secured a commitment from its cable partner to finance either system construction or initial system operation. The third bidder was District Telecommunications Development Corporation (DTDC), also a local company but with no link to a major cable company and almost no financial resources.

Carl Pilnick, the District's cable consultant, prepared a report which ranked CCC first, while noting questions about the financial abilities of all three bidders. The design commission split three ways, with a plurality favoring DCI but no majority for any of the proposals (11 voted for DCI, seven for DTDC, and six for CCC). The City Council's Public Service and Cable Committee recommended CCC in a near unanimous vote. After a major lobbying campaign, the City Council rejected the recommendations of its cable committee and voted 9-4 to award the cable franchise to DCI on July 11, 1984.[19]

Sixty percent of DCI's stock was initially owned by about 60 individual investors, most of whom were District residents, members of minority groups, or both.[20] The head of DCI was Robert Johnson, also the president of Black Entertainment Television (BET), a District-based cable network, which is aimed at the African American market and was founded by Mr. Johnson with the assistance of TCI executives. Collectively, DCI's local investors, many of whom had political connections to key District officials,[21] agreed to contribute about $1.4 million in capital.[22]

Perhaps more important in helping to secure the award of the franchise was DCI's partner-

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18. Viacom is now a large media company which owns various programming networks (*e.g.*, CBS, Showtime, MTV, BET) and is no longer an operator of cable systems, having sold its cable systems to TCI in 1996.

19. Among other things, DCI promised in this proposal to provide 16 access channels (eight public access and eight municipal channels), to provide $15 million in financial support for public access, to build eight access studios (one in each ward), to provide a $5 million grant to the District for equipment and support for educational and municipal programming, to provide a 78-channel system (with a second 78-channel network to be added when economically feasible), to provide a separate institutional network, to provide $180,000 per year in scholarship and educational funds, and to provide a $1 million training grant. *See, e.g.*, Marcia Slacum Greene, "D.C. Cable Contractor Chosen," *Washington Post*, July 11, 1984, A1.

20. Two national cable companies–TCI (with a 20% interest) and United Cable Television (with a 20% interest)–owned 40% of DCI's stock. According to DCI's representations to the City Council during the franchise process, United Cable Television (acquired by TCI in 1991) was to be given responsibility for management of the system.

21. *See, e.g.*, Marcia Slacum Greene, "Fight for a Franchise," *Washington Post*, March 4, 1984, B1; Frank O'Donnell, "The Great Pretender," *Regardie's*, October, 1985, 54.

22. It is unclear whether all investors fulfilled their commitments and made the capital contributions that had been promised. Almost a year after the District's selection of DCI as the franchisee, a significant amount of the money pledged by investors had not been paid. *See, e.g.*, Jerry Knight, "Cable Dreams Ending," *Washington Post*, July 1, 1985, 1 (Washington Business Week).

ship with Chesapeake and Potomac Telephone Company (C&P), a local affiliate of Bell Atlantic (C&P was since been renamed Verizon Washington, D.C. Inc. (Verizon/DC),[23] and Bell Atlantic has been renamed Verizon Communications). In December of 1983, Verizon/DC contacted 18 or so potential bidders and proposed a partnership under which Verizon/DC would build and own the cable system and lease it back to the cable franchisee to operate (assuming that the Federal Communications Commission (FCC) granted the necessary approvals). DCI's February 10, 1984, proposal to the District was accompanied by a letter of intent from Verizon/DC, which included a commitment to build, own, and maintain the system's distribution facilities. DCI would be responsible for installation of all drop lines and in-home lines and equipment. Under this agreement, Verizon/DC would be paid $55.6 million over a four-year period for construction of the system and could also be paid additional amounts to maintain the system.[24] According to press reports, Verizon/DC officials played a major role in securing award of the franchise to DCI.[25]

In subsequent negotiations with the District to incorporate DCI's proposal into a franchise agreement, DCI sought significant reductions in its commitments, claiming that it could not finance the proposed system.[26] On November 2, 1984, Mayor Marion Barry submitted a proposed franchise agreement to the City Council, which included some but not all the modifications sought by the potential franchisee.[27] On November 5, 1984, DCI and Verizon/DC entered into a contract under which Verizon/DC agreed to construct, own, and maintain the system's main distribution facilities, with payments specified in advance for a series of specific tasks and detailed rules governing the relationship between Verizon/DC and the cable franchisee.[28] On November 20, 1984, CCC filed a

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23. For the sake of consistency, both C&P and Verizon Washington, D.C. Inc., are referred to throughout this report as Verizon/DC.

24. Stephen Lynton, "District Cablevision, C&P Reach Accord," *Washington Post*, November 8, 1984, C1.

25. Frank O'Donnell, "The Great Pretender," *Regardie's*, October, 1985, 56.

26. *See, e.g.*, Marcia Slacum Greene, "Cable Firm Seeks to Scale Back Promises," *Washington Post*, September 11, 1984; Marcia Slacum Greene, "Cable TV Promises Questioned," *Washington Post*, September 14, 1984, B1.

27. Marcia Slacum Greene, "D.C. Firm May Delay Some Services," *Washington Post*, November 3, 1984, B1.

28. The terms and conditions for the relationship between the telephone company and the cable operator were included in a 15-year contract which was expressly made a part of the franchise agreement. This agreement was entitled the "Agreement for the Provision of Broadband Transport Facilities" and is referred to in this report as the Verizon/DC-Comcast/DC Agreement. The parties entered into this agreement on November 5, 1984, and amended the agreement on August 30, 1985. This agreement and the associated FCC tariff are discussed in detail in Appendix D, which is referred to in this report as Summary of the Verizon/DC-Comcast/DC Relationship. This agreement greatly limited Comcast/DC's control of the system in numerous ways and is, to a large extent, responsible for its failure to provide an institutional network and for installation of overhead facilities throughout the District's fire zone in violation of District rules requiring underground construction in these areas. With regard to the institutional network, for example, Verizon/DC had financial incentives not to install facilities which could be used at low or no cost by the District for telephone and/or data communications and which would have resulted in a loss of business to Verizon/DC. To put this financial incentive in perspective, the District now pays Verizon/DC about $30 million a year for telephone service and leased lines. In addition, Verizon/DC had no incentive to install fiber optic lines and other advance capabilities which would give Comcast/DC the ability to compete with Verizon/DC and, in fact, refused to install fiber optic lines for Comcast/DC in 1990 because it was not expressly required by contract to do so. Sharon Epperson, "Full Access to Cable

$125.7 million antitrust lawsuit, charging DCI and Verizon/DC with illegally conspiring to obtain the franchise. On December 4, 1984, the City Council awarded the franchise to DCI.

Mr. Johnson waited almost three months following approval of the franchise agreement by the City Council before finally signing the agreement on behalf of DCI on February 25, 1985. Mr. Johnson waited until various legal obstacles had been removed, entering into a binding agreement on DCI's behalf just about two weeks before DCI's right to the franchise was scheduled to lapse. Just a few days prior to DCI's final approval of the franchise agreement, DCI entered into a settlement agreement with CCC in which DCI agreed to pay $300,000 to CCC and to make other concessions in exchange for CCC's agreement to dismiss its antitrust lawsuit.[29] This settlement, in turn, occurred a few weeks after the FCC approved the Verizon/DC-Comcast/DC partnership and rejected various challenges by CCC and other parties to Verizon/DC's participation in the development of the District's cable system[30] and the U.S. Justice Department allowed the Verizon/DC-Comcast/DC partnership to go forward.[31]

DCI sought to begin construction of the $130 million system by securing $80 million for the initial phase of construction and start up of operations. DCI planned to raise $30 million of $80 million in start-up funds by selling limited partnerships and to borrow the remaining $50 million from a bank. The linchpin of the financing plan was a proposal to sell $30 million in limited partnerships. Under this arrangement, investors would buy shares and receive tax benefits and then sell their interests back to DCI, the general partner, after a designated time period had elapsed.

DCI was unable to raise start-up funds by selling limited partnerships or by any other means. In fact, DCI officials were probably aware that DCI would not be able to finance construction and start up of the system before it finalized the franchise agreement.[32] One obstacle to obtaining financing was the fact that the cable franchisee would not own the system's distribution network under the agreement with Verizon/DC and therefore could not use the cable system as collateral for bank loans.[33] Another obstacle was the fact that limited partnerships were not a generally accepted method for financing cable systems.

TV Is Expected by Spring," *Washington Post*, June 21, 1990, B4.

29. Eric Pianin, "Settlement Removes Obstacle to City's Cable TV Plans," *Washington Post*, February 20, 1985, B1.

30. *In re the Application of* The Chesapeake and Potomac Company for authority pursuant to Section 214 of the Communications Act of 1934, and Sections 63.01 and 63.57 of the Commission's rules and regulations, to construct and maintain broadband transport facilities in the District of Columbia, *Memorandum Opinion, Order and Certification* in File No. W-P-C-5511, January 30, 1985.

31. Marcia Slacum Greene, "Justice Clears C&P Venture, *Washington Post*, February 6, 1985, B1.

32. Marcia Slacum Greene, "D.C. Cable Television Firm Promised too Much," *Washington Post*, June 29, 1985, A1.

33. *See, e.g.*, Jerry Knight, "Cable Dreams Ending," *Washington Post*, July 1, 1985, 1 (Washington Business Week). In addition, the agreement with Verizon/DC required the cable franchisee to pay the full amount of construction costs to Verizon/DC within the first five years, in effect requiring the cable operator to finance Verizon/DC's estimated $55 million in construction costs.

Modification of Franchise and Transfer of the Modified Franchise to DCLP (and Effective Change in Control to TCI): 1985

On June 21, 1985, DCI requested modifications in the franchise agreement and reductions in its franchise obligations which were valued at about $32 million, acknowledging that it had made no progress in securing the $80 million in start-up funds needed to construct the $130 million system.[34] Requested modifications included reduction in the number of channels from 78 to 54, elimination of the second 78-channel shadow cable, reductions in the number of access channels from 16 to 6, a more drawn-out construction schedule, elimination of most financial support for access, elimination of the requirement to make service available to all households if average construction costs exceeded $500 per household, indefinite delay of the institutional network, and substantial rate increases. At about the same time, TCI, the owner of 20% of DCI's stock, made clear that it was prepared to provide funding of about $30 million to DCI but would not do so unless it became DCI's chief partner and secured a significant increase in control of the system.[35] Shortly thereafter Mayor Barry announced support for most of the concessions requested by DCI and urged the City Council to approve the necessary modifications to the franchise.[36]

Shortly after a declaration by DCI that it would not fulfill the terms of the franchise agreement unless the City Council modified the agreement,[37] the District adopted emergency legislation on July 9, 1985. This legislation authorized extensive modifications in the franchise agreement and gave DCI 90 days to demonstrate its ability to secure financing.[38]

These modifications included reducing the system's channel capacity from 78 to 54, eliminating the requirement to install a second 78-channel residential cable (which was to be activated if "economically feasible"), eliminating the obligation to construct a separate institutional network,[39] reducing the number of access channels from 16 to 6, replacing $15 million in public access support with an annual payment of the greater of $100,000 or 1% of gross revenue, eliminating a $5 million grant for equipment for educational and government access, eliminating $180,000 in annual scholarship funds, eliminating a $1 million training grant, replacing the requirement for eight public access studios (one per ward) with a requirement for a single studio (to be used both by the cable operator and by public and municipal access users), and extending the time period for completion of construction from four to five years.

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34. Sandra Evans, "Cable Firm Can't Meet D.C. Contract Terms," *Washington Post*, June 19, 1985, C1.

35. Marcia Slacum Greene, "Financial Aid Offered D.C. Cable," *Washington Post*, June 22, 1985, B1.

36. Arthur Brisbane, "Barry Gives Endorsement to Cable TV Concessions," *Washington Post*, June 28, 1985, A1.

37. Marcia Slacum Greene, "Cable Firm Chief Threatens to Break Contract with City," *Washington Post*, July 4, 1985, A1.

38. This revised agreement is referred to in this report as the Cable Franchise Agreement (CFA).

39. Substituted for this requirement were watered-down obligations to market and provide institutional services over the subscriber network, to install "shadow" trunks for an institutional network in areas of underground construction, and to activate capacity on a separate institutional network only if the cable operator determined it to be "technically and economically feasible." CFA § 5.1.

The only significant modifications not approved by the District were proposals to eliminate the cable company's obligation to wire the entire District. These rejected proposals included: allowing the cable operator to refuse to provide installations at locations if providing the installations in question would cause its average installation costs to exceed $500 per household; allowing the cable operator to refuse to provide service to residents of a building served by a competing provider if installation would be too costly; and allowing the cable company to charge an additional fee for nonstandard installations.[40]

DTDC, one of the unsuccessful bidders, filed a lawsuit against DCI on July 22, 1985, alleging that DCI had engaged in racketeering, fraud, and unfair competition and seeking to recover $23 million in damages. The lawsuit contended that DCI's proposal was based on "false assumptions concerning the financial viability" of the proposed system and that DCI had engaged in "fraudulent misrepresentations" concerning the services DCI would provide to the District.[41]

On September 3, 1985, DCI requested more modifications in construction requirements, requesting the right to alter construction plans if it encountered major economic problems.[42]At the same time, DCI also announced plans to form a new legal entity, District Cablevision Limited Partnership, and to transfer the franchise to this new entity.

On September 10, 1985, the City Council approved, in a 10 to 1 vote, the proposed transfer of the franchise to DCLP and a watered-down version of the proposed right to modify construction requirements. DCLP was a limited partnership consisting of TCI[43] and DCI, with TCI owning 75% of DCLP and DCI owning 25%. DCI was DCLP's general partner in name only as TCI effectively controlled the system and its operations through a management agreement with DCLP and the original local investors in DCI[44] exercised no real control over the system or its operations. The implicit *quid pro quo* for the District's approval of the transfer to DCLP was TCI's stated plans to contribute $15 million in cash and $30 million in credit to finance construction and start up of the system. In other words, following various reductions in franchise requirements requested by the cable operator, initial financing requirements had been cut by almost 45% (from $80 million to $45 million), with capital requirements cut by 50% (from $30 million to $15 million).

The long battle to bring cable television to the District finally ended on September 30, 1985, when Mr. Johnson signed a modified franchise agreement. This new franchise agreement incorporated all the changes made in the franchisee's commitments since DCI was selected as the District's franchisee on July 11, 1984. At the end of this protracted process, the District settled for a franchise agreement that was much weaker than the original agreement, contained many ambiguities and

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40. Marcia Slacum Greene, "District Council Approves Concessions to Cable Firm," *Washington Post*, July 10 1985, A1.

41. Marcia Slacum Greene, "District Cable Firm Accused of 'Racketeering'," *Washington Post*, July 23, 1985, C4.

42. Marcia Slacum Greene, "D.C. Cable Firm Unveils Wiring Schedule, Seeks More Concessions," *Washington Post*, September 4, 1985, C1.

43. The actual name of the limited partner was TCI Development Corporation, which was a wholly owned subsidiary of TCI.

44. DCI's local investors actually owned only about a 15% interest in DCLP as DCI itself was 40% owned by TCI and United Cable Television.

contingencies, and established only *de minimis* commitments to public service.[45] The promise of local and minority ownership had been effectively eviscerated with the transfer of *de facto* control of the system to TCI, the nation's largest cable company. And last but not least, the cable company had entered into a costly agreement with Verizon/DC which precluded the cable company from controlling the system's distribution facilities, limited its ability to provide an institutional network or institutional services or to upgrade the system, and resulted in numerous violations of longstanding District rules requiring underground installation of communications lines in the fire zone.

Change in Control of DCLP from TCI to AT&T: 1999

In February of 1999, AT&T acquired TCI and all its cable systems, making AT&T Broadband the largest cable company in the nation. The District approved a change of control in the ownership of the cable franchise in February of 1999, giving AT&T control of both TCI's 75% interest in DCLP and its 40% interest in DCI's[46] 25% interest in DCLP, for an overall ownership position of about 85%.

Change in Control of DCLP from DCI to AT&T: 1999

In about November of 1999, AT&T agreed to purchase DCI's stock, acquiring the ownership interest of the original DCI investors, becoming the sole owner of DCLP, and quietly ending the District's experiment with local ownership. While DCLP provided a vehicle for creation of significant wealth for a small group of local investors (collectively, investors in DCI realized about $40 million in AT&T stock on an original investment of a little more than $1 million), DCLP was never actually controlled by DCI's local investors. It was controlled by TCI, functioning primarily as an affiliate of TCI rather than a local company and not being particularly responsive to local needs. Moreover, DCLP provided only temporary ownership opportunities for District residents. With the District's approval of DCLP's request for a change of control in November of 1999, DCI's 25% interest in DCLP was eliminated, giving AT&T 100% ownership of DCLP and ending both minority and local involvement in the ownership of DCLP.[47]

Transfer of the Franchise from AT&T to Comcast: 2000

In May of 1999 (and several months before the District's approval of the change of control

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45. This agreement was weak in comparison to both DCI's original franchise agreement with the District and franchise agreements for surrounding jurisdictions (*e.g.*, Montgomery County (Maryland) and Fairfax and Arlington Counties (Virginia).

46. As part of this transaction, AT&T acquired ownership of TCI's 40% interest in DCI. This 40% stake consisted of TCI's original 20% interest and United Cable Television Corporation's 20% interest, which was acquired by TCI when it acquired United and all its properties in the early 1990s.

47. AT&T agreed to establish a board of which at least 60% of the members were to be minorities and 51% were to be District residents. Change of Control Agreement (November, 1999) § 3.6. This was a commitment with limited substantive impact as AT&T complied with this obligation by simply designating as board members a number of its own employees.

to AT&T in November of 1999), AT&T and Comcast publicly announced plans to transfer the franchise for the District from AT&T to Comcast as part of a larger transaction associated with AT&T's acquisition of MediaOne, the fourth largest cable company in the nation at the time.[48] In two transactions, AT&T agreed to acquire MediaOne while Comcast agreed to terminate its prior offer to buy MediaOne.[49] In exchange for terminating its agreement to buy MediaOne and for stepping aside and allowing AT&T to acquire MediaOne, Comcast and AT&T entered into an agreement to swap a number of cable systems. This asset exchange agreement between AT&T and Comcast involved the swapping of various systems around the nation so that each company would end up with enhanced control of their respective regional markets. For Comcast, this transaction enabled it to solidify and expand its control of the mid-Atlantic region to include almost all the cable systems in the Baltimore-Washington metropolitan area[50] as well as the Philadelphia area.

In January, 2001, AT&T and Comcast implemented this asset exchange, and ownership of the District's cable franchise was transferred from AT&T to Comcast. This transfer occurred shortly after the District approved transfer of the franchise from AT&T to Comcast.[51] In connection with transfer of the franchise to Comcast, the District entered into a "settlement agreement" with AT&T and DCLP[52] under which the District received a payment of $5 million in exchange for the District's agreement not to seek relief from Comcast (or its subsidiaries), AT&T, or DCLP, for past franchise violations and other deficiencies in performance.[53] In addition, Comcast made commitments in the transfer agreement to negotiate provisions in the franchise renewal for an upgrade of the cable system, provision of an institutional network, and continuation of unspecified upgrade work.[54]

Violations of the franchise and other laws which preceded this transfer include:

failure to provide institutional services for District offices and agencies, to market institutional services, and to complete installation of trunk lines for an institutional network;
failure to provide an emergency alert system from 1986 to 1998;
failure to equip the system for two-way communications;
failure to upgrade the cable system to 550 MHz and to increase the system's channel capacity to 78

48. *See, e.g.*, Mark Leibovich, "Comcast to Control Area Cable Firm to Acquire District System," *Washington Post*, May 6, 1999, E1. *See also* Mike Farrell, "AT&T Wins Battle for MediaOne: Comcast Signs Off, Buys 2M Subs," *Multichannel News*, May 10, 1999.

49. *See, e.g.*, Geraldine Fabrikant and Laura M. Holson, "Key to Deal for MediaOne; Keeping the Losing Bidder Happy," *New York Times*, May 6, 1999.

50. Through a series of earlier transactions, Comcast acquired systems serving the counties of Montgomery, Prince George's, Ann Arundel, and Charles in Maryland and the city of Alexandria and the county of Arlington in Virginia. Comcast also recently acquired the system serving the city of Baltimore from AT&T.

51. The transfer agreement governing transfer of the franchise from AT&T to Comcast is referred to in this report as the Comcast Transfer Agreement.

52. This agreement is referred to in this report as the Comcast/DC Settlement Agreement.

53. Comcast/DC Settlement Agreement §§ 1-2.

54. Comcast Transfer Agreement § 9.1.

analog channels;
failure to complete construction of the system by the franchise's May 22, 1991, deadline;
underpayments of franchise fees;
underpayments of public access fees;
failure to comply with initial deadlines for provision of a studio for municipal and public access use;
failure to provide various items of equipment for public access, including field production equipment;
failure to allow public access users to use Comcast/DC's local origination equipment;
extended delays in connecting a number of public schools to the cable system;
failure to comply with technical standards governing signal leakage;
failure to comply with code requirements governing such matters as grounding and standards for lashing and installing cable lines;
failure to comply with District rules prohibiting aerial installation of lines and associated facilities in the fire zone[55];
failure to comply with numerous customer service standards;
failure to make service available to residents of many multidwelling unit buildings;
failure to comply with the requirement that at least 51% of Comcast/DC's work force be District residents;
failure to continuously maintain an apprenticeship and job training program for unskilled and semiskilled District residents;
failure to comply with contracting requirements for minority business enterprises;
failure to comply with affirmative action reporting requirements;
implementation of a change of control of ownership of the franchise in 1994 in violation of a resolution of disapproval adopted by the City Council[56];
transfer of governing power from DCLP in 1985 to a management committee which was controlled in part by TCI in violation of the franchise's requirement that governing power be exercised by a governing body, at least 60% of the membership of which are required to be minorities; and
failure to comply with annual reporting requirements pertaining to ownership structure and board members.

Inadequate service was also provided in several areas which are not directly covered by the franchise or other provisions of law but represent areas of importance to District residents. These include:

failure to properly maintain and manage studio facilities for public access use;
degradation of signal quality on the public access channels;

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55. The fire zone encompasses all downtown and Mall areas and all adjacent areas, including Dupont Circle, Adams-Morgan, Capitol Hill, Foggy Bottom, Georgetown, Shaw-Howard, Mount Pleasant, Columbia Heights, Eckington, Trinidad, most of Southwest Washington, and parts of several other older neighborhoods.

56. In 1994, TCI and Liberty Media merged to form a new corporate entity, TCI/Liberty Holding Company, which assumed ownership of all TCI's property, including its interest in the cable franchise. The City Council adopted a resolution in 1994 which disapproved the cable operator's application for the District's consent to the proposed transfer of control of the cable franchise to the new company.

failure to connect DC General Hospital and Martin Luther King Jr. Memorial Library to the cable system;
delays in offering pay-per-vew capability; and
failure to provide a picture of acceptable quality for the over-the-air local broadcast stations retransmitted on the cable system in some areas of the District.[57]

OVS AGREEMENT WITH STARPOWER

Starpower is a joint venture formed in 1997 between Pepco Communications, LLC,[58] and RCN Corporation to provide an open video system in the District and surrounding areas. Starpower entered into an open video system agreement with the District in October of 1998 and began to provide service to District residents in parts of Southeast and Northwest Washington soon thereafter. This interim agreement was extended by Mayor Anthony Williams in June of 2001 until June 10, 2002. Pursuant to its temporary OVS agreement, Starpower has installed state-of-the-art cable plant and now provides services in all four quadrants of the District,[59] with a heavy emphasis on multidwelling unit properties.

Starpower has requested a cable franchise and is attempting to negotiate a long-term franchise with the District. A recent OCTT review of Starpower's performance and compliance with

57. Since it acquired the system, Comcast-DC has addressed this signal interference problem by moving the four local broadcast stations that were most affected by this problem to higher channel numbers where interference from over-the-air transmissions is less likely.

58. This entity is a wholly owned subsidiary of Potomac Electric Power Company (PEPCO).

59. Starpower has completed about 80% of construction of its system in the District. However, it is not providing service in much of Georgetown, Adams-Morgan, and Capital Hill because of concerns with regard to application to Starpower of District rules which preclude aerial construction in these areas. Starpower is seeking permission to install lines at above-ground locations in Adams-Morgan, Capitol Hill, and Georgetown. According to Starpower, requiring it to install facilities in underground conduit in these areas could mean costs as much as three times the costs of installing these facilities at aerial locations in these areas. *See* Interview Summaries (Appendix B), B-79 (Starpower). It is unclear whether this estimate of high costs is attributable to assumptions with regard to fees likely to be charged by its partner, PEPCO, for rental of space in existing PEPCO conduit or to assumptions with regard to the cost of installing new conduit devoted exclusively to Starpower's use.

District regulations generally preclude aerial installations throughout the "fire zone." 12A DCMR §§ 2709-10. These rules have been in effect for many years, and the Department of Public Works (DPW) for the District determined during initial construction of the Comcast/DC system that these rules applied to Verizon/DC's installation of facilities for Comcast/DC in the fire zone. *See, e.g.*, Memorandum of January 25, 1989, from Margaret Hines (deputy corporation counsel for the District) to Richard Maulsby (OCTT's executive director). The fire zone includes Adams-Morgan and almost all of Capitol Hill and Georgetown. It also includes: the entire downtown and Mall area; all of Dupont Circle, Foggy Bottom, Mount Pleasant, Columbia Heights, Shaw-Howard, Eckington, and Trinidad; most of Southwest Washington; and parts of Woodley Park and Petworth. 12A DCMR § 2710.2(d). For reasons that are not apparent, plant was installed in the fire zone for Comcast/DC by both Verizon/DC (poles and feeder lines) and Comcast/DC (drop lines) in violation of these rules. As a result, numerous utility poles (owned by Verizon/DC) and aerial lines (owned by both Verizon/DC and Comcast/DC) are currently in service in alleyways (and in streets in a few cases) throughout the fire zone in violation of these basic rules. In fact, although Verizon/DC installed poles and aerial lines in these areas for Comcast/DC, the lines and facilities used both then and now by the telephone company for telephone lines are generally underground in fire zone areas.

its OVS agreement indicates problems in several important areas, including customer service, work force composition, and other employment-related provisions.[60]

SUMMARY OF FINDINGS

District residents are strongly interested in a competitive market, advanced services and technologies, improvements in Comcast/DC's system and operations, and improved and enhanced public services. The cable-related needs of District residents and institutions[61] are, to a significant extent, unmet under the District's existing regulatory policies. Meeting these needs requires aggressive and affirmative action by the District to:

foster a truly competitive market, with a choice of two or more cable systems for all District residents;
require deployment of technically advanced systems which provide access to a full range of advanced services and technologies for all District residents;
require significant improvements in the capabilities, capacity, and performance of the Comcast/DC system and ensure Comcast/DC's ability to provide these and future improvements and to compete with Verizon/DC by ending the current Verizon/DC-Comcast/DC relationship; and
enhance and expand public services[62] by securing funding for a state-of-the-art community-wide public access facility and for state-of-the-art facilities and equipment for government and educational services and by securing a fiber optic network to connect District and other public facilities together (*i.e.*, an institutional network).

District residents have repeatedly and clearly expressed support for a competitive cable market. It is therefore essential that all future franchises and associated rules be designed to promote and support competition to the extent possible. The existing cable franchise agreement and the cable ordinance are not designed for this purpose as both were developed in the 1980s in the context of a single provider market and are ill-suited for today's multi-provider market. The cable franchise also involves an ill-conceived partnership with Verizon/DC which interferes with Comcast/DC's ability to deploy new technical capabilities, control service quality and costs, comply with the franchise, and compete with Verizon/DC. Starpower's OVS agreement has played an important role in introducing competition in many parts of the District. However, it is an interim agreement and, as such, does not guarantee permanent competition throughout the District or application of the same

60. Cable Television in the District of Columbia: Year 2000 Compliance Report, OCTT, May 24, 2001, 13-21. This compliance report is referred to in this report as OCTT's Compliance Report for 2000.

61. A local franchising authority may deny a request for renewal of a cable franchise because the operator's proposal does not meet the community's "future cable-related community needs and interests, taking into account the cost of meeting [these] needs and interests." Cable Act § 626(c)(1)(D); 47 U.S.C. § 546(c)(1)(D).

62. For purposes of this report, the term "public services" refers to all public benefits and resources provided pursuant to the franchise and applicable law for the District and area public institutions and includes such items as public, educational, and government access channels; free services for the District and other public institutions; institutional networks and services; financial support for access channels and institutional networks; and equipment and facilities for public institutions.

ground rules to both Starpower and Comcast/DC. Among other things, it is limited as to time and scope[63] and does not establish a permanent foundation for Starpower's operations in the District.

To advance competition, the District should develop baseline franchise requirements which will work equally well in a multi-provider or a single provider market and in a market where one provider may have a large market share and others a small market share or where market shares are subject to sudden and frequent change. The District's ground rules for regulation of cable operators, OVS providers, and comparable providers[64] should be flexible and adaptable and equipped to apply to multiple system providers on a consistent and equitable basis. The District's rules should establish uniform baseline requirements for all system providers, including minimum technical and service requirements and requirements for universal availability of service, which ensure that all District residents have equal access to the same minimum level of service and the opportunity to purchase service from multiple providers.

In addition to this overarching interest in competition, District residents expressed strong interest in advanced services and technologies. District residents are heavy in-home users of computers and the Internet and are early adopters of new information technology,[65] suggesting that they are likely to embrace advanced cable-based technology quickly and easily. District residents expressed strong interest in deployment of technologies which enhance customer control of service selection and use and provide access to new service and packaging possibilities. In addition, the District government is strongly interested in establishing a fiber optic institutional network which would interconnect government offices and facilities and other public facilities and provide an infrastructure for the future.

District residents expressed dissatisfaction with Comcast/DC's performance in numerous areas and called for across-the-broad improvements in Comcast/DC's performance. These complaints include excessive rates, poor signal quality, limited programming choice, and unresponsive customer service. Further, Comcast/DC committed various violations of the franchise.[66] Finally, Comcast/DC does not own most of the cable systems's existing distribution facilities as a result of an ill-conceived and outdated 1985 agreement with Verizon/DC. Because of the constraints of this agreement, Comcast/DC does not have a clear-cut right to upgrade the existing network unless it

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63. The original OVS Agreement with Starpower (referred to in this report as OVSA), was effectively an 18-month agreement. It consisted of a one-year agreement that commenced on December 10, 1998, and was renewable by Starpower for an additional six months and by mutual agreement of the parties for a second six-month extension. OVSA § 1.3. After expiration of the initial 18-month term (one year plus the six-month automatic extension), the OVS agreement was extended from June 10, 1999, until December 10, 2000, by mutual agreement of the parties. That extension agreement also permitted extension of the OVS agreement in monthly increments by the mayor for another six months (until June 10, 2001) for the purpose of concluding franchise negotiations. OVS Extension Agreement § 1. Mayor Williams extended the OVS agreement with Starpower in June of 2001 from June 10, 2001, until June 10, 2002.

64. The term "system provider" is used in this report to refer to cable operators, OVS providers, and other comparable providers.

65. *See, e.g.,* Survey Report, 22-28 (as of 1999, close to 60% of respondents were in-home users of the Internet and close to 75% were computer owners).

66. These compliance problems were substantial, resulting in a financial settlement of $5 million in connection with transfer of the cable franchise from AT&T to Comcast. This settlement relieved Comcast and Comcast/DC of liability for franchise violations which predated the transfer and partially compensated the District for these franchise violations.

builds its own system or buys out Verizon/DC's interest in the system. And yet, a rebuild of the Comcast/DC system is required to correct service quality problems and to establish a foundation for deployment of advanced services such as high-speed Internet service and interactive television.

Finally, District residents have expressed strong support for improving and expanding public access and other public services. Community needs in this area have not been met in the 16 years since original grant of the cable franchise in 1985. Comcast/DC did not comply with a number of the franchise's provisions relating to public services. In addition, the cable franchise limits the cable operator's obligations in some areas by establishing conditions and qualifications and is ambiguous in other areas with respect to the operator's obligations, making straightforward enforcement of the franchise's public service obligations difficult.

Because of these deficiencies in the cable operator's performance and in the franchise with respect to public services, the District has failed to develop institutional capabilities comparable to those of other jurisdictions in the metropolitan area. For example, the Public Access Corporation of the District of Columbia (PAC), an institution established by District law to manage public access,[67] has been underfunded and has been unable to fully respond to the needs of District residents in the public access area. It is just now in the process of establishing a District-wide production facility at the Brooks Mansion in Northeast Washington. Similarly, the support provided to District public schools and the University of the District of Columbia (UDC) has been close to nonexistent. Finally, Comcast/DC failed to provide the institutional services or to install the institutional network facilities required by the franchise, depriving the District government of the opportunity to develop its own communications network. The current franchise process provides an opportunity to make up for some of this lost ground and to lay the foundation required for the District to fully realize the many benefits associated with effective use of cable systems for public purposes.

67. PAC is a nonprofit organization established by the District's cable ordinance and has been assigned responsibility for managing all public access channels. D.C. Code § 42-1829.

RECOMMENDATIONS

1. GUIDING PRINCIPLES

Guiding principles for District regulation should include: promoting competition; ensuring access to advanced services and technologies; and improving Comcast/DC's performance. These principles should be embedded in all aspects of District regulation and are necessary to meet community needs and interests and prevent a repeat of mistakes of the past in this round of franchising.

1.1 PROMOTING COMPETITION

District residents expressed strong support for competition, citing its likely impact on rates and other advantages.[68] Central elements of the District's competition-related policies should include measures to encourage facilities-based competition, to apply consistent rules to all system providers to the extent possible, to ensure equal access to competition throughout the District, and to establish independent public service operations. Systematic implementation of these policies will hasten the arrival of the day on which all District residents enjoy the benefits of price and service competition and the technological innovation associated with robust competition.

1.1.01 Facilities-based Competition

Facilities-based competition (*i.e.*, access to at least two competing cable systems) is an essential element of true competition in the cable market. Federal law imposes various restrictions on local regulation of rates and services, making it virtually impossible for local regulators to regulate use of a single system by multiple service providers and to ensure fair competition among service providers. Further, federal law, as currently interpreted, does not clearly authorize local franchising authorities to require "open access" for competing providers of Internet service, interactive television, or other cable-based services. The FCC is considering proposals to establish open access rules[69] but is unlikely to go beyond the *de minimis* open access rules imposed on AOL Time Warner by the Federal Trade Commission and the FCC as a condition for approval of the merger of AOL and Time Warner.[70] As a result, the only practical way to promote competition is

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68. *See, e.g.*, Survey Report, 17-21 (close to 90% of respondents expressed interest in access to a truly competitive market); Summaries of Focus Groups (Appendix C), C-1 (consumers), C-7 (consumers: interest in access to bundled services if it would result in rate reductions), C-12-13 (senior citizens); Town Hall Meeting Transcript (May 4, 1999), 57 (interest in "open access" for Internet service providers); Town Hall Meeting Transcript (May 18, 1999), 85-86, 90-91 (importance of "open access" for Internet service providers).

69. *See, e.g., In the Matter of* Inquiry Concerning High-Speed Access to the Internet Over Cable and Other Facilities, *Notice of Inquiry* in GN Docket No. 00-185, September 28, 2000.

70. *See, e.g., In the Matter of* Applications for Consent to the Transfer of Control of Licenses and Section 214 Authorizations by Time Warner, Inc. and America Online, Inc., Transferor, to AOL Time Warner, Inc., Transferee, *Memorandum Opinion and Order* in CS Docket No. 00-30, January 12, 2000.

to encourage construction of at least two competing cable systems throughout the District.

RECOMMENDATION # 1:

Every effort should be made to promote head-to-head competition among system providers and to provide District residents with access to a truly competitive market. To advance this goal, the District's regulatory policies should ensure that every resident of the District has the option of obtaining service from two or more providers of cable and/or comparable systems,[71] each of which has installed plant throughout the District and can connect any potential service location in the District to its system upon request.

1.1.02 Consistent Rules for all System Providers

Consistent rules are needed to ensure that all system providers make available a minimum level of service and capabilities throughout the District and are subject to comparable obligations with respect to public services.[72] Stringent requirements in this area are appropriate because some 16 years after the District's initial grant of a cable franchise, Comcast/DC does not make service available to all District residents who request service[73] although required by law to do so. Starpower provides service in most areas of the District except for large parts of Adams-Morgan, Georgetown, and Capital Hill where Starpower's concerns with regard to District rules requiring underground installation in these neighborhoods have delayed completion of the Starpower system.[74] Starpower focused most of its initial construction and marketing efforts on multidwelling unit properties in Northwest and Southeast but now offers services throughout the District except for in parts of Adams-Morgan, Capitol Hill, and Georgetown.

A requirement for consistent rules for all providers does not automatically mean that every

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71. An example of a comparable system is the OVS system currently provided by Starpower. The term "system" is used in this report to refer to cable and OVS systems and similar systems which may emerge in the future to deliver video programming and other services to customers via wire-based connections and which are subject to the District's jurisdiction.

72. *See, e.g.,* Summaries of Interviews (Appendix B), B-2-3 (councilmember: "everyone should pitch in an equal way"). *See also* Summaries of Interviews (Appendix B), B-7 (councilmember: consideration could be given to a reduced emphasis on public service contributions by service providers in order to encourage competition).

73. *See, e.g.,* Summaries of Interviews (Appendix B), B-6 (councilmember); Survey Report, 8; Letter of April 18, 1999, from Marie Bindzi (Comcast/DC) to Stacy Richardson (OCTT's general counsel) and associated *Monthly Report of Mar. 1999* (list of 34 buildings containing 3,622 units which were not served by Comcast/DC as of March, 1999).

74. *See* Interview Summaries (Appendix B), B-79 (Starpower). For reasons that are not apparent, Comcast/DC was not required to comply with these rules, resulting in installation of poles and aerial lines and related equipment by Verizon/DC and drop lines by Comcast/DC in alleyways (and in streets in some cases) throughout the fire zone, including Adams-Morgan, Capitol Hill, and Georgetown. In some cases, these installations were sloppily done and have been poorly maintained, with drop lines hanging close to the ground. InPUT Inspection of Verizon/DC and Comcast/DC Facilities in Adams-Morgan and Georgetown, May 16, 2001; InPUT Inspection of Verizon/DC and Comcast/DC Facilities in Capitol Hill, June 10, 2001. The facilities of other utilities, including PEPCO and Verizon/DC's telephone operations, have been installed in underground conduit in these three areas.

single rule should be identical for all providers or that District rules should not take into consideration a provider's history and practical considerations where appropriate and necessary. Rather, these rules should ensure that a minimum level of service is provided by all system providers in all areas of the District while also allowing each provider to customize its technology and services to exceed those levels.

RECOMMENDATION # 2:

Ground rules should apply on a consistent and equitable basis to all system providers and be designed to promote fair competition. Among other things, the same regulatory requirements should apply to all providers to the extent possible, while taking into account clear differences among providers (*e.g.*, relative size of operations in the District, the need to correct a particular provider's performance problems) and making every effort not to establish barriers to entry by possible competitors.

1.1.03 Equal Access to Competition throughout the District

The District's regulatory policies should ensure that access to new services and service improvements is available to any home or other service location in the District. In view of the "digital divide," the District's vision of becoming a "tech city" and a "city of access," disparities in income and educational levels of District residents, and the absence of competition in many areas of the District, the District should adopt proactive policies which ensure equal treatment of all District residents and equal access to service and technology options throughout the District.[75]

RECOMMENDATION # 3:

Ground rules should ensure universal access to a competitive market throughout all of the District's eight wards. Among other things, Comcast/DC and Starpower (and all other system providers who enter the market in the future) should make service available to all District residents.

75. *See, e.g.*, Town Hall Meeting Transcript (May 18, 1999), 76 (all District residents should have access to digital and high-speed Internet services).

1.1.04 Independent Public Service Operations

The District's ground rules should provide for autonomous operation of access channels, institutional networks, and other public services. Operational dependence on individual system providers should be minimized to ensure independence of public service operations and compatibility and interoperability with as many system providers as possible. Cable operators generally do not believe that they have a financial interest in effective access and other public service operations and, as a result, tend to provide as little support as is legally possible for public services. With establishment of independent access operations, the District government, PAC, and other providers of public, educational, and government access programming and services will no longer be linked to Comcast/DC or any other particular operator or be dependent on the good will and cooperation of an individual operator or other provider.[76] The current cable franchise allows the cable operator to control such basic facilities as the access studio and the institutional network. This arrangement has hindered development of effective and responsive public service operations in the District by denying public institutions the ability to control and develop their own resources.[77]. In response to this history, PAC has taken a major step toward autonomy by establishing a central community-based media center at a District-owned historic building, the Brooks Mansion, in Northeast Washington.[78]

RECOMMENDATION # 4:

Institutional network and public service operations should not be controlled by any individual system provider or in any way commingled with the operations of any individual provider to ensure independent public service operations and public control of public resources. Each provider should provide financial and other support for the institutional network and other public services on the basis of a formula which approximates its market share and power and does not alter the balance of competition by imposing disproportionate obligations on new market entrants.

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76. *See, e.g.,* Summaries of Interviews (Appendix B), B-24-25 (District of Columbia Public Schools (DCPS): signal quality and other operational problems associated with Comcast/DC's control of access channel operations).

77. For example, the original franchise did not provide a studio for PAC, requiring PAC to rely, in the 13 years since public access operations began in 1988, on the cable company's willingness to maintain and update equipment and keep its facilities open to the public. More often than not this has not occurred. *See, e.g.,* Summaries of Interviews (Appendix B), B-69-70 (PAC: Comcast/DC did not meet the 1987 deadline for provision of a studio; inadequacy of facilities provided by Comcast/DC; imposition of restrictions on PAC's use of the cable company's studio); Town Hall Meeting Transcript (May 4, 1999), 93-94 ("third-world" quality of equipment and facilities made available by the cable operator for public access), 94-98 (need for public access to control studio and studio hours; problems in scheduling production time for public access programs at the Comcast/DC studio), 134 (PAC should not be required to share a studio with the cable company); Town Hall Meeting Transcript (May 18, 1999), 116-17 (problems in obtaining access to the Comcast/DC studio). Similarly, the franchise required that the District government rely on the cable company to develop an institutional network and institutional network services. CFA § 5.1. Neither occurred, resulting in many years of loss of service to the District.

78. *See, e.g.,* Summaries of Interviews (Appendix B), B-71-73 (PAC: description of plans for Brooks Mansion).

1.2 ENSURING ACCESS TO ADVANCED SERVICES AND TECHNOLOGIES

A central objective of the District's policies should be to ensure access to advances services and technologies for all District residents. Accomplishing this goal requires establishing clear-cut state-of-the-art requirements and applying them to Comcast/DC, Starpower, and all other providers. State-of-the-art is an evolving rather than a static concept, which means that state-of-the-art requirements should be regularly updated to reflect the latest developments in technology. In the cable context, state-of-the-art technology should support delivery of advanced services, provide for customer control of service selection and use, provide high-speed communications, and facilitate individualized communications. In simple terms, a state-of-the-art cable system relies heavily on optical and digital capabilities to provide access to these capabilities.

District residents have manifested interest in state-of-the-art cable technology in numerous ways, including by expressing strong interest in advanced services and technologies and various new service possibilities.[79] These levels of interest are consistent with high rates of in-home use of the Internet[80] and early acceptance of new services and technologies by District residents.[81] Service options of particular interest to District residents include personal control of program selection and payment options,[82] true video-on-demand,[83] high-speed Internet service,[84] and high-definition television (HDTV).[85] Other service possibilities of significant interest to District residents include interactive home learning and training,[86] cable-based telephone service,[87] and cable-based banking

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79. *See, e.g.*, Survey Report, 29-65. *See also* Summaries of Interviews (Appendix B), B-14-16 (Office of the Chief Technology Officer for the District (OCTO)); Summaries of Focus Groups (Appendix C), C-5-9 (consumers), C-14-16 (senior citizens).

80. "D.C. Region Leads Nation in Net Access," *Washington Post*, October 17, 1999, A1 (according to 1999 data, 60% of area adults are hooked up to the Internet).

81. *See, e.g.*, Survey Report, 22-28.

82. *See, e.g.*, Survey Report, 29-34 (close to 80% of respondents expressed interest in having the ability to select programs for viewing and to pay for only programs actually watched). *See also* Summaries of Focus Groups (Appendix C), C-10 (consumers: increased consumer control over program schedules and selection), C-12 (senior citizens: consumers should have the option of being able to pay for only that which they watch); Town Hall Meeting Transcript (May 18, 1999), 50-52 (concerns about cable operator's ability to shift programming to the digital tier and charge more; the customer has "no control").

83. *See, e.g.*, Survey Report, 35-39 (some 72% of respondents expressed interest in true video-on-demand); Town Hall Meeting Transcript (May 4, 1999), 41.

84. Survey Report, 40-44 (more than two-thirds of respondents expressed interest in high-speed Internet service); Town Hall Meeting Transcript (May 4, 1999), 40.

85. Survey Report, 45-49 (more than 60% of respondents expressed interest in HDTV).

86. Survey Report, 50-54 (close to 50% of respondents expressed interest in the ability to actively participate in classes or training sessions from home via video links).

87. Survey Report, 55-59 (close to 40% of respondents expressed interest in cable-based telephone service).

and financial transactions.[88]

Of particular concern is the dated and limited nature of the Comcast/DC system in comparison to the Starpower system and other Comcast systems in the region. It should be rebuilt to state-of-the-art standards in order to provide access to advanced services and technologies for District residents. In order to accomplish this goal, Comcast/DC must obtain legal and economic control of the system's distribution facilities, which are currently owned by Verizon/DC. This can be accomplished by various means, including by Comcast/DC's purchase of existing distribution facilities (and subsequent rebuild of those facilities to state-of-the-art specifications) or by Comcast/DC's construction of a new state-of-the-art system and eventual abandonment of existing distribution facilities. Both approaches are likely to involve significant expenditures but continuation of the Verizon/DC-Comcast/DC "partnership" is not viable. Under existing arrangements, Comcast/DC does not have the right to upgrade its facilities as needed to respond to demands for new technical capabilities and/or system capacity[89] and therefore cannot properly respond to community needs for service improvements and advanced services and technologies. In fact, Comcast/DC's right to use these facilities for any purpose is limited to the remaining "technological useful life" of the system and could be terminated by Verizon/DC in the not-too-distant future.[90]

These rebuild requirements, whether implemented by purchasing and upgrading the existing system's distribution facilities or by building a new system, should ensure that every District resident has equal access to advanced services and technologies regardless of the neighborhood in which he or she resides. Finally, the Comcast/DC system and all other systems should be upgraded periodically in the future as needed to incorporate the latest advances in technology to ensure access to advanced services and technologies.

88. Survey Report, 60-63 (about 30% of respondents expressed interest in cable-based banking and financial transactions).

89. Under the existing contract and tariff, Verizon/DC is required to provide no more than 550 MHz of transmission capacity and is not required to deploy fiber optic lines or any other advanced technical capabilities. (Verizon/DC's current tariff requires it to provide only two fiber optic trunks while also requiring Comcast/DC to pay substantial fees for use of these limited fiber optic links.) *See* Summary of the Verizon/DC-Comcast/DC Relationship (Appendix D) for additional detail.

90. *See* Summary of the Verizon/DC-Comcast/DC Relationship (Appendix D) for additional detail.

1.2.01 Initial Requirement for a State-of-the-art System

Strict standards are necessary to ensure a complete rebuild of the Comcast/DC system which will eliminate signal quality[91] and other service problems and which will establish a platform for deployment of advanced services and technologies. As noted above, this rebuild should not be implemented pursuant to an arrangement anything like that which governed initial construction of the system. Under that arrangement, Verizon/DC designed, constructed, and owned the system's distribution facilities and had the right to block a potential competitor from upgrading the system's distribution facilities. Such an arrangement is not a partnership of equals. Verizon/DC is in a position to charge unreasonable prices for construction, to block and/or hinder Comcast/DC's ability to compete with respect to high-speed Internet and other advanced services, to refuse to permit new construction or deployment of new technologies, and even to cut off Comcast/DC's right to operate. A modern broadband infrastructure will help move the District toward becoming a "tech city" and a "city of access"[92] and provide access to advanced services for District residents.[93] But this infrastructure will not fully realize these objectives if it is directly or indirectly controlled by Verizon/DC or any other potential competitor to Comcast/DC.

The Comcast/DC system is a dated system, with limited transmission capacity (450 MHz), inadequate plant,[94] and lengthy coaxial cable runs and amplifier cascades.[95] Because it is a simple one-way system and is not equipped to carry return transmissions from service locations, the Comcast/DC system cannot provide Internet, interactive, and many other advanced services. Further, because of restrictions on the cable company's service offerings contained in the Verizon/DC's FCC tariff, the telephone company may be legally entitled to block Comcast/DC from providing high-speed Internet and telecommunications services.[96] In connection with a new franchise, all direct and

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91. Survey Report, 70-75, B-24-28. *See also* Town Hall Meeting Transcript (May 18, 1999), 91-92 (poor quality signal for local television broadcast stations on the Comcast/DC system); Town Hall Meeting Transcript (June 3, 1999), 24 (poor picture and sound quality), 26-29 (persistent signal problems), 30-31 (poor quality signal for local television broadcast stations), 31 (poor quality signal for the Weather Channel and other channels), 32-34 (poor quality signal for local television broadcast stations), 36 (signal quality problems are due in part to poor construction practices), 37 (poor quality signal for local television broadcast stations).

92. Summaries of Interviews (Appendix B), B-13-14 (OCTO).

93. *See, e.g.,* Summaries of Focus Groups (Appendix C), C-2 (consumers: greater consumer control of service selection), C-5-6 (consumers: interest in ability to transmit video on a point-to-point basis), C-6 (consumers: interest in true video-on-demand), C-7 (consumers: strong interest in high-speed Internet service), C-15 (senior citizens: interest in true video-on-demand).

94. *See, e.g.,* Technical and Operations Review–Comcast/DC System (Appendix A), A-9 (Comcast/DC: feeder system and drop lines are in "poor condition"); Cable System Technical Audit–Pohts Report, 4 (signal ingress problems probably cannot be corrected without a complete rebuild); Town Hall Meeting Transcript (June 3, 1999), 32 (poor construction of cable system).

95. Technical and Operations Review–Comcast/DC System (Appendix A), A-33-34 (Comcast/DC: list of long amplifier cascades).

96. *See* Summary of the Verizon/DC-Comcast/DC Relationship (Appendix D) for additional detail.

indirect control of Comcast/DC's system design and service operations by Verizon/DC should be ended as soon as practicable. As soon as the ties between Verizon/DC and Comcast/DC are cut, the Comcast/DC system should be rebuilt to provide service improvements, access to advanced services and technologies, and increased channel capacity for both conventional analog services and new digital and other advanced services.[97]

The Starpower system, in contrast to the Comcast/DC system, consists entirely of new plant and is being built to state-of-the-art specifications (*e.g.*, 860 MHz, 150-home nodes, coaxial cable runs of no more than 900 feet). To ensure equitable access to competition and to advanced services and technologies throughout the District, Starpower, as it completes construction of its system in District neighborhoods which are currently unwired (primarily Adams-Morgan, Capitol Hill, and Georgetown) should continue to build its system to state-of-the-art specifications.

RECOMMENDATION # 5:

Every system, whether provided by Comcast, Starpower, or any other provider, should be a state-of-the-art system. In addition, Comcast/DC should, as soon as practicable, end its ties with Verizon/DC and provide a system which is not directly or indirectly controlled by Verizon/DC or by any other party with adverse interests. Comcast/DC may establish this state-of-the-art system by acquiring distribution facilities currently owned by Verizon/DC and rebuilding them, by building a new system from scratch, or by acquiring or assembling a new system by other means.

1.2.02 Maintenance of a State-of-the-art System

The existing cable franchise includes a state-of-the-art provision but it is a weak and ambiguous provision and has not secured any upgrades in system technology in the 16 years since initial grant of the franchise in 1985.[98] Perhaps even more important, this requirement is essentially nullified by the Verizon/DC-Comcast/DC Agreement and Verizon/DC's associated FCC tariff, which were incorporated into the franchise, give Verizon/DC control over the system's physical and technical characteristics, and do not provide for upgrades or system enhancements of any sort. Further, the existing franchise requires provision of interactive services but includes conditions and caveats which undermine this obligation and effectively render it meaningless. Future rules for Comcast/DC, Starpower, and any other system provider should include stringent state-of-the-art standards and procedures which ensure regular upgrading and enhancing of the system so that District residents have early access to future improvements in technology.[99]

RECOMMENDATION # 6:

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97. Survey Report, 15-16 (77% of respondents expressed interest in increased channel capacity).

98. CFA § 5.15. *See also* D.C. Code § 43-1809(7) (requirement that the cable system be constructed "with the capacity for 2-way interactive capability").

99. MFA § 3.8 (comprehensive state-of-the-art standards and procedures). *See also* MFA §§ 10.6.01(iii) (quarterly reports on implementation of state-of-the-art enhancements) and 13.3.01(i) (liquidated damages for each day of failure to comply with a state-of-the-art enhancement order).

All systems should be periodically enhanced during the term of the franchise to state-of-the-art standards, with strict standards and procedures to ensure regular enhancements and maintenance of state-of-the-art standards.

1.2.03 Equal Access to System Capabilities and Service

In light of inequities in availability of advanced services provided by Comcast/DC in the District,[100] the District's statutory obligation to prevent economic redlining in awarding cable franchises,[101] Verizon/DC's and Comcast/DC's failure to wire all District neighborhoods,[102] and cost-related barriers to Starpower's completion of installation in unwired areas of Adams-Morgan, Georgetown, and Capitol Hill (these are areas where District law requires underground installation of cable lines),[103] the District should establish proactive measures which prevent Comcast/DC, Starpower, or any other provider from picking and choosing which customers and which neighborhoods have access to service improvements and new services and technologies.[104]

RECOMMENDATION # 7:

All District residents should have access to the same system capabilities and services regardless of neighborhood or street address. Further, Comcast/DC, Starpower, and any other provider should deploy new services on an equitable and consistent basis throughout the District, should offer all new services to residents of all areas of the District, and should charge uniform prices for the same service throughout the District.[105]

1.3 IMPROVING COMCAST'S PERFORMANCE AND SERVICE

Throughout its 16-year history, Comcast/DC failed to comply with the franchise and to

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100. Internet service has been deployed on an "experimental" basis to select locations (*e.g.*, Comcast/DC's Michigan Avenue offices, the headquarters of the National Cable and Telecommunications Association (NCTA) at 1724 Massachusetts Avenue, N.W., McLean Gardens on Wisconsin Avenue, N.W.) but has not been made available to most District residents. Technical and Operations Review–Comcast/DC System (Appendix A), A-3.

101. Cable Act § 621(a)(1); 47 U.S.C. § 541(a)(1).

102. *See, e.g.*, Survey Report, 8; Summaries of Interviews (Appendix B), B-6 (councilmember), B-59 (OCTT: a number of multidwelling unit properties are not served by Comcast/DC). Comcast/DC's authority to require Verizon/DC to comply with this obligation was limited by various conditions included in the Verizon/DC-Comcast/DC Agreement, which were incorporated into the franchise agreement as appendices.

103. *See, e.g.*, Interview Summaries (Appendix B), B-79 (Starpower).

104. *See, e.g.*, MFA § 3.2.01 (requirement that all services be made available to any resident of the District who requests service), § 5.3 (general prohibition on discriminatory pricing practices).

105. Federal law does not allow franchising authorities to require uniform rates in all instances. For example, federal law permits cable operators to charge nonuniform rates pursuant to bulk service contracts or in franchise areas where there is "effective competition." 47 C.F.R. § 76.984(c).

provide adequate service in numerous areas.[106] Among other things, the system does not provide the capabilities required by the franchise.[107] Compliance and performance problems include failure to upgrade the system from 450 MHz to 550 MHz,[108] provide two-way service,[109] make service available in many multidwelling unit properties,[110] comply with the franchise's construction deadlines,[111] comply with the FCC's technical standards,[112] comply with electrical code requirements,[113] and comply with basic customer service standards.[114]

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106. *See, e.g.,* Draft Document Search Report–Arnold & Porter Report; Cable System Technical Audit–Pohts Report. *See also* OCTT Compliance Report for 2001.

107. For example, the existing cable franchise requires provision of capability for interactive service (CFA § 5.4) and, at a minimum, institutional network capability on the subscriber network (CFA § 5.1). (In late 2000, the District agreed to waive its right to enforce existing franchise requirements pertaining to the institutional network and upgrade of the system vis-a-vis Comcast and Comcast/DC in the settlement agreement entered into in connection with approval of transfer of the franchise from AT&T to Comcast. Comcast/DC Settlement Agreement § 2.5.)

108. CFA § 5.3 (requirement, subject to conditions, to upgrade to 550 MHz). *See, e.g., Report on the Fifth Annual Review of Performance by District Cablevision Limited Partnership* (June 11, 1993), 2-3; *Report on the Sixth Annual Review of Performance by District Cablevision Limited Partnership* (Dec. 29, 1995), 11-12; *1998 System and Services Review*, 12, 35-36, 192. *See also* Town Hall Meeting Transcript (May 18, 1999), 58-61 (complaint about Comcast/DC's failure to comply with franchise provisions concerning an upgrade of the system to 550 MHz capacity). *But see* Comcast/DC Settlement Agreement § 2.5 (the District agreed to waive its right to enforce franchise requirements pertaining to the upgrade of the system vis-a-vis Comcast and Comcast/DC in a transfer settlement agreement with AT&T and DCLP).

109. CFA § 5.4 (requirements for interactive capability). *See, e.g.,* Technical and Operations Review–Comcast/DC System (Appendix A), A-33 (Comcast/DC).

110. CFA § 4.2 (requirement to offer service to 100% of occupied dwelling units), § 9.3.01a(4) (liquidated damages for failure to offer service to any dwelling unit in the District); 15 DCMR § 3000.2 (requirement to provide service to any tenant requesting service). *See, e.g.,* Survey Report, 8; D.C. Office of the Inspector General, *Review of District Cablevision Limited Partnership's Compliance with Franchise Agreement* (1992), 3 (Comcast/DC's service was not available at 15,973 housing units as of November 12, 1991); Letter of April 18, 1999, from Marie Bindzi of Comcast/DC to Stacy Richardson of OCTT and associated *Monthly Report of Mar. 1999* (list of 34 buildings containing 3,622 units which were not served by Comcast/DC as of March, 1999).

111. CFA § 4.2 (deadline for completion of construction in 60 months after commencement of construction). Under this provision, the original deadline for completion of construction was May 22, 1991. Letter of June 19, 1991, from Pamela Taylor (OCTT) to Tom Van Bockern (Comcast/DC). By its own acknowledgment, Comcast/DC did not complete construction until January, 1995. *See, e.g.,* Technical and Operations Review–Comcast/DC System (Appendix A), A-11.

112. CFA § 5.12 (requirement for compliance with the FCC's technical standards). *See, e.g.,* Cable System Technical Audit–Pohts Report, 34-39 (failure to comply with the FCC's signal leakage standards).

113. *See, e.g.,* Cable System Technical Audit–Pohts Report, 28, A54-55.

114. 47 C.F.R. § 76.309(c)(2)(ii) (requirement to begin action to correct service problems by the next business day following notification), CFA § 5.16.01 (requirement to maintain a work force capable of responding to a request for service by the next business day following a request for service), 47 C.F.R. § 76.309(c)(1)(ii) (requirement for telephone calls to be answered within 30 seconds 90% of the time per quarter), 47 C.F.R. § 76.309(c)(1)(iv) (customer must not receive a busy signal 97% or more of the time). *See, e.g.,* Draft Document Search Report–Arnold & Porter Report, 54-58

District residents have expressed complaints about the limited capabilities of the Comcast/DC system, the service problems associated with low-quality plant (*e.g.*, inability to view the signal of television broadcast stations because of signal ingress),[115] high rates,[116] and limited programming selection.[117] Finally, Comcast/DC's staff has acknowledged significant deficiencies in the current system's existing plant, noting, for example, the "poor" condition of the system's drop and feeder lines.[118]

Some of these failures are in part due to the fact that Comcast/DC neither owns nor controls the system's distribution facilities (its ownership of system facilities is limited to little more than the system's drop lines and in-home lines and equipment).[119] Further, Comcast/DC did not design or construct the system and did not have final control over Verizon/DC's construction and design decisions. This meant, for example, that Verizon/DC had final authority to make decisions with regard to such matters as whether to install lines in underground or aerial locations and whether to install shadow trunks for the institutional network.

For these reasons, the Comcast/DC system should be completely rebuilt[120] to state-of-art standards.[121]

RECOMMENDATION # 8:

Comcast/DC's system should be completely rebuilt to state-of-the-art standards in order to provide District residents with immediate access to service improvements and access to new services and technical capabilities.

(untimely service calls), 59-60 (untimely installations), 63 (failure to provide timely notice of changes in channel line-up), 65-69 (untimely responses to telephone calls).

115. *See, e.g.,* Survey Report, 72-73, B-24-28; Summaries of Interviews (Appendix B) (councilmember), B-1 (problems receiving channel 4); Summaries of Focus Groups (Appendix C), C-2 (consumers), C-19 (students # 1).

116. *See, e.g.,* Survey Report, 10-12, B-1-9 (more than 90% of respondents expressed dissatisfaction with Comcast/DC's rates).

117. Survey Report, 13-14, B-11-23 (more than 80% of respondents expressed some dissatisfaction with Comcast/DC's programming).

118. Technical and Operations Review–Comcast/DC System (Appendix A), A-9 (Comcast/DC).

119. *See* Summary of the Verizon/DC-Comcast/DC Relationship (Appendix D) for a description of the Verizon/DC-Comcast/DC Agreement. This agreement was originally entered into in November of 1984 and modified in August of 1985. It has been implemented by means of tariffs filed periodically with the FCC, with the most recent tariff taking effect on January 24, 2001.

120. Comcast/DC agreed to negotiate a renewal agreement that would include "reasonable and appropriate commitments . . . for the upgrade and enhancement of the system" and to continue the upgrade and enhancement of the system underway at the time of the transfer. Comcast Transfer Agreement § 9.1. In view of the performance problems cited by District residents and the age, condition, and limited capabilities of the existing plant, "reasonable and appropriate commitments" would in fact include a commitment to completely rebuild the system.

121. MFA § 3.8 (state-of-the-art requirement for the system).

2. SYSTEM DESIGN AND OPTICAL CAPABILITIES

In view of community need for major improvements in service and access to increased channel capacity[122] and advanced services and technologies,[123] the Comcast/DC system should be rebuilt to state-of-the-art standards. Similarly, state-of-the-art standards should apply to Starpower and any other provider who enters the market. In simple terms, a state-of-the-art system is a system which brings fiber optic connections close to the home, is equipped to provide immediate improvements in service, and is scalable and adaptable in terms of such technical capabilities as transmission capacity or connection speeds for future services (*e.g.*, high-definition television, individual downloads of video, direct video connections, video streaming via the Internet, interactive television).

122. Survey Report, 15-16 (77% of respondents expressed interest in increased channel capacity); Town Hall Meeting Transcript (May 18, 1999), 56-57 (interest in an increase in the number of channels).

123. *See, e.g.*, Survey Report, 22-65; Summaries of Interviews (Appendix B), B-77 (Mayor's Liaison to the Gay and Lesbian Community: importance of access to high-speed Internet and other advanced services to the gay and lesbian community).

2.1 BASIC SYSTEM DESIGN

The basic design for the Comcast/DC system (and any other system, including the Starpower system) should ensure access for all District residents to full two-way service,[124] a transmission capacity of at least 860 MHz,[125] and optical connections within close proximity of every service location.[126] Two-way service is needed for high-speed Internet service, interactivity, full addressability, and other future services. The cable industry is moving toward acceptance of 860 MHz (equipped for a later upgrade to 1 GHz) as the standard transmission capacity for systems serving urban markets.[127] With a transmission capacity of 860 MHz or more, a system can both carry a full range of new digital and other services and provide about 90 analog channels, which would represent a substantial increase in Comcast/DC's current analog capacity of 65 channels.

With an 860 MHz system, fiber optic lines are typically installed within close range of all service locations and the length of coaxial cable lines is limited.[128] An 860 MHz system can deliver 90 or more analog channels and a full range of digital services, including future deployment of interactive services. It can also be retrofitted in the future to bring optical connections closer to the home or perhaps even directly to the home, enhancing the system's transmission capacity and connection speeds. In fact, the Starpower system, with its transmission capacity of 860 MHz, 150 homes per optical serving areas, and short coaxial cable runs (*i.e.*, coaxial cable lines of no more than 900 feet), reflects state-of-the-art design standards. Basic design parameters at least as stringent as those employed by Starpower should apply to Comcast/DC and any other provider who enters the local market.

RECOMMENDATION # 9:

All systems should be designed to state-of-the-art specifications, should provide full two-way service and transmission capacity of at least 860 MHz (or its equivalent), and should bring fiber optic connections within close range of all service locations. Among other things, all systems should be scalable and adaptable and designed for later addition of new technical capabilities and/or reconfiguration without having to implement a rebuild of the system or to incur extraordinary expenses.

To meet these standards, the Comcast/DC system should be rebuilt to provide at least 860

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124. MFA, Appendix A § II.A.5.

125. MFA § 3.5 (860 MHz should be inserted in the blank space provided for "minimum bandwidth").

126. Information regarding size of optical serving areas and length of coaxial cable lines should be specified for each provider in the Engineering Analysis and System Architecture, which is to be provided by the cable operator pursuant to § IV of Appendix A to the MFA.

127. Until recently, a 750 MHz system with 500-home nodes was considered to be a state-of-the-art system. Under current standards, a state-of-the-art system is an 860 MHz system with 125-home nodes.

128. Signal loss and distortion increase substantially (and in a disproportionate way) with use of a cable system's higher frequencies to transmit analog signals, necessitating strict limits on the number of amplifiers in a cascade or run between a customer location and the nearest fiber optic connection.

MHz (expandable to 1 GHz) and two-way service. Starpower's completion of installation of its system in the Adams-Morgan, Capitol Hill, and Georgetown areas and any other unwired areas of the District should be subject to similar minimum specifications.

Comcast/DC, Starpower, and any other provider should each develop a system design which is based on these objectives and a plan and schedule for system construction and activation and present them to the District for review and modification prior to the District's grant of the franchise. Construction schedules for both Comcast/DC, Starpower, and any other provider should include an overall schedule for construction throughout the District and detailed schedules for construction in each of the District's eight wards, with both periodic milestones and final deadlines.

2.2 OPTICAL CAPABILITIES

Fiber optic lines transmit information in photonic form and can carry large quantities of information for long distances with no discernible loss of signal. Fiber optic lines can transmit information at high speeds, and, with dense wave division multiplexing and other techniques, will be able to provide even more information-carrying capacity in the future. In recent years, the difference in cost between fiber optic lines and coaxial lines has been all but eliminated. Further, the long-term cost savings associated with fiber optic lines are significant in terms of reduced maintenance costs and greater adaptability. In light of community need for significant improvements in Comcast/DC's performance and for access to advanced services and technologies, the District should encourage widespread deployment of fiber optic lines to the extent possible. It is especially important that all systems be equipped for future expansion of optical capabilities,[129] including possible deployment of fiber-to-the-home[130] or future reductions in the size of optical serving areas served by common lines and/or equipment.

2.2.01 Optical Connections

RECOMMENDATION # 10:

The backbone for the Comcast/DC system (and any other system) should consist entirely of fiber optic lines and should provide dual fiber connections (with redundant routing and automatic "self healing") to system hubs and other main distribution sites. The optical serving areas (*e.g.*, optical nodes) on all systems should be as small as possible in terms of number of service locations passed. With smaller optical serving areas, bandwidth sharing is limited and the number of electronic devices between service locations and optical conversion equipment is limited. Each optical serving area should also be served by a sizable reserve of unused fiber strands (equipped for easy

129. The design of the system's optical serving areas and the technical characteristics of optical equipment and optical connections should be specified by the provider in the Engineering Analysis and System Architecture, which is to be submitted pursuant to § IV of Appendix A to the MFA.

130. Fiber-to-the-home is now available in some small communities, most notably in new housing developments where the developer installs the communications infrastructure. It has also been deployed by a number of small independent telephone companies in the Midwest, which have expanded their business to include cable and Internet service as well as telephone service.

splicing) so that optical serving areas can be reconfigured, resized, or subdivided to respond to changes in demand for bandwidth and other capabilities.

Each provider's construction specifications should ensure installation of fiber optic lines and optical nodes on an equitable basis throughout the District's eight wards and equal access to optical capabilities throughout the District. These specifications should specify the routes for all fiber optic lines and locations for all hubs and optical nodes. These specifications should be presented by each provider to the District for review and modification prior to the District's grant of a franchise.

2.2.02 Optical Serving Areas

(a) Size of Optical Serving Areas

With smaller optical serving areas, a system provider can more easily manage the power supply system, target advertising and/or programming to neighborhoods, and isolate service problems. Perhaps most important, smaller serving areas reduce the number of customers sharing the same coaxial cable feeder lines, reducing traffic between service locations and optical nodes and allowing for the high-speed upstream transmissions necessary for advanced two-way services.

The optimal size of optical serving areas is shrinking as the costs of installing and maintaining small optical serving areas continues its rapid decline in tandem with improvements in the cost and performance of optoelectronic equipment.[131] Pushing fiber optic lines deeper into a system's network and closer to homes and service locations reduces bandwidth sharing and provides more direct connections to optical lines, thereby ensuring availability of high-speed connections for Internet service as demand for that service grows and enhancing the provider's ability to provide customized or individualized services.

In view of community interest in advanced services and technologies, all systems should be equipped not only to provide the bandwidth-hungry advanced services which are currently available but also to support rapid deployment of new services as they become available in the next few years (*e.g.*, video-on-demand, high-definition television, video downloads). Starpower is already providing 150-home nodes in the District, and Comcast/DC should provide comparable technical capabilities.

131. The cost premium for providing 125-home nodes instead of 500-home nodes is estimated to be only 10%, a modest premium in view of the vast increase in power, adaptability, performance, and reliability associated with smaller optical serving areas and a cost premium that may very well disappear completely by the time Comcast/DC fully implements a rebuild of the system. Donald Sipes and Bob Loveless, "Deeper Fiber Networks: A Review of Ready to Deploy Architectures," *Communications Technology*, February, 2001, 60. In fact, the total cost of providing all the plant (*i.e.*, the costs of optoelectronic equipment, fiber lines, and labor and other construction costs) associated with 125-home nodes is now about $110 per home passed as compared to $100 per home passed for 500-home nodes. *Id.*

RECOMMENDATION # 11:

Each of the system's optical serving areas should contain no more than 150 residential units or similar service locations. This standard should apply throughout the District and each of the District's eight wards. Further, each optical serving area should be designed to be subdivided, resized, and reconfigured as needed to provide smaller optical serving areas and enhanced technical capabilities. Each system provider should develop a plan and schedule for construction of optical serving areas, consistent with these objectives, and should present them to the District for review and modification prior to the District's grant of a franchise.

(b) Optical Conversion Equipment

Optical conversion equipment changes optical signals into electronic form and electronic signals into optical form for subsequent transmission or use. Depending upon basic system design, optical conversion equipment could be installed at the home for a fiber-to-the-home system, within a short distance of the home for a fiber-to-the-curb system, or in the general vicinity of the home for a fiber-to-the-feeder system.[132] This equipment should be versatile and adaptable so that it can support reconfiguration of the network to provide more direct access to optical connections or installation of other network equipment.[133]

RECOMMENDATION # 12:

Each of the system's optical serving areas should be equipped with optical conversion equipment which supports full two-way service and subdividing, resizing, and/or reconfiguring of the optical serving area to provide more direct access to optical connections and/or enhanced technical capabilities and other network improvements.

(c) Access to System Optical Capabilities for Public Institutions

If an institutional network is not provided or if a limited institutional network is provided, alternative access to optical connections should be provided for public institutions via the subscriber network on an as-needed basis.[134] Institutional network sites could then be connected to optical connections and to each other via the subscriber network (or some other network), responding in part to the District's need for a fiber optic network.[135]

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132. In a densely populated city such as the District, this optical conversion equipment may be installed on the premises of large multidwelling unit properties in the basement or in utility closets.

133. The manufacturer, model, and technical specifications of all optical conversion equipment should be specified by the provider as part of the Engineering Analysis and System Architecture (MFA, Appendix A § IV.C).

134. *See, e.g.,* Summaries of Interviews (Appendix B), B-4 (councilmember: broadband network is needed for schools and UDC).

135. *See, e.g.,* Summaries of Interviews (Appendix B), B-14-17 (OCTO).

Requiring the cable operator to provide institutional services via the subscriber network has been tried in the past in the District without success. The existing cable franchise requires the franchisee to provide institutional network services on the subscriber network[136] but this requirement has been ignored by the cable operator since 1985.[137] Accordingly, any provision included in the franchise relating to provision of access to optical connections on the subscriber network should be clear-cut and unambiguous and should be enforceable through liquidated damages and other clear-cut enforcement mechanisms.

RECOMMENDATION # 13:

The design (and associated plan and schedule) for deployment of optical capabilities should ensure direct access to optical connections for institutional services at locations specified by the District.

2.3 TRANSMISSION CAPACITY AND SPECTRUM ALLOCATION

The transmission capacity of the Comcast/DC system is about 450 MHz,[138] which means that the number of analog channels cannot be increased and that the channel capacity available for digital, Internet, and other advanced services is limited. All systems, including both the Comcast/DC and Starpower systems, should provide a transmission capacity of at least 860 MHz (or its technical equivalent). With this amount of transmission capacity, each system will be equipped to accommodate current demand for analog services,[139] current and anticipated demand for digital and other advanced services, and institutional services. It is likely that transmission capacity of 1 GHz will be needed in the not-too-distant future,[140] underscoring the importance of providing an expandable system. With a capacity of 860 MHz, the system could be equipped to carry 90 or more analog

136. CFA § 5.1.

137. The transfer settlement agreement between the District, AT&T, and DCLP entered into in late 2000 includes a provision exempting Comcast and Comcast/DC from the obligation to comply with this provision. Comcast/DC Settlement Agreement § 2.5.

138. *See, e.g.,* Technical and Operations Review–Comcast/DC System (Appendix A), A-39.

139. Bandwith in the 54 to 600 MHz range is currently allocated on the Starpower system to analog service. Interview Summaries (Appendix B), B-79 (Starpower). District residents have expressed dissatisfaction with the limited number of programming choices on the Comcast/DC system and have expressed a preference for significant expansion of the system's analog channel capacity. *See, e.g.,* Survey Report, 15-16.

140. High-definition television, video-on-demand, and interactive television are expected to require large amounts of bandwidth and are likely to push the demand for bandwidth to 1 GHz. Donald Sipes and Bob Loveless, "Deeper Fiber Networks: A Review of Ready to Deploy Architectures," *Communications Technology*, February, 2001, 56, 60. These uses can be accommodated by increasing the network's total bandwidth or by shrinking the optical serving areas to limit the sharing of bandwidth, effectively increasing available bandwidth for each customer.

channels[141] and to provide about 40 6 MHz channel slots for digital and other advanced services.

RECOMMENDATION # 14:

Each system should provide a transmission capacity of at least 860 MHz (or its technical equivalent). To meet this standard, the capacity of the Comcast/DC system should be increased from 450 MHz to at least 860 MHz, and Starpower should build and operate all new plant to at least 860 MHz specifications (or its technical equivalent).

2.3.01 Analog Capacity

As of December, the Comcast/DC system provided 65 channels of analog video service to customers.[142] With expansion of transmission capacity for the Comcast/DC system to 860 MHz (discussed in the preceding section), the number of analog channels on the Comcast/DC could be increased from 65 to 90 or more channels.[143] (The Starpower system currently provides a total of about 94 analog channels.[144]) Expansion of Comcast/DC's analog capacity to at least 90 channels[145] and Starpower's continued provision of a comparable number of analog channels will provide the analog services desired by District residents and provide access to a sizable package of high-quality services that can be viewed without using a converter.[146] In addition, a mechanism should be

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141. The ongoing upgrade of the Comcast/DC system is apparently limited in scope, costing only $75 million or about $320 per District household. In view of the restrictions contained in the Verizon/DC-Comcast/DC Agreement and Verizon/DC's associated tariff, it is unclear how Comcast/DC can implement an upgrade. That agreement does, however, permit a limited upgrade (to 550 MHz and two-way capability) and perhaps that is the nature of the upgrade currently being implemented for Comcast/DC in parts of the District. In areas of the District served by upgraded plant, Comcast/DC has increased the number of analog channels from 65 to 78 channels, which is well short of the 94 analog channels provided by Starpower.

142. However, 78 channels of analog service are available in areas of the District where Comcast/DC has implemented an upgrade of the system.

143. District residents have expressed strong interest in expansion of the system's analog service offerings in order to obtain more choice in services. *See, e.g.,* Survey Report, 15-16.

144. All 94 of the analog channels on the Starpower system are basic service channels, 87 of which are currently programmed. Four of the 87 programmed channels are currently carrying duplicate signals of local television broadcast stations so that all subscribers have access to high-quality signals for the local television broadcast stations affiliated with the four major television networks (channel 4, 5, 7, and 9), including subscribers who live close to transmission antennas in areas where over-the-air signals tend to bleed into television sets and interfere with cable signals carried on the same frequency.

145. This number–90–should be inserted in the blank space provided in § 3.5(i) of the MFA for the minimum number of channels for analog service.

146. However, federal law may impose limits on local authority to establish binding requirements for allocation of particular amounts of bandwidth to analog service. Specifically, federal law precludes local franchising authorities from "prohibit[ing], condition[ing], or restrict[ing] a cable system's use of . . . any transmission technology." Cable Act § 624(e); 47 U.S.C. § 544(e). The FCC has stated that it "believe[s]" that this provision means "that local authorities may

established for periodic review and adjustment of initial and subsequent allocations of spectrum between analog and digital service to ensure efficient use of spectrum and responsiveness to community need for both traditional analog service and new digital services.

RECOMMENDATION # 15:

Bandwidth on both the Comcast/DC and Starpower systems should be reserved for carriage of about 90 analog video channels. To the extent permitted by law, allocations of bandwidth between analog and digital service should be periodically reviewed and adjusted, taking into account such matters as the number of analog and digital subscribers, commercial availability of compatible digital converters and other receiving equipment from third-party sources, and the system provider's need for additional digital capacity to respond to market demand.

2.3.02 Digital Capacity

Comcast/DC provides about 47 channels of digital video service[147] and about 45 channels of digital audio service[148] and Starpower provides about 50 channels of digital video service and 44 channels of digital audio service. With the likely deployment of video-on-demand and interactive television, both Comcast/DC and Starpower will need substantial amounts of bandwidth to provide these and other new digital services. District residents have expressed strong interest in a wide range of advanced services, including high-definition television, video-on-demand, and other services which provide increased customer control of service selection and use and pricing options.[149] These and other advanced services cannot be fully deployed unless a substantial amount of bandwidth (*i.e.*, 150-250 MHz) is reserved for these and other services which are likely to emerge over the term of the franchise.

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not control whether a cable operator uses digital or analog transmissions," suggesting that the District's authority to regulate allocation of cable system bandwidth between analog and digital signals may be limited. *In the Matter of* Implementation of Cable Act Reform Provisions of the Telecommunications Act of 1996, *Report and Order* in CS Docket No. 96-85, March 25, 1999 ¶ 141.

147. This number rises to 76 channels of digital video service on rebuilt portions of the Comcast/DC system.

148. This number rises to 56 digital audio services on rebuilt portions of the Comcast/DC system.

149. *See, e.g.,* Survey Report, 22-65.

RECOMMENDATION # 16:

Bandwidth of 150-250 MHz should be reserved for digital transmissions.

2.3.03 Upstream Capacity

Two-way capability is required for return or upstream transmissions generated by customers and associated with such services as Internet service, interactive television, and full addressability. The Comcast/DC system is a one-way system[150] and cannot support return transmissions by the customer[151] and therefore cannot support such services as high-speed Internet service. The Starpower system, on the other hand, is equipped for two-way service, including high-speed Internet service. The Comcast/DC system should be rebuilt to provide two-way service, and, as Starpower completes construction of its system, all new plant will be designed for (and provide) two-way service.[152]

All systems should also be designed and equipped for future adjustments in bandwidth allocation to accommodate changes in requirements for upstream capacity for residential customers and institutional users.[153] For example, at some time in the not-too-distant future, upstream transmissions are likely to become much more commonplace than they are today (*e.g.*, for the Napster-like exchange of information intensive video files, for person-to-person video communications), requiring changes in bandwidth allocations to allocate more bandwidth for upstream uses. Similarly, if any public institutions are not linked to a separate institutional network or if any access origination sites are not linked to headend facilities via access interconnect facilities, a mechanism should be established to permit public institutions to use cable and similar systems to provide the necessary link for upstream communications to other public institutions and/or distribution facilities.[154]

RECOMMENDATION # 17:

All systems should be fully equipped for upstream communications. Upstream pathways should be fully accessible by public institutions and equipped to handle video transmissions by public institutions without loss of signal quality. Standards and procedures should be established and the system equipped to provide for adjustments in allocations of bandwidth or transmission capacity to upstream communications as warranted by changes in need and demand.

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150. *See, e.g.,* Technical and Operations Review–Comcast/DC System (Appendix A), A-33.

151. Addressability is provided for pay-per-view and premium services on the Comcast/DC system via a telephone hook-up to the customer's set top box and regular sweeps of that box for information regarding the customer's service orders. *See, e.g.,* Technical and Operations Review–Comcast/DC System (Appendix A), A-1.

152. MFA, Appendix A § II.A.5.

153. *But see* MFA § 3.5(iii) (this provision provides for a minimum initial allocation of an unspecified amount of bandwidth for upstream transmissions but does not establish standards or procedures for making future adjustments to this allocation).

154. *See, e.g.,* MFA § 4.1.01(iii).

3. HEADENDS AND HUBS, ADVANCED TECHNICAL CAPABILITIES, AND INTERCONNECTIONS

3.1 HEADENDS AND HUBS

The headend functions as the system's "brains." The headend equipment for the Comcast/DC system, located at 1351 Florida Avenue, N.W. (the northeast corner of the intersection of Florida Avenue and 14th Street, N.W.), is dated and not equipped to support advanced services. Headend enhancements for the Comcast/DC system are needed to improve service quality in such basic areas as signal quality and reliability and monitoring system performance. Further, headend enhancements are needed for the Comcast/DC system to establish a platform for deployment of advanced services such as high-speed Internet service and video-on-demand.[155]

RECOMMENDATION # 18:

The headend(s) for each system should be equipped and operated to ensure high levels of signal quality and reliability[156] and to provide a state-of-the-art platform for deployment of advanced services and technologies. Comcast/DC, Starpower, and all other providers should submit headend specifications to the District which meet these standards for review and modification prior to the District's grant of a franchise.

3.2 ADVANCED TECHNICAL CAPABILITIES

District residents have expressed interest in services and technologies which maximize personal control of selection and use of service and pricing options.[157] The District should require Comcast/DC, Starpower, and any other system provider to disclose its plans with regard to deployment of advance capabilities and to specify all relevant considerations associated with these plans.[158] This information will enable the District to assess the provider's long-term plans and determine the reasonableness and appropriateness of these plans in view of expectations of District residents for improvements in Comcast/DC's service and for access to advanced services and the expected length of the franchise.

RECOMMENDATION # 19:

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155. Comcast/DC, Starpower, and other providers are to provide details to the District with regard to headend specifications pursuant to § II.A.1 of Appendix A of the MFA.

156. The Comcast/DC, Starpower, and any other system should each be fully equipped with state-of-the-art equipment and facilities for testing, monitoring, and measuring system performance, signal quality, and all other matters pertaining to service quality.

157. *See, e.g.*, Survey Report, 22-65.

158. Each provider should submit this information as part of the Engineering Analysis and System Architecture required by § IV of Appendix A of the MFA.

Each system provider should develop a plan and schedule for deployment of advanced capabilities, taking into account such factors as costs, market questions, technical considerations, and the needs and interests of District residents. This plan and schedule should identify the provider's plans with respect to such advanced capabilities as Internet, advanced digital, video server, and switching and routing capabilities, detailing the underlying cost, market, and technical assumptions associated with each capability. This plan and schedule should be presented to the District for review prior to the District's grant of a franchise.

3.3 INTERCONNECTIONS

Interconnections are facilities which connect one cable system to another cable system or other communications facility and support the transmission of programming or information over two or more systems. An interconnection could, for example, establish a link between two systems located in the District (*e.g.*, the Comcast/DC and Starpower systems, the Comcast/DC system and the District's wide area network (WAN)) or between one system located in the District and another system located outside of the District. The existing cable franchise requires the cable operator to "negotiate in good faith" with respect to establishment of interconnections[159] but this provision has no real enforcement teeth and therefore very little practical effect.

The Comcast/DC system is not interconnected to systems in nearby communities[160] (this may change as a result of Comcast's recent acquisition of the Comcast/DC system as well as most other systems in the region; Comcast is likely to join these systems together in a "cluster" of interconnected systems with common operations in some areas). Further, Comcast/DC invoked the franchise's interconnect provisions to obtain compensation from Starpower for the right to pick up signals for four access channels at OCTT's 14th Street facilities.[161] Comcast/DC succeeded in obtaining compensation from Starpower even though Starpower was legally obligated by its OVS agreement with the District to pick up the signals for these access channels at OCTT's facilities and to retransmit these signals over its system.[162]

All system providers should be subject to comparable interconnection obligations,[163] and a provider should not be able to use the interconnection process to secure compensation from another provider for carriage of access channel signals. For example, interconnections should be provided for all District-based public facilities at no cost by Comcast/DC, Starpower, and any other

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159. CFA § 5.7. The District's cable ordinance also requires inclusion of a requirement in the RFP that the franchisee "possess the capability to interconnect" to any system of the federal government in the District and any cable or broadband system in contiguous Virginia and Maryland communities. D.C. Code § 43-1809(9).

160. Technical and Operations Review–Comcast/DC System (Appendix A), A-30.

161. Comcast/DC-Starpower Settlement Agreement, December 20, 1999.

162. OVSA § 1.17d-e.

163. *See, e.g.*, MFA § 6.12.03. A provision should be added to the MFA which mandates interconnections with all systems owned by the same provider (*i.e.*, all Comcast systems should be interconnected to each other). *See also* MFA § 10.5.01(xviii) (annual report must contain information with regard to all interconnections), Appendix A § II.A.13 (provider must include information about interconnections in its technical submissions to the District).

provider.[164] All systems which are owned by commonly owned or controlled system providers should also be automatically interconnected.[165] Finally, the District should be permitted to require local system providers to establish interconnections with other system providers in the District or the region[166] and to impose penalties on providers for failure to establish interconnection arrangements.[167]

RECOMMENDATION # 20:

Interconnections should be established between a provider's system and facilities in the District designated by the District. Examples of facilities which may be designated by the District for interconnection include the District's wide area network, access interconnect facilities, and institutional network facilities. Interconnections should also be established between each system and all other systems in the region which are commonly owned or controlled by a provider (*i.e.*, all Comcast systems and all Starpower systems in the region should be interconnected). Finally, interconnections should be established between each system and other systems or facilities in the District or region if necessary to interconnect access channels and other public facilities. All interconnection facilities should provide optical or connections of a similar quality and capability. System providers should present a plan and schedule to the District for existing and future interconnection facilities for review and modification prior to the District's grant of a franchise.

4. DISTRIBUTION LINES AND EQUIPMENT

Improvements in Comcast/DC's distribution lines and equipment are needed both to provide improved service and to establish a platform for deployment of advanced services.[168] These improve

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164. *See, e.g.,* MFA § 4.3.03 (requirement to interconnect the institutional network).

165. MFA § 6.12.03 (requirement for interconnection but also includes a requirement that operational and construction costs be "shared equally" by the providers of the two systems being interconnected; an exception to the cost sharing requirement should be established for all commonly owned or controlled systems (*i.e.,* all area Comcast systems should be interconnected to each other without any cost sharing; similarly, all area Starpower systems should be interconnected to each other without cost sharing)).

166. Regional interconnections may be necessary for carriage of the District's access channels on other systems in the area and for other regional ventures associated with transportation, education, and matters of common concern. *See e.g.,* Summaries of Interviews (Appendix B), B-27 (DCPS: immediate interest in carriage of channel 28's signal on the systems which serve Prince George's County and long-term interest in carriage of channel 28 throughout the region and eventually throughout the nation).

167. The MFA requires that interconnection costs be shared "equally" between the provider and the other system. MFA § 6.12.03. This formulation may not be appropriate in any situation where a disproportionate portion of the costs are Comcast/DC's or Starpower's responsibility. Additionally, penalties should be imposed on any provider who fails to enter into an interconnection agreement within a specified time period or to negotiate on good faith.

168. Comcast/DC should specify exactly how it plans to improve distribution lines and equipment and to comply with the recommendations contained in § 4 of this report by completing §§ I, II, and IV of Appendix A of the MFA and by complying with all requirements of Appendix B of the MFA. Starpower and all other system providers should provide

ments, along with associated construction schedules and enforcement measures, are also needed to ensure provision of service on a consistent and equitable basis throughout all eight District wards regardless of income level or other demographic characteristics of the residents of particular neighborhoods. Detailed requirements regarding implementation of these improvements by Comcast/DC are especially important because of the poor quality of its existing plant and the problems associated with the Verizon/DC-Comcast/DC Agreement and associated Verizon/DC tariff. Similar requirements should also apply to Starpower to ensure that it provides the same high-quality service that it is providing in the 80% or so of the District where it presently provides service as it completes construction of its system.

4.1 DISTRIBUTION LINES

4.1.01 Feeder Lines

Feeder lines are coaxial cable lines which provide the final connection between a system's optical lines and drop line connections to homes and other service locations. For the Comcast/DC system, these lines establish outside limits on the system's transmission capacity and are a major source of signal quality and reliability problems. Associated active electronic devices (*e.g.*, power supply units, amplifiers) and passive devices require regular maintenance and thereby impose ongoing operational costs, which are likely to rise in the future as equipment ages and deteriorates. The trend in the industry is to increase network power, flexibility, and efficiency by replacing coaxial cable feeder lines with optical lines wherever possible. The primary constraint on complete elimination of coaxial lines is the costs of equipment required to convert signals from optical to electronic form and the inflated monetary value assigned in company records to dated and obsolete coaxial cable plant.

The design favored by Starpower and other new market entrants is to limit coaxial cable lines to short runs and to rely on optical lines for carriage of most traffic. This approach minimizes the number of active electronic devices and passive devices on a system, thereby reducing maintenance problems and traffic congestion and improving signal quality and reliability. Short feeder lines are also necessary with high-frequency systems (*e.g.*, an 860 MHz system) because of the significantly higher levels of signal distortion at higher frequencies. In fact, Starpower (and all other RCN systems) limits coaxial cable feeder lines to coaxial runs of no more than 900 feet between the optical connection and the service location and limits amplifier cascades to no more than one per cascade.[169] The Comcast/DC system, in contrast, has coaxial cable runs in some areas of the District that, as of 1999, were more than 52,000 feet in length.[170]

Comcast/DC's network of coaxial cable feeder lines should be rebuilt to eliminate all lengthy feeder line runs and to install the equipment and make the other adjustments required to support operation at a minimum of 860 MHz. Similar requirements should apply to Starpower and any other

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similar information.

169. The number of amplifiers necessary to maintain signal quality rises to three or more when feeder lines exceed about 1,500 feet.

170. Technical and Operations Review–Comcast/DC System (Appendix A), A-33.

provider to ensure fair competition and equal access for all District residents to comparable technical capabilities from all system providers.

(a) Scope of Rebuild of the Comcast/DC System and Initial Build of the Starpower and Other Systems

RECOMMENDATION # 21:

All feeder lines should be equipped for operation at a minimum of 860 MHz and for subsequent enhancement to 1 GHz. The feeder lines on the Comcast/DC system should be updated and/or replaced as necessary to provide 860 MHz service and comply with other proposed specifications for feeder lines. All lines installed by Starpower as it extends its plant into areas of the District which it does not currently serve should meet similar standards. All providers should present plans and schedules to the District for review and modification prior to the District's grant of a franchise.

(b) Length of Feeder Lines and Amplifier Cascades

RECOMMENDATION # 22:

All feeder line runs should be limited to no more than 1,500 feet, with no more than two amplifiers in a cascade, in order to minimize bandwidth sharing for upstream communications and maintain high-quality signals.

(c) Technical Specifications for Feeder Lines

RECOMMENDATION # 23:

All feeder lines should support 1 GHz service, minimize signal attenuation, loss, ingress, and egress, be tightly sealed, and be protected from weather and rodent damage. Comcast/DC, Starpower, and all other providers should present technical specifications which are consistent with these standards to the District for review and modification prior to the District's grant of a franchise.

4.1.02 Drop Lines

Drop lines[171] provide the final connection to the home or other service location and, if not properly designed, installed, and maintained, can contribute to signal quality problems through ingress and egress[172] and significantly degrade a signal that would otherwise be of high quality. Drop lines on the Comcast/DC system tend to be in either "fair" or "poor" condition.[173] Comcast/DC's drop lines should be upgraded to provide improved service. Clear standards and specifications should be established for drop lines which take into account differences in size of properties (*e.g.*, a single family home versus a 200-unit apartment building). Similar standards and specifications for drop lines should also apply to Starpower and any other provider.

RECOMMENDATION # 24:

Drop lines should limit signal attenuation, loss, ingress, and egress. In addition, drop lines should be designed and configured to take into account different characteristics of service locations, including the special needs of District facilities and other facilities with multiple outlets and long runs of inside wires. Comcast/DC should develop a plan and schedule for inspecting and updating the system's drop lines, which ensure that drop lines are updated on an equitable and consistent basis throughout the District's eight wards. Comcast/DC should present a plan and schedule to the District for inspecting and updating existing drop lines while Comcast/DC, Starpower, and any other new provider should present specifications to the District for new drop lines, with review and modification of these specifications prior to the District's grant of a franchise.

4.1.03 Inside Wires

Inside wires are cables and other wires installed in customer homes and in the common space of multidwelling unit properties and other large facilities. Because they are the final path to electronic equipment, they play an important role in determining signal quality and reliability. They also can affect access to a competitive market because a customer who owns his or her inside wires may be able to switch from one provider to another more easily than a customer who does not. Federal rules favor the interests of system providers over consumers by assuming that inside wires are owned by the system provider until service is terminated by the customer. Franchising authorities may augment these federal requirements by establishing their own requirements and rules.

FCC rules relating to inside wires are inconsistent, with one set of rules for cable lines, another set for telephone lines, and no clear rules for multipurpose lines. The FCC tried to harmo-

171. Drop lines include riser cables. Riser cables are drop lines which serve large multidwelling unit properties and which run from equipment closets to individual units.

172. *See, e.g.*, Survey Report, 24-28; Cable System Technical Audit–Pohts Report, 40-45.

173. Technical and Operations Review–Comcast/DC System (Appendix A), A-9.

nize federal policies in 1995[174] but abandoned that undertaking two years later, leaving in place separate rules for telephone and cable lines.[175] In reaching this decision not to establish a single set of consistent rules for both cable and telephone lines, the FCC concluded that, for "at least the near future," telephone and cable service will continue to be delivered to customers over two separate wires, with a twisted pair for telephone service and a coaxial cable for video services.[176] The FCC also announced plans to revisit the question of establishing a single standard for inside wires "if and when" circumstances warrant (*e.g.*, when service providers become interested in using integrated broadband wiring instead of two separate wires for service delivery)[177] but apparently those circumstances have not arisen in intervening years.

The FCC's rules do not preclude franchising authorities from establishing standards and requirements for inside wires. In view of strong community interest in competition, the District should take steps to make certain that its policies governing inside wires ensure high-quality service and encourage customer ownership (and thereby competition). First, the District could establish specifications which ensure deployment of high-performing inside wires which limit signal attenuation and signal ingress and egress. These requirements are especially important for large multidwelling unit properties[178] and for public facilities with multiple outlets and/or long internal connections. Second, the District should establish rules which encourage transfer of the ownership of inside wires to the customer at the time of installation.

(a) Signal Quality and Reliability

RECOMMENDATION # 25:

Inside wires for all providers should ensure signal quality and reliability for all services, including two-way and other advanced services, at all outlets at each service location. Specifications for inside wires should take into account the lay out and use of wiring in large buildings and other facilities. These specifications should be presented by the provider to the District for review and modification prior to the District's grant of a franchise.

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174. *In the Matter of* Telecommunications Services Inside Wiring and Customer Premises Equipment, *Notice of Proposed Rulemaking* in CS Docket No. 95-184, December 15, 1995.

175. *In the Matter of* Telecommunications Services Inside Wiring and Customer Premise Equipment; *In the Matter of* Implementation of the Cable Television Consumer Protection and Competition Act of 1992, *Report and Order and Second Further Notice of Proposed Rulemaking* in CS Docket No. 95-184 and MM Docket No. 92-260, October 9, 1997 [*FCC Inside Wiring Report and Order (1997)*] ¶ 147.

176. *FCC Inside Wiring Report and Order (1997)* ¶ 147.

177. *FCC Inside Wiring Report and Order (1997)* ¶ 147.

178. *See, e.g.*, Technical and Operations Review–Comcast/DC System (Appendix A), A-9 (Comcast/DC: "drops in MDUs are in very poor condition overall").

(b) Ownership

RECOMMENDATION # 26:

Each system provider should establish simple procedures which ensure transfer of ownership of inside wires to property owners at the time of installation.

4.2 DISTRIBUTION EQUIPMENT

4.2.01 Power Supply System

The 200 or so units which make up Comcast/DC's power supply system[179] deliver electrical power to the system's amplifiers and coaxial cable lines. (The power supply system and payment of the bill for electricity needed to supply the system with power are Comcast/DC's responsibility under the Verizon/DC-Comcast/DC Agreement and the associated Verizon/DC tariff.) Design and performance questions associated with power supply systems include consolidation, reliability, powering requirements, and siting standards. Telephone and other advanced services require more power than conventional cable service, resulting in greater powering requirements for advanced cable systems. The power supply system for each system in the District should be reliable, powerful, and adaptable and should be subject to strict requirements with regard to siting.[180]

Consolidation: The power supply system for the Comcast/DC system is decentralized, with about 200 power supply units scattered around the District. Each power supply unit is fed by a direct connection to PEPCO's power grid. The trend in the cable industry is toward consolidated power supply systems. These consolidated systems are less costly to monitor and maintain and are equipped to meet the heavy power demands of telephone and other advanced services. (The cable industry is unlikely to adopt full centralization for its power supply system, the approach favored by the telephone industry, for technical reasons.[181]) Consolidation involves installing a small number of large power nodes, establishing centralized monitoring, and providing powerful back-up systems. A disadvantage of consolidation is that each power supply unit is large))roughly comparable to a soda machine in size and shape))and is typically installed on a pedestal in the public right-of-way. Power supply units also sometimes house natural gas generators as a source of back-up power,

179. Technical and Operations Review–Comcast/DC System (Appendix A), A-31.

180. *See, e.g.*, MFA, Appendix B § I.A.4 (an annual report must be submitted to DPW which specifies the location of all pedestals and similar above-ground facilities to be installed over the upcoming 12-month period). This provision should be modified to require prior approval by the District of all ground level and above-ground installation sites.

181. A centralized power system operates independently of the commercial power system and is immune to power outages in the local power grid. The cost of installing a centralized power supply system is significant, perhaps as much as $100 per home. There are also technical complexities involved in distributing electricity over the system when key components))fiber optic lines in particular))cannot carry electricity.

raising safety and environmental concerns.[182]

Reliability: Signal reliability is a longstanding concern for District residents[183] and will grow in importance as telephone and other advanced services are delivered over cable systems. Telephone service, for example, is a lifeline service and therefore must be available to consumers at all times for emergency use. It also imposes new powering requirements as customer equipment for telephone service must be powered at all times to support incoming communications. Accordingly, a very high level of reliability is required for systems that offer telephone service.[184] Similarly, data transmission cannot be interrupted without losing part of the communication or terminating a transmission in midstream. Signal reliability can be improved by various means, including by installing redundant power supply units and reliable and powerful back-up systems.

Powering Requirements: The cable industry is gradually replacing 60 VAC[185] power supply systems with more powerful 90 VAC systems.[186] The 90 VAC systems provide more reach, thereby reducing the number of power supply units required for a system. They also provide the power needed for advanced services.

Power Node Siting: Some newer power supply systems (*e.g.,* Alpha's BPS series) raise significant concerns with respect to site selection for individual units. Some models are so large–they are sometimes as large as upright soda machines)) that they are installed on ground level pedestals rather than on utility poles. Deployment of a powerful BPS-type power supply system could mean 50 or more units installed on the ground throughout the District, raising aesthetic, safety, and environmental concerns. Aesthetic concerns have arisen in some cities because of the large size and bulkiness of power supply cabinets. Safety and environmental concerns are especially significant with regard to power supply units equipped with gas generators. These concerns include gas emissions, noise produced by the generator, and possible gas leaks or explosions If Comcast/DC, Starpower, or any other provider proposes to deploy large power supply units or power supply units containing gas generators, the District should establish strict procedures and standards for review and approval which provide advance notice to affected property owners and neighborhood groups or organizations and an opportunity to participate in the decision-making process.

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182. Environmental concerns include air pollution from the generator's emissions, noise pollution from running generators, and visual pollution associated with installation of large metallic cabinets in the public right-of-way. Safety concerns include possible gas leaks and/or explosions.

183. *See, e.g.,* Survey Report, 70-71.

184. The reliability standard for telephone service is 99.99%, which means that total service interruptions per year of 53 or more minutes are considered excessive.

185. VAC refers to "volts of alternating current."

186. Available 90 VAC power supply systems include scalable systems, which can be programmed to provide different voltage outputs (*e.g.,* 60, 75, and 90 VAC) and adjusted to supply various levels of power.

RECOMMENDATION # 27:

Power supply systems for Comcast/DC, Starpower, and any other provider should be state-of-the-art systems, which are safe, reliable, scalable, and adaptable, can supply 90 volts of power as needed, and can support future expansion of service offerings. The provider's plan for deployment of a power supply system should include maps which specify the site for each power supply unit and should minimize adverse environmental and aesthetic impacts. Plans and schedules for deployment of the power supply system and associated technical specifications for power supply units and systems should be presented to the District for review and modification (with advance notice to affected property owners and neighborhood groups or organizations and opportunity for participation in the decision-making process for such property owners, groups, and organizations in any case involving large power supply units or units with gas generators) prior to the District's grant of a franchise.

4.2.02 Amplifiers

Amplifiers compensate for signal loss attributable to various characteristics of coaxial cables (*e.g*, diameter, length, construction, temperature, operating frequencies) by boosting signal strength at periodic intervals. Signals lose electromagnetic energy as they pass through taps, splitters, and other energy-draining devices attached to coaxial cable lines. Further, signal loss increases in inverse proportion to the diameter of a cable, requiring large boosts for small bore feeder lines. As amplifiers boost signal strength, they also inject noise and other extraneous energy into signals and, in doing so, gradually degrade signals. This deterioration is especially pronounced on feeder lines and at high frequencies, requiring special attention to any proposed use of amplifiers to deliver signals over small-bore feeder lines on high-frequency systems.

Amplifiers directly affect signal quality and system capability (including whether it can carry two-way and other advanced services). The Comcast/DC system's network of almost 4,000 amplifiers[187] is not equipped for two-way or high-frequency operations.[188] Imposing strict limits on the number of amplifiers in a cascade[189] and installing high-frequency two-way amplifiers will significantly improve system performance and capacity and respond to the needs of District residents and therefore should be key elements of a rebuild of the Comcast/DC system.

The upper frequencies on an 860 MHz system (*e.g.*, 600-860 MHz) are inherently more vulnerable to signal attenuation than are the lower frequencies on the system. In other words, an 860 MHz or other high-capacity system is much more sensitive to signal distortions caused by amplifiers than is an older and simpler system such as Comcast/DC's existing 450 MHz system. Establishing geographically compact optical serving areas))serving areas of no more than 150 homes, for

187. Technical and Operations Review–Comcast/DC System (Appendix A), A-31. The system includes 663 trunk amplifiers and 3,203 line-extender amplifiers.

188. Technical and Operations Review–Comcast/DC System (Appendix A), A-32-33 (many amplifiers are equipped for only 450 MHz operations and very few amplifiers are equipped for two-way service).

189. A cascade is a run or series of amplifiers. It refers to the number of amplifiers through which cable signals pass on the way from the headend (or hub) to customer locations in a particular neighborhood.

example))should effectively eliminate this concern. It accomplishes this goal be greatly reducing the possibility of signal loss by limiting the length of coaxial cable runs and thereby the need for amplifiers and the signal distortion associated with the presence of amplifiers in a coaxial cable run. In fact, signal quality problems can be virtually eliminated by building an all-passive system similar to Comcast's system in Alexandria, Virginia,[190] where no optical serving area includes more than 145 or so homes and no amplifiers are needed.

Amplification requirements vary with operating frequencies. In practical terms, this means that amplifiers need to be replaced or upgraded whenever the system's operating frequencies are increased. For example, different amplifiers are used for operating frequencies of 450, 550, 750, 860, and 1,000 MHz. However, new amplifiers can be equipped to provide some ability to accommodate future increases in operating frequencies. The housing or outside casing for new amplifiers))as distinct from the amplification equipment inside the housing))is typically designed for 1 GHz, making it easier to retrofit an 860 MHz system to operate at higher frequencies by installing new amplification equipment in the housing. With this modular configuration, a provider could update an 860 MHz amplifier to carry frequencies of up to 1,000 MHz (*i.e.*, 1 GHz) by installing new amplification equipment in existing housing.

For effective operation of 860 MHz systems, amplifier cascades are typically limited to no more than one amplifier.[191] The most powerful system is an all-passive system with very short coaxial cable runs and no amplifiers. The Comcast/DC system includes eight amplifier cascades of 20 or more amplifiers and many other lengthy amplifier cascades.[192] (In contrast, Starpower provides direct fiber optic connections to many multidwelling unit buildings in the District, and all RCN systems are built to specifications which allow for amplifier cascades of no more than one amplifier.)

Increasing transmission capacity from 450 MHz to 860 MHz and deploying two-way service will require removal and/or replacement of most (if not all) of the 4,000 or so amplifiers on the Comcast/DC system. It will also require a reduction in the total number of amplifiers on the system because an 860 MHz system cannot support lengthy amplifier runs. Reducing the total number of amplifiers on a system will significantly reduce maintenance costs and improve signal quality and reliability. Similarly, replacing coaxial cable trunk lines on the Comcast/DC system with fiber optic lines (*see* Recommendation # 10) will result in elimination of the system's 663 or so trunk amplifiers. Widespread deployment of fiber optic lines will also sharply reduce the number of feeder and line-extender amplifiers by eliminating some feeder lines completely and shortening the length of other feeder lines. Finally, it will be necessary to replace or update all remaining amplifiers on the Comcast/DC system to ensure 860 MHz service and bidirectionality.

190. This system was rebuilt by Jones Intercable and subsequently acquired by Comcast.

191. Wide Open West (WOW), for example, is building competitive systems in the West and has agreed to one-amplifier specifications. *See, e.g.*, Denver WOW Franchise (2001) § 12.1B.

192. Technical and Operations Review–Comcast/DC System (Appendix A), A-33.

Amplifier specifications for Comcast/DC should limit the number of amplifiers in a cascade, support 860 MHz and two-way service, and improve signal quality and reliability.[193] Similar requirements should apply to Starpower to ensure that it maintains or exceeds current standards as it extends service into areas of the District which are currently unserved (primarily parts of Adams-Morgan, Capitol Hill, and Georgetown) and to any other provider seeking to enter the local market.

RECOMMENDATION # 28:

All amplifiers on the Comcast/DC system, the Starpower system, or any other system should be state-of-the-art amplifiers. Specifically, amplifiers should, at a minimum, support active 860 MHz and two-way operations throughout the District's eight wards, be linked together in cascades or runs of no more than two amplifiers (with a preference for one or no amplifiers), and minimize signal distortion. In addition, on-premises amplifiers in facilities of the District government and other large buildings should ensure minimal loss of signal at all service locations in the facility or building. A plan and schedule for deployment of amplifiers and associated technical specifications for amplifiers and amplifier configurations should be presented to the District by the provider for review and modification prior to the District's grant of a franchise.

4.2.03 Passive Devices

Passive devices are small mechanical devices which divide, redirect, or terminate the flow of communications signals. Passive devices include signal splitters,[194] taps,[195] directional couplers,[196] connectors,[197] and terminators. These devices typically are located at or near service locations and can cause signal quality problems if not properly designed and/or installed by allowing extraneous signals to enter the system (ingress) and communications signals to leave the system (egress). Many connectors, splitters, taps, and other passive devices on the Comcast/DC are 10-15 years old and are not equipped for 860 MHZ service. Updating passive devices on the Comcast/DC system is necessary to improve signal quality and equip the system for two-way and 860 MHz service.

Managing signal flow and quality on the drop line's return path is one of the major technical challenges facing the cable industry. A provider's ability to manage and control return signal quality is affected by the quality and condition of passive devices. "Noise" in the form of electronic signals generated by electronic equipment used by the customer (*e.g.*, set top boxes, television sets, VCRs)

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193. Comcast/DC and Starpower (and any other system provider) should supply information with regard to amplifier specifications to the District pursuant to §§ I, II, and IV of Appendix A of the MFA.

194. A signal splitter divides a signal so that it can be transported over two to four separate paths.

195. A tap is a device on a feeder line that enables a portion of the signal to be directed to nearby customers. Multitaps are generally used, with configurations of two-, four-, eight-, and sixteen-output connectors or ports. Drop lines run from each tap to nearby customer locations.

196. A directional coupler removes a portion of a signal and channels it elsewhere.

197. A connector is a mechanical device which establishes a tight and waterproof connection between coaxial cables and equipment housings or between two pieces of cable which have been spliced together.

can accumulate in the return path of drop lines if signal ingress and egress are not properly controlled and managed by passive devices. This "noise" in the form of these extraneous signals then migrates up the system's feeder lines, combining with other signals along the feeder network and causing more and more distortion and other signal quality problems as noise grows and moves along the return path.

Connectors between taps and drop lines and between drop lines and home interfaces are points where extraneous signals enter the cable system. The most serious manifestation of this problem has been in the form of interference with the signals of local television broadcast stations at many service locations served by the Comcast/DC system. Until the summer of 2001, the Comcast/DC system carried the signals of several local television broadcast stations (*e.g.*, channels 4 (NBC), 5 (Fox), 7 (ABC), and 9 (CBS)) on the same frequencies and channel numbers used by these stations for over-the-air broadcasts. At many service locations, the signals for these over-the-air transmissions entered the customer's television set through low-quality or poorly maintained taps, drops, television sets, VCRs, and/or set top boxes where they occupied the same frequencies as the frequencies used for retransmission of the station's signals on the cable system. These extraneous signals manifested themselves as ghost or duplicate signals, which either partially or completely blocked reception of the cable signal for the station at numerous service locations. Comcast/DC addressed this problem in the summer of 2001 by moving the four major television stations to new frequency and channel number locations (from channels 4, 5, 7, and 9 to channels 24, 25, 27, and 29) where they no longer occupy the same frequencies on the cable system and interference from over-the-air transmissions of each station's signals is no longer a problem for these four local television stations.

Passive devices also determine the extent to which a system's transmission capacity can be expanded (*e.g.*, by increasing bandwidth from 860 MHz to 1 GHz). The passive devices on all systems (as well as lines and active equipment) should be designed to 1 GHz standards so that the system's transmission capacity can be increased without having to replace any of the system's passive equipment. (Installing 1 GHz passive devices is a standard practice in the cable industry.)

Consideration should also be given to requiring that taps and other passive devices be equipped to pass power to drop lines and to customer equipment. Taps on the Comcast/DC system (and virtually every other system of the same age) are generally not equipped to pass power from feeder lines to drop lines or to equipment in customer homes. This technical limitation means that power passing services cannot be delivered via such systems to customers.

Specifications for passive devices for the Comcast/DC system should support service of at least 1 GHz, two-way transmissions, and future services (*e.g.*, power-passing services). Similar requirements should apply to Starpower and to any other provider.

RECOMMENDATION # 29:

All passive devices should be state-of-the-art equipment. Specifically, passive devices should minimize signal attenuation, loss, ingress, and egress and be fully compatible with 1 GHz and two-way operations and adaptable to support future services. A plan and schedule and associated technical specifications for passive devices should be presented by the provider to the District for review and modification prior to the District's grant of a franchise.

4.2.04 Status Monitoring Equipment

A status monitoring system monitors the performance of optical devices, amplifiers, power supplies, and other active electronic devices from a remote location and can pinpoint the location of malfunctioning equipment or other sources of other performance problems. The Comcast/DC system has very little status monitoring capability,[198] relying primarily on "truck rolls" and "human assessment" to determine the source of performance problems. The rebuilt Comcast/DC system, the Starpower system, and any other system should include a status monitoring system to ensure rapid response to performance problems and service outages.[199]

RECOMMENDATION # 30:

All systems should include state-of-the-art status monitoring systems which are adaptable and equipped to monitor active electronic devices and system performance. A plan and schedule for the status monitoring system and associated technical specifications should be presented by the provider to the District for review and modification prior to the District's grant of a franchise.

4.2.05 Signal Security System

Comcast/DC employed a limited trap-based system for signal security for many years but in recent years has begun to offer addressable premium and pay-per-view analog and digital services, using a telephone connection for periodic sweeps of set top boxes to collect data on service orders. The Starpower system also uses addressable converters to regulate access to premium and pay-per-view services for both analog and digital customers. Both Comcast/DC's and Starpower's signal security systems are limited in that each television set (or other receiving equipment) at the service location must be equipped with a set top box in order to obtain access to premium or pay-per-view services.[200]

198. Technical and Operations Review–Comcast/DC System (Appendix A), A-3.

199. Each provider should provide specifications with regard to status monitoring capabilities pursuant to §§ I, II, and IV of Appendix A to the MFA.

200. Each provider should consider deployment of a gateway-type signal security system, which allows customers to view scrambled signals without using converter boxes. It does so by processing all addressable signals at a single point at each customer location and then allowing for distribution of descrambled signals to multiple outlets where these signals can be viewed without using a converter box. The customer can then use all features of his or her consumer electronics equipment (*e.g.*, a VCR) at each outlet without being limited by converter boxes. *See, e.g.*, Town Hall Meeting Transcript (May 18, 1999), 42 (customer cannot use the picture-in-picture feature of his television set when viewing Comcast/DC's digital services), 48-49 (customer cannot record another channel while viewing a digital signal).

Less intrusive security systems are available but have not been widely deployed by the cable industry.[201] These systems work by performing scrambling and descrambling functions at a single site at a service location instead of at multiple sites. With these signal security systems, equipment is installed at a single interface device instead of at every television set at the location. Both the Comcast/DC system and the Starpower system require deployment of a set top box at every television set at a service location where the customer would like to be able to view descrambled cable signals. With an advanced signal control system which provides signals descrambling at a single site per service location, in contrast, authorized (*i.e.*, descrambled) signals pass from the single addressable interface device per service location and are then delivered to as many viewing sites at the service locations as the customer desires where they can be viewed without use of a set top box or any further descrambling. This technology reduces the need for home visits and converters, reduces maintenance costs, centralizes signal control in the headend, improves signal quality, and allows full customer access to all features of television sets, VCRs, and remote control devices at all outlets in the home. The chief limitation of this technology is that it is not equipped to decompress digital signals and therefore does not eliminate the need for set top boxes for digital service at each television set.

Blonder Tongue Laboratories' interdiction unit for 860 MHz systems[202] regulates access to basic and expanded basic service but not to premium and pay-per-view services. Broadband Innovations' OmniBand in-the-clear system is more powerful and versatile in that it works with analog premium and pay-per-view services as well as basic and expanded basic services. With this system, signals are transmitted in scrambled form to an interface device at each subscriber location where authorized signals are descrambled. All descrambled signals (along with any unscrambled basic and/or expanded basic signals) then pass from this device to other locations in the home and can be viewed at all outlets in the home without descrambling.

RECOMMENDATION # 31:

All systems should include state-of-the-art signal security systems. Among other things, the signal security system should, to the extent possible, maximize customer service options, minimize home visits for service changes, minimize interference with customer use of consumer electronics equipment, and limit unauthorized reception of service. A plan and schedule for a signal security system and associated technical specifications should be presented by the provider to the District for review and modification prior to the District's grant of a franchise.

201. Some consumers object to being required to use converter boxes to view scrambled services. *See, e.g.*, Summaries of Focus Groups (Appendix C), C-11 (consumers: cable company should "get rid" of converter boxes).

202. These interdiction units can be mounted on utility poles or installed on a ground level pedestal and effectively replace taps in the distribution system.

5. CUSTOMER EQUIPMENT

5.1 STANDARD EQUIPMENT

Converters are available in many forms and with various capabilities. For example, a converter could be a nonaddressable analog converter, an addressable analog converter, or a digital converter. Each type of converter performs different functions, with nonaddressable analog converters doing little more than tuning frequencies while addressable analog converters descramble and activate signals for premium and pay-per-vew signals and digital converters decompress digital signals and convert them into viewable form. With continued growth in the number of television sets per household and the cable industry's continued move to systems which are both addressable and digital, converters are likely to play an increasingly important role in the delivery of cable service in the future. At the same time, they are likely to become an even greater source of consumer complaints because of the high cost of equipping multiple television sets with converters, the extent to which they interfere with and limit the use of advanced features of television sets and videocassette recorders, and the technical complexity of some digital converters.

Comcast/DC offers converters in all three forms (nonaddressable analog, addressable analog, and digital) but charges the same price–$3.50–for all three.[203] The ability of franchising authorities to regulate converters is limited by federal law.[204] This limitation does not restrict the District's ability to encourage system providers to implement measures to remedy converter-related problems[205] and provide high-quality converters or to require providers to comply with all applicable federal rules. Applicable federal rules include rules requiring that any new converter provided after December 31, 2004, be "interoperable,"[206] that converters which are compatible with consumer electronics equipment be made available to customers,[207] and that annual notice be provided to

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203. Federal rate regulation rules permit (but do not require) cable operators which are subject to rate regulation to average converter costs for all converter types and to charge the same fee for all converters regardless of any variations in the costs of each. 47 C.F.R. § 76.923(c)(1).

204. Federal law limits local authority to regulate converter boxes, modems, and other subscriber equipment by precluding local franchising authorities from "prohibit[ing], condition[ing], or restrict[ing] a cable system's use of any type of subscriber equipment . . . ." Cable Act § 624(e); 47 U.S.C. § 544(e).

205. *See, e.g.,* Summaries of Interviews (Appendix B), B-60 (OCTT: Comcast/DC's addressable boxes have failed to perform on occasion during pay-per-view events).

206. All new converters provided by cable operators (and other providers of multichannel service) after December 31, 2004, must be interoperable and capable of working with all multichannel systems with the simple insertion of a card which performs security functions and regulates access to signals. 47 C.F.R. § 76.1204(a)(1). The purpose of this requirement is to open up the converter market to competition by providing opportunities for third parties to sell or lease converters to cable customers and to preclude cable operators from monopolizing the converter market by physically combining and integrating signal security functions with all other converter functions.

207. This rule requires cable operators to make equipment available which supports simultaneous viewing and recording of two scrambled signals or simultaneous viewing of two scrambled signals with the picture-in-picture feature of a television set. 47 C.F.R. § 76.1621. Comcast/DC is not in compliance with this FCC rule. Technical and Operations Review–Comcast/DC System (Appendix A), A-15.

customers in writing with regard to equipment compatibility and availability of compatible equipment.[208]

5.1.01 Plain Converters (Analog)

RECOMMENDATION # 32:

Converters made available by system providers for viewing and using analog services should maximize the customer's ability to control service selection and use and to use all features of his or her consumer electronics equipment and should comply with all FCC rules concerning interoperability and compatibility.

5.1.02 Digital Set Top Boxes

RECOMMENDATION # 33:

Digital set top boxes should be state-of-the-art equipment which maximizes the customer's ability to control service selection and to use all features of his or her consumer electronics equipment and provides access to advanced services (*e.g.*, video-on-demand) while also complying with all FCC rules concerning interoperability and compatibility.

5.2 ADVANCED CUSTOMER EQUIPMENT

As noted above, the ability of franchising authorities to regulate modems and other equipment is limited by federal law.[209] This limitation does not restrict the ability of the District to require system providers to disclose equipment-related information to both customers and the District and to submit regular reports to the District on equipment use and deployment[210]; to encourage system providers to address equipment-related problems, provide high-quality equipment, and deploy new equipment on an equitable and consistent basis throughout all areas of the District; or to require system providers to comply with all applicable federal rules, including any relevant rules which are developed with respect to "open access," competition, or interconnect and/or co-location rights and/or requirements.

5.2.01 High-speed Modems

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208. 47 C.F.R. § 76.1622.

209. *See* footnote 204. In addition, the Cable Act appears to preclude all regulation of A/B switches. Specifically, the Cable Act includes a provision prohibiting cable operators from being required to provide A/B switches (an A/B switch is a device which allows customers to switch their television sets from reception via cable lines to over-the-air reception) or even to provide information about these devices to customers. Cable Act § 614(e); 47 U.S.C. § 534(e). *But see* MFA § 8.4 (requiring cable operators to provide A/B switches and to provide notice to subscribers of their availability).

210. *See, e.g.*, MFA § 10.6.12 (monthly report on the number of cable modem service customers).

RECOMMENDATION # 34:

High-speed modems provided by all system providers should be offered on a consistent and equitable basis throughout all of the District's eight wards. This requirement should apply whether Internet service is provided over the system by the system provider or by some other entity.

5.2.02 Telephone Equipment

RECOMMENDATION # 35:

Telephone or similar equipment provided by all system providers should be offered on a consistent and equitable basis throughout all of the District's eight wards. This requirement should apply whether telephone service is provided over the system by the system provider or by some other entity.

5.2.03 New Equipment

RECOMMENDATION # 36:

All system providers should submit an annual report to the District which specifies all existing equipment in service and supplied directly and indirectly by the provider by make and model, including the numbers of each item of equipment in service, and which details any plans for updating equipment and deploying new equipment.

6. COMMUNICATIONS SERVICES

6.1 CABLE AND INFORMATION SERVICES

Federal law prohibits franchising authorities from regulating "the services . . . provided by a cable operator except to the extent consistent with [the Cable Act]."[211] The Cable Act, in turn, implements this limit on regulation of services provided over cable systems by prohibiting any regulation of video programming or "information services" (this is a broader category of service than "cable service") except for "broad categories" of service included in franchises. However, the Cable Act, while sharply limiting direct regulation of the services delivered over cable systems, does not preclude franchising authorities from requiring provision of a minimum level of technical capabilities and, in so doing, requiring capabilities associated with certain services.

6.1.01 Video Services

(a) Categories of Programming

With regard to video programming, District residents have expressed interest in

211. Cable Act § 624(a); 47 U.S.C. § 544(a).

educational,[212] children's, sports, current movie, foreign and international (*e.g.*, European, South American, Middle Eastern), foreign language (*e.g.*, Spanish[213]), and African American programming as well as television stations based in New York City and Baltimore.[214] District residents have also expressed criticism with regard to the selection and quality of programming provided on the Comcast/DC system and an interest in improvements in service selection.[215]

Federal law prohibits local franchising authorities from including requirements for particular programming services in cable franchises. However, federal law permits the specification of "broad categories of video programming or other services" in cable franchises if based on proposals made by the cable operator.[216] Accordingly, the District should provide each provider with information it has gathered with respect to the programming interests of District residents and ask each provider to specify how it plans to meet these interests[217] and other interests identified by the provider.

RECOMMENDATION # 37:

Each system provider should, prior to the District's grant of a franchise, submit to the District a list which specifies each service it plans to provide at the commencement of the new franchise and the category of each service. The provider's proposal should respond to the interests of District residents in educational, children's, sports, current movie, foreign and international (*e.g.*,

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212. *See, e.g.*, Town Hall Meeting Transcript (May 18, 1999), 31-32 (request for carriage of Ovation, a programming network devoted primarily to the arts, on the Comcast/DC system).

213. Town Hall Meeting Transcript (May 18, 1999), 23-25 (need for more Spanish-language programming, including Telemundo); Town Hall Meeting Transcript (June 3, 1999), 7-8 (need for more programming aimed at Latinos, including Telemundo), 44 (request for carriage of Telemundo). Comcast/DC began offering Telemundo in 2001 in those areas of the District served by upgraded plant.

214. Survey Report, 13. *See also* Town Hall Meeting Transcript (May 18, 1999), 42 (request for carriage of signals for Baltimore-based television broadcast stations).

215. *See e.g.*, Summaries of Interviews (Appendix B), B-9, 11 (councilmembers); Summaries of Focus Groups (Appendix C), C-2 (consumers: providing access to new services on the digital tier is a way to charge a "hidden rate increase"), C-5 (consumers: History Channel should not have been placed on the digital tier; a two-year lobbying campaign was required to persuade Comcast/DC to carry the Sci-Fi channel), C-10 (consumers: need for more educational programming), C-11 (senior citizens: need for more local programming); Town Hall Meeting Transcript (May 4, 1999), 35-39 (cable company does not take programming interests of community into consideration when it decides what networks to carry), 128 (need for consideration of "feedback" from customers on programming selection); Town Hall Meeting Transcript (May 18, 1999), 8 ("Everything I like, [the cable company] put[s] it in digital"). *See also* Survey Report, B-10-23 (13 pages of consumer complaints and requests submitted by survey respondents with regard to Comcast/DC's programming).

216. Specifically, federal law states that "the franchising authority . . . (1) in its request for proposals for a franchise (including requests for renewal proposals, subject to [the Cable Act's renewal provisions]) . . . may not . . . establish requirements for video programming or other information services; and (2) subject to [the Cable Act's modification provisions], may enforce any requirements contained within the franchise . . . for broad categories of video programming or other services." Cable Act § 624(b); 47 U.S.C. § 544(b).

217. *See, e.g.*, MFA § 3.4, Appendix A § II.B.1.

European, South American, Middle Eastern), foreign language (*e.g.*, Spanish), and African American programming as well as television stations based in New York City and Baltimore and include other service offerings responsive to other programming interests of District residents.

(b) Presentation-related Requirements

(i) Transmission Form

Each system provider should provide a full complement of about 90 analog signals and should maintain this package of analog service offerings unless and until it converts to all-digital operations. Otherwise the provider could reduce the number of analog services, thereby effectively forcing customers to subscribe to digital service in order to continue to receive the services they are accustomed to receiving.

Also important is ensuring that access channels have full access to the benefits of digital transmission (*e.g.*, improvements in signal quality, access to interactive capabilities) while also preserving a full package of access channels for analog customers. All access channels should be carried in both analog and digital form if 30% or more of subscribers subscribe to digital service.[218] In other words, access channels should not be relegated to second-class status in a mixed digital-analog environment,[219] and both analog and digital customers should have full access to public, educational, and government channels in the form of their choice.

Federal law imposes restrictions on regulation of transmission technologies although the extent to which these restrictions apply is not clear.[220] Moreover, these restrictions do not appear to apply to access channels as franchising authorities are specifically authorized to establish "rules and procedures for use" of access channel capacity.[221]

RECOMMENDATION # 38:

Each system provider should provide a full complement of about 90 analog signals until such time as it converts to all-digital operations. If a mixture of analog and digital service is provided on

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218. *See* MFA § 4.1.09. Thirty percent is recommended as the cut off point because a market with a lower penetration rate is presumed to be competitive for purposes of rate regulation. Cable Act § 623(l)(1)(A); 47 U.S.C. § 543(l)(1)(A).

219. This concern is significant because of the serious signal quality problems during the 16 years in which first TCI, then AT&T, and now Comcast operated the Comcast/DC System.

220. Federal law provided that "[n]o State or franchising authority may prohibit, condition, or restrict a cable system's use of . . . any transmission technology." Cable Act § 624(e); 47 U.S.C. § 544(e). The Cable Act does not define "transmission technology" but the FCC has tentatively suggested in one of its decisions that the term "transmission technology" encompasses "modulation format," including whether a cable operator uses analog or digital communications, although the FCC cited no legislative history to support its reasoning and did not amend its rules to include this restriction. *In the Matter of* Implementation of Cable Act Reform Provisions of the Telecommunications Act of 1996, Report and Order *in CS Docket No. 96-85*, March 25, 1999 [*Cable Reform Report and Order*] ¶ 141.

221. Cable Act § 611(b); 47 U.S.C. § 531(b).

a system, all access channels should be transmitted in both analog and digital form if 30% or more of subscribers subscribe to digital service.

(ii) Closed Captioning

The District is home to Gallaudet University, the only university for deaf persons in the world, and to a significant number of deaf and hearing-impaired persons. Closed captioning is essential to ensure that these District residents have access to government programming[222] and other public services.[223] Closed captioning requirements have been established by federal law and will eventually apply to most programming carried on cable systems, with a few important exceptions, including most public, educational, and government access programming.[224] It is therefore essential that all providers be required to comply with all applicable federal requirements with respect to closed captioning and that they retransmit all closed captioning signals provided in connection with government access programming or any other access channel.[225]

RECOMMENDATION # 39:

Closed captioning should be provided for all government access channels and for all other public service and local origination channels to the extent technically feasible and affordable. Further, all system providers should comply with all federal closed captioning rules, including all applicable deadlines, and retransmit all closed captioning provided in connection with access channels whether or not required to do so by federal rules.

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222. OCTT has acquired closed captioning equipment for channels 13 and 16 and has been providing this service since the summer of 2001.

223. *See, e.g.,* Summaries of Interviews (Appendix B), B-74-76 (DC Association of Deaf Citizens); Town Hall Meeting Transcript (May 4, 1999), 91-92 (need for closed captioning of municipal channels); Town Hall Meeting Transcript (May 18, 1999), 13-16 (need for closed captioning for PEG channels).

224. 47 C.F.R. § 79.1(d)(12) (a cable operator is not required to provide captioning for video programming carried on a channel which generated less than $3 million in gross revenue in the previous calendar year although it is required to pass through associated captions to customers if the programming already contains captions).

225. *See* MFA § 4.1.03 (obligation to retransmit closed captioning signals provided in connection with public, educational, and government access programming).

(iii) V-Chip

A V-chip must be installed in virtually all television sets and receiving equipment sold in the United States after December 31, 1999.[226] Technology for the V-chip is built on circuitry included in receiving equipment for closed captioning and allows viewers to block display of all programming with a common rating. With this technology, parents and others can program television sets to block access to programming based on a content-based ratings system. This requirement applies to cable networks as well as regular television networks (*e.g.*, ABC, NBC, CBS, Fox).

In 1997, industry interests))Motion Picture Association of America (MPAA), National Association of Broadcasters (NAB), and National Cable Television Association (NCTA)[227]))established a voluntary rating system for television programming. These guidelines include age-based ratings for six age groups[228] and ratings for violence (V), sexual situations (S), suggestive dialogue (D), and coarse language (L). These industry developed and administered guidelines took effect on October 1, 1997, and were incorporated into the FCC's V-chip rules in 1998.[229] These voluntary guidelines require icons with rating information to appear on screen for 15 seconds at the beginning of each program and to be recallable during the program by pushing a display button, but this portion of the guidelines was not incorporated into the FCC's rules.

These ratings appear on screen but cannot be used to block programming unless the customer's receiving equipment contains the necessary chipset, software, and other equipment. The FCC has established rules governing implementation of V-chip technology.[230] These rules require inclusion of the necessary blocking technology in television receivers and distribution of signals containing rating information to television sets by video distributors, including cable operators. The FCC's rules require television manufacturers to include V-chips in all models manufactured after December 31, 1999.[231] The FCC's rules also impose similar V-chip requirements and deadlines on

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226. 47 C.F.R. § 15.120. *See also* Communications Act §§ 303(x), 330(c); 47 U.S.C. §§ 303(x), 330(c). Federal law exempts small television sets–those with a screen which is smaller than 13 inches as measured diagonally–from the V-chip requirement.

227. This trade association for the cable industry was renamed the National Cable and Telecommunications Association in 2001.

228. TV-Y (suitable for children of ages 2 to 6), TV-Y7 (suitable for children of ages 7 and older), TV-G (suitable for all ages), TV-PG (parental guidance recommended), TV-PG14 (unsuitable for children under 14 and parental guidance recommended), and TV-MA (unsuitable for persons under 17).

229. *In the Matter of* Implementation of Section 551 of the Telecommunications Act of 1996: Video Programming Ratings, *Report and Order* in CS Docket No. 97-55, March 12, 1998.

230. *In the Matter of* Technical Requirements to Enable Blocking of Video Programming Based on Program Ratings; Implementation of Sections 551(c), (d), and (e) of the Telecommunications Act of 1996, *Report and Order* in ET Docket No. 97-206, March 12, 1998 [*FCC V-Chip Report and Order*], 13 FCC Rcd 1124.

231. *FCC V-Chip Report and Order* ¶ 23.

digital television receivers[232] and on personal computers equipped with television receivers.[233]

RECOMMENDATION # 40:

All system providers should comply with all federal V-chip requirements, including requirements for clear on-screen display of rating information, and should provide periodic notice (*e.g.*, at least once per year) to customers with respect to rating guidelines and availability of V-chip-equipped receiving equipment.

(iv) Channel Blocking and Scrambling

District residents have expressed interest in having the option of being able to block unwanted programming.[234] Federal law requires cable operators to scramble or block any channel to which a customer does not subscribe at no charge if the customer requests this capability.[235] This statutory provision (and another provision which was struck down by the courts on constitutional grounds[236]) was enacted in 1996 in part in response to consumer complaints that video signals for adult programming were sometimes inadequately scrambled and audio signals for adult programming were sometimes not scrambled at all.

This provision may be used to compel a cable operator to install traps or other filtering devices to prevent reception of certain video and audio signals at a particular subscriber location. If any or all of the receiving equipment of the subscriber requesting a channel block is not equipped with an addressable converter, this provision requires the operator to install a trap or filter at the service location. This provision is rarely invoked because most subscribers are unaware of its existence (federal law does not require operators to notify customers of this option). Further, it is inflexible in that it does not allow the customer to block only certain programs on a channel (*i.e.*, the channel is either fully blocked or not blocked at all) or to block a channel which is included in the basic or expanded basic service tier.[237] On the other hand, this provision may be used to fully

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232. *FCC V-Chip Report and Order* ¶ 29.

233. *FCC V-Chip Report and Order* ¶ 38. However, V-chip requirements do not apply to plug-in circuit boards that can be added to personal computers to convert them into digital television receivers except in cases where the monitor and circuit board are sold as part of the same transaction. *FCC V-Chip Report and Order* ¶¶ 36, 38.

234. *See, e.g.*, Summaries of Focus Groups (Appendix C), C-16 (senior citizens).

235. Telecommunications Act § 504; 47 U.S.C. § 560.

236. This statutory provision required cable operators either to fully scramble channels devoted primarily to sexually oriented programming or show adult or indecent programming only during late night and early morning "safe harbor" hours. Telecommunications Act of 1996 § 595; 47 U.S.C. § 561. The FCC adopted rules to implement this law several years ago but no longer enforces these rules as a result of a decision by the U.S. Supreme Court striking down the underlying statute on First Amendment grounds. *United States v. Playboy Entertainment Group*, 120 S.Ct. 1878 (2000).

237. This is because the right to require a cable operator to block a channel only exists in relationship to a channel to which the customer does not subscribe.

block the signals of any channel to which the subscriber does not subscribe (*e.g.*, a premium service or pay-per-view program) even if the channel carries programming which is not considered to be indecent or offensive by the average subscriber. This federal right is of no practical significance unless the franchising authority develops requirements which ensure full implementation and publicizing of these protections (*e.g.*, requiring the cable operator to notify all subscribers of the right to obtain full scrambling or blocking of any channel or channels designated by the subscriber as long as the subscriber does not subscribe to the service in question).

RECOMMENDATION # 41:

All system providers should fully scramble signals of audio and video services to which the customer does not subscribe. They should also provide notice in writing to all subscribers at least once a year and upon installation of the subscriber's right to obtain a lock-out or similar device or service upon request which will block access to the signal of any channel designated by the subscriber as long as the subscriber does not subscribe to the service in question.

6.1.02 Audio Services

Both the Comcast/DC and Starpower systems make available a large number of music channels to digital customers. These audio services do not, however, include locally produced or oriented channels. Each system provider should specify how it intends to meet the needs of District residents for audio services which are produced locally and which provide information or programming of local interest.[238]

RECOMMENDATION # 42:

The audio services provided over all systems should include local information and programming.

6.1.03 Internet, Interactive, and Transactional Services

As noted above, federal law limits the ability of the District to require a cable operator to provide particular services, including particular high-speed Internet, interactive, transactional, or other advanced services. It does not, however, limit the ability of a franchising authority to establish binding requirements in the franchise with regard to the technical capabilities necessary to support advanced services.[239] *See* § 3.2 and Recommendation # 19 above for further information. Examples of technical capabilities which would support advanced service offerings include digital technology, switches, and servers.

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238. *See also* MFA, Appendix A § II.B.1.k).

239. *See, e.g.*, Cable Act § 624(b); 47 U.S.C. § 544(b). The only limits on this authority pertain to establishment of technical standards and regulation of transmission technologies. *See* Cable Act § 624(e); 47 U.S.C. § 544(e).

RECOMMENDATION # 43:

All systems should include the technical capabilities necessary for Internet, interactive, and transactional services, including such possible service offerings as personal control of program selection and payment options, true video-on-demand, Internet, interactive home learning and training, and on-line transactional services.

6.2 TELECOMMUNICATIONS SERVICES

Federal law prohibits franchising authorities from regulating telecommunications services[240] through the cable franchise.[241] However, it does not limit the authority of a franchising authority to treat a cable company as a telecommunications company to the extent it provides telecommunications services and to regulate it pursuant to laws applicable to telecommunications companies and/or pursuant to laws applicable to occupants of the public right-of-way.[242] In addition, the District may regulate the relationship between a cable company and a telecommunications company (*e.g.*, disclosure requirements) as may be needed to coordinate regulation between appropriate District agencies (*e.g.*, regulation of construction of dual purpose plant).

240. Telecommunications service is defined by federal law as the transmission of information of the customer's choosing between points of the customer's choosing and without any change in the format or content of the information as sent and received. Communications Act §§ 3(43), (46); 47 U.S.C. §§153(43), (46).

241. Cable Act § 621(b)(3); 47 U.S.C. § 541(b)(3).

242. District law, for example, requires all persons who install facilities in the public right-of-way to pay rental fees on a quarterly basis to the District for use of public space. These fees include fees of $0.14 per linear foot for underground facilities, $0.33 per linear foot for aerial facilities, and $0.39 per linear foot for transmission facilities installed on the surface of the ground. 24 DCMR §§ 3302.8-.11. The requirement to pay these quarterly fees does not apply to companies "regulated by [OCTT] for the provision of cable or video services," apparently limiting the obligation of Comcast/DC and Starpower to pay these fees with regard to their cable and video operations. 24 DCMR § 3302.4. This exemption produces savings for Comcast/DC of about $2.3 million per year. If Comcast/DC were required to pay these right-of-way fees, it would pay about $6.5 million per year (on 335 miles of underground plant ($0.99 million) and 783 miles of aerial plant ($5.5 million) (Technical and Operations Review–Comcast/DC System (Appendix A), A-35)) instead of the $4.2 million or so it pays under the 5% franchise fee and 1% public access fee).

RECOMMENDATION # 44:

Each system provider should disclose on a quarterly basis any telecommunications services provided over its system, whether by the system provider, an affiliate, a lessee, or another person. Further, if a system provider provides any telecommunications services or facilities, it should obtain all authorizations required for telecommunications companies, comply with all laws and rules applicable to telecommunications companies, and compensate the District for occupation of the public right-of-way by telecommunications facilities to the same extent as other telecommunications companies are required to compensate the District for use of the right-of-way.

7. PUBLIC SERVICES

District residents have clearly expressed a need for improvements in public services, including increased access channel capacity, increased financial support for public services, and an advanced institutional network.[243] The District lacks institutional capabilities and resources in essential areas in part because of shortcomings of the original franchise and Comcast/DC's failure to comply with several key provisions of that franchise. The District's limited institutional capabilities and resources are striking in comparison to the institutional capabilities developed and resources provided for public services in surrounding jurisdictions (*e.g.*, Montgomery and Prince George's counties in Maryland and Arlington and Fairfax counties in Virginia) during the same time period. Significant factors in creating this disparity between the District and area jurisdictions are Comcast/DC's failure to provide an institutional network or a central facility and adequate resources for public access.

The District must start from scratch to build institutional capabilities in two key areas–the institutional network and public access–while also ensuring that these capabilities are designed for the future and will help transform the District into a "city of access." For the most part, each system provider should provide support for public services in proportion to its size and market share except for areas where consistent practices are required for all providers (*e.g.*, the same number of access channels on all systems) and except for the institutional network.

Comcast/DC should be required to take the lead in establishing an institutional network for the District. In its transfer consent agreement with the District, Comcast/DC agreed in December, 2000, to include "reasonable and appropriate commitments for an institutional network" in a renewal agreement.[244] In addition, Comcast/DC is also the dominant service provider, with six times as many customers as Starpower and many more years of operation than Starpower. For these two reasons, Comcast/DC should be assigned primary responsibility for building and/or financing an institutional

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243. *See, e.g.*, Survey Report, 76-81 (a majority of respondents expressed support for improving public, educational, and government access); Summaries of Interviews (Appendix B), B-4 (councilmember), B-17-19 (DCPS: limited nature of existing capabilities for public schools); Town Hall Meeting Transcript (May 4, 1999), 41 (interest in community-based video-on-demand programming), 57-58 (interest in using the Internet for distribution of public access programming); Town Hall Meeting Transcript (May 18, 1999), 17 (need for increased funding for public access), 115 (relative underfunding of public access in comparison to municipal access), 134 (disparities in funding and support for public access in comparison to municipal access).

244. Comcast Transfer Agreement § 9.1.

network under its renewal agreement, with Starpower and other system providers providing supplementary support.

7.1 ELIGIBLE PUBLIC INSTITUTIONS

Public institutions which provide public services under current arrangements include OCTT, PAC, District of Columbia Public Schools, and UDC. In the future, other institutions, most notably District of Columbia Public Libraries (DCPL) and various institutions of higher education in the District, may be interested in developing and/or operating access channels. The District should retain authority to designate additional institutions as PEG entities, with OCTT entitled to exercise authority in this area, subject to oversight and review by the City Council, including the right of the City Council to require assignment of access channels to particular uses and/or users.[245] The District should also retain authority to enter into whatever legal arrangements it deems appropriate to ensure efficient and effective use of these public resources. The franchise agreement, however, should not include any provisions specifying or regulating the relationship between the District and other public agencies or institutions.[246]

RECOMMENDATION # 45:

District entities and PAC should be eligible to provide services over access channels on all systems which provide service in the District. Eligible District entities should include District agencies and departments and nonprofit and similar entities created by the District to perform particular responsibilities. Examples of eligible District entities include the District of Columbia Public Schools, University of the District of Columbia, and District of Columbia Public Libraries. In addition, the District, through OCTT and the City Council, should retain broad authority to designate other entities as eligible public institutions and to determine the extent to which any such designated institution is eligible to use access channels and other public resources.

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245. Section 4.1.02(iv) of the MFA should be revised to make clear that OCTT's authority in this area is not exclusive and does not supersede the City Council's authority to assign access channel capacity to particular public agencies or institutions through the legislative process .

246. The model franchise agreement includes provisions which require OCTT to enter into "operating agreements" with a PEG entity (except for PAC) before the District may allocate any digital channel capacity or any new analog channel capacity or distribute any capital funds for public, educational, or government access facilities to a particular PEG entity. *See, e.g.,* MFA §§ 1.43 and 4.1.02(iv) and Appendix D § II. These provisions should be deleted from the model franchise agreement. The District may conclude that an "operating agreement" or similar arrangement is an appropriate way to preserve and protect public resources in some circumstances. However, the District should establish such arrangements independently and not by means of franchise agreements with system providers. Otherwise, the cable operator will become a third party beneficiary and will acquire the right to involve itself in relationships between the District and other public agencies or public institutions which would otherwise be none of the operator's business.

7.2 FINANCIAL SUPPORT FOR PUBLIC AND COMMUNITY SERVICES

Substantial increases in funding for access operations are required due to years of neglect and the limited nature of most existing operations. Specific needs include the need to acquire state-of-the-art equipment, to expand and improve existing operations, to establish a community-wide media center for public access,[247] and to develop an institutional network. Of particular importance are start-up funds and ongoing financial support for PAC's proposed community media center at the Brooks Mansion in Northeast Washington[248] and an institutional network (or the funds needed for the District to build such a network on its own).

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247. *See, e.g.,* Survey Report, 76-77 (close to 60% of respondents expressed support for improvements in public access), 78-79 (close to 60% of respondents expressed support for improvements in government access and services), 80-81 (a majority of respondents expressed support for improvements in DCPS's and UDC's access operations); Summaries of Interviews (Appendix B), B-25-27 (DCPS: description of current capabilities; need for $500,000 for equipment purchases each year; immediate equipment needs), B-28 (UDC: need for new production studio for distance learning and for interactive capabilities), B-29 (UDC: out-of-date equipment is being used by UDC's mass media department to train television and journalism students, importance of improving continuing education opportunities through distance learning), B-30-31 (UDC: dated nature of channel 19's production equipment and limited availability of UDC funds for equipment purchases), B-32 (UDC: need to offer adult education courses), B-33 (UDC: full digital operations, including digital playback, would enable UDC to increase output without increasing staff), B-34 (DCPL: studio and production equipment are needed for public libraries), B-38-40 (DCPL: deployment of new technology, including interactive technologies, is needed to meet the needs of unserved segments of the District population), B-41 (DCPL: library cannot rely permanently on the Gates Foundation to supply DCPL with computers for Internet access), B-49 (DC General: its video production capabilities are almost nonexistent), B-56 (OCTT: OCTT, UDC, and DCPS facilities should be upgraded to state-of-the-art standards), B-61 (OCTT: need for an umbrella media center to support public access and other community-based media activities; need for state-of-the-art production equipment for all PEG users), B-63 (OCTT: standards for government access channels should be as high as those for commercial channels), B-65 (OCTT: new equipment needed to improve coverage of city council meetings), B-68 (PAC: PAC does not have its own studio (OCTT refused to share its facilities with PAC in the early 1990s); PAC was forced to use its own limited funds to acquire field production equipment), B-71 (PAC: PAC's equipment is dated and limited); Summaries of Focus Groups (Appendix C), C-20 (students #1: providing access to video production courses in the schools "would get [students] off the street"), C-23 (students # 2: would like access to digital production equipment at school and/or access facilities); Town Hall Meeting Transcript (May 4, 1999), 72-73 (need for improved equipment for PAC), 74-77 (description of dated and limited nature of PAC equipment and facilities), 77-79 (need for digital and other updated equipment for PAC), 80-81 (need for another studio for public access), 108-09 (need to ensure funding and support for UDC); Town Hall Meeting Transcript (May 18, 1999), 17 ("deplorable" conditions at PAC production facilities because of inadequate funding for PAC), 124 (need for increased funding for PAC).

248. Submission of August 28, 2000, from PAC to InPUT (PAC estimates that public access expenditures for a 10-year period will be $32 million, including $13 million in equipment costs); Summaries of Interviews (Appendix B), B-71-73 (PAC: description of plans for Brooks Mansion; equivalent of 2% of the gross revenues of cable operators is needed to cover the costs of establishing this media center and providing service to all District residents); Town Hall Meeting Transcript (May 4, 1999), 82 (need for a consolidated central production facility for PAC), 85 (need for increased funding for PAC), 94 ("meager resources" provided for public access under current franchise); Town Hall Meeting Transcript (May 18, 1999), 109-10 (need for new equipment for PAC, including digital equipment), 116 (need for a single unified facility for public access), 126 (need for a "capital fund to replace [] aging equipment"; need for a unified facility for PAC), 137 (need for increased funding and a community center for public access).

7.2.01 Periodic Payments

All providers should provide financial support through a mix of fees designed to ensure fair competition by, among other things, requiring all providers to contribute toward development of a high-tech infrastructure for the District[249] and to provide support for improved government access and other public services.[250] These fees should include: the 5% franchise fee; the 1% public access fee; and a new $1.40 per subscriber per month fee to provide financial support for public services, which have been underfunded for the past 16 years.

RECOMMENDATION # 46:

All system providers should pay both franchise and public service fees on a quarterly basis throughout the term of the franchise to compensate the District for the franchise and to assist in establishing a communications infrastructure for the District government and other public entities. These fees should include: (1) a 5% franchise fee (with all proceeds dedicated to financing OCTT's activities); (2) a public access fee equal to 1% of gross revenues; and (3) a public service fee equal to $1.40 per subscriber per month. Requirements to pay franchise and public service fees should apply on an equitable and consistent basis to all system providers.

(a) 5% Franchise Fee for OCTT

Proceeds from the franchise fee now total close to $3.5 million on an annualized basis (for both Comcast/DC and Starpower). Since cable's inception in the District, proceeds from the franchise fee have been earmarked for OCTT and used to cover the costs of such basic activities as regulation and franchising and production and distribution of programming and information. OCTT will continue to need franchise fee proceeds to cover these activities and to cover the costs of expansion of OCTT's production and distribution capabilities and improvements in coverage of city council meetings.[251] Accordingly, the District should continue to impose a 5% franchise fee on all system providers,[252] with all proceeds earmarked for and automatically allocated to OCTT.

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249. *See, e.g.,* Summaries of Interviews (Appendix B), B-3 (councilmember: all providers should "pay").

250. *See, e.g.,* Summaries of Interviews (Appendix B), B-2 (councilmember: importance of improving government access).

251. *See* FY 2002 Proposed D.C. Budget and Financial Plan, B-69-72 for an estimate of OCTT's projected expenses for FY 2002 and its expenses for FY 2000 and the current fiscal year. *See also* Summaries of Interviews (Appendix B), B-54 (OCTT).

252. MFA § 9.1.01.

RECOMMENDATION # 47:

A 5% franchise fee should be imposed on all system providers, and all proceeds from this fee should be earmarked for OCTT.

(b) 1% Public Access Fee for PAC

Proceeds from the 1% public access fee now total about $700,000 per year. PAC's costs are expected to rise significantly in the coming years as it completes renovation of the Brooks Mansion (an historic property owned by the District and leased to PAC pursuant to a long-term lease; this property is located in Northeast Washington near the Brookland Metro Station) and assumes full responsibility for operating a community-wide media center. Further, PAC is expected to play a central role in bridging the "digital divide" in the District by providing a centrally located media center which is open to all District residents and provides training and access to information technology for all interested District residents. Proceeds from this fee are essential to cover PAC's statutory obligations, which include managing all public access operations for the District.[253]

Federal law limits the District's authority to unilaterally impose a 1% fee for PAC to the extent it exceeds the District's 5% franchise fee and proceeds from the PAC fee are used to cover operating costs. Federal law imposes this limit by treating various franchise requirements as franchise fees and subjecting them and conventional franchise fee payments to an overall limit of 5% of gross revenues from cable service.[254] This statutory framework classifies fees to pay for the costs of operating access channels as franchise fees while exempting fees to pay for the capital costs of access facilities and equipment from federal restrictions on franchise fees. (Under a "grandfathering" provision, federal law exempts the existing 1% public access fee from the 5% cap on franchise fees until expiration of the existing franchise.[255])

Regardless of these limits, the existing 1% public access fee may be continued by either of two methods. Under one approach, each system provider could agree to waive any right to claim that federal limits apply to the 1% public access fee. Under an alternative approach, revenue equivalent to 1% of gross revenues could be produced by allocating 20% of the 5% franchise fee to public access. The District could make up for the resulting shortfall in funds for OCTT by imposing a 1% fee for OCTT (with proceeds earmarked for the capital costs of facilities and equipment for OCTT and franchise enforcement costs), which would apply in addition to the 5% franchise fee.[256]

The existing 1% public access fee should be retained and paid by all providers, with strict

253. D.C. Code § 43-1829.

254. Cable Act § 622(g); 47 U.S.C. § 542(g).

255. Cable Act § 622(g)(2)(B); 47 U.S.C. § 542(g)(2)(B).

256. Fees imposed to finance these two activities are not classified as franchise fees for purposes of the Cable Act's 5% limit on franchise fees and may be collected in addition to a 5% franchise fee. Cable Act §§ 622(g)(2)(C) and (D); 47 U.S.C. §§ 542(g)(2)(C) and (D).

enforcement procedures identical to those applicable to franchise fees.[257]

RECOMMENDATION # 48:

The 1% public access fee for PAC should be maintained and paid by all system providers. This fee should be directly paid to PAC on a quarterly basis and should be subject to the same requirements as apply to franchise fee payments (*e.g.*, audits, interest payments).

(c) Per Subscriber Public Service Fees

New revenue sources are needed to establish and maintain a solid foundation for access channel, institutional network, and other public service operations for the duration of any new franchise. The access operations of critical public institutions which serve vital segments of the District's population–most notably PAC, DCPS, and UDC–have been underfunded since commencement of cable operations in the District in 1985 and are not equipped to help District residents realize the full benefit of video and other cable-related technologies. Significant improvements are required in virtually all access channel operations.[258] Finally, Comcast/DC failed to provide the institutional services or facilities required by the franchise from 1985 to 2001, denying the District the opportunity to develop a communications network linking government and other public facilities together.

The limited nature of existing institutional capabilities is in part a function of the minimal financial and in-kind support provided by Comcast/DC to PAC, DCPS, and UDC for production and distribution equipment[259] and to the District for an institutional network. Similarly, Starpower has provided very little in the way of financial and in-kind support for these three institutions or provided any institutional network support in the two and one-half years in which it has been in operation in the District. These limited institutional capabilities are in part due to the District's failure to provide adequate support for public services in the original Comcast/DC franchise. In fact, even if Comcast/DC had complied in full with every requirement of the franchise with regard to public services,[260] the District would still lag well behind other area jurisdictions in terms of

257. MFA § 4.2.04.

258. *See, e.g.*, Summaries of Interviews (Appendix B), B-2 (councilmember: improvements needed in government access), B-3 (councilmember: improvements needed in educational access), B-4 (councilmember), B-9 (councilmember: clear need for improvement in quality of PEG channels), B-12 (councilmember: government access channels are "terrible"), B-23 (DCPS: channel 28's internship program is effective (DCPS has "created a monster in a real good way") but limited in terms of number of participating students); Summaries of Focus Groups (Appendix C), C-17, 19-20 (students # 1: need for increased video production opportunities in public schools).

259. OCTT received significant financial support but only because the District government chose to allocate all franchise fee revenues to OCTT.

260. Comcast/DC did not comply with various public service requirements, most notably the requirements to provide institutional network services and facilities, for much of the franchise term. The District, however, relieved Comcast/DC of the obligation to comply with the franchise's institutional network requirements in conjunction with its approval of the transfer of the franchise from AT&T to Comcast in late 2000 and, as of December, 2001, Comcast/DC is generally

institutional capabilities.

As a result of this systematic underfunding of PAC, DCPS, and UDC, all three entities had no choice but to use their limited resources to patch together their own production facilities, often relying on equipment of limited technical capability and/or of poor quality. The practical impact of this dependence on jerry-built facilities is that access productions are at times of lower technical quality and that the production process is at times difficult and time consuming. In other words, as currently funded, these three institutions cannot fully respond to the needs of District residents and cannot establish a solid foundation for future growth and development. Similarly, an institutional network has not been established for the District although institutional networks were established by cable companies in virtually all surrounding jurisdictions many years ago.

All system providers should provide regular payments throughout the term of the franchise for acquisition of studio and related equipment and similar facilities by public entities and for establishment of an institutional network.[261] To that end, all system providers should pay a public service fee of $1.40 per subscriber per month,[262] adjusted every year for inflation and payable quarterly,[263] with proceeds dedicated to help pay for the capital costs of public, educational, and government facilities. Proceeds from this $1.40 fee should be allocated and expressly earmarked as follows: 50 cents to OCTO (for the institutional network); 50 cents to PAC; 25 cents to DCPS, and 15 cents to UDC.[264] This fee will initially produce a total of about $2 million per year. The following table describes distribution of proceeds from this fee over a 10-year span.[265]

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in compliance with most of the franchise's other public service requirements.

261. Federal law exempts from any federal limit franchise requirements which require the cable operator to pay for the capital costs of public, educational, and government access facilities. Cable Act § 622(g)(2)(C); 47 U.S.C. § 542(g)(2)(C). This provision exempts the proposed $1.40 per subscriber per month public service fee from federal limits on franchise fees and franchise requirements.

262. This is the dollar amount which should be inserted into the blank in § 4.2.02(iii) of the model franchise agreement as the "adjusted monthly per subscriber amount."

263. *But see* MFA § 4.2.02 (capital funds payable at five-year intervals). This long delay in payment of these fees makes very little sense. It will delay access to capital funds during the next five years when the need to develop a public infrastructure will be at its greatest. Such a delay will further delay compensating the community for 16 years of underfunding of capital needs. This approach also could be problematic in a competitive market where companies may leave the market before the due date for payment is reached, thereby avoiding the obligation to pay these fees.

264. *But see* MFA § 4.2.03 and Appendix D § I for alternative allocations (3/8 (37.5%) of fee proceeds to PAC; 1/4 (25%) to the District; 1/8 (12.5%) to DCPS; 1/8 (12.5%) to UDC; 1/8 (12.5%) to a "new PEG entity fund" (to be controlled by OCTT) instead of the allocations proposed in this report (35.5% to PAC; 35.5% to OCTO; 18% to DCPS; 11% to UDC; nothing to a "new PEG entity fund"). Given the unmet needs of existing public institutions, no additional funds will be available to fund "a new PEG entity fund" as is proposed by the MFA unless the proposed monthly public service fee is increased from $1.40 to $1.60 per subscriber. Finally, while DCPS and UDC both have substantial unmet needs, a larger allocation should be made to DCPS than UDC because DCPS provides basic public services, serves a much greater proportion of the population than UDC, and needs to establish broadband connections to and within 150 or so school buildings scattered all around the District.

265. A 10-year franchise is assumed solely for purposes of illustration. The actual length of the franchise should be determined on the basis of documented evidence of the provider's investment in the cable system and in public services.

ESTIMATED PAYMENT OF PER SUBSCRIBER PUBLIC SERVICE FEES BY COMCAST/DC AND STARPOWER (in millions)

	year 1	year 2	year 3	year 4	year 5	year 6	year 7	year 8	year 9	year 10	totals
OCTO	$0.72	$0.72	$0.72	$0.72	$0.72	$0.72	$0.72	$0.72	$0.72	$0.72	$7.20
DCPS	$0.36	$0.36	$0.36	$0.36	$0.36	$0.36	$0.36	$0.36	$0.36	$0.36	$3.60
UDC	$0.21	$0.21	$0.21	$0.21	$0.21	$0.21	$0.21	$0.21	$0.21	$0.21	$2.11
PAC	$0.72	$0.72	$0.72	$0.72	$0.72	$0.72	$0.72	$0.72	$0.72	$0.72	$7.20
totals	$2.01	$2.01	$2.01	$2.01	$2.01	$2.01	$2.01	$2.01	$2.01	$2.01	$20.11

Key assumptions: (1) a 10-year franchise; (2) amounts are in year 2001 dollars (these amounts will be adjusted in future years to reflect inflation); and (3) total subscribership of 119,491 (Comcast/DC: 101,772 (March 31, 2001); Starpower: 17,719 (April 30, 2001)) (the total number of subscribers could change over the life of the franchise).
Note: It is impossible to determine what actual payments will be for a particular system provider under this formulation over a 10-year period. The market share of a particular company could vary significantly from year to year, with payments of an individual company rising and falling as the number of subscribers increases and decreases.

RECOMMENDATION # 49:

Public service fees totaling $1.40 per subscriber per month should be imposed on all system providers, with proceeds to be expressly earmarked to provide basic financial support for key District institutions as follows:

50 cents per subscriber per month (a total of about $700,000 per year initially) for the Office of the Chief Technology Officer (to assist with costs associated with building and equipping an institutional network for the District);
50 cents per subscriber per month (a total of about $700,000 per year initially) for PAC (to assist with costs associated with establishing and equipping a community-wide studio and production facility);
25 cents per subscriber per month (a total of about $350,000 per year initially) for DCPS (to assist with costs associated with establishing and equipping studio and production facilities and providing equipment and facilities for broadband connections for school facilities); and
15 cents per subscriber per month (a total of about $210,000 per year initially) for UDC (to assist with costs associated with establishing and equipping studio and production facilities and providing equipment and facilities for broadband connections for UDC facilities).

These public service fees should be automatically adjusted each year to reflect any change in the consumer price index or a similar inflation indicator for the previous year. The provider should pay these fees directly to the designated entity on a quarterly basis in accordance with the same schedule and requirements applicable to payments of the franchise fee.

7.2.02 One-Time Start-Up Payments by Providers

A one-time payment of start-up capital funds is required to jump start local public service operations and to begin to build a foundation for effective public service operations.[266] Because of Comcast/DC's failure to comply with the *de minimis* public service requirements of the existing cable franchise, the District's public institutions have been deprived for the past 16 years of the opportunity to establish a foundation for public service operations comparable to that provided in virtually all other area jurisdictions.

Comcast/DC failed to provide either institutional services or an institutional network required by the franchise for almost 16 years. Comcast/DC has also failed to comply with various other public service requirements during the same 16-year time period.[267] As a result of this disinvestment in public resources, Comcast/DC (and its partner, Verizon/DC) avoided making significant expenditures required by the franchise and caused long-term damage to the community by depriving the District of an infrastructure for public service operations and associated institutional capabilities.

Based on a review of the facilities currently available to PAC, DCPS, UDC, and the District (OCTT and OCTO),[268] the future needs of each institution, and the resources available to each entity, including the $5 million recently allocated to these institutions pursuant to the District's transfer settlement agreement with AT&T and DCLP,[269] each institution should receive the following allocations of a total of $8.25 million in start-up capital funds[270]: $3 million for OCTO[271]; $500,000

266. *See, e.g.*, Summaries of Interviews (Appendix B), B-2 (councilmember: need for improvement in government access services), B-9 (councilmember: capital funds should be provided up-front for public access).

267. At the time of this report, Comcast/DC is generally in compliance with the franchise's access-related requirements. However, prior operators committed various violations of the franchise's access provisions. In any event, those requirements were not stringent or effective and failed to require cable operators to fully respond to basic community needs in numerous areas.

268. The needs of PAC, DCPS, UDC, and the District (OCTO) have been largely unmet since cable's inception in the District in the mid-1980s. For example, the Comcast/DC franchise did not require the provision of a public access studio or funding so that PAC could develop its own studio. The Comcast/DC franchise generally did not address the needs of either DCPS or UDC. Finally, the franchise required the provision of institutional network services and institutional network facilities for the District's use but the cable operator failed to comply with even these *de minimis* requirements.

269. AT&T and DCLP paid $5 million to the District to settle matters with the District with regard to DCLP's failure to comply with the existing franchise. These funds have been allocated as follows: $2.1 million to OCTO, $1.5 million to OCTT, $750,000 to PAC, $125,000 to DCPS, $125,000 to UDC, and $300,000 to the Mayor's office for "technological initiatives"). Letter of January 31, 2001, from Darryl Anderson of OCTT to Barbara Jumper of the District's Office of Financial and Resource Management.

270. These amounts should be inserted in the blanks spaces provided in Appendix D of the model franchise agreement except that no funds should be provided for the "new PEG entity fund" and the funds allocated to the District should be expressly earmarked for OCTO (for the institutional network) and for OCTT (equipment for the city council chamber) as appropriate. *See* MFA, Appendix D § I.A. for blank spaces.

271. The District's needs with respect to institutional network capabilities have been unmet since cable's inception in the District in the mid-1980s. The District has pieced together a WAN as an interim solution to these needs until an institutional network can be built. The WAN interconnects various District agencies and offices but it relies primarily

for OCTT[272]; $2.25 million for PAC[273]; $1.75 million for DCPS[274]; and $750,000 for UDC.[275]

Each company should be responsible for payment of the portion of these start-up capital funds which reflects its market share and power as measured by number of customers and years of operation in the District. This formulation takes into account both the provider's relative market share and years in business in the District and is intended to prevent requirements for upfront payments from hindering completion of the Starpower system, preventing market entry by other possible new providers, or limiting competition in other ways. Under this formulation, Comcast/DC should contribute 90%[276] of the capital funds (or $7.425 million) while Starpower should pay 10% of these funds (or $825,000).

RECOMMENDATION # 50:

Comcast/DC and Starpower should make one-time payments totaling $8.25 million in start-up funds, with Comcast/DC paying $7.425 million and Starpower $825,000. These start-up funds should be allocated directly to each of the designated entities and used to improve public services as follows:

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on leased lines from Verizon/DC for connections between sites. Telephone lines leased from telephone companies to build municipal networks are generally more costly (and less powerful) than fiber optic lines owned by the municipality or provided by a cable company pursuant to a franchise. OCTO is the District agency responsible for establishing a fiber optic institutional network and building the infrastructure necessary to make the District a "city of access." Capital funds will be needed for equipment to support the institutional network. *See, e.g.,* Design Criteria and Outline Specification for Municipal Area Network (MAN) (Appendix E), E-11-12 ($5 million needed for equipment to support the institutional network).

272. OCTT's immediate needs are limited to equipment to improve and enhance coverage of city council meetings. OCTT recently upgraded all its facilities (except for facilities for coverage of city council meetings) to state-of-the-art standards.

273. PAC estimates that it will need $13 million in capital funds over the next 10 years, including $1.4 million to cover the initial costs of renovating the Brooks Mansion. Submission of August 28, 2000, from PAC to InPUT. The District's allocation of $750,000 in settlement funds to PAC was taken into account in making these calculations.

274. DCPS and UDC have each been allocated only $125,000 of the $5 million in AT&T and DCLP settlement funds. DCPS faces expenses of several million dollars in providing broadband connectivity for the District's 150 or so schools and providing connections to thousands of classrooms, rebuilding and equipping McKinley Technical High School in Northeast Washington to establish a state-of-the-art magnet school with a technology focus, and improving and expanding channel 28's limited production capabilities.

275. UDC has many unmet needs, including needs for development of distance learning capabilities for in-home teaching and training and improvement and expansion of channel 19's capabilities.

276. This percentage reflects the fact that Comcast/DC currently controls about 85% of the local cable market (some 101,491 District residents subscribe to Comcast/DC, while about 17,771 subscribe to Starpower for a roughly 85%/15% market split). Starpower's market share has been reduced by 33% to reflect the relative difference in market power associated with years of operation in the District (16 years for Comcast/DC versus 2.5 years for Starpower) and the resulting long-term customer relationships for Comcast/DC.

ALLOCATION OF START-UP PUBLIC SERVICE PAYMENTS (in millions)		
entity	**amount (millions)**	**possible uses**
OCTT	$0.50	state-of-the-art video and production equipment for coverage of city council meetings[277];other equipment needs
OCTO	$3.00	facilities and equipment for a fiber optic institutional network for the District
DCPS	$1.75	$1 million for facilities and equipment related to use of the institutional network and provision of connectivity to the classroom; $750,000 for state-of-the-art video and production equipment for channel 28 and for the new McKinley Technical High School
UDC	$0.75	state-of-the-art video and production equipment; facilities and equipment for broadband and similar connections for UDC facilities
PAC	$2.25	renovation of the Brooks Mansion; establishment of a community-wide media and production center; state-of-the-art video and production equipment, including field equipment and a mobile van; facilities and equipment for broadband and similar connections for PAC facilities
total	**$8.25**	

277. *See, e.g.,* Summaries of Interviews (Appendix B), B-9 (councilmember: problems with operation of channel 13).

7.2.03 Total Public Service Payments

This table pulls together all recommendations contained in this report for payment of public service fees. These recommendations are discussed in detail in prior sections. *See* § 7.2.01 (periodic payments) and § 7.202 (start-up payments). This table is intended to provide an overall picture of the distribution of payments provided by system operators to various governmental and other public entities in the District. The following table describes distribution of all public service fees in year 2001 dollars over a 10-year franchise.[278]

ESTIMATED TOTAL PUBLIC SERVICE FEE PAYMENTS BY COMCAST/DC AND STARPOWER (in millions)*

	closing	year 1	year 2	year 3	year 4	year 5	year 6	year 7	year 8	year 9	year 10	totals
OCTO	$3.00	$0.72	$0.72	$0.72	$0.72	$0.72	$0.72	$0.72	$0.72	$0.72	$0.72	$10.20
OCTT	$0.50											$0.50
DCPS	$1.75	$0.36	$0.36	$0.36	$0.36	$0.36	$0.36	$0.36	$0.36	$0.36	$0.36	$5.35
UDC	$0.75	$0.21	$0.21	$0.21	$0.21	$0.21	$0.21	$0.21	$0.21	$0.21	$0.21	$2.86
PAC**	$2.25	$1.42	$1.42	$1.42	$1.42	$1.42	$1.42	$1.42	$1.42	$1.42	$1.42	$16.45
totals	$8.25	$2.71	$2.71	$2.71	$2.71	$2.71	$2.71	$2.71	$2.71	$2.71	$2.71	$35.36

* This chart does not include franchise fee payments although this report recommends that the District continue to allocate all franchise fee proceeds to OCTT. Franchise fee payments are not included in this table because the franchise fee is not a public service fee but rather represents compensation to the District for use of the public right-of-way.
** For purposes of this chart, annual payments to PAC include both the 1% public access fee and the proposed allocation to PAC of 50 cents of the $1.40 per subscriber per month public service fee.
Note: This table does not reflect future adjustments for inflation or for changes in total subscriber count as those numbers cannot be predicted with any certainty.

7.3 ACCESS CHANNEL CAPACITY

7.3.01 Total System Capacity for Access Channels

Access channels are a valuable community resource,[279] which significantly expand opportunities for local communications. An effective response to community needs with regard to access channels requires both a substantial increase in access channel capacity and assured access to

278. The actual length of the franchise should be determined on the basis of documented evidence of the operator's investment in the cable system and in public services.

279. *See, e.g.*, Summaries of Focus Groups (Appendix C), C-5 (consumers); Town Hall Meeting Transcript (May 18, 1999), 10-11 (importance of public access channels in delivering religious programming to District residents). *See also* Survey Report, 76-81 (close to 60% of respondents expressed support for improvements in public and government access while about 50% expressed support for improvements in educational access).

advanced technical capabilities.[280]

Comcast/DC and Starpower each currently provides six analog access channels for District institutions,[281] all of which are regularly programmed. Starpower has reserved an additional seven analog channels for future access uses for a total of as many as 13 access channels. Additional channel capacity is needed on both the Comcast/DC and Starpower systems to provide new access channels (*e.g.*, transportation[282] and library[283] channels), expand existing public,[284] government, and educational access operations, and provide District residents with access opportunities at least equal

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280. *See, e.g.*, Summaries of Interviews (Appendix B), B-4 (councilmember: channels should be reserved for future PEG uses), B-7 (councilmember), B-13 (OCTO: need for at least a 50% increase in PEG channel capacity, including closed circuit channels on the residential network for video conferencing), B-19 (DCPS: interest in access to closed circuit channels for teaching purposes), B-26 (DCPS: at least one additional access channel should be assigned to DCPS), B-28, 32 (UDC: need for increase in number of access channels from one video channel to three video channels and one audio channel, including a closed circuit channel), B-34, 38 (DCPL: need for closed circuit capabilities and access channels to serve the underserved segments of the District population), B-40 (DCPL: need for a closed circuit channel to train staff at DCPL's branch libraries), B-42, 44 (DPW: interested in interactive and closed circuit capabilities for training purposes), B-43-44 (DPW: government channels should be expanded to carry DPW programming and information, including traffic-related information), B-48 (DC General: interest in closed circuit capability), B-50-52 (DC General: DC General could originate public health programming for distribution over the cable system; need for an access channel), B-78 (Mayor's Office of Latino Affairs: importance of locally produced programming on issues of importance to the Latino community); Summaries of Focus Groups (Appendix C), C-7 (consumers: interest in improved access to government information and services via the Internet), C-24 (students # 2: delays in airing of original productions on PAC's channels are excessive); Town Hall Meeting Transcript (May 4, 1999), 40-41 (need for video conferencing capabilities via the Internet for public institutions), 41-42 (interest in on-demand access to community-based programming and information), 79-80 (need for more channel capacity and air time for public access programming), 83-84 (need to provide coverage of many more local events), 110-11 (need for channel capacity for carriage of advisory neighborhood commission meetings); Town Hall Meeting Transcript (May 18, 1999), 23 (need for digital capacity for public access channels), 35-37 (need for coverage of advisory neighborhood commission activities), 45-46 (need for programming about and for deaf and hearing-impaired persons), 84 (need for use of the Internet to provide public access and District programming in streaming video format), 111 (need for additional channel capacity for public access), 113 (public access could fill "six, seven, [or] eight" channels), 135 (public access should be able to carry "live interactive events"); 136 (need for expansion of the number of public access channels).

281. These six access channels consist of two for OCTT, two for PAC, one for DCPS, and one for UDC.

282. *See, e.g.*, Summaries of Interviews (Appendix B), B-5 (councilmember), B-42 (DPW: interest in distribution of transportation and DPW-related information over an access channel); Summaries of Focus Groups (Appendix C), C-8 (consumers: interest in a transportation channel).

283. *See, e.g.*, Summaries of Interviews (Appendix B), B-34 (DCPL: need for an access channel to distribute community programming).

284. The existing cable franchise requires four channels for public access (CFA § 7.2.04) while the District's cable ordinance requires a minimum of six public access channels (D.C. Code § 43-1809(a)(12) and the cable franchisee's 1984 proposal included a commitment for eight public access channels. The District reassigned two of the four channels originally assigned to public access under the franchise agreement to other uses (one of PAC's four channels was transferred to UDC while another was transferred to OCTT and became channel 13 (for coverage of city council meetings)). Summaries of Interviews (Appendix B), B-67 (PAC).

to those provided in other area jurisdictions.[285] Accordingly, a minimum of 14 analog channel slots (or at least 15% of analog bandwidth but not less than 84 MHz)[286] should be set aside for access use to ensure that community needs for a substantial increase in access channel capacity are met.

Equally important is ensuring access to advanced technical capabilities for access users, including the communications opportunities associated with full deployment of bidirectional, digital, and interactive capabilities. District residents have, for example, expressed strong interest in closed circuit, Internet, interactive, digital, and other advanced capabilities.

Meeting these needs for advanced capabilities requires the set aside of roughly the same portion of digital bandwidth for access use as the portion of analog bandwidth reserved for access use. This proposed set aside of digital capacity–at least 15% of digital bandwidth–will ensure that public institutions have the same opportunity as commercial interests to develop digital and other advanced services, to grow and keep pace with developments in technology, and to take advantage of the new communications opportunities which will be made possible by advanced technologies.[287] Digital technology will, for example, enable access producers to add interactive features to programs and to provide greatly increased personal control of service selection and use. Further, it is likely that high-definition television and other improvements in signal delivery will eventually be provided only in digital form.

In sum, any service that is provided in only analog form is not likely to include the advanced features associated with digital television. Access users should be provided with access to advanced technical capabilities at the same time as these capabilities are made available to other users, including the technical capabilities associated with interactive services, closed circuit communications, and video conferencing capabilities and supporting services.[288]

RECOMMENDATION # 51:

A total of 14 channel slots of downstream analog bandwidth (84 MHz or 6 MHz per slot) and 2 channel slots of analog upstream bandwidth (12 MHz) should be reserved for access use for area public institutions on any system which delivers any video services to customers in analog form. In addition, an equivalent amount of digital bandwidth should be reserved for access use for area public institutions on any system which provides any digital service, including a system which provides a mixture of analog and digital service. Procedures and standards should also be established to provide public institutions with access to advanced technologies and capabilities as they are deployed.

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285. The Montgomery County franchise, for example, requires Comcast to reserve at least 13 of the system's 72 analog channels for access use. Cable Franchise Agreement, Montgomery County, Maryland (1998) § 7.a.

286. MFA § 4.1.01.

287. This percentage–15%–should be inserted in the blank space provided in § 4.1.01(ii) of the MFA for specification of the amount of digital bandwith to be set aside for access use.

288. *See, e.g.,* MFA §§ 4.08 and 4.1.10 (access to closed circuit and video conferencing opportunities, access to future technical capabilities).

7.3.02 Assignment of Access Channels to Public Institutions

Access channels should be assigned to specific public institutions to the extent possible to ensure their full development[289] and to preclude decisions to shift control of access channels to organizations or institutions which may not be based in the District or whose activities may not focus on the District.[290]

Six analog access channels should continue to be assigned as currently assigned (two for PAC, two for OCTT, one for DCPS, and one for UDC). At least four of any additional analog access channels should be assigned immediately to meet existing needs (one each to PAC, OCTT, DCPS, and UDC).[291] The remaining unassigned new analog access channels (which should total at least four new channels) should be held in reserve by the District for future assignment to public institutions,[292] but this number should be minimized to the extent possible and interim plans established to program any of these channels not immediately transferred to a particular public institution.[293] In addition, each of the District's key public institutions should be assigned a percentage of the system's digital bandwidth roughly equivalent to its percentage allocation of analog channel capacity. With access to this digital bandwidth, each institution should be able to move quickly into the digital world, expand its offerings to include interactive and similar features, and respond to community need for responsive public services such as interactive in-home learning and training.[294]

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289. In the early years of the franchise, OCTT removed two of PAC's four channels from PAC's control instead of invoking franchise provisions which authorized the District to ask the cable operator to make additional channel capacity available for municipal use in such a situation. Summaries of Interviews (Appendix B), B-67 (PAC). Under the franchise, the District was entitled to ask the cable company to make additional channel capacity available for municipal use. CFA § 6.1. By invoking this provision of the franchise, OCTT could have obviated the need to require PAC to relinquish channel capacity which had been expressly set aside for public access use under the franchise agreement.

290. This concern is not just a theoretical concern. In 1998, the Freedom Forum, a Virginia-based organization, asked the District to transfer channel 26 (one of the District's two public access channels) from PAC to the Freedom Forum so that it could develop a regional public affairs channel in cooperation with WETA (a public broadcast station based in Virginia). Ultimately, the City Council did not take up this request but some decision makers did give it serious consideration. Summaries of Interviews (Appendix B), B-67-68 (PAC); Town Hall Meeting Transcript (May 18, 1999), 20-21 (attempt to change District law to permit the Freedom Forum to take over one of the District's two public access channels). Under the model franchise agreement, OCTT has the right to assign access channel capacity to programmers which are not based in the District or do not focus on the District (PEG entities may include "such other entities as OCTT may designate from time to time"). MFA § 1.4.

291. *But see* MFA § 4.1.02 (only one of the eight new analog access channels would be assigned to particular users (*i.e.,* PAC) while the remaining seven new analog access channels would be assigned to OCTT for future assignment pursuant to "operating agreements"; neither UDC nor DCPS would be assigned any additional analog channel capacity although both institutions have identified immediate needs for additional access channel capacity).

292. Examples of possible users include the District of Columbia Public Libraries and Consortium of Universities.

293. Under federal law, the District is required to establish rules which permit a cable operator to reclaim an access channel which is not being used for access purposes and to use the reclaimed channel for the operator's own purposes until such time as the channel is needed for access purposes. Cable Act § 611(d); 47 U.S.C. § 531(d).

294. *See, e.g.,* Survey Report, 50-54 (almost 50% of respondents expressed interest in this service option).

RECOMMENDATION # 52:

The eight additional analog access channels and an equivalent amount of digital bandwidth reserved for access use should be made available to the extent possible to public institutions which have established access channels and a need for additional access channel capacity. The six existing analog access channels, along with the eight new analog access channels and the new digital access channel capacity, should be assigned to the following uses:

OCTT: 3 analog downstream channels and an equivalent amount of digital bandwidth; 2 upstream channels slots (12 MHz) (to be managed by OCTT for the benefit and use of all eligible public institutions);
PAC: 3 analog downstream channels and an equivalent amount of digital bandwidth;
DCPS: 2 analog downstream channels and an equivalent amount of digital bandwidth;
UDC: 2 analog downstream channels and an equivalent amount of digital bandwidth; and
District reserve: 4 analog downstream channels and an equivalent amount of digital bandwidth (reserved channels to be assigned by the District to other access uses).

7.3.03 Conversion of Access Channels to Digital Form

It is unknown when (or even if) cable systems will convert to all-digital operations. Most cable systems will probably provide a mixture of analog and digital services for several more years. However, many services may be transferred from analog to digital form during this transition period, possibly reducing the analog package in the District to little more than the local television broadcast stations,[295] access channels, and a handful of other programming services. In such a mixed environment, it is essential to take steps to ensure that all access channels are offered in both analog and digital form. Such an approach will ensure that all analog-only customers can obtain access to all access channels while also delivering access channels to digital customers with the enhancements and other improvements associated with digital service.

A trigger should be established to require simultaneous transmission of access channels in analog and digital form once digital television gains a significant share of the local market as measured by the relative number of analog-only subscribers and digital subscribers.[296] This requirement is needed to ensure that access channels are not subject to second-class treatment in a

295. Cable operators are not required to carry any digital signals of a local television broadcast station unless the station transmits only digital signals. *In the Matter of* Carriage of Digital Television Broadcast Signals, Amendments to Part 76 of the Commission's Rules, Implementation of the Satellite Home Viewer Improvement Act of 1999, Local Broadcast Signal Carriage Issues, Application of Network Non-Duplication, Syndicated Exclusivity and Sports Blackout Rules to Satellite Retransmission of Broadcast Signals, *First Report and Order and Further Notice of Proposed Rulemaking* in CS Docket Nos. 98-120, 00-96, and 00-2, January 18, 2001. No television station currently broadcasts in only digital form so this ruling effectively limits must-carry obligations to only the analog signals of local television broadcast stations until (and if) they convert to all-digital operations.

296. *See* MFA § 4.1.09 (all access channels must be carried in both analog and digital form when 30% or more of customers subscribe to digital service).

mixed digital-analog environment. With such a standard, analog and digital customers will have full access to access channels in their preferred form of transmission. To ensure that analog-only customers have access to access channels, the obligation to transmit in both digital and analog form should not cease until the provider has no analog customers (*i.e.*, it has converted to all-digital operations).

RECOMMENDATION # 53:

If a system carries a mixture of analog and digital service, access channels should be delivered simultaneously in both analog and digital form if 30% or more of customers subscribe to digital service. The provider should be permitted to cease providing access channels in analog form and convert all access channels to digital form only if it is providing all other services in digital form.

7.3.04 Channel Positions

To the extent possible, all system providers should assign the same channel number to each access channel in order to preserve the channel's identity in the public's mind. Similarly, rules should be established which discourage system providers from changing the channel number of an access channel[297] by establishing financial and other penalties[298] and which, if a channel number is changed, require providers to notify the affected public institution and all subscribers.[299] These requirements are necessary to prevent inconvenience and cost to the operator of the access channel associated with a change in channel identity, prevent confusion on the part of the subscriber, and mitigate any loss of viewership associated with a change in channel identity.

297. Federal law recognizes the importance of number identity by requiring cable operators to assign local television broadcast stations the same channel number that was assigned to the broadcast station before the must-carry rules were temporarily discontinued by the FCC in the late 1980s unless the broadcast station agrees to a different channel number. *See, e.g.,* Cable Act § 614(b)(6); 47 U.S.C. § 534(b)(6).

298. *See, e.g.,* MFA § 4.1.01 (payment of $250,000 penalty to the PEG entity affected by a change in channel number).

299. *See, e.g.,* MFA § 4.1.01 (notice requirements should include 120-days' advance notice in writing to the affected PEG entity, 30 days' advanced written notice to subscribers, and notice on channels set up for local insertion of advertisements both before and after the change).

RECOMMENDATION # 54:

System providers should carry each access channel on the channel number specified by OCTT. The channel number specified by OCTT should be the same on all systems to the extent possible and should be the channel number previously assigned to the public institution or another number which is acceptable to the institution. Before implementing any change an access channel's channel number, the provider should provide advance notice to the affected entity and OCTT and directly and immediately pay a substantial fee to the affected entity as compensation for loss of the fixed identity associated with a channel number. In addition, the system provider should provide at least 30 days' advance written notice of the planned change to each subscriber by various means, including by inserts in subscriber bills and notices in newspapers of general circulation, and provide notice to the public of the planned change on all channels equipped for local insertion of advertisements by means of a public service announcement which is repeated several times a day over an extended time period both prior to and after implementation of the change.

7.3.05 Fallow Time Rules

Federal law requires franchising authorities to establish "fallow time" rules governing use of access channels.[300] Federal law requires that these rules permit the cable operator to use an access channel if it is not being used for its designated access purpose. Federal law also requires that these rules specify the conditions for cessation of the operator's use of a fallow access channel. To ensure that the unique operational requirements of particular access channel providers are taken into consideration, each access channel provider should develop its own fallow time rules, subject to OCTT review to ensure compliance with the requirements of federal law.[301]

RECOMMENDATION # 55:

Each entity assigned an access channel(s) should develop fallow time rules for that channel(s). These rules should be finalized within six months of the grant of a franchise and should be reviewed and, if necessary, modified by the District for the limited purpose of ensuring compliance with requirements of federal law pertaining to fallow time.

7.3.06 Carriage of Access Channels on Other Cable Systems

Access channels and access channel programming should be completely removed from the control of any individual system provider.[302] To ensure the full cooperation of all system providers and carriage of all access channels on all systems, all system providers should be required to carry all access channels to the extent technically possible and to be subject to equivalent obligations to

300. Cable Act § 611(d); 47 U.S.C. § 531(d).

301. *But see* MFA § 4.1.07 (OCTT to establish all fallow time rules).

302. *See* § 1.1.04 and Recommendation # 4 for further detail.

carry access channels. Clear-cut requirements in this area are essential in a competitive environment. They are also needed to prevent any dispute in the future similar to the dispute between Starpower and Comcast/DC with regard to Starpower's right to pick up the signals of certain access channels at OCTT's facilities.[303] The District, acting through OCTT, should serve as an intermediary to the extent necessary and enter into any carriage arrangements which may be necessary to ensure carriage rights and/or interconnections for access channels.

RECOMMENDATION # 56:

All system providers should carry all access channels. Further, all providers should cooperate with each other and the District to the extent necessary in providing access to access channels. The District should be responsible for establishing any carriage arrangements with system providers and other entities which may be necessary to ensure carriage of all access channels and compliance with any standards which may be necessary to ensure maintenance of signal quality.

7.4 SERVICES FOR PUBLIC INSTITUTIONS

Both Comcast/DC and Starpower are currently obligated to provide free basic cable service to facilities of the District government.[304] These service requirements should be updated to reflect the cable industry's ongoing expansion of service offerings to include high-speed Internet service and digital service and to ensure that all District facilities, especially school,[305] library,[306] and public

303. *See* § 3.3 of this report for additional detail on this issue.

304. *See* CFA § 7.2.01 and OVSA § 1.22.i (one basic tier outlet per municipal building (*e.g.*, public school, police station, fire station, hospital, health clinic, public library buildings) and free monthly basic service to each outlet).

305. All DCPS schools are now connected to the Comcast/DC system but many schools were not connected to the system in a timely fashion, with connections not provided until the late 1990s in some cases. The Comcast/DC agreement requires these connections to be made and one basic serve outlet be provided as "construction of the cable system passes such [school and other public] facilities" or by no later in any case than the May, 1991, deadline for completion of the entire system. CFA § 7.2.01. *See, e.g.,* Report on the System and Services Review of District Cablevision Limited Partnership to the Council of the District of Columbia [*1991 System and Services Review*], May 14, 1991, Exhibits 14 and 15 (by March of 1991, 68 school buildings were connected to the Comcast/DC cable system but 79 buildings were not connected). *See* Summaries of Interviews (Appendix B), B-19 (DCPS). *See also* Summaries of Interviews (Appendix B), B-10 (councilmember), B-18-19 (DCPS: many classrooms are not wired, with ITFS and cable service available primarily in libraries and media centers rather than individual classrooms; it was a "real battle" to secure installation of cable drops for the schools), B-26 (DCPS: many classrooms are not equipped with outlets).

306. *See, e.g.,* Summaries of Interviews (Appendix B), B-34-35 (DCPL: Martin Luther King Jr. Memorial Library and 16 of DCPL's 25 branch and community libraries are not connected to the cable system; libraries should be the place where the "have-nots" who cannot afford cable service can obtain access to cable service). In March of 1991 (six years after the franchise's effective date), two library buildings were connected to the Comcast/DC system while 23 were not. *1991 System and Services Review,* Exhibits 14 and 15.

health[307] facilities, are connected to all systems.[308] It is particularly important to provide high-speed Internet service to the public schools,[309] public libraries,[310] PAC,[311] and other community centers.[312]

New standards should be established governing the number of drops, the equipment to be provided, and the services to be provided at no charge in the District's government offices and other public facilities. At a minimum, one drop, one modem, and one digital converter per floor, along with free Internet and free analog and digital cable service,[313] should be provided in all District buildings, with a 60-day limit for connecting all unserved District facilities to the system.[314] A pool of equipment (one modem per 100 employees[315] and one converter per 50 employees) should be established to be distributed by the District on an as-needed basis to locations where additional equipment is needed. All providers should connect all new District facilities (including DCPL, DCPS, and UDC facilities) and new PAC facilities to the system within 30 days of a request for connection.[316]

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307. Summaries of Interviews (Appendix B), B-5 (councilmember), B-48-49 (DC General: neither the hospital nor any of its clinics is connected to the Comcast/DC cable system), B-52 (DC General: cable service should be available in all patient rooms and clinic facilities), B-57-58 (OCTT: Comcast/DC attempted to charge extra to provide service at both DC General and the DC Jail, claiming that, because its lines did not pass these two facilities, it was not required by the franchise to provide service to either facility).

308. For example, Martin Luther King Jr. Memorial Library and 16 branch libraries, DC General Hospital and the neighborhood clinics, and the DC Jail are not connected to the Comcast/DC cable system. Interview Summaries (Appendix B), B-34-35 (libraries), B-49 (DC General), B-57-58 (OCTT).

309. *See, e.g.,* Summaries of Interviews (Appendix B), B-3 (councilmember), B-6 (councilmember), B-12 (councilmember); Summaries of Focus Groups (Appendix C), C-21-22 (students # 1: access to the Internet is limited in the District's public schools; obtaining access to the Internet in school is often a struggle).

310. *See, e.g.,* Summaries of Interviews (Appendix B), B-5, 6, 10 (councilmembers), B-34 (DCPL: libraries should serve as Internet access centers for the community), B-41 (DCPL: need to secure at least double the number of Internet connections in each branch library); Summaries of Focus Groups (Appendix C), C-9 (consumers: libraries and other facilities should be used to provide access to technology for the have-nots); Town Hall Meeting Transcript (May 18, 1999), 79 (Martin Luther King Jr. Memorial Library should be connected to the cable system).

311. *See, e.g.,* Town Hall Meeting Transcript (May 18, 1999), 73-75.

312. Town Hall Meeting Transcript (May 18, 1999), 85 (access to the Internet should be provided at community centers and other public facilities around the District in order to ensure universal access to the Internet).

313. The only services which should not be made available to District offices and agencies at no charge are premium and pay-per-view services.

314. MFA § 4.4.03 and Appendix F § I.A.

315. For purposes of this recommendation, the total number of employees does not include DCPL, DCPS, and UDC employees as equipment requirements for those facilities are calculated pursuant to a different formula.

316. MFA, Appendix F § I.B.1.

Special rules should be established for the public libraries, public schools, UDC, and PAC which take into account the special needs and requirements of each institution. Equipment allocations for the public libraries, for example, should be established on the basis of the physical size and the number of patrons of each facility (*e.g.*, 20 cable modems, 20 service outlets, and 20 converters for the Martin Luther King Jr. Memorial Library). Similarly, for each public school, one service outlet, one modem, and one converter should be provided per school and for every 300 students. Similar equipment allocation rules should be established governing distribution of equipment to UDC and PAC.

The District should establish clear-cut standards with respect to the quality and capability of the outlets, modems, converters, and other equipment provided to District institutions.[317] Ground rules should also be established with respect to related items, including who specifies the location of outlets (each institution designated to receive free service), who is responsible for repairing and maintaining equipment (the system provider), and how frequently equipment should be updated (every four years).[318] Finally, each institution should be able to connect computers to modems via networks and to split cable signals for simultaneous distribution to multiple receiving sites.[319]

7.4.01 Free Services, Equipment, and Installations

RECOMMENDATION # 57:

All system providers should provide a standard package of services, including associated equipment, installations, and internal wiring, to District and PAC facilities at no cost. These services should be provided to all facilities currently receiving free service. In addition, the District, DCPL, DCPS, UDC, and PAC should be authorized to designate additional facilities to receive this package of services, subject to the numerical and other limits specified below. This package of services should include all cable services (except for premium and pay-per-view) and Internet services offered to residential subscribers and should include digital as well as analog services. In addition, free modems, outlets, and digital converters[320] should be provided as follows:

(a) General rules for District facilities (all District facilities except for DCPS, DCPL, and UDC):

the equivalent of one cable modem for every floor of every District building (with additional cable modems to be provided to the District on request at locations designated by the District but not to

317. *See*, *e.g.*, MFA, Appendix F §§ I.A.3, 5.

318. *See*, *e.g.*, MFA, Appendix F § I.A.5.

319. *See*, *e.g.*, MFA, Appendix F § I.A.7.

320. Fully compatible remote control devices should also be supplied with all free digital converters provided to the District and PAC.

exceed a District-wide total of one modem for every 100 full-time employees[321] (or their equivalent));
the equivalent of one outlet for cable service for every floor of every District building (with additional outlets to be provided to the District on request at locations specified by the District but not to exceed a District-wide total of one outlet for every 50 full-time employees (or their equivalent)); and
the equivalent of one digital converter (with maximum capabilities and performance characteristics) for every floor of every District building (with additional converters to be provided to the District on request but not to exceed a District-wide total of one converter for every 50 full-time employees (or their equivalent)).

(b) Special rules for particular District facilities:

(i) District of Columbia Public Libraries:

Martin Luther King Jr. Memorial Library: 20 cable modems, 20 cable service outlets, and 20 digital converters (with maximum capabilities and performance characteristics);
Each of the four regional libraries: six cable modems, six cable service outlets, and six digital converters (with maximum capabilities and performance characteristics); and
Each of the 17 branch and the 4 community libraries: two cable modems, three cable service outlets, and three digital converters (with maximum capabilities and performance characteristics).

(ii) District of Columbia Public Schools:

One cable modem for every school plus one cable modem for every 300 enrolled students; and
One cable service outlet and one digital converter (with maximum capabilities and performance characteristics) for every school plus one service outlet and one digital converter (with maximum capabilities and performance characteristics) for every 300 enrolled students.

321. For purposes of this recommendation, the term District "employee" does not include UDC, DCPS, or DCPL employees.

(iii) University of the District of Columbia:

30 cable modems, 30 cable service outlets, and 30 digital converters (with maximum capabilities and performance characteristics).

(c) PAC:

10 cable modems, 10 cable service outlets, and 10 digital converters (with maximum capabilities and performance characteristics).

7.4.02 Ground Rules

RECOMMENDATION # 58:

All service outlets, modems, converters, and related equipment should be state-of-the-art equipment and should be periodically upgraded, with converters, modems, and other equipment replaced at least every four years to ensure maintenance of state-of-the-art standards. All cable modems should operate initially at speeds of at least 1.5 megabits per second[322] and be designed to provide simultaneous service to networked computers and devices at that speed. System providers should be responsible for maintaining all relevant equipment and for repairing or replacing nonfunctioning or malfunctioning equipment within 24 hours of a request for service.

Each provider should install these outlets, modems, converters, and other equipment at sites designated by the District, DCPL, DCPS, UDC, or PAC, but subject to the numerical limits specified for each institution in Recommendation # 57. In addition, any of these entities may install their own devices (*e.g.*, signal splitters, amplifiers, connecting devices, modems, converters, cable lines) and distribute service to other outlets, modems, and equipment without paying a fee or obtaining the provider's consent.

7.5 INSTITUTIONAL NETWORK

An institutional network is a network which interconnects municipal facilities and other facilities designated by the franchising authority. It typically consists of facilities and equipment provided in whole or in part by one or more system providers. It may be an entirely separate network or it may be a subnetwork of another system. It may be connected to cable systems, other commercial networks and facilities, and/or other municipal communications facilities. It may deliver communications services of any sort, including telecommunications service[323] as well as conventional cable fare.

322. As previously noted, this standard should be adjusted at least every four years and modems replaced to reflect state-of-the-art standards.

323. Cable Act § 621(b)(3)(D); 47 U.S.C. § 541(b)(3)(D).

Comcast/DC did not comply with the franchise's requirements relating to the institutional network. The franchise required Comcast/DC to provide capacity on the subscriber network for an institutional network[324] and to install trunk lines for a separate institutional network wherever underground trunk lines were installed for the subscriber network.[325] Comcast/DC did not make institutional network capacity available on the subscriber network to the District at any time during the term of the franchise and did not require Verizon/DC to complete installation of the "shadow" trunk lines as required by the franchise.[326] In addition, the franchise required Comcast/DC to hire a "purchasing agent" at an annual salary of at least $50,000 to "solicit commercial institutional network customers."[327] Comcast/DC simply did not hire a purchasing agent in 1988 when this obligation kicked in[328] and filed only one of the reports that it was required by the franchise to file with OCTT every 90 days.

During the 1990s, the District and the cable company attempted on a number of occasions to settle their differences with respect to the franchise's institutional network obligations. This dispute was settled in December of 2000 with DCLP's and AT&T's agreement to pay $5 million to resolve all outstanding issues with regard to compliance with the franchise, including its institutional network provisions. This settlement agreement was entered into by DCLP and AT&T in order to secure the District's consent to transfer of the franchise from AT&T to Comcast.

The District still has no access to institutional network capability more than 16 years after initial grant of the cable franchise. This is attributable to various factors, including Comcast/DC's and Verizon/DC's willingness to disregard franchise requirements, an ineffective and poorly drafted franchise agreement, and the District's failure to enforce the franchise agreement. The loss to the District is immeasurable in terms of failure to develop the public resources and capabilities associated with an operational institutional network. Instead, the District has relied primarily on Verizon/DC for local communications links, paying about $30 million a year for technically limited connections.[329] The value of lost service opportunities associated with not having an operational

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324. CFA § 5.1.

325. CFA § 5.6.01.

326. Verizon/DC installed about 32.2 miles of underground trunk lines for the institutional network or only about 68% of the underground institutional network lines required by the franchise. Cable System Technical Audit–Pohts Report, 46-47. Moreover, the lines were not properly maintained (their ends were not sealed, allowing moisture to seep into the lines) and Verizon/DC and/or Comcast/DC used pieces of the institutional network to replace damaged portions of the subscriber network. Cable System Technical Audit–Pohts Report, 46-47.

327. CFA § 5.6.01. This obligation was triggered automatically upon completion of construction of 50% of the subscriber network and applied even if a separate institutional network was not provided.

328. Instead of hiring a purchasing agent as was required by the franchise, Comcast/DC assigned the duties of a purchasing agent to an existing member of its staff who, as marketing director for the system, had a full set of other responsibilities. *See, e.g.,* Notes of Sherry Roberts (OCTT) from a February 28, 1990, meeting with Richard Maulsby (OCTT executive director) and Linda Boyd (Mayor's communications director) (memorializing a 1990 statement by Mr. Maulsby that OCTT had verbally agreed in 1988 to allow the cable operator to designate its marketing director as the purchasing agent).

329. Interview Summaries (Appendix B), B-15 (OCTO).

institutional network in the 1991 to 1998 time period is at least $12 million and is probably much greater.[330]

Now the District, working through OCTO, is seeking to make up for lost time and ground by establishing a new District-wide broadband infrastructure which would support voice, video, and data communications and consist of fiber optic rings interconnecting all District facilities.[331] Comcast/DC, Starpower, and any other provider which enters the market should be partners in designing and building this network but the network should be controlled by the District[332] (with OCTO in charge of establishing network specifications and of managing the network[333]). All District facilities,[334] including schools, libraries, public health, and traffic and transportation facilities, and PAC facilities should be connected to this new broadband network. The starting point for establishment of this network should be the 541 service locations currently connected to the District's WAN, with eventual connection of all District facilities to the network.[335]

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330. Interview Summaries (Appendix B), B-15 (OCTO).

331. Summaries of Interviews (Appendix B), B-13 (OCTO: 541 sites should be interconnected by the network, with at least 24 pairs of lit fiber in the outside plant), B-14-16 (OCTO). *See also* Summaries of Interviews (Appendix B), B-12 (councilmember), B-57 (OCTT: Comcast/DC failed to comply with franchise's requirements relating to the institutional network), B-61 (OCTT: need for a District-wide fiber optic network).

332. *See, e.g.,* Summaries of Interviews (Appendix B), B-3 (councilmember). *See also* Design Criteria and Outline Specification for Municipal Area Network (MAN) (Appendix E) § 3.1.

333. *See, e.g.,* Summaries of Interviews (Appendix B), B-7 (councilmember), B-55 (OCTT).

334. *See, e.g.,* Summaries of Interviews (Appendix B), B-4-5 (councilmember: District public schools, all local universities, all public libraries, public hospital facilities, bus stops and traffic lights), B-12 (councilmember: computerizing traffic lights would be "wonderful"), B-19 (DCPS: need to wire all public schools), B-20-22 (DCPS: would like a broadband network with at least 6 pairs of OC3 fiber optic lines per school with OC12 connections (upgradable to OC48 for core feeder schools); DCPS currently relies on leased T1 lines to interconnect school buildings), B-36-37 (DCPL: dependent on Bell Atlantic trust funds and e-rate subsidies; the Bell Atlantic trust funds can be used for installation costs but not service fees; the e-rate subsidy could be eliminated by Congress), B-38-39 (DCPL: specific interest in obtaining access to a fiber network owned and controlled by the District), B-42, 44-45 (DPW: state-of-the-art traffic and transportation management system; federal funding may be available for establishment of this network; DPW plans to establish an automated traffic sensitive system for management of traffic lights and flow; this system should be tied to the District's planned fiber optic network), B-48-49, 51-53 (DC General: need for interconnections between the hospital and 156 neighborhood and school clinics), B-78 (Mayor's Office of Latino Affairs: need for fiber connections to neighborhood health clinics).

335. *See* Interview Summaries (Appendix B), B-14 (OCTO); OCTO's Working List of Key MAN Sites (Appendix F), F-1-9. District facilities to be connected to the institutional network should include all sites connected to the District WAN, including all key offices located at 441 4th Street, N.W. (One Judiciary Square), 2000 14th Street, N.W. (Reeves Center), 1923 Vermont Avenue, N.W. (Grimke Building), St. Elizabeth's Campus, S.E., 300 Indiana Avenue, N.W., 717 14th Street, N.W., 2217 14th Street, N.W. (OCTT), 800 North Capitol Street, N.E., 810 North Capitol Street, N.E., 825 North Capitol Street, N.W., 941 North Capitol Street, N.W., 1900 Massachusetts Avenue, S.E. (DC General Hospital Campus), and all other key District facilities, including offices to be established at 1350 Pennsylvania Avenue, N.W. (Wilson Building). Facilities of the following agencies and departments should all be connected to the institutional network as soon as possible: Consumer and Regulatory Affairs Department, DC Armory, DC Central Detention (Jail), DC Lottery and Charitable Games Control Board, DC Water and Sewer Department, Employment Services Department, Fire and Emergency Medical Services Department (all fire stations and administrative and support facilities), Housing

OCTO's technical specifications for this institutional network[336] should establish basic parameters for designing, building, equipping, and operating the institutional network. The respective contributions of Comcast/DC and Starpower should reflect each provider's market share and years of operation (a roughly 90%/10% division of total financial responsibility). However, both providers should be required to install fiber optic lines and/or conduit along routes specified by OCTO to the extent that either is engaged in construction work in the right-of-way or has available conduit or conduit space in the time period covered by its franchise.

RECOMMENDATION # 59:

A state-of-the-art institutional network should be constructed to link together all District facilities, PAC facilities, and other facilities designated by the District via single-mode fiber optic connections. The design of this broadband network should be based on specifications and minimum technical and performance requirements established by OCTO (including minimum fiber counts)[337] and construction should be overseen and managed by OCTO. The institutional network should be designed to meet current and future needs and be expandable and adaptable. It should be equipped to provide direct, automatic, and instantaneous connections for transmissions in video, audio, voice, and data form, including live, interactive, closed circuit, and narrowcast transmissions, between and among sites connected directly to the network or indirectly to the network via cable system or other connections.

The network should provide fiber optic connections to all District facilities, including all DCPL,[338] DCPS,[339] UDC, and neighborhood health clinic facilities, and all PAC facilities.

The institutional network should be controlled and managed by the District. Ownership of the institutional network should be absolutely and indefeasibly vested in the District, with no conditions or limits on the District's right to use the network.

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and Community Development Department, Housing Authority, Metropolitan Police Department (all administrative and support facilities and precinct stations), Human Services Department, Motor Vehicles Department, Public Works Department, Recreation and Parks Department, Robert F. Kennedy Stadium, Superior Court of the District of Columbia, Tax and Revenue Department, and Washington Convention Center Authority (current and future facilities).

336. *See* Design Criteria and Outline Specification for Municipal Area Network (MAN) (Appendix E).

337. *See* Design Criteria and Outline Specification for Municipal Area Network (MAN) (Appendix E) for details.

338. Martin Luther King Jr. Memorial Library, 4 regional libraries, 17 branch libraries, 4 community libraries, and 1 kiosk.

339. All school buildings and administrative and support facilities.

Financial responsibility for assisting with designing, building, and equipping the institutional network should be divided between Comcast/DC and Starpower, with responsibility apportioned in accordance with relative market share and years of operation in the District and falling primarily on Comcast/DC (90%). In addition, both Comcast/DC and Starpower (and any other provider entering the local market) should be required to assist in constructing this network regardless of market share by installing fiber optic lines and/or conduit along routes or to sites as requested by OCTO.

7.6 ACCESS CHANNEL INTERCONNECT FACILITIES

Each system provider should provide a state-of-the-art fiber optic network which connects production and other origination sites for access channels to the system, other public institutions, and the institutional network.[340] This network is necessary to support transmission via the cable system of access channel programming and information, including live transmissions, to District residents and other signals related to development and use of access channels and to improve signal quality for access channels.

The original cable franchise did not include provisions requiring the cable operator to provide access channel interconnect facilities or regulating the quality of interconnect services.[341] Over the years, Comcast/DC patched together a simple network which runs a few hundred feet from PAC's W Street facility in Northwest Washington[342] to OCTT's nearby 14th Street facility.[343] At OCTT, PAC's signals were, until recently, demodulated, combined with the District's signals for channels 13 and 16, remodulated, and retransmitted a few hundred feet more to the nearby Comcast/DC headend at 1351 Florida Avenue, N.W. The affect of this additional demodulation and remodulation of PAC signals was to degrade the signal quality for public access channels,[344] resulting in a qualitative difference between PAC's signals and the signals of other programming services carried on the Comcast/DC system.

Until late 1999, Starpower picked up PAC's, DCPS's, and UDC's signals at OCTT, resulting in threats of legal action by Comcast/DC. This matter was settled by agreement between the parties with Starpower, among other things, agreeing either to pick up PAC's, DCPS's, and UDC's signals directly from their origination sites or to pay Comcast/DC a monthly fee for the right to pick up those signals at OCTT. Almost immediately after this agreement was reached, Starpower installed direct connections to PAC's, DCPS's, and UDC's facilities and retransmits signals for the public

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340. MFA § 4.1.03.

341. Summaries of Interviews (Appendix B), B-68 (PAC). *See also* CFA § 7.2 ("Grantee's obligation to provide support of public access and municipal programming (whether in cash, in-kind, or through the provision of facilities and/or equipment) is expressly limited to the provision of channel capacity as specified in Section[s] 6.1 and 7.2.04 [of the CFA], and to the cash payments and facilities and services specified [in the CFA]").

342. PAC located its playback facilities in the Bowen YMCA at 1325 W Street, N.W., in order to be within a block of Comcast/DC's headend (which was originally located at 1328 Florida Avenue, N.W., and then moved across the street to 1351 Florida Avenue, N.W.) and to ensure a connection to the headend.

343. Technical and Operations Review–Comcast/DC System (Appendix A), A-2 (Comcast/DC headend staff).

344. Interview Summaries (Appendix B), B-71 (PAC).

access and educational channels to cable customers independently of Comcast/DC's facilities. Thus, Starpower provides independent interconnect facilities for all six access channels while Comcast/DC provides interconnect facilities for only four of the six access channels.[345] In addition, neither Comcast/DC nor Starpower provides interconnect facilities between the District's origination sites at One Judiciary Square (and several other locations) and OCTT, requiring OCTT to lease fiber optic lines from Verizon/DC for these connections.[346]

Interconnect services and facilities for access channels should be established which ensure no degradation in signal quality,[347] provide state-of-the-art fiber optic connections[348] to access channel production and other sites designated by the District and to the institutional network, and reduce costs for public institutions.[349] These interconnect facilities should be flexible and adaptable and equipped to provide connections for live coverage of public events[350] Finally, the institutional network, if connected to all access sites, connected to the system, and properly designed and equipped, could provide some or all of the interconnect services required for access channels.

RECOMMENDATION # 60:

Each system provider should connect all production and origination sites designated by the District to its system and to the institutional network via bidirectional fiber optic connections. Each provider should install and maintain the on-premises, network, and headend facilities and equipment needed to provide state-of-the-art interconnections (*e.g.*, laser transmitters, modulators, processors, passive devices). These access channel interconnect facilities should directly, automatically, and instantaneously transmit signals provided by public institutions over access channels, to and from

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345. Both DCPS and UDC lease lines from Verizon/DC at a significant cost for interconnect facilities to connect DCPS's and UDC's channels to the headend for the Comcast/DC system.

346. Cable System Technical Audit–Pohts Report, 27.

347. *See, e.g.,* Summaries of Interviews (Appendix B), B-24 (DCPS: frequent outages of channel 28 on the residential network; signal quality "gets screwed up" at the cable operator's headend; frequent interruptions of channel 28 for emergency tests), B-30 (UDC: difference in quality of UDC's outgoing signal and the signal retransmitted on the Comcast/DC system), B-56 (OCTT: signal quality problems on the government channels), B-61 (OCTT: need to upgrade connections to the cable system for all PEG facilities), B70 (PAC: Comcast/DC's modulators do not support live transmissions); Summaries of Focus Groups (Appendix C), C-4 (consumers: signal quality problems on access channels); Town Hall Meeting Transcript (May 4, 1999), 73 (public access producers should be able to transmit live programming over the cable system), 92-93 (signal quality problems on the public access channels); Town Hall Meeting Transcript (May 18, 1999), 97 (signal quality problems on the public access channels), 118 (public access channel signals should be "broadcast quality"), 125-26 (signal quality problems on the public access channel).

348. MFA § 4.1.03. An appendix should be added to the model franchise agreement which specifies all sites to be served by access channel interconnect facilities and procedures for adding new facilities or new locations to that list.

349. Summaries of Interviews (Appendix B), B-24 (DCPS: pays to Verizon/DC lease lines for transmission of signals to Comcast/DC's headend), B-28 (UDC: pays fees to Verizon/DC to lease lines for transmission of signals to Comcast/DC's headend), B-64 (OCTT: high cost of leasing lines from Verizon/DC for existing interconnections).

350. *See, e.g.,* Summaries of Interviews (Appendix B), B-4 (councilmember: increase ability to cover events at remote sites), B-24 (DCPS: need for live coverage of school board meetings at 825 North Capitol Street, N.E.).

designated public institutions, and to and from the institutional network. These facilities should transmit these signals without altering or degrading them and without altering or removing any ancillary data or coding information.

Each provider should develop a design for access channel interconnect facilities which are based on the foregoing objectives and a plan and schedule for construction and activation of these facilities and present them to the District for review and modification prior to the District's grant of a franchise.

7.7 EMERGENCY ALERT SERVICE

The Comcast/DC system was not equipped with an operational emergency alert system until July of 1998.[351] The franchise requires Comcast/DC to provide emergency alert service, including an audio override on all channels, for use by the District government to provide emergency information.[352] Comcast/DC began to provide emergency alert service in 1998 and in late 1998 or early 1999 provided codes to the District's Emergency Management Agency so the emergency system could be accessed by the District government for emergency communications.[353] In view of this delay of about 13 years in complying with basic franchise requirements with respect to emergency alert service and the District's planned centralization of essential communications functions in a new unified communications center to be located in Southeast Washington, all new franchises should include clear-cut requirements for emergency alert service which may be operated by the District government in emergency situations and which complies with technical specifications established by OCTO.[354]

RECOMMENDATION # 61:

Each system provider should provide a state-of-the-art emergency alert system (EAS) which complies with specifications established by OCTO. The system's EAS should provide audio and video override on all audio and video channels for emergency information provided by the District and should conform to performance and other standards established by OCTO. Each system provider should maintain the system and periodically upgrade it to remain current with state-of-the-art standards. Each system's EAS should be equipped for remote activation from locations or via connections of the District's choosing, for operation by the District during emergencies, and for carriage of a live audio or video feed supplied by the District.

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351. Technical and Operations Review–Comcast/DC System (Appendix A), A-1 (Comcast/DC). It is likely that Comcast/DC finally launched emergency alert service in 1998 in large part because it was required to do so by FCC rules which specified December 31, 1998, as the final deadline for compliance with federal emergency alert service requirements for cable systems of the size of the Comcast/DC system. 47 C.F.R. § 11.11(a).

352. CFA § 5.8.

353. OCTT submission to InPUT, October 25, 2001.

354. MFA § 4.4.02 and Appendix A § II.A.6.

7.8 PROMOTIONAL SPOTS

Comcast/DC provides time slots on some commercial cable networks (*e.g.*, CNBC) for carriage of television spots produced by OCTT to promote upcoming programs and events on channel 16. Improvements in promoting access channels and programming are essential to provide District residents with advance notice of programs and to provide information to District residents about public access training and production opportunities.[355] Current opportunities for promotional spots on cable networks should be retained and expanded to provide promotional opportunities for PAC and other access channel providers.[356]

RECOMMENDATION # 62:

Two 60-second time slots should be made available every day during the hours of heavy viewership (*e.g.*, between 7:00 a.m. and 12:00 p.m.), including at least one during "prime time," for spots provided by the District, PAC, and other PEG entities designated by the District on each channel which is equipped for local insertion of advertisements.

7.9 PROGRAM GUIDES

District residents have expressed concern with regard to the difficulty of finding out about program schedules for public access and other access channels.[357] This difficulty is partly due to the fact that program schedules in daily newspapers and in monthly cable program guides generally do not even list the channel numbers for access channels. Similar problems exist with respect to on-screen and Internet-based program guides and schedules. System providers should be required to include program schedule information for access channel programming in program guides and schedules if it is submitted to the system provider prior to its publication of a program guide or schedule or submission of program schedule information to third-party providers of program guides or schedules.[358]

355. Summaries of Interviews (Appendix B), B-2-3 (councilmember: need for wider dissemination of information about PAC training opportunities); Town Hall Meeting Transcript (May 18, 1999), 71 (need for more aggressive promotion of availability of public access opportunities to District residents), 140 (need for more promotion of public access opportunities).

356. MFA § 4.2.05.

357. Town Hall Meeting Transcript (May 18, 1999), 39-40.

358. MFA § 4.2.05.

RECOMMENDATION # 63:

System providers should include complete information regarding scheduled access channel programming in all its program guides and in all submissions to other providers of program guides, including newspapers, on-screen, and Internet-based guides, to the maximum extent possible.

8. FRANCHISE ADMINISTRATION AND REGULATION

8.1 RATES

Federal law sharply restricts local rate regulation in noncompetitive markets and prohibits rate regulation in all competitive markets.[359] Because of Starpower's presence in the local market and possible growth in its market share, the District is likely to be classified as a competitive market in the not-too-distant future, resulting in termination of the District's authority to regulate rates under current law.

Federal law sharply limits rate regulation in noncompetitive markets to narrowly defined areas, preempting any local regulation of cable rates which is not consistent with federal standards and providing for FCC review of decisions by franchising authorities.[360] Under these federal rules, a franchising authority may regulate basic service rates[361] and rates for associated equipment and installation in noncompetitive markets[362] but even in this area federal rules grant the cable operator significant latitude to increase rates by passing through various costs to subscribers.[363]

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359. The Cable Act includes a definition of effective competitive. Cable Act § 623(l)(1); 47 U.S.C. § 543(l)(1). The FCC has adopted regulations which incorporate and clarify this statutory definition. 47 C.F.R. § 76.905(b). Under these federal rules, a local market is considered competitive if 50% or more of the households in the franchise area have access to service from two or more multichannel providers *and* more than 15% of the households in the franchise area are receiving service from providers (including satellite carriers) other than the largest provider. Cable Act § 623(l)(1)(B); 47 U.S.C. § 543(l)(1)(B). *See also* 47 C.F.R. § 76.905(b)(2). Effective competition is also deemed to exist if: (1) a local telephone company provides video service comparable to the service provided by the local cable operator (Cable Act § 623(l)(1)(D), 47 U.S.C. § 543(l)(1)(D); 47 C.F.R. § 76.905(b)(4)); (2) at least 50% of households have access to service provided by a system owned by the local franchising authority (Cable Act § 623(l)(1)(C), 47 U.S.C. § 543(l)(1)(C); 47 C.F.R. § 76.905(b)(3)); or (3) fewer than 30% of the households in a franchise area receive service from a cable system (Cable Act § 623(l)(1)(A), 47 U.S.C. § 543(l)(1)(A); 47 C.F.R. § 76.905(b)(1)).

360. 47 C.F.R. §§ 76.944.-945.

361. Basic service consists of the tier or package of service that contains local broadcast signals and public, educational, and government access channels. It may also include other services that the cable operator elects to include in that tier. 47 C.F.R. § 76.901(b). For Comcast/DC, basic service consists of 25 channels; for Starpower, basic service consists of about 94 channels (87 of these channels are programmed and 7 channels are reserved for future services).

362. Cable Act § 623; 47 U.S.C. § 543.

363. *See, e.g.*, 47 C.F.R. § 76.922(e) (a cable operator may increase rates in advance to reflect inflation, changes in external costs, and changes in the number of basic service channels projected to occur in the 12-month period following the date of implementation of the rate increase).

A franchising authority may not regulate expanded basic service[364] rates even if the local market is noncompetitive. The FCC had limited authority to regulate expanded basic service rates in noncompetitive markets from 1992 to 1999 but this authority was terminated by federal statute on March 31, 1999, on a nationwide basis in competitive and noncompetitive markets alike.[365]

The District currently regulates basic service rates and related equipment and installation charges for Comcast/DC and has been involved in several FCC proceedings in which the District contested rate increases. In view of the strong views of District residents with regard to rates,[366] uncertainty with regard to the future of competition,[367] and possible delivery of essential services over cable systems at some time in the future, the District should retain authority to regulate rates even if it decides not to exercise that authority or is currently barred by federal law from exercising that authority.[368]

RECOMMENDATION # 64:

The District should reserve authority to regulate rates to the maximum extent permitted by law.

8.2 REPORTS

System providers should submit reports and other information to the District to the extent required by the District to administer the franchise, enforce customer service requirements, enforce and implement applicable laws, and monitor construction and performance. Virtually all information required for effective oversight is maintained by system providers in electronic form and can be readily assembled and provided to OCTT in whatever form and manner may be specified by OCTT.[369] In many cases, this information should be filed on a monthly basis so that OCTT is made aware of problems soon after they arise (*e.g.*, volume of telephone calls made to the provider, the provider's response time to telephone calls, consumer complaints, decreases in the number of

364. Expanded basic service, also known as "cable programming service," consists of all video services except for pay-per-view and pay-per-program services and time-shifted versions of these services. 47 C.F.R. § 76.901(b). For Comcast/DC, expanded basic service consists of 31 channels; Starpower combines basic and expanded basic service in a single tier of basic service. This package consists of 87 programmed channels (with the possibility of as many as 94 channels).

365. Cable Act § 623(c)(4); 47 U.S.C. § 543(c)(4).

366. *See*, *e.g.*, Survey Report, 10-12, B-1-9.

367. It cannot be assumed that two full-fledged competitors will survive in the District on a permanent basis as one competitor could acquire another or one or more competitors could fail.

368. MFA § 5.6.

369. MFA § 10.4.

subscribers).[370] In other cases, information should be reported on a quarterly basis (*e.g.*, a system provider's failure to meet construction deadlines or milestones)[371] or every six months.[372] In a few cases, information should be submitted on an annual basis (*e.g.*, post-construction as-built maps,[373] annual audited financial statements,[374] comprehensive annual reports[375]).

RECOMMENDATION # 65:

System providers should file monthly reports which, at a minimum, provide information for the previous month on: rates and other charges; sales and subscriptions; subscribers; installations; equipment rentals and sales; consumer complaints; telephone calls and response times; service interruptions; construction; expenses and revenues; local origination; employees; and subcontractors. System providers should submit results of technical and other performance tests to OCTT within a week of completion of such tests. System providers should file annual reports which cover all of the preceding items and other matters that may be required by OCTT and which include current as-built maps. Further, system providers should file audited financial statements each year for the system which include: the balance statement; the income statement (showing subscriber revenue for each service category, other revenue by source, operating expenses by line item, depreciation expense, interest expense, and taxes paid); capital expenditures; depreciation and amortization schedules and amounts; and debt payments and obligations.

8.3 CONSTRUCTION

Clear-cut and unambiguous construction schedules and strict enforcement requirements for Comcast/DC, Starpower, and any other provider are necessary to ensure that all District residents have equal access to the same service options and technical capabilities within a reasonable time period and that all providers comply with their franchise obligations.[376] Equally important are strict

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370. *See, e.g.*, MFA § 10.6.06 (permits), § 10.6.10 (service interruptions), § 10.6.11 (subscriber complaints), § 10.6.12 (subscriptions).

371. *See, e.g.*, MFA § 10.6.01 (construction progress reports), § 10.6.08 (employees), § 10.6.09 (contracting).

372. *See, e.g.*, MFA § 10.6.04 (related services), § 10.6.07 (management-level employees).

373. Strict penalties should apply to failure to provide as-built maps to the District as Comcast/DC was not responsive to requests by OCTT's engineering consultant for maps. *See, e.g.*, Technical and Operations Review–Comcast/DC System (Appendix A), A-5. It is possible that Comcast/DC was not responsive to these requests because it did not have copies of current as-built maps in its possession and did not want to pay the $337,870 fee required by Verizon/DC's tariff for as-built maps. Appendix D (Verizon/DC-Comcast/DC Relationship), D-6.

374. MFA § 10.5.02.

375. MFA § 10.5.01.

376. Comcast/DC did not complete construction of the system by the May 22, 1991, deadline established by the franchise. CFA § 4.2 (deadline for completion of construction was 60 months after commencement of construction). According to Comcast/DC, construction was completed in January, 1995, or almost four years after the deadline

standards and rules for construction and for restoration of the public right-of-way and any other property affected by a provider's construction activities.

Verizon/DC and Comcast/DC installed lines for the Comcast/DC system at aerial locations in alleyways (and in street locations in several instances) throughout the fire zone in the late 1980s and early 1990s although other utility and communications lines in those neighborhoods had been installed underground. These lines were installed by Verizon/DC and Comcast/DC in these areas without permits and with little or no regulation of installation work. The District granted *ex post facto* blanket permits, effective March 31, 2000, for occupation of the public right-of-way by unpermitted users such as Verizon/DC and Comcast/DC (and other unpermitted users of the District's right-of-way) in these and all other areas of the District.[377] This 2000 rule may provide limited grandfathering protections for unpermitted facilities installed by Verizon/DC and Comcast/DC installations but it does not prohibit the District's Division of Transportation (DDOT) from enforcing fire zone rules, especially if Verizon/DC and/or Comcast/DC seeks to replace or upgrade any facilities in these areas.

Much of the aerial plant installed in alleyways in these areas by Verizon/DC and Comcast/DC is poorly constructed, with drop lines hanging close to the ground and a tangled maze of drop lines radiating from poles in every direction at a number of locations. These installations should be inspected in connection with the rebuild of the Comcast/DC system, with lines moved to underground locations and/or replaced or rearranged as necessary to reduce visual clutter, improve safety, and comply with District standards.[378] Aerial installation of cable lines in these areas is inconsistent with longstanding District law and should not be permitted for Starpower (or other providers) unless expressly authorized by DDOT and consistent with District regulations and law.

In connection with monitoring construction and restoration work, the District should have full access to up-to-date information with regard to construction and restoration work and the current and planned locations of all facilities and equipment installed in the public right-of-way.[379] In a fully competitive environment (and the possibility that two or more providers may seek to install facilities in the same area at the same time in an effort to capture market share), it will be even more important for the District to have access to the full array of regulatory tools needed to manage activity in the public right-of-way to ensure fair competition and minimize damage to property and disruption of traffic.

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established by the franchise. *See* Technical and Operations Review–Comcast/DC System (Appendix A), A-11.

377. 24 DCMR § 3302.2.

378. MFA § 6.2, Appendix B § I.B.

379. *See, e.g.*, Summaries of Interviews (Appendix B), B-43 (DPW: need for remote access to information about construction activities), B-59 (OCTT: last construction report provided by Comcast/DC was for 1991 to 1992).

RECOMMENDATION # 66:

Construction schedules (including both interim milestones and final deadlines), with strict enforcement procedures (*e.g.*, liquidated damages), should be established to ensure orderly deployment of new system plant and facilities, including institutional network facilities, and access to advanced services and technology on a consistent and equitable basis in all of the District's eight wards.

OCTT should establish strict construction and installation standards with regard to all facilities and equipment installed in the public right-of-way as necessary to supplement standards which are normally implemented by DDOT through the permitting process. These standards should not only ensure high-quality service but should also protect District interests with regard to safety and aesthetics and be designed to ensure consistency among competitors to the extent possible and practical. As appropriate, these standards should require replacement and/or relocation of facilities and equipment currently being used by Comcast/DC, including those currently installed at aerial locations in District neighborhoods where the District requires underground installations.

The District should reserve broad authority to inspect, monitor, and regulate construction and restoration work. Strict requirements should also be established to ensure that all property, including both publicly and privately owned property, is fully restored upon completion of any construction or installation work on the property in question.

8.4 USE OF THE PUBLIC RIGHT-OF-WAY

The District should establish consistent rules regarding use of the right-of-way and apply these rules to all cable operators and other system providers on a consistent and equitable basis.[380] For example, if the District requires communications companies to make payments into a trust fund to support tech city projects,[381] it should impose this requirement on cable operators and providers of similar systems unless the system provider is providing equivalent support pursuant to a franchise.

In some situations, anomalies of past practices and/or law have given Comcast/DC an unfair advantage over Starpower and other possible competitors. For example, Comcast/DC (through Verizon/DC) was able to install poles and aerial lines in the fire zone in violation of District rules[382]

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380. *See, e.g.*, Summaries of Interviews (Appendix B), B-2 (councilmember: need for restrictions on excavation in the public right-of-way), B-11 (councilmember: the District needs to deal with the "new paradigm" associated with use of the public right-of-way), B-42 (DPW: require Comcast/DC to comply with the District's permitting requirements), B-42 (DPW: remove anomalies in the Comcast/DC franchise (the cable franchise requires the District to restore and repair streets and then obtain reimbursement from the cable company while the District requires all other communications companies to restore and repair the public right-of-way), B-43 (DPW: permit applications and drawings and maps should be submitted to the District via the Internet and in electronic form).

381. *See, e.g.*, Summaries of Interviews (Appendix B), B-16 (OCTO).

382. The District did not stop Verizon/DC and Comcast/DC from installing lines and equipment at aerial locations in alleyways (and sometimes in streets) in Adams-Morgan, Capitol Hill, and Georgetown in the late 1980s and early 1990s. This happened in spite of the fact that no other communications or utility company, including Verizon/DC (for its telephone system) and PEPCO, has installed lines or facilities at aerial locations in these areas. (PEPCO has installed

while Starpower (and other possible competitors, including competing local exchange carriers (CLEC)) are expected to comply with all pertinent fire zone rules. Special rules should be established by OCTT and/or by DDOT which ensure tighter controls over existing aerial installations in the fire zone and eventual elimination of these illegal installations wherever possible. In addition, rules should be established which ensure higher quality aerial installations and maintenance of aerial lines and related facilities where aerial installations are permitted.

Perhaps most important, the District should make a coordinated effort to apply consistent rules to both Comcast/DC and Starpower with regard to underground construction to the extent possible. District law is designed to encourage underground installations by charging lower right-of-way fees for underground installations than for aerial installations ($0.14 per linear foot for underground lines versus $0.33 per linear foot for aerial lines) and requires underground installations throughout the fire zone.

District policy with regard to underground and aerial installations is implemented primarily by DDOT through the permits process.[383] The permits process is used to implement and enforce requirements for underground installation throughout the fire zone. In contravention of longstanding District requirements for underground construction in the fire zone, Verizon/DC and Comcast/DC installed lines at aerial locations in alleyways (and sometimes in streets) in the late 1980s and 1990s in fire zone areas. The District also did not establish or implement any real standards with regard to these alleyway installations in the fire zone. Starpower has not completed installation of plant in parts of three key fire zone neighborhoods–Adams-Morgan, Capitol Hill, and Georgetown–although it provides service to many multidwelling unit properties in these areas. Starpower has expressed concerns about the cost of installing lines in underground locations in these areas.[384]

RECOMMENDATION # 67:

All system providers should completely and promptly restore any public right-of-way used or disturbed in any way in connection with any construction or installation of system plant or facilities. System providers should comply with all applicable permitting and inspection fees and other requirements and comply with all rules established by DDOT with respect to use of the public right-of-way, including any requirement to submit plans and maps in AutoCad or other electronic form, and to comply with requirements for underground installations and any other DDOT policies designed to mitigate damage to the environment or to protect public safety. All system providers should relocate plant to accommodate any changes made to streets, the public right-of-way, and other public structures.

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street lights on some utility poles in alleyways and the power connections needed to operate these lights but does not deliver power to residential or commercial customers via aerial lines in these areas.)

383. The model franchise agreement should be revised to fully reflect District policies and practices. As currently drafted, it requires cable operators to install cable lines underground if telephone and utility lines are installed in underground locations in a particular area of the District. MFA, Appendix B § I.B.1. If this policy were to be implemented without any transition period or rules, Verizon/DC and Comcast/DC would be required to immediately move all cable lines installed at aerial locations in the fire zone to underground locations.

384. Interview Summaries (Appendix B), B-79 (Starpower).

All system providers should comply with all pertinent provisions of the District's code and rules and DDOT directives which directly or indirectly require underground installation or which regulate construction or installation practices, including all provisions or actions which require underground installations or which regulate aerial installations. In particular, Comcast/DC should be required to comply with policies developed by OCTT and/or DDOT with regard to aerial installations in Adams-Morgan, Capitol Hill, Georgetown, or any other fire zone neighborhood or location where underground installations are required either directly or indirectly by the District.

The District should retain broad authority to apply to all system providers any new policies established with regard to use of the public right-of-way. Possible new policies include (but are not limited to) strict standards for restoration of the surface of roadways, requirements for common or cooperative trenching or installations, requirements for use of particular trenching technology (*e.g.*, "trenchless" technology), submission of all pertinent system data in Geographic Information System (GIS) format, and payment of telecommunications and right-of-way fees.

8.5 TECHNICAL AND PERFORMANCE TESTS

District residents have expressed criticisms with regard to signal quality and reliability.[385] Comcast/DC has failed to comply with the FCC's signal leakage standards.[386] Further, Comcast/DC's records were so poor and the results of recorded tests so implausible in a number of instances that OCTT's engineering consultant was unable to determine whether Comcast/DC was in compliance with the FCC's technical standards.[387] These shortcomings suggest the need for strict technical specifications and performance standards and enforcement measures.

Federal law currently limits the ability of franchising authorities to do much more than require system providers to comply with the FCC's *de minimis* technical standards and to conduct limited technical tests permitted by the FCC's rules.[388] However, these restrictions on technical standards and testing do not apply to institutional networks. Further, they could be revised by Congress or the FCC to establish stricter standards or allow franchising authorities to establish and/or enforce technical standards, especially as cable technology continues to move into areas not governed by current technical standards (*e.g.*, digital transmissions, upstream transmissions).

Given the history of signal quality and reliability problems and signal leakage, the District should retain broad authority to develop and implement its own technical standards and testing

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385. *See, e.g.*, Survey Report, 70-71 (in the view of a majority of respondents, Comcast/DC's practices with respect to preventing and responding to service outages are in need of improvement), 72-73 (more than half of the respondents stated that improvements in Comcast/DC's picture and sound quality are needed), B-24-28; Summaries of Interviews (Appendix B), B-1, 9 (councilmembers), B-26-27 (DCPS: need for a "clean" signal in District homes), B-71 (PAC: ongoing signal quality problems); Summaries of Focus Groups (Appendix C), C-2 (consumers), C-19 (students # 1: problems with quality of channels 4 and 5).

386. *See, e.g.*, Cable System Technical Audit–Pohts Report, 34-39.

387. Cable System Technical Audit–Pohts Report, 32-33.

388. Cable Act § 624(e); 47 U.S.C. § 544(e). *See also* 47 C.F.R. §§ 76.601 and .609. The FCC has ruled that "Section 624(e) now precludes [a local franchising authority] from enacting and enforcing technical standards that differ from those established by the [FCC]." *Cable Reform Report and Order* ¶ 127.

procedures to the extent permitted by law.[389] In addition, OCTT should be given advance notice of all technical tests conducted by a system provider so that OCTT can observe tests if it so desires.[390] Finally, all system providers should be required to comply with all applicable FCC standards and to provide the District with a full complement of mobile testing equipment so that the District can independently verify compliance with applicable technical standards.[391]

RECOMMENDATION # 68:

The District should reserve broad authority to establish technical standards and conduct technical tests to the maximum extent permitted by law, including tests of subscriber and institutional networks, and to require compliance with all federal technical standards, whether or not formally adopted by the District. Further, all system providers should provide the District with full access to all mobile testing equipment necessary for the District to conduct its own technical tests. Finally, OCTT should be provided with advance notice of all required technical tests so that it can observe any such technical test to ensure that they are properly implemented.

8.6 INSPECTION RIGHTS

All plant and facilities of all cable and similar systems should be subject to any DDOT inspection requirements applicable to other users of the public right-of-way. (Comcast/DC is exempt from any obligation to pay inspection fees to DDOT although other providers are required to pay such fees.[392]) In addition, OCTT should be authorized to inspect all facilities of cable and similar systems and books and records of all system providers as it deems necessary to enforce applicable law or assess compliance with requirements of the franchise and other provisions of applicable law (*e.g.*, compliance with system specifications, compliance with obligations to pay franchise fees and provide support for public services).[393]

RECOMMENDATION # 69:

The District should be authorized to inspect all system facilities and books and records of system providers on 24 hours' advance notice or immediately in any emergency situation, to inspect any facility installed in the public right-of-way without any advance notice, and to charge any applicable fee.

8.7 ENFORCEMENT MEASURES

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389. MFA § 6.12.01, Appendix A § III.

390. MFA § 6.12.01.

391. MFA, Appendix A §§ III.A.1. and III.B.3.

392. *See, e.g.*, Summaries of Interviews (Appendix B), B-43 (DPW).

393. MFA § 10.7.03.

Improved enforcement measures, including financial penalties,[394] are needed because of problems with Comcast/DC's[395] and Starpower's customer service and with their compliance with basic legal obligations.[396] Especially important are establishing clearly defined liquidated damages for all significant violations[397] and establishing a security fund[398] for quick recovery of liquidated damages and other financial payments owed to the District or other entities under the franchise.[399]

RECOMMENDATION # 70:

The franchise should specify enforcement measures which may be invoked in situations where a system provider does not comply with the franchise. The franchise should specify the amount of liquidated damages to be collected for each violation of the franchise so there is no dispute as to the damages associated with each breach (*e.g.*, $1 per day per each affected household for failure to comply with a construction schedule). The franchise should also specify franchise violations considered to be material which may provide the basis for termination or shortening of the franchise or imposition of other major penalties. The franchise should require the provider to post a sizable performance bond or other financial guarantee, payable to the District in the case of failure to perform, which secures the provider's construction, operation, and removal of the system. Finally, a security fund of a sizable amount should be established to which the District may easily and quickly obtain access to recover liquidated damages and collect financial penalties, underpayments of franchise fees, public service fees, and other amounts owed to the District.

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394. *See, e.g.*, Town Hall Meeting Transcript (May 4, 1999), 118-19 (creative use of financial penalties to ensure compliance with franchise requirements); Town Hall Meeting Transcript (May 18, 1999), 97 (immediate fine should be imposed for signal quality problems with regard to public access channels). *See also* MFA § 13.3.01.

395. *See, e.g.*, Summaries of Interviews (Appendix B), B-58 (OCTT: Comcast/DC resisted OCTT's initial efforts to enforce the FCC's *de minimis* customer service standards). *See also* Summaries of Interviews (Appendix B), B-1 (councilmember: signal quality problems; problems with keeping service call appointments), B-6 (councilmember: numerous problems with customer service), B-11 (councilmember: many problems with customer service).

396. Both Comcast/DC and Starpower have failed to comply with numerous provisions of their agreements with the District. *See* OCTT's Compliance Report for 200. *See also* page 12.

397. MFA § 13.3.

398. It is very difficult for franchising authorities to recover payments or enforce franchise obligations by tapping performance and construction bonds as a lawsuit is usually required and a vigorous defense is usually mounted by both the surety company and the cable company. Security funds, in contrast, may be quickly and easily tapped by the franchising authority and do not require a lawsuit.

399. MFA § 13.2.

8.8 PERFORMANCE AND STATE-OF-THE-ART REVIEWS

The existing cable franchise includes requirements for periodic performance reviews,[400] periodic state-of-the-art reviews,[401] and procedures for state-of-the-art amendments to the franchise.[402] These provisions have been ineffective in securing compliance with the franchise or upgrades in technology and system performance.[403] The ineffectiveness of these provisions may be due in part to the fact that Comcast/DC does not own the system's distribution facilities and had no legal right to require Verizon/DC to upgrade or improve the system. Under normal circumstances (*i.e.*, where the cable operator owns and controls the cable system's distribution facilities), requirements for periodic performance reviews and state-of-the-art reviews can play an important role in the enforcement process.

Periodic performance reviews and state-of-the-art reviews provide an opportunity for periodic gathering of information and provision of notice to the provider of the District's expectations with regard to performance and franchise compliance. (Provision of such notice is necessary in order for the District to preserve the right deny a renewal request due to past performance and/or compliance problems.[404]) Accordingly, the District should establish strict requirements for annual reviews of performance and for reviews of state-of-the-art at least once every two years.[405] These procedures will ensure that the District has the ability and the opportunity to enforce the franchise, secure improvements in performance, and ensure deployment of new technology throughout the term of the franchise.

Of utmost importance is establishing clear-cut procedures which ensure that the system is periodically upgraded and/or enhanced to reflect developments in state-of-the-art standards.[406] These procedures should be specific and strict in view of the failure of the existing franchise to secure an upgrade of the system during the more than 16 years in which the franchise has been in effect. Following a state-of-the-art review, the District should be authorized to issue a system enhancement order which requires the provider to update its technology to include the latest advances in state-of-

400. CFA § 5.14.

401. CFA § 5.15.

402. CFA § 3.12.07a.

403. *See, e.g.,* Draft Document Search Report–Arnold & Porter Report *in passim* (references to annual reports).

404. Cable Act § 626(d); 47 U.S.C. § 546(d).

405. Frequent reviews of state-of-the-art practices are necessary because of the rapid development of new services and technical capabilities (*e.g.*, video-on-demand, interactive television), federal requirements to open up the market for consumer electronics equipment to third-party providers, and the ongoing debate over open access for Internet service providers and other types of service providers.

406. MFA § 3.8.

the-art technology.[407] In addition, the District should be authorized to shorten the franchise[408] and/or impose financial penalties, including liquidated damages,[409] in cases where a provider fails to comply with an enhancement order. Conversely, the District should be authorized to lengthen the franchise in cases where the provider assumes new cost burdens associated with deployment of state-of-the-art technology.

RECOMMENDATION # 71:

The District should conduct performance reviews every year and state-of-the-art reviews at least once every two years and more frequently if warranted. Strict requirements in this area are essential in view of Verizon/DC's and Comcast/DC's failure to upgrade the system during the more than 16 years in which the franchise has been in effect.

Performance reviews should, among other things, include an assessment of the provider's performance and compliance with the franchise and an assessment of appropriate enforcement action (*e.g.*, imposition of liquidated damages).

State-of-the-art reviews should include assessments of the current capabilities of the system and those of state-of-the-art systems and networks. Among other things, state-of-the-art capabilities should include the latest developments in technology that have been proven to be operationally workable. The system provider should produce all pertinent information concerning the system's capabilities, the provider's deployment of advanced services and technologies in other communities, and state-of-the-art developments in the cable and other industries. The District may also consider any information pertaining to state-of-the-art developments which it collects on its own.

Following consideration of all pertinent information, including any cost estimates and technical information provided by the system provider, the District should issue an order requiring the provider to enhance the system to the extent necessary to ensure that the system conforms to current state-of-the-art standards. In connection with this order, the District should extend the franchise to the extent warranted by new financial obligations to be incurred by the provider in implementing a state-of-the-art order. Similarly, the District may shorten the franchise or impose liquidated damages and penalties if the provider fails to implement an enhancement order or comply with a construction schedule specified in an enhancement order.

8.9 FRANCHISE TERM

All franchises should be short-term franchises unless the system provider agrees to make a substantial investment in cable-related system capabilities and/or public services (or produces evidence that it has made such an investment in the prior three years), and the investment to be made (or recently made) by the provider is substantial enough to justify a long-term commitment by the

407. MFA § 3.8.04.

408. MFA § 13.4.02(v).

409. MFA § 13.3.01(v).

District to the provider.[410] Since a franchising authority may not regulate telecommunications facilities through a cable franchise,[411] the costs of the provider's telecommunications facilities should not be considered in determining the term of a cable franchise. The term of the cable franchise should not exceed the time period necessary to recoup the provider's documented investment in new cable system technology and public services (including investment in an institutional network even if it is to be used for telecommunications services as long as the network is controlled by the District) and a reasonable profit on that investment.[412] The franchising authority should retain the discretion to impose penalties if the provider's investment ends up being significantly less than projected and/or its revenues significantly more than projected.

RECOMMENDATION # 72:

The term of the franchise granted to a system provider should be the time period necessary to recover the provider's new investment in the system and in public services and a reasonable profit on those investments.

In connection with this determination, the system provider should submit an itemized list of all investment in new facilities and equipment which it plans to place in service under the new franchise or which it placed in service in the three-year period prior to the effective date of the new franchise. This list should not include the costs of any facilities and equipment to be used solely for telecommunications services and other services not subject to the cable franchise fee. Any costs associated with dual purpose facilities and equipment should be fully disclosed, with a breakdown of the allocation of these facilities and equipment between services subject to the cable franchise fee and services not subject to the cable franchise fee. The provider should also provide an itemized list of revenues expected to be received from services subject to the cable franchise fee.

Periodic performance reviews should include a comparison of projected and actual revenues and of projected and actual investment costs. Remedies for significant misrepresentations (whether intentional or unintentional) with regard to projected revenues and investment (as measured by the difference between projected and actual revenues and between projected and actual investment) should be specified in the franchise.

410. *See, e.g.,* Summaries of Interviews (Appendix B), B-13 (OCTO: franchise should be a short-term franchise).

411. Cable Act § 621(b)(3); 47 U.S.C. § 541(b)(3).

412. Once this time period has been documented by the provider and verified by the franchising authority, the term of the franchise should be specified by inserting the appropriate number of years in the blank space provided in § 2.3.03 of the MFA.

8.10 FRANCHISE EXTENSIONS

Franchise extensions are sometimes used by cable operators to avoid completing renewal negotiations in a timely fashion, to facilitate transfers in the midst of renewal proceedings,[413] and/or to delay implementation of a system upgrade or other improvements in technology.

Comcast/DC's franchise, which originally expired on March 14, 2000, has been extended on two separate occasions for a total of two additional years and is now scheduled to expire on March 14, 2002. Similarly, Starpower's OVS agreement, originally scheduled to expire on June 10, 2000, was extended on two separate occasions for a total of one additional year (a six-month extension until December 10, 2000; and month-to-month extensions for a six-month period until June 10, 2001) and was extended in June of 2001 for another year (until June 10, 2002) to give the District and Starpower time to attempt to negotiate a cable franchise agreement. In both cases, the two providers obtained extensions of their right to operate without assuming any significant additional obligations. In fact, the District expressly relieved Comcast/DC from any obligation to comply with franchise provisions concerning the institutional network and upgrade of the system for the duration of any extension although these obligations applied to the cable operator (but were not complied with) prior to the transfer.[414]

The District should establish policies which preclude extensions unless the District receives tangible and measurable benefits in the form of significant new investments in the system or significant improvement in services or public benefits[415] or unless the District deems a short-term extension to be necessary for legal reasons (*e.g.*, to complete a renewal proceeding).

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413. The Comcast/DC franchise has been transferred or subject to a change in control three times since the cable operator formally requested commencement of the renewal process on July 8, 1997. In early 1999, a change in control of the franchise occurred when TCI merged into AT&T and AT&T assumed ownership of the franchise. In late 1999, another change in control of ownership occurred with AT&T's acquisition of DCI and thereby acquisition of full ownership of the cable company and its franchise. In early 2001, AT&T transferred the franchise to Comcast and Comcast assumed full ownership of the franchise. These transfers, especially the final transfer to Comcast, adversely affect the District's rights under federal law to deny renewal for past performance problems or failure to comply with the franchise. *See, e.g.,* Comcast/DC Settlement Agreement § 2.4 (the District may not deny renewal of the franchise for any violation of the franchise that was known to OCTT and occurred prior to the December, 2000, effective date of the settlement agreement). *See also* House Comm. on Energy and Commerce, Cable Franchise Policy and Communications Act of 1984, H.R. Rep. No. 934, 98th Cong., 2d Sess. 74 (1984) (a franchising authority may not deny a request for renewal of a cable franchise for failure to comply with the franchise if the violation predated a transfer to which the franchising authority consented).

414. The District entered into a settlement agreement with AT&T and DCLP in late 2000 in which it agreed not to enforce any provisions of the franchise pertaining to the institutional network or upgrade of the cable system following implementation of the transfer. Comcast/DC Settlement Agreement § 2.5.

415. *But see* MFA § 2.3.03 (an automatic extension is provided if the provider complies with the franchise's construction schedule; this provision is inconsistent with other provisions of the MFA (*e.g.,* §§ 13.4.02(ii) and 13.4.01(i)(c) of the MFA provide for a shortening of the franchise term if the construction schedule is not met); it should either be deleted in its entirety or converted into a penalty provision under which the franchise would automatically be shortened).

RECOMMENDATION # 73:

Extensions should generally not be granted unless the system provider agrees to make significant new investments in the system or significant improvements in service in exchange for an extension, a short-term extension is deemed necessary be the District to complete a renewal proceeding or comply with other legal requirements, or there are exigent circumstances.

8.11 PURCHASE OR TAKE OVER OF THE SYSTEM BY THE DISTRICT OR A THIRD PARTY

The right of the District to acquire the system or to require its transfer to a third party in the case of revocation or failure to renew a franchise are key enforcement tools. They also provide important protections for the District in the event of a financial collapse of one or more providers. (The failure of one or more companies is a real possibility during any period in which competitive forces are strong, resulting in multiple providers, with some likely to fail as a natural consequence of competition and other financial forces.[416]) Federal law establishes ground rules for the price to be paid by the franchising authority or a third-party transferee in the case of a system acquisition following revocation of a franchise or failure to renew a franchise. Specifically, federal law requires that the price be "equitable" in the case of purchases following franchise revocations[417] and that it be "fair market value" in the case of purchases following failure to renew a franchise.[418]

The District should establish standards and procedures for determination of the price to be paid in these two circumstances, with clear-cut appraisal procedures,[419] to ensure prompt resolution of any disputes and transfer of the system if warranted by the circumstances. Finally, if a system provider abandons the system, the District should be able to acquire it at no cost.[420]

RECOMMENDATION # 74:

The District should reserve the right to purchase the system (or effect the transfer of the system to a third party) at an equitable price (excluding the value of the franchise and taking into account any damage to the District and its residents) if the franchise is terminated for cause. It should also be entitled to acquire the system at fair market value (excluding the value of the franchise) if the franchise expires and is not renewed. In either case, the price to be paid should be established by an appraiser selected by the District. Further, if the provider abandons the system, the District should be entitled to take over the system or effect its transfer to a third party at no cost.

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416. *See, e.g.,* the recent failure of NorthPoint Communications, a reseller of digital subscriber line (DSL) service, which recently declared bankruptcy and ended the provision of service to about 100,000 customers.

417. Cable Act § 627(b); 47 U.S.C. § 547(b).

418. Cable Act § 627(a); 47 U.S.C. § 547(a).

419. *See, e.g.,* MFA §§ 13.6-.8.

420. MFA § 13.6.03.

9. FRANCHISE FEES AND OTHER COMPENSATION

9.1 FRANCHISE FEES

9.1.01 Cable Operators and Comparable Providers

The District imposes a 5% franchise fee[421] on both Comcast/DC's and Starpower's cable service revenues and revenues from related charges and fees and has imposed such a fee since it first granted a cable franchise in 1985. Proceeds from these fees are allocated to OCTT and fund its programming and regulatory activities. Franchise fees produced more than $3 million in fiscal year 2000. This fee should be retained and strengthened[422] to ensure that it is not circumvented through third-party or other arrangements.[423]

In the future, services subject to the cable franchise fee could change if Congress, the FCC, and/or the courts narrow the definition of cable service and/or if changes in industry practices made possible by deployment of new technologies effectively narrow the definition of cable service. For example, the question of whether Internet service is a cable service[424] or whether it is another type of service (*e.g.*, information service, a hybrid service which includes both telecommunications and information service components) is unresolved. Similarly, federal cable law implies that interactive on-demand video service (this service could end up becoming the dominant service delivered over cable systems in the not-too-distant future) is not a cable service.[425]

The District should reserve authority to impose a fee on revenues from any services delivered over cable and similar systems to the extent such fees are permitted by law. Reservation of this authority is especially important in view of uncertainty with regard to whether Internet[426] and other advanced services will be classified as cable services.

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421. This is the maximum amount allowed by federal law. Federal law limits franchise fees paid by cable operators to 5% of gross revenues derived from operation of the cable system to provide cable service. Cable Act § 622(b); 47 U.S.C. § 542(b).

422. MFA § 9.

423. Federal law allows franchising authorities to charge fees to third-party providers by allowing for imposition of fees of up to 5% fee on the proceeds received by any person other than the cable operator for provision of any cable or "communications" service over a cable system. Cable Act § 622(h); 47 U.S.C. § 542(h).

424. *See, e.g., Gulf Power Co. v. FCC*, 208 F.3d 1263 (11th Cir. 2000), *cert. granted sub nom., FCC v. Gulf Power Co.* (January 22, 2001) (Nos. 00-832 and 00-843) (Internet service is neither a cable service nor a telecommunications service).

425. Federal law exempts a system which provides video programming only in "interactive on-demand" form from the definition of a cable system if the service is provided by a common carrier. Cable Act § 602(7)(C); 47 U.S.C. § 522(7)(C).

426. *See, e.g., Gulf Power Company v. FCC*; *AT&T Corp. v. City of Portland*, 216 F.3d 871 (9th Cir. 2000) (Internet service is a hybrid service, consisting in part of information service (content) and in part of telecommunications service (underlying transmission service)).

RECOMMENDATION # 75:

System providers should pay the District a 5% franchise fee as compensation for use of the public right-of-way. This fee should apply to all revenues derived from operation of a cable system (or OVS system) and associated activities and services to the maximum extent permitted by federal law, including any such revenues received by affiliated entities. Further, in view of the legal uncertainty with regard to whether Internet service is a cable service, the District should reserve authority to impose a fee or other assessment on any person for use of the system or provision of services which are not or may not be subject to the cable franchise fee (*e.g.,* telecommunications services, information services) but could be subject to a telecommunications fee or some other fee which is not limited or regulated by the Cable Act.

9.1.02 Third-party Service Providers

Service providers who use the cable system to deliver communications services to customers could, in theory, bill customers directly for these services and collect payments directly from customers without using the cable operator as an intermediary. These arrangements could be established by contract or mandated by law (*e.g.,* FCC establishment of rules requiring "open access" for Internet service providers or for providers of interactive service). Implementation of any arrangement of this sort, whether voluntary or mandatory, would represent a dramatic change in current business practices, with payments to third-party providers completely bypassing the cable operator and thereby escaping the traditional franchise fee. In order to ensure fair competition between cable operators and third-party service providers and to prevent circumvention of franchise fee requirements and erosion of franchise fee payments, third-party service providers should be required to pay fees comparable to franchise fees as is permitted by federal law.[427]

RECOMMENDATION # 76:

A 5% fee should apply to all revenues received by any third party in connection with direct sale or other provision of service over a cable system (*e.g.,* video-on-demand service, Internet service) or associated activities and services that would be subject to the franchise fee if provided by a system provider.

427. A franchising authority may impose a fee of up to 5% fee on the proceeds received by any person other than the cable operator for provision of any cable or "communications" service over a cable system. Cable Act § 622(h); 47 U.S.C. § 542(h).

9.2 PUBLIC SERVICE FEES

Both Comcast/DC and Starpower are required to make annual payments of 1% of gross revenue[428] to PAC under current agreements with the District.[429] This report recommends that payments of periodic public service fees in the future should include: (1) 1% of gross revenues to PAC[430]; and (2) a charge of $1.40 per subscriber per month for the capital costs of public, educational, and government access facilities.[431] Strict enforcement provisions equivalent to those applicable to franchise fees (*e.g.*, audits, reporting requirements) should also be established to ensure full compliance with requirements for public service fees[432] and application of these requirements to third-party service providers.[433]

RECOMMENDATION # 77:

Public service fees–the proposed $1.40 per subscriber per month fee and the proposed 1% public access fee–should apply to third-party service providers as well as all system providers. Public service fees should be treated the same as franchise fees for purposes of enforcement and collection.

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428. Federal law exempts from the federal cap on franchise fees expenditures made by cable operators for capital costs of facilities and equipment for public, educational, or government access. Cable Act § 622(g)(2)(C); 47 U.S.C. § 542(g)(2)(C). In practical terms, this means that fees may be charged to cover the costs of acquiring public, educational, and government access facilities and equipment and may be calculated by a method selected by the franchising authority. For example, a cable operator could be required to pay these fees in any one of the following three forms: (1) fixed dollar amounts over the life of the franchise (with payments made at specified intervals); (2) periodic payments calculated on a per subscriber basis; or (3) periodic payments calculated on the basis of a percentage of gross revenues. Further, federal law does not impose any limits on the revenues which may be subject to public service fees. (This is in contrast to a franchise fee, which may apply only to revenues derived from cable service.)

429. CFA § 7.3.01 (Comcast/DC's obligations); OVSA § 1.22b.i.A (Starpower's obligations).

430. The Cable Act's franchise fee provisions impose restrictions on public service fees if the proceeds are used for operational costs rather than capital costs. Cable Act § 622(g)(2); 47 U.S.C. § 542(g)(2). However, these restrictions may be waived by agreement and have been subject to waivers on a number of occasions in other cities.

431. This report also recommends a one-time payment of $8.25 million in start-up funds for public, educational, and government access facilities and equipment.

432. *See, e.g.*, Summaries of Interviews (Appendix B), B-69 (PAC: repeated difficulties in ensuring timely and full payment of fees owed to it under the franchise).

433. Just as with franchise fees, cable operators can circumvent requirements to pay public service fees by entering into arrangements with third-party service providers who bill customers directly, thereby reducing the operator's gross revenues.

9.3 COSTS OF FRANCHISE RENEWALS, EXTENSIONS, TRANSFERS, AND MODIFICATIONS

The District is, with increasing frequency, required to incur costs for outside attorneys, consultants, and engineers in order to respond to requests by system providers for regulatory action in connection with franchise renewals, extensions, transfers, and modifications. For example, the District has, in the past two and one-half years, been required to retain the assistance of outside attorneys to respond to requests by Comcast/DC to approve three franchise transfers and to negotiate a settlement agreement with regard to past noncompliance issues. Similarly, it has retained the services of attorneys and consultants to respond to Comcast/DC's request for renewal of its cable franchise and Starpower's request for a cable franchise. In addition, both Comcast/DC and Starpower have required two extensions of their existing agreements in the past couple of years. The system provider who benefits from the requested regulatory activity should reimburse the District for all costs incurred in dealing with any request which requires the assistance of outside attorneys, consultants, or engineers.[434]

RECOMMENDATION # 78:

System providers should reimburse the District for all costs incurred by the District in connection with franchise renewals, extensions, transfers, and modifications for outside assistance, including the costs of attorneys, consultants, and engineers.

9.4 REMITTANCE

Payments of franchise fees and public service fees by system providers and third-party service providers should be subject to identical rules. In recent years, OCTT has brought schedules for payment of the 1% public access fee to PAC into conformity with schedules for payment of franchise fees to the District.[435] The practice of requiring quarterly payments of all fees within 30 days of the close of a quarter[436] should be applied to all system providers and should be extended to third-party service providers.[437]

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434. Federal law permits franchising authorities to require cable operators to reimburse franchising authorities for costs incidental to awarding or enforcing a franchise. Payments of this sort are not subject to or limited by the 5% cap on franchise fees. Cable Act § 622(g)(2)(D); 47 U.S.C. § 542(g)(2)(D). *See also* MFA §§ 9.2.01-.02.

435. *See* CFA § 3.2 (quarterly payment of a 5% franchise fee to the District, payment of a 1% public access fee to PAC "per year"), CFA Extension (2000) § 6 (requirement for quarterly payment of the 1% public access fee to PAC).

436. *See, e.g.,* MFA § 4.2.04 (payment of the 1% public access fee to PAC) and § 9.1.02 (payment of the 5% franchise fee to the District).

437. *See, e.g.,* MFA § 9.1.06 (procedures for payment and collection of the District's 5% fee by third-party service providers).

RECOMMENDATION # 79:

Payments of franchise and public service fees should be made on a quarterly basis and within 30 days of the close of a quarter. These remittance requirements should apply to both system providers and third-party service providers.

9.5 ENFORCEMENT

Strict procedures to enforce franchise fee and other financial obligations[438] are essential in view of Comcast/DC's underpayment of franchise fees[439] and public access fees.[440] These procedures should apply to all system providers and, wherever possible, to third-party service providers to prevent circumvention of financial obligations.[441]

RECOMMENDATION # 80:

Strict enforcement procedures, including liquidated damages and financial audits, should be established to ensure full and timely compliance with all franchise fee and public service fee requirements. These enforcement procedures should apply to all system providers and, where possible, to third-party service providers. System providers should disclose all relationships with third-party service providers and include provisions in contracts with third-party service providers which require full compliance with all franchise fee and public service fee requirements. To ensure compliance with these obligations, each system provider should be jointly and severally liable for franchise fees and public service fees owed by third-party service providers.

438. *See, e.g.,* MFA § 9.1.02 (quarterly franchise fee report), § 9.1.07 (audits), § 9.1.08 (billing system), § 10.7.01 (retention of books and records), § 13.3.01(iii) (liquidated damages of $1,000 per day for failure to file any required report).

439. *See, e.g.,* Summaries of Interviews (Appendix B), B-61 (OCTT: audit for 1996 showed an underpayment of $300,000 to $400,000).

440. *See, e.g.,* Interview Summaries (Appendix B), B-69 (PAC).

441. *See, e.g.,* MFA §9.1.06 (requirement that the contracts of system providers with third-party service providers include requirements to pay a 5% fee to the District and that such provisions be approved by OCTT in advance).

10. CUSTOMER SERVICE

District residents have expressed high levels of dissatisfaction with Comcast/DC's customer service.[442] These concerns run the gamut and include such basic matters as billing practices[443] and handling of telephone calls,[444] indicating that across-the-board improvements are needed in Comcast/DC's customer service practices. Customer service standards should be established by ordinance or regulation and should not be separately negotiated with each system provider and included in each franchise agreement.[445] They should apply on a consistent and uniform basis to all system providers,[446] ensuring that all consumers are protected by the same baseline regulatory safeguards regardless of who their provider is.

10.1 LOCAL FACILITIES

Comcast/DC's main facility on Michigan Avenue in Northeast Washington currently houses most customer service operations. These include installation and service operations (service technicians and installers are based at the Michigan Avenue facility), customer service (including telephone operations), bill payment,[447] and equipment drop-off and pick-up service.[448] The Comcast/DC system is part of a recently assembled regional network of cable systems serving most of the Baltimore-Washington, D.C., area but its operations have not yet been physically or technically integrated with operations of other systems in this regional network except for a Baltimore-Washington link for local insertion of advertisements. In the future, however, the Comcast/DC

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442. *See, e.g.,* Summaries of Focus Groups (Appendix C), C-2-3 (consumers: mixed experiences with customer service representatives, installers, and technicians); Town Hall Meeting Transcript (June 3, 1999), 19-20 (need for Comcast/DC to provide weekend and evening hours).

443. *See, e.g.,* Survey Report, 66-67 (close to 60% of respondents rated Comcast/DC's billing practices as in need of improvement; 2.4% of respondents rated Comcast/DC's practices in this area as excellent).

444. *See, e.g.,* Survey Report, 68-69 (a majority of respondents indicated that Comcast/DC's handling of telephone calls from customers is in need of improvement).

445. Cable Act § 632(d); 47 U.S.C. § 552(d) (franchising authorities may establish consumer protection standards and rules by ordinance).

446. Although InPUT's needs assessment did not include a comprehensive assessment of Starpower's customer service, complaints have been expressed with regard to Starpower's customer service, including complaints about long delays in answering telephone calls from customers. In addition, OCTT has documented Starpower's failure to comply with a number of customer service requirements. *See, e.g.,* OCTT's Compliance Report for 2000.

447. Bills may also be paid at various liquor stores and similar facilities in the District and Maryland but these facilities do not provide any other type of customer service. Technical and Operations Review–Comcast/DC System (Appendix A), A-17.

448. The existing cable franchise requires that all Comcast/DC facilities be located in the District, stating that "[e]xcept where [OCTT] concurs that it is not technically feasible, all warehouses, maintenance shops, headend(s), administration offices, training facilities, and other such facilities, which are a part of the construction and operations of the cable television system shall be located within the District of Columbia." CFA § 4.8.

system is likely to be integrated with other systems in the region as it becomes part of a regional "cluster," with many operational and technical functions centralized and provided on a regional rather than on a jurisdictional basis, which has been the case since cable first arrived in the District 16 years ago.

Starpower, in contrast to Comcast/DC's long-term District orientation, was conceived from the beginning as a regional company and has functioned as a regional operation, with customer service operations in Springfield, Virginia[449]; a regional headend in Lanham, Maryland; and corporate headquarters in downtown Washington, D.C.

While some efficiencies may be achieved by integrating or centralizing system functions, strong local customer service operations are essential to meet baseline needs of District residents for quick and responsive access to customer service both over the telephone and in person.

10.1.01 Customer Service Facilities

Regardless of whether the system is part of a larger regional system or whether it is operated as a smaller District-based system, a local orientation should provide improved access to customer service in District neighborhoods. At a minimum, each provider should establish one customer service center per quadrant and preferably one for each of the District's eight wards.[450] Further, if Comcast/DC, Starpower, or any other system provider provides customer service and/or dispatching operations from a location outside of the District, District residents should share in the resulting efficiencies and associated cost savings by obtaining access to clear-cut and demonstrable improvements in customer service (*e.g.*, 24-hour-a-day access to customer service representatives and emergency repairs).

RECOMMENDATION # 81:

Each system provider should provide at least four customer service facilities in the District (one in ward 7 or 8; one in ward 5 or 6 (west of the Anacostia River); one in ward 2 or 3, and one in ward 1 or 4), with a goal of possible co-location of customer service facilities in the one-stop customer service centers the District plans to establish for each ward. District residents should be able to drop off and pick up subscriber equipment, pay bills, and resolve billing disputes at these customer service facilities. These facilities should provide regular weekday, evening, and weekend hours. If a "virtual" office outside of the District is used to provide any aspect of customer service, the system provider should provide full access to customer service representatives and dispatch service technicians for emergency repairs on a 24-hour-a-day basis every day of the week, including holidays.

449. Starpower has announced plans to close this facility on July 8, 2001, and transfer all customer service operations to another RCN facility in Springfield, Massachusetts. "In Brief," *Washington Post*, May 17, 2001, E5.

450. *See, e.g.*, MFA § 8.6.

10.1.02 Other Facilities

Regardless of whether a system is part of a larger regional system or whether it is operated as a smaller District-based system, a core group of trained employees and all necessary equipment and facilities should be based at facilities in the District to ensure a quick and informed response to the needs of District residents for installation service and all other service calls and for system maintenance.[451] This need could be met by, for example, locating a fully equipped facility in the District which houses all the service technicians, installers, and other personnel and vehicles and equipment necessary to serve all District customers and maintain all the provider's cable system facilities in the District. *See* § 11.1 and Recommendation # 100 for a discussion of the number of employees that should be based at these District facilities.

RECOMMENDATION # 82:

Each system provider should maintain a full complement of the service technicians and installers required to maintain and service the system and customers on an ongoing basis, with on-site access to all necessary vehicles and equipment, at facilities in the District.

10.2 NOTICE REQUIREMENTS

In the view of some customers, Comcast/DC does not provide adequate information with regard to service and rate options.[452] This is likely to become a more significant problem in the future as Comcast/DC and Starpower begin to provide many more service and rate options with expansion of digital offerings, introduction of interactive television, and availability of a wide range of packaging and price options. To the extent permitted by applicable law,[453] all providers should

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451. *See, e.g.,* Summaries of Interviews (Appendix B), B-4 (councilmember).

452. *See, e.g.,* Summaries of Focus Groups (Appendix C), C-11 (senior citizens: service offerings are never properly explained); Town Hall Meeting Transcript (June 3, 1999), 23 (lack of advance notice of channel changes).

453. Federal law generally does not limit the franchising authority's ability to establish notice and other information requirements. In fact, the Cable Act's consumer protection provisions permit broad regulation of any consumer protection or customer service matter, including notice requirements, unless expressly preempted by the Cable Act. Cable Act §632(d); U.S.C. § 552(d).

One area in which federal law limits the authority of a franchising authority pertains to regulation of the method by which cable operators provide advance notice to customers of impending rate increases or changes in service. (These restrictions do not apply to requirements to provide notice to the franchising authority.) Federal rules require cable operators to provide at least 30 days' advance notice to subscribers before implementing any change in either rates or services. 47 C.F.R. § 76.964(h). Federal law, however, grants discretion to cable operators to determine the method by which they provide this notice to subscribers (*e.g.*, by including an insertion in subscriber bills, by publishing a notice in a local newspaper), stating that "[a] cable operator may provide notice of service and rate changes to subscribers using *any reasonable written means at its sole discretion*." Cable Act §632(c); 47 U.S.C. § 552(c) (emphasis supplied). The FCC has adopted policies designed to encourage cable operators and franchising authorities to establish procedures for providing notice to subscribers by agreement. *Cable Reform Report and Order* ¶ 163. In the absence of an agreement, however, a franchising authority may prohibit particular methods of notice as unreasonable but must also give the cable operator the discretion to select a reasonable method of notice as long as it is not a method that has been prohibited by

disclose full information with regard to all price and service options at periodic intervals (*i.e.*, at least once every 12 months) in writing to all customers. In addition, all providers should be required to provide this information to new customers at the time of installation or service connection. Finally, notice to subscribers of impending changes in rates, services, or channel numbers should be provided by a method which ensures direct and actual notice to all subscribers and not by such indirect methods as notice in a newspaper or on a channel on the cable system.

10.2.01 Notice of Rates and Services

RECOMMENDATION # 83:

All system providers should provide written notice to all subscribers and the District once every 12 months and at the time of installation or service connection which details the channel line-up, all services and service packages, and all charges for all services and equipment. A system provider should provide at least 30 days' advance notice to all subscribers in writing (or some other form which ensures direct and actual notice to all subscribers) and to the District in writing of any change in rates, services, or channel numbers.

10.2.02 Other Subscriber Notices

Subscribers need to have access to complete information with regard to equipment and installation options. For example, many subscribers are not aware of the equipment requirements associated with various services.[454] This is likely to become a more significant problem in the future when high-speed Internet service and associated equipment are offered and more converter and/or hybrid equipment options are available. Ensuring provision of information to all customers with regard to their ability to use or install their own inside wires should increase competitive options by letting consumers know that they can switch from one provider to another without installing new inside wires. All subscribers should be clearly informed as to what the system's requirements are with respect to equipment and installations and what their equipment and installation options are both at the time of installation and at periodic intervals thereafter.

RECOMMENDATION # 84:

All system providers should, at the time of installation or service connection and at least once every 12 months, notify subscribers in writing of all subscriber equipment provided by the provider and the subscriber's right to use equipment provided by third parties. Further, these subscriber notices should provide complete information on installations, including availability of customized installations, the customer's right to install inside wires and attach equipment to the provider's equipment, the customer's right to receive service at any number of outlets, and availability (if any)

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the franchising authority. *Cable Reform Report and Order* ¶ 164.

454. *See, e.g.*, Town Hall Meeting Transcript (June 3, 1999), 10-11 (converter boxes are sometimes leased to customers who do not need them).

of maintenance plans for inside wires. Finally, subscriber notices should detail customer service standards, describe procedures for filing consumer complaints with the provider and OCTT, and provide notice of all privacy rights. All subscriber notices should be submitted to the District for review and approval at least 10 days prior to distribution to subscribers.

10.3 TELEPHONE SERVICE

Reaching Comcast/DC's customer service representatives via the telephone has been a longstanding problem for District residents.[455] This problem is likely to become of greater importance in the future with introduction of new services and emergence of District-wide competition between Comcast/DC and Starpower, resulting in a likely increase in the volume of calls for both providers with respect to questions about service options and changes and about switching between providers.

10.3.01 Telephone Availability

A central element of responsive telephone service is providing extended hours during which customer service representatives are available via telephone. At a minimum, telephone service should be available between 6:00 a.m. and 12 midnight every day of the week.[456] As noted above, if a system provider does not provide customer service via a customer service facility which is based in the District, it should provide 24-hour-a-day telephone service every day of the week.

RECOMMENDATION # 85:

District residents should, at a minimum, have full access to customer service representatives via telephone between the hours of 6:00 a.m. and midnight every day of the week, with access to emergency service for outages and service interruptions on a 24-hour-a-day basis. If a provider uses a "virtual" facility outside the District to provide any customer service, District residents should have access via telephone to customer service representatives on a 24-hour-a-day basis every day of the week.

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455. *See, e.g.*, Summaries of Interviews (Appendix B), B-1 (councilmember: not being able to reach customer service representatives on the phone), B-6 (councilmember: constituent reported not receiving an answer to telephone calls for four days), B-58 (OCTT: OCTT received 3,600 phone calls between March and November of 1998 regarding the cable company's failure to answer telephone calls); Town Hall Meeting Transcript (May 4, 1999), 20 ("I have called and waited an hour"), 23 ("You can spend all day on the phone trying to get [the cable company]"), 27 ("[Y]ou can sit on the phone for 15 minutes"); Town Hall Meeting Transcript (May 18, 1999), 92-93 (complaints about customer service representatives), 100 ("marked improvements" noted in telephone responsiveness in early 1999) ; Town Hall Meeting Transcript (June 3, 1999), 16 (average wait time of 15 minutes but once waited for 47 minutes), 22 (if a customer calls the cable company in the evening or on weekends, "the telephone just rings"). *See also* Survey Report, 68-69, B-29-35.

456. MFA § 8.7.

10.3.02 Telephone Responsiveness

A key measurement of performance in the customer service area is the amount of time it takes for a customer to reach a customer service representative via the telephone. The FCC has established customer service standards governing telephone responsiveness, which have been adopted by the District. These standards are *de minimis* industry developed standards, are filled with loopholes,[457] and have provided very little protection for District residents. The District has authority to establish stricter telephone responsiveness standards[458] and should do so in order to fully protect the interests of District residents in a competitive market.

As noted above, the District is home to a large number of deaf and hearing-impaired persons, who rely heavily on information technology to communicate with each other and the outside world and to obtain information. With the advent of high-speed Internet service, this dependence of deaf and hearing-impaired persons on information technology is expected to increase. It is therefore essential that deaf and hearing-impaired persons have full access to customer service, including the ability to order services and resolve problems over the telephone. Accordingly, customer service facilities should be equipped with TDD equipment and customer service representatives should be trained in the use of TDD equipment and available and accessible by telephone at all times.[459]

RECOMMENDATION # 86:

System providers should take no more than 30 seconds to answer a call in person and no more than 30 seconds to transfer a call to the appropriate representative for action or response during all time periods in which customer service is made available to the public. Compliance with this standard should be measured on a monthly (or shorter time period) basis. This standard should be met for at least 95% of calls every month. In determining compliance with this 95% standard, the total number of telephone calls made to the provider should include calls which receive a busy signal or which could not be completed because of the provider's limited circuit capacity as well as those which reach the provider.

All system providers should install TDD equipment on at least one customer service telephone line and provide a customer service representative trained in the use of such equipment at all times during which customer service is offered via telephone to the public. These standards should be enforced through liquidated damages and strict financial penalties and monthly reports which provide detailed records of all customer-related telephone activity.

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457. 47 C.F.R. § 76.309(c). Problems with these FCC standards are numerous. First, they measure compliance on a quarterly basis instead of a monthly, weekly, or daily basis. Second, they do not require compliance with the 30-second standard when conditions are not "normal operating conditions" (*e.g.*, a power outage). Third, they do not count calls as not having been answered in a timely fashion if a connection is not made (*i.e.*, if the provider does not answer the call or the caller receives a busy signal) or if the call is not made during "normal business hours" (defined by the FCC as the hours during which similar businesses in the community are open to serve customers). And fourth, they require compliance with the 30-second deadline for only 90% of qualifying calls. In short, the FCC's standards are filled with loopholes and actually allow for high rates of no response and/or delayed response.

458. Cable Act § 632(d); 47 U.S.C. § 552(d).

459. Summaries of Interviews (Appendix B), B-76 (DC Association of Deaf Citizens).

10.4 BILLING

Billing has been a source of significant problems for customers.[460] For example, Comcast/DC sometimes does not disconnect service after customer requests for disconnection; similarly, it sometimes continues to charge customers for service long after disconnection requests.[461] As a result, clear-cut policies should be established to ensure prompt and complete resolution of billing disputes and problems, including clear guidelines for delivery of bills to customers, payment of credits and refunds, and termination of service by either the customer or the provider.

One area of particular concern for District residents has been Comcast/DC's practice of charging a fee for late payment of bills as high as $5.[462] In September of 2000, Comcast/DC, while its appeal was still pending, decided to implement a 1996 court decision, which required it to reduce late payment fees from $5 to $2.43. In view of the history of problems with regard to late payment fees, the lack of restrictions on unreasonable late payment fees in the existing franchise, and the inherent difficulties in securing timely relief through litigation, the District should adopt clear-cut regulatory policies with regard to late payment fees which preclude excessive late payment fees and establish clear standards governing the circumstances in which imposition of late payment fees may be appropriate.

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460. *See, e.g.,* Summaries of Interviews (Appendix B), B-1 (councilmember: not being able to obtain resolution of billing discrepancies), B-6 (councilmember: numerous billing problems), B-11 (councilmember: the cable operator's changing of bills in 1998 was a "fiasco"). *See also* Survey Report, 66-67, B-30 ("Definitely need to improve the time bill is received and it is due." "Stop the billing process as soon as the cable is disconnected." "I have canceled my service (March 4, 1999). There is a refund due yet DCI has not started processing (April 1, 1999).").

461. *See, e.g.,* Town Hall Meeting Transcript (June 3, 1999), 17-18 (customer was billed for service for a three-month period following the requested date for disconnection), 35 (customer was billed for service after the requested date for disconnection).

462. *See, e.g.,* Survey Report, 66 (sample comment: "I think a $5 late fee is too high after only 5-6 [days]. No local utility charges such a high percentage of the bill for one month"); Summaries of Interviews (Appendix B), B-6 (councilmember: there is no relationship between late payment fees and the administrative costs of collecting overdue bills); Town Hall Meeting Transcript (June 3, 1999), 22 ($5 late payment fee is excessive; late payment fee should be no more than $2).

A class action lawsuit was filed by a group of consumers against the cable operator in 1994 which alleged that its $5 fee for late payment of bills violated various laws and constituted an unfair trade practice under District law. *Bassin v. District Cablevision Limited Partnership*, No. 94-CA-011754 (D.C. Super. Ct. filed Nov. 10, 1994). The plaintiffs prevailed in a jury trial in this lawsuit, with a jury finding on October 23, 1996, that any late payment fee in excess of $2.43 was illegal. Comcast/DC appealed this decision (as subsequently modified by the trial judge in November of 1996 to overturn the jury's award of punitive damages) and continued to charge $5 late payment fees for close to four additional years while it pursued an appeal, having obtained a stay of the trial court's ruling. During the pendency of this appeal, Comcast/DC was required to place late payment fees in excess of $2.43 in escrow. Beginning in September of 2000, Comcast/DC reduced its late payment fee from $5 to $2.43 in order to avoid making additional payments into escrow.

10.4.01 Payment of Refunds and Credits

RECOMMENDATION # 87:

Refunds should be paid and credits issued within five days of a determination that a refund or credit is due.

10.4.02 Billing Disputes

RECOMMENDATION # 88:

System providers should resolve all subscriber complaints regarding bills and billing disputes within five days.

10.4.03 Subscriber Termination or Discontinuation of Service

RECOMMENDATION # 89:

System providers should not bill a customer for a service provided after the date specified by the customer for termination or discontinuation of service and should establish clear-cut procedures for closing out accounts and sending a final bill for payment of any outstanding balances.

10.4.04 Termination of Service for Nonpayment

RECOMMENDATION # 90:

No system provider should be permitted to terminate service for nonpayment until at least 45 days after the first day of the service cycle for which payment is due and at least 10 days after provision of notice in writing of its intention to cut off service.

10.4.05 Late Payment Fees

RECOMMENDATION # 91:

System providers should not impose late payment fees until 45 days after the first day of the service cycle for which payment is due. To ensure timely receipt of bills, system providers should mail bills to subscribers at least five days prior to commencement of the service cycle covered by the bill. Further, late payment fees should not exceed 2% of the customer's outstanding balance (not including taxes and fees) per month.

10.5 INSTALLATIONS AND DISCONNECTIONS

District residents have expressed complaints with respect to Comcast/DC's failure to implement installation and disconnection requests in a timely fashion[463] and with respect to the quality of Comcast/DC's installation work.[464] In a market that is likely to be characterized by both competition and multiple service offerings, clear ground rules should be established for installation and disconnection work which ensure smooth transitions between providers and which make it easy to add and drop services and to install or disconnect associated equipment.

A related issue of serious concern to many District residents is Comcast/DC's failure to make service available to residents of many apartment and condominium buildings in the District. Comcast/DC is required by law to make service available to all residents of the District.[465] Similarly, District law provides special rights for cable operators by prohibiting landlords from charging any more than a *de minimis* fee (set by regulation at $1) for installing cable lines and related facilities to provide cable service to tenants. In spite of these requirements, Comcast/DC does not provide service in a significant number of multidwelling unit properties in the District.[466] (Starpower is an OVS provider and is currently operating pursuant to an OVS agreement, which does not require it to make service available throughout the District.[467])

Due to shortcomings of current law, disparities in the legal standards applicable to Starpower and Comcast/DC, and the need for consistent and even-handed rules in a competitive market, stronger rules should be established to provide all residents of multidwelling unit properties with

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463. *See, e.g.,* Summaries of Interviews (Appendix B), B-6 (councilmember); Town Hall Meeting Transcript (May 18, 1999), 93 (repairs should be completed "within a day or two rather than a week or three"); Town Hall Meeting Transcript (June 3, 1999), 12 (Comcast/DC took two weeks to complete installation), 14-15 (Comcast/DC took seven weeks to reconnect a customer after accidentally disconnecting his service), 23 (a two-month wait for a Saturday service call); Survey Report, B-33 ("Need to improve on installation, such as keeping scheduled appointments, showing up on time with all the necessary equipment").

464. *See, e.g.,* Summaries of Focus Groups (Appendix C), C-3 (consumers: poor quality of installation work); Survey Report, B-35 ("Timeliness and installation aesthetics need improvement – *i.e.,* show up close to time, do not seek bribes for installing extra channels, and do not drill holes in front of house to install cable").

465. CFA § 4.2. *See also* D.C. Code § 43-1809(a)(8) (requirement that the District's original request for proposals require that the schedule for system construction "shall include the installation of cable service which shall be made available to every household within the franchise territory").

466. *See, e.g.,* Survey Report, 8; Town Hall Meeting Transcript (May 4, 1999), 114-17 (the Quebec House, a large apartment building (700-800 residents) at 2800 Quebec Street, N.W., is not connected to the Comcast/DC system despite repeated efforts of tenants to obtain service and Comcast/DC to obtain access to the building; need for stronger provisions to enforce the right of tenants to obtain service and the cable operator to make service available to tenants and other occupants of multidwelling unit properties); Town Hall Meeting Transcript (May 18, 1999), 152 (landlords have blocked access to some multidwelling unit properties; need for stronger legal remedies for tenants). *See also* footnote 110.

467. Starpower focused heavily on multidwelling unit properties in its initial marketing efforts. In fact, Starpower has entered into contracts with a number of property management companies in the District under which Starpower shares revenue with property owners on the basis of a percentage of revenues produced by sales to residents of the property.

the opportunity to receive the benefits of a competitive market.

10.5.01 Drop Line Installations and Burials

RECOMMENDATION # 92:

Standard installations should include drop lines of at least 150 feet in length. Underground drop lines on private property should be buried at least 12 inches below the surface, and private property should be fully restored to its prior condition within three days of completion of installation or line burial.

10.5.02 Deadlines for Completion of Installations

RECOMMENDATION # 93:

Any installation for a single family home in an area served by a system provider should be completed within three days of a request for service. Any installation for a housing unit in a multidwelling unit property should be completed within three days of a request for service if the property is already connected to the system and within 40 days of a request if the property has not been connected to the system but is located in an area served by the system.

10.5.03 Deadlines for Completion of Disconnections

RECOMMENDATION # 94:

Any request by a customer for disconnection or discontinuation of any or all services or retrieval of equipment should be fulfilled within 24 hours of the customer's request.

10.5.04 Access to Multidwelling Unit Properties

RECOMMENDATION # 95:

All tenants and other legal occupants of property should have a right of access to service provided by all system providers. Similarly, all system providers should have a right of access to property for the purpose of providing service to legal occupants of the property. These complementary rights of access should be implemented by requiring the system provider and the property owner to enter into an access agreement (subject to the property owner's interest in preventing damage to the property) within 20 days of a request by either an occupant of the property or the system provider. These rights should be enforced by all available means, including mandatory sharing of conduit, restrictions on revenue sharing, prohibitions on exclusive and other preclusive arrangements, arbitration for resolution of disputes between the system provider and a property owner, and imposition of financial penalties on the system provider and/or the property owner for failure to finalize an access agreement within 20 days of a request.

10.6 APPOINTMENT WINDOWS

District residents have expressed complaints about Comcast/DC's failure to keep appointments for installations and service calls.[468] Clear-cut rules should be established which limit appointment windows to no more than three hours.[469] With automation and the ability to track employee activities via information technology, system providers should be able to readily comply with strict time tables and to minimize inconvenience to the subscriber. In addition, a significant penalty (*e.g.*, free repair or installation service) should apply when a system provider is late for or fails to keep an appointment.

RECOMMENDATION # 96:

Appointment windows for service calls and installations should not exceed three hours. System providers should provide free repair or installation service if a service technician fails to begin work during a scheduled appointment window or to complete installation or repair during the first visit to the customer location.

10.7 SIGNAL OUTAGES AND INTERRUPTIONS

District residents have expressed numerous complaints with regard to signal reliability.[470] As digital, high-speed Internet, and other advanced services are deployed, a high level of performance with respect to signal reliability is essential and can be achieved by deploying the proper technology and establishing clear-cut standards with respect to minimizing signal outages and other service interruptions. Also, under current practices, neither Comcast/DC nor Starpower is required to automatically give customers a credit for service interruptions,[471] reducing the incentive to minimize signal outages and interruptions. As new technology is deployed which can identify any subscriber location affected by a signal outage or interruption, the system provider should be

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468. *See, e.g.,* Summaries of Interviews (Appendix B), B-11 (councilmember: three separate service calls were required to complete a repair); Town Hall Meeting Transcript (May 4, 1999), 26 ("[A]t least three times [the installers] didn't show up"); Town Hall Meeting Transcript (June 3, 1999), 23-24 (failure to keep appointments). *See also* Survey Report, B-32 ("Service for cable hookup is horrible. I took time off work twice and they got too busy and couldn't make it." "DCI should attend to customer's needs in a timely fashion. I have been waiting over six months for a cable box replacement. I had an appointment with [DCI] today. They said they would come between 1:00 p.m. and 5:00 p.m. They have not shown [up]. ").

469. *See, e.g.,* Summaries of Interviews (Appendix B), B-6 (councilmember: difficulties in scheduling installations).

470. *See, e.g.,* Survey Report, 70-71, B-24-28.

471. *See, e.g.,* Town Hall Meeting Transcript (June 3, 1999), 26-27; Survey Report, B-24 ("When cable goes out without notice, customers should be compensated for the down time that's not caused by them"), B-27 ("[W]hen cable goes out in an area, the company [should] give a credit for no picture without my calling to get credit." "[H]ave some system to gain credit for down time or when cable is down." "[P]ay the customer for cable breakdown or [give a credit on the] bill [for the] loss of one hour or more of cable service." "[W]hen cable service is disrupted for any reason for hours and hours at a time, a fee should be automatically deducted from your bill. Why should we have to pay for services we are not receiving?").

required to automatically provide credits for loss of service during signal outages and interruptions to all affected subscribers.

10.7.01 Interruptions for Testing and Maintenance

RECOMMENDATION # 97:

Service interruptions for testing and maintenance should be minimized and should eventually be eliminated to prevent any disruption of service, especially as digital television, Internet, and other advanced services are delivered via cable and comparable systems.

10.7.02 Credits for Interruptions and Outages

RECOMMENDATION # 98:

A credit in the amount of one-thirtieth of the customer's monthly bill should be automatically issued for each day affected by a service interruption for any such interruption of 60 minutes or more. System providers should install the technical capabilities necessary to identify each subscriber location affected by a signal outage or interruption and to automatically pay credits to all affected subscribers.

10.8 RESPONSE TO SERVICE PROBLEMS OR INTERRUPTIONS

District resident have expressed complaints with regard to excessive delays in responding to requests for repairs and in restoring service following outages.[472] Clear-cut rules should be established which ensure a prompt response to all service problems and interruptions and require an immediate response to service problems and interruptions which affect multiple subscribers.

RECOMMENDATION # 99:

System providers should begin work on service interruptions or problems which affect two or more customers within 60 minutes of notification and on service interruptions or problems which affect a single customer on the same day if the provider is notified before noon and within 24 hours if notified after noon.

472. *See, e.g.*, Survey Report, B-25 ("Better response time in restoring lost cable feed"), B-26 ("DCI takes over a week to respond [to service outages]"), B-27 ("Less outages and [better] follow up services should be provided"), B-32 ("Stop making people wait so long to come out to fix the cable").

11. EMPLOYMENT, TRAINING, AND CONTRACTING

11.1 LOCAL WORK FORCE

Requirements for a District-based work force should be established to ensure responsiveness to local needs and to provide employment opportunities for District residents.[473] These requirements should be flexible enough to adapt to competitive conditions and to work equally well with both regional and local companies. The starting point in establishing a numerical benchmark for the number of District-based employees for each provider should be the total number of District-based employees working for Comcast/DC when it was strictly a local system[474] and not part of a larger regional system. Using 1999 data, the ratio between customers and District-based employees should be about 333 customers per employee.[475] The minimum number of District-based employees can be periodically calculated for each system provider on the basis of this ratio by simply multiplying the total number of customers by a fraction which represents the number of employees per customer in the benchmark year (*i.e.*, 1/333 or 0.003). With this approach, a provider will be permitted to reduce its local work force if it loses customers.

RECOMMENDATION # 100:

All system providers should maintain a work force that is based at facilities in the District. To ensure responsiveness to changes in market position, the minimum requirement for a provider's District-based work force should be based on its total number of customers in the District, with this minimum requirement rising or falling in tandem with the total number of customers. The ratio between District-based employees and customers should be 333 customers per employee, for an initial minimum requirement of about 300 District-based employees for Comcast/DC and 50 for Starpower (the number of each provider's customers multiplied by 0.003). The minimum requirement for District-based employees for a provider should be adjusted once every three years to reflect changes in a provider's customer base in the District. This local work force requirement should be enforced through such measures as reporting requirements and liquidated damages.

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473. *See, e.g.*, Summaries of Interviews (Appendix B), B-10 (councilmember), B-12 (councilmember: but creation of District-based jobs should not take priority over ensuring high-quality cable service). *See also* D.C. Code 43-1843 (requirement that at least 51% of the work force of each cable franchisee consist of District residents).

474. The number of Comcast/DC employees totaled 310 in 1999. Technical and Operations Review–Comcast/DC System (Appendix A), A-24.

475. This number is calculated by dividing the total number of Comcast/DC customers in 1999 (about 100,000) by the total number of employees (about 300) in 1999.

11.2 LOCAL WORK FORCE COMPOSITION

District law requires that at least 51% of a cable franchisee's work force consist of District residents.[476] The franchise agreement for Comcast/DC includes a similar provision.[477] At various times, Comcast/DC was not in compliance with this requirement.[478] Starpower's OVS agreement requires that the equivalent of 14.4% of its regional work force be District residents.[479] The work force standards applicable to Starpower appear to be somewhat less stringent than those applicable to Comcast/DC as Starpower has not become a truly regional company as was originally planned but rather is focused primarily on the District and parts of Montgomery County. Starpower has not provided any verifiable information to OCTT which would enable the District to determine whether Starpower is in compliance with this requirement.[480]

To ensure fulfillment of longstanding goals of District law with respect to work force composition[481] and to provide District residents with the new employment and other economic opportunities associated with deployment of advanced information technology in the District,[482] the

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476. D.C. Code § 43-1843.

477. CFA § 12.8.

478. *See, e.g.,* Technical and Operations Review–Comcast/DC System (Appendix A), A-24 (47% of work force were District residents in 1999); Draft Document Search Report–Arnold & Porter Report, 111-14 (Comcast/DC was not in compliance with work force requirement in the 1994 to 2000 period); Comcast/DC Settlement Agreement § 2.4 (express reference to the fact that the settlement covers liability for past noncompliance with the work force composition provisions of the franchise agreement). *See also* OCTT Compliance Report for 2000, 8.

479. Starpower is subject to work force requirements which appear to be less stringent than those applicable to Comcast/DC. This is attributable primarily to Starpower's representation of itself from the very beginning as a regional rather than a District-based company. It took this position although its initial operations in the area focused primarily on the District. Starpower's OVS agreement defines the District as making up only 18% of Starpower's area of operations because it planned to eventually provide service throughout the metropolitan area. This standard did not accurately reflect the fact that Starpower's initial customer base consisted almost entirely of District residents. In fact, at the time Starpower entered into this agreement, it had not been authorized to provide service in any jurisdiction other than the District in the metropolitan area. Its service area has since been expanded and now also takes in portions of Montgomery County. Starpower was recently authorized to commence operations in Arlington County, Virginia, but has delayed entry into that market for financial reasons. Starpower is not authorized to provide service in either Prince George's County, Maryland, or Fairfax County, Virginia.

Starpower's OVS agreement further limits its obligation to hire District residents by requiring that only 80% of the small portion of the regional work force imputed to the District be District residents, for an overall requirement that 14.4% of its regional work force be District residents. OVSA § 1.15bi. If the proposed move of its customer service facility from Springfield, Virginia, to western Massachusetts is implemented as planned, the number of employees who must be District residents will presumably be reduced proportionally to reflect the reduction in the overall size of the regional work force.

480. *See* OCTT Compliance Report for 2000, 15.

481. *See, e.g.,* D.C. Code § 43-1801(7).

482. *See, e.g.,* Summaries of Interviews (Appendix B), B-4, 10 (councilmembers).

requirement that a majority of the local work force be District residents should be retained,[483] extended to management level employees,[484] and applied on an equitable and consistent basis to both Comcast/DC and Starpower as well as other possible new entrants.

RECOMMENDATION # 101:

The requirement that the local work force consists of at least 51% District residents should be retained and applied to both Comcast/DC and Starpower and to any other new provider. In addition, all providers should be required to use "best efforts" to ensure that, within a reasonable time period, at least 50% of management level employees for the local work force are District residents.

11.3 APPRENTICESHIP AND TRAINING

Since it was first established in the early 1980s, District cable law has required cable franchisees to establish and implement apprenticeship programs for District residents.[485] These programs have been aimed at unskilled and semiskilled District residents, with a particular focus on minority youth, and have provided access to entry-level positions for disadvantaged District residents. Starpower is subject to similar obligations under its OVS agreement.[486] At various times during the term of the franchise, Comcast/DC did not fully comply with its obligations with respect to apprenticeship programs.[487] Similarly, Starpower is not in compliance with the apprenticeship and training provisions of its OVS agreement.[488] These problems with enforcing these requirements indicate a need to tighten enforcement and oversight of apprenticeship programs to ensure new employment opportunities for disadvantaged local residents. Requirements for apprenticeship programs should be retained[489] and applied on a consistent and equitable basis to all system providers.

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483. MFA § 7.3.

484. MFA § 7.4.

485. D.C. Code §§ 43-1841(d)-(f); CFA §§ 12.5.01-.03.

486. OVSA § 1.15c.

487. *See, e.g.,* Draft Document Search Report–Arnold & Porter Report, 106-08.

488. OCTT Compliance Report for 2000, 16.

489. MFA § 7.6.03.

RECOMMENDATION # 102:

To ensure training and job opportunities for District residents, each system provider should establish and continuously maintain an apprenticeship program which provides training and job opportunities, including training for jobs associated with advanced technology and services, and which is targeted at unskilled and semiskilled District residents who are economically disadvantaged. This requirement should be enforced through such measures as strict program certification and reporting requirements.

11.4 CONTRACTING REQUIREMENTS

Comcast/DC's franchise agreement requires compliance with District law governing contracting obligations of entities awarded contracts by the District.[490] One goal of the current version of this law, the Equal Opportunity for Local, Small, and Disadvantaged Enterprises Act of 1998 (LSDE Act), is to ensure that 50% of the dollar volume of the District's construction and procurement contracts are awarded to certified small businesses. Another goal of this law is to ensure that 5% of District contracts are awarded to prime contractors who agree to subcontract a portion of their contract work to local or disadvantaged business enterprises. In the early and middle 1990s and on a number of other occasions, Comcast/DC failed to comply with these contracting provisions of the franchise.[491] Starpower's OVS agreement includes contracting requirements similar to those of the 1998 LSDE Act as well as a number of affirmative outreach obligations with respect to contracting and procurement.[492] Starpower is not in compliance with a number of these provisions.[493]

Clear-cut contracting requirements should be retained[494] and applied on a consistent and equitable basis to all system providers.

RECOMMENDATION # 103:

To enhance economic opportunities for District-based businesses, all system providers should, at a minimum, comply with contracting standards equivalent to those established by the District's Equal Opportunity for Local, Small, and Disadvantaged Enterprises Act of 1998 (or any successor law) and applicable to contracts awarded by the District. This requirement should be

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490. CFA § 12.7 (requiring cable franchisees to comply with the Minority Contracting Act of 1976 (D.C. Law 1-95); this law required that 35% of the volume of eligible contracting dollars be awarded to certified minority business enterprises and has been superseded by the LSDE Act, which focuses on small and disadvantaged businesses rather than minority businesses).

491. *See, e.g.,* Draft Document Search Report–Arnold & Porter Report, 109 n. 261.

492. OVSA § 1.16.

493. OCTT Compliance Report for 2000, 16-17.

494. MFA § 7.5.

enforced through reporting requirements and liquidated damages.

CONCLUSION AND SUMMARY

The story of cable television in the District is one of mistakes and lost opportunities. Together, the franchise renewal process and Starpower's pending request for a franchise provide a fresh opportunity to correct mistakes of the past and to chart a new course for the future which promotes competition and meets other community needs.

The shortcomings of the District's approach to cable regulation became apparent in 1985, with a complete rewriting of the franchise agreement just a few months after it was signed. These 1985 revisions to the franchise included reductions in the system's total channel capacity from 78 to 54 and its access channel capacity from 16 to 6, deletion of virtually all financial support for public services, evisceration of the franchise's requirements relating to the institutional network, and elimination of requirements for eight public access studios. In short, the final franchise agreement–and the agreement which governed Comcast/DC's operations from 1985 to the present–was little more than a shadow of the franchise that had been granted by the District just a few months earlier.

Some 16 years after these decisions, District residents continue to suffer the consequences of a mistake-filled process. These consequences include continued customer service problems, numerous franchise violations, limited access services, no institutional network, and a dated and obsolete infrastructure with high rates and limited choice in programming. In many respects, these problems are due to misguided experiments with local ownership and with a partnership with the local telephone company.

Local Ownership: A central goal of the District's franchise process in the early 1980s was to grant the franchise to a locally owned cable company. In large part because of this restrictive approach, no major cable companies submitted proposals to the District. In fact, the bidders consisted of only three poorly financed and inexperienced (but politically connected) local companies. The local company which was awarded the franchise in 1985, DCI, was unable to secure financing for construction or start-up of the system. It turned immediately to TCI, one of its shareholders but also the nation's largest cable company, for financial backing and management support.

The price for TCI's financial backing was high. At TCI's insistence, the District completely rewrote the franchise agreement (as discussed above), reducing the franchisee's obligations and costs in countless ways and eliminating central elements of the bargain originally struck with DCI. In essence, the entire franchise process was turned on its head in just a few months. The District relinquished all but the illusion of local ownership in exchange for entering into a watered-down agreement with the nation's largest cable company. The franchise was transferred to a new partnership, DCLP, which was effectively controlled by TCI and was locally controlled in name only, while the District was left with a weak franchise that provided very few protections for District residents or public benefits.

Telephone Company Partnership: An equally important mistake was the cable franchisee's decision to enter into an unfavorable partnership with Verizon/DC and the District's decision to tacitly endorse this arrangement by incorporating it into the franchise agreement. This arrangement was in large part designed to secure Verizon/DC's political help in obtaining the franchise. From the beginning, this one-sided arrangement handicapped the cable franchisee in both technical and financial terms and contributed significantly to violations of the franchise and basic requirements

of District law. Under this partnership, Verizon/DC was given the right to design, construct, and own the system's distribution facilities, starting from the headend and running all the way to the system's taps. Comcast/DC paid some $55 million to Verizon/DC at the front end (primarily in the 1986 to 1991 period) to construct these distribution facilities and additional amounts to maintain the system. The cost of this arrangement to both the District and Comcast/DC was and continues to be high. Verizon/DC had no incentive to provide a high-quality system and a disincentive to provide an institutional network (if Verizon/DC had provided an institutional network, the District would have used it as a low- or no-cost alternative to paying millions of dollars to Verizon/DC for similar service). To this day, Comcast/DC does not own most of the cable system's distribution facilities and has no clear-cut right to upgrade the system without Verizon/DC's consent and provide the improvements in service expected by District residents and, in fact, has no right to use the existing facilities once a determination has been made that the "technological useful life" of these dated facilities has run its course.

Future: The District is a technically advanced community, with heavy in-home use of the Internet and strong interest in competition, service improvements, access to advanced services and technologies, and improved and enhanced public services. The District has an opportunity to correct the errors of the past and meet community needs by establishing future-oriented rules for Comcast/DC, Starpower, and all other system providers. For these undertakings to be successful, however, the District must take steps to end the current Verizon/DC-Comcast/DC relationship. At the same time, it must also take steps to ensure that Comcast/DC has the right and the ability to provide a state-of-the-art system and to compete with both Verizon/DC and Starpower. At a minimum, the District should seek to achieve the following goals in establishing new policies:

First, it should foster a truly competitive market, with a choice of two or more cable systems for all District residents.

Second, the District, should require deployment of technically advanced systems which provide access to a full range of advanced services and technologies for all District residents.

Third, it should require significant improvements in the Comcast/DC system while also ensuring Comcast/DC's ability to provide these and future improvements and to compete with Verizon/DC by ending the current Verizon/DC-Comcast/DC relationship.

And fourth, the District should enhance and expand public services by securing funding for a state-of-the-art community-wide public access facility and for state-of-the-art facilities and equipment for government and educational services and by securing a fiber optic network to connect District and other public facilities together (*i.e.,* an institutional network).

The following is a summary of the specific policies which should be adopted to realize the foregoing policy goals:

GUIDING PRINCIPLES

Guiding principles for District regulation should include: promoting competition; ensuring access to advanced services and technologies; and improving Comcast/DC's performance. First, promoting competition requires taking proactive steps to encourage facilities-based competition, while also providing consistent rules for all system providers, equal access to competition throughout the District, and independent public service operations. Second, ensuring access to advanced services and technologies requires establishing tough initial state-of-the-art requirements for both Comcast/DC and Starpower, ongoing requirements for all system providers to maintain state-of-the-art systems, and requirements for equal access to system capabilities and services for all District residents. And third, improving Comcast/DC's performance requires ending the current Verizon/DC-Comcast/DC relationship while also requiring Comcast/DC to establish an autonomous state-of-the-art system either by acquiring and rebuilding the existing system's distribution facilities, which are owned by Verizon/DC, or by building entirely new distribution facilities.

SYSTEM DESIGN AND OPTICAL CAPABILITIES

Basic System Design: The basic design for all systems, including both the Comcast/DC and Starpower systems, should ensure access for all District residents to full two-way service, a transmission capacity of at least 860 MHz, and optical connections within close proximity of every service location.

Optical Capabilities: The optical serving areas (*e.g.*, optical nodes) on all systems should be as small as possible in terms of number of service locations passed. With smaller optical serving areas, bandwidth sharing is limited and the number of electronic devices between service locations and optical conversion equipment is also limited. Each system provider's construction specifications should ensure installation of fiber optic lines and optical nodes on an equitable basis throughout the District's eight wards and equal access to optical capabilities throughout the District. As a general rule, optical serving areas should contain no more than 150 residential units or similar service locations. If an institutional network is not provided or if a limited institutional network is provided, alternative access to optical connections should be provided for public institutions via the subscriber network on an as-needed basis.

Transmission Capacity and Spectrum Allocation: All systems, including both the Comcast/DC and Starpower systems, should provide a transmission capacity of at least 860 MHz. With this amount of transmission capacity, the system will be equipped to accommodate current demand for analog services, current and anticipated demand for digital and other advanced services, and institutional services. Expansion of Comcast/DC's *analog channel capacity* to at least 90 channels and Starpower's continued provision of a comparable number of analog channels will provide the analog services desired by District residents and provide access to a sizable package of high-quality services that can be viewed without using a converter.

Bandwidth of 150-250 MHz should be reserved for *digital transmissions*. All systems should be fully equipped for *upstream transmissions*. Upstream pathways should be fully accessible by public institutions and equipped to handle video transmissions by public institutions without loss of signal quality. Standards and procedures should be established and the system equipped to provide for adjustments in allocations of transmission capacity for upstream communications as warranted by changes in need and demand.

HEADENDS AND HUBS, ADVANCED TECHNICAL CAPABILITIES, AND INTERCONNECTIONS

Headends and Hubs: The *headend(s)* for all systems should be equipped and operated to ensure high levels of signal quality and reliability and to provide a state-of-the-art platform for deployment of advanced services and technologies. Comcast/DC, Starpower, and all other system providers should each develop a plan and schedule for deployment of advanced capabilities, taking into account such factors as costs, market questions, technical considerations, and the needs and interests of District residents.

Interconnections should be established between each system and designated publicly owned or controlled facilities. District-based facilities which should be connected to each system include the District's wide area network, access interconnect facilities, and institutional network facilities. Interconnections should also be established between each system and all other systems in the region which are commonly owned or controlled by a provider (*i.e.,* all Comcast systems in the region should be interconnected to each other and all Starpower systems in the region should be interconnected to each other). Finally, interconnections should be established between each system and other systems or facilities in the District or region if necessary to interconnect access channels and other public facilities.

DISTRIBUTION LINES AND EQUIPMENT

Improvements in Comcast/DC's distribution lines and equipment are needed both to provide improved service and to establish a platform for deployment of advanced services. Detailed requirements regarding implementation of these improvements by Comcast/DC are especially important because of the poor quality of its existing plant and of the barriers to upgrading the Comcast/DC plant created by its agreement with Verizon/DC. Similar requirements should also apply to Starpower to ensure that it provides the same high-quality service currently being provided in 80% or so of the District to the remaining areas of the District which are presently unserved (chiefly large parts of Adams-Morgan, Capitol Hill, and Georgetown).

Distribution Lines: The design favored by Starpower and other new market entrants for *feeder lines* is a design which limits coaxial cable lines to short runs and which relies on optical lines for carriage of most traffic. This approach minimizes the number of active electronic devices and passive devices on a system, thereby reducing maintenance problems and traffic congestion and improving signal quality and reliability. Design specifications of this sort should apply to Comcast/DC's system rebuild and to Starpower's completion of its initial system build. Specifically, all feeder lines should be equipped for operation at a minimum of 860 MHz and for subsequent enhancement to 1 GHz operations. All feeder line runs should be limited to no more than 1,500 feet,

with no more than two amplifiers in a cascade. Comcast/DC should update and/or replace feeder lines as necessary to meet these standards and provide 860 MHz service throughout the District's eight wards.

Drop lines on the Comcast/DC system tend to be in "poor" condition. Comcast/DC's drop lines should be upgraded and replaced as necessary to provide improved service. In view of the strong interest in competition, the District should take steps to make certain that its policies with respect to *inside wires* do everything possible to ensure high-quality service and encourage customer ownership (and thereby competition).

Distribution Equipment: Clear-cut standards should be established with regard to distribution equipment in each of the following areas:

Power supply systems for Comcast/DC, Starpower, and all other systems should be state-of-the-art systems, which are safe, reliable, scalable, and adaptable; can supply 90 volts of power; and can support future expansion of service offerings. Each system provider's plan for deployment of a power supply system should include maps which specify the site for each power supply unit and should minimize any adverse environmental and aesthetic impacts.

All *amplifiers* on the Comcast/DC, Starpower, or any other system should be state-of-the-art amplifiers. Specifically, amplifiers should, at a minimum, support active 860 MHz and two-way operations throughout the District's eight wards, be linked together in cascades or runs of no more than two amplifiers (with a preference for one or no amplifiers), and minimize signal distortion.

All *passive devices* should be state-of-the-art equipment. Specifically, passive devices should minimize signal attenuation, loss, ingress, and egress and be fully compatible with 1 GHz and two-way operations and adaptable to support future services.

All systems should include state-of-the-art *status monitoring* systems which are adaptable and equipped to monitor active electronic devices and system performance.

All systems should include state-of-the-art *signal security* systems. Among other things, signal security systems should, to the extent possible, maximize customer service options, minimize home visits for service changes, minimize interference with customer use of consumer electronics equipment, and limit unauthorized reception of service.

CUSTOMER EQUIPMENT

Converters: The ability of franchising authorities to regulate converters is limited by federal law. This limitation does not restrict the District's ability to encourage implementation of measures by system providers to remedy converter-related problems and provide high-quality converters or to require system providers to comply with all applicable federal rules. Applicable federal rules include rules requiring that all new converters provided after December 31, 2004, be "interoperable" and requiring that converters which are compatible with consumer electronics equipment be made available and that written notice be provided to customers of this equipment option.

Advanced Customer Equipment: The ability of franchising authorities to regulate modems and other equipment is limited by federal law in the same way as converters. This limitation does not restrict the District's ability to require system providers to disclose equipment-related information to both customers and the District and to submit regular reports to the District on equipment use and deployment; to encourage system providers to remedy equipment-related problems, provide high-quality equipment, and deploy new equipment on an equitable and consistent basis throughout all areas of the District; or to require system providers to comply with all applicable federal rules, including any relevant rules which are developed with respect to "open access," competition, or interconnection and/or co-location rights.

COMMUNICATIONS SERVICES

Cable and Information Services:

Video Programming: Federal law prohibits most regulation of services delivered over cable systems except for franchise requirements for broad categories of service. With regard to video programming, each provider's proposal should respond to the interests of District residents in educational, children's, sports, current movie, foreign and international (*e.g.,* European, South American, Middle Eastern), foreign language (*e.g.,* Spanish), and African American programming as well as television stations based in New York City and Baltimore and include other service offerings responsive to other programming interests of District residents. Each provider should provide a full complement of about 90 analog signals and should maintain this package of analog service offerings unless and until it converts to all-digital operations.

Closed captioning should be provided for all government access channels and for all other public service and local origination channels to the extent technically feasible and affordable. Further, all system providers should comply with all federal closed captioning rules, including all applicable deadlines, and retransmit all closed captioning provided in connection with access channels whether or not required to do so by federal rules.

All system providers should comply with all federal *V-chip* requirements, including requirements for clear on-screen display of rating information, and should provide periodic notice (*e.g.,* at least once per year) to customers with respect to rating guidelines and availability of V-chip-equipped receiving equipment.

All system providers should fully scramble signals of audio and video services to which the customer does not subscribe. They should also provide notice in writing to all subscribers at least once a year and upon installation of the subscriber's right to a *lock-out device* to block reception of

unsubscribed-to services.

Audio Services: The audio services provided over all systems should include local information and programming.

Internet, Interactive, and Transactional Services: All systems should include the technical capabilities necessary for Internet, interactive, and transactional services, including such possible service offerings as personal control of program selection and payment options, true video-on-demand, Internet, interactive home learning and training, and on-line transactional services.

Telecommunications Services:

Each system provider should disclose on a quarterly basis any telecommunications services provided over its system. If a system provider provides any telecommunications services or facilities, it should obtain all authorizations required by District law for telecommunications companies and similar entities, comply with all laws and rules applicable to telecommunications companies, and compensate the District for occupation of the public right-of-way by telecommunications facilities to the same extent as other telecommunications companies are required to compensate the District.

PUBLIC SERVICES

District residents have clearly expressed a need for improvements in public services, including increased access channel capacity, increased financial support for public and community services, and an advanced institutional network.

Eligible Public Institutions: All District entities and PAC should be eligible to provide programming and information over access channels. Examples of eligible District entities include the District of Columbia Public Schools, University of the District of Columbia, and District of Columbia Public Libraries. In addition, the District, through OCTT and the City Council, should retain authority to designate other entities as eligible public institutions.

Financial Support for Public and Community Services: Substantial increases in funding for access are required due to years of neglect and the limited nature of most existing access operations. Specific needs include the need to acquire state-of-the-art equipment, to expand and improve existing operations, to establish a community-wide media center for public access, and to develop an institutional network.

All providers should provide financial support for public and community services through a mix of fees designed to ensure fair competition by requiring all providers to contribute toward development of a high-tech infrastructure for the District and to provide support for improved government access and other public services. These fees should include: the 5% franchise fee; the 1% public access fee; and a new $1.40 per subscriber per month fee to provide financial support for public services, which have been seriously underfunded for the past 16 years. This $1.40 per subscriber per month fee should be adjusted annually for inflation and payable quarterly, with proceeds dedicated to help pay for the capital costs of public, educational, and government facilities and equipment. Proceeds from this $1.40 per subscriber per month fee should be allocated and expressly earmarked as follows: 50 cents to OCTO (for an institutional network); 50 cents to PAC; 25 cents to DCPS; and 15 cents to UDC. This fee will initially produce a total of about $2 million

per year.

In addition, start-up funds totaling $8.25 million should be provided to jump start long neglected access and institutional network operations, with $3 million for OCTO; $500,000 for OCTT; $2.25 million for PAC; $1.75 million for DCPS; and $750,000 for UDC. Each system provider should be responsible for payment of the portion of these funds which reflects its market share and power as measured by number of customers and years of operation (90% or $7.425 million should be paid by Comcast/DC while 10% or $825,000 should be paid by Starpower).

Access Channel Capacity: A total of 14 channel slots of downstream analog bandwidth (84 MHz or 6 MHz per slot) and 2 channel slots of analog upstream bandwidth (12 MHz) should be reserved for access use on all systems which offer analog service to customers. In addition, an equivalent amount of digital bandwidth should be reserved for access use on all systems which offer digital service to customers.

Six analog access channels should continue to be assigned as currently assigned (two for PAC, two for OCTT, one for DCPS, and one for UDC). At least four of any additional analog access channels should be assigned immediately to meet existing needs (one each to PAC, OCTT, DCPS, and UDC). The remaining unassigned new analog access channels (which should total at least four new channels) should be held in reserve by the District for future assignment to public institutions, but the number of channels held in reserve should be minimized to the extent possible. In addition, each District institution should be assigned an amount of digital bandwidth for access use roughly equivalent to its allocation of analog channel capacity for access use. With access to digital bandwidth, each institution will be able to move quickly into the digital world, expand its offerings to include interactive and similar features, and respond to community needs by providing such public services as interactive in-home learning and training.

A trigger should be established to require simultaneous transmission of access channels in analog and digital form once digital television gains a significant share of the local market as measured by the relative number of analog-only subscribers and digital subscribers. This requirement is necessary to prevent second-class treatment of access channels in a mixed digital-analog environment. Specifically, access channels should be delivered simultaneously in both analog and digital form if 30% or more of customers subscribe to digital service.

All system providers should assign the same channel number to each access channel in order to preserve the channel's identity. Similarly, rules should be established which discourage system providers from changing the channel number of an access channel by establishing financial and other penalties and which, if a channel number is changed, require providers to notify the affected public institution and all subscribers.

Federal law requires franchising authorities to establish "fallow time" rules governing use of unused time on access channels. To ensure that the unique operational requirements of particular access channel providers are taken into consideration, each access channel provider should develop its own fallow time rules, subject to OCTT review to ensure compliance with requirements of federal law.

Services for Public Institutions: New standards should be established governing the number of drops, the equipment to be provided, and the services to be provided at no charge in the District's government offices and other public facilities. At a minimum, these free services should include one drop, one modem, and one digital converter per floor, along with free Internet and free analog and digital cable service, for all District buildings. A 60-day limit should be established for connecting

all unserved District facilities to the system. In addition, a pool of equipment (one modem per 100 employees and one converter per 50 employees) should be established to be distributed to locations where additional equipment is needed. System providers should connect all new District facilities and new PAC facilities to the system within 30 days of a request for connection.

Special rules should be established for the public libraries, public schools, UDC, and PAC. Equipment allocations for the public libraries, for example, should be established on the basis of the physical size of and the number of patrons for each facility (*e.g.*, 20 cable modems, 20 cable service outlets, and 20 converters for the Martin Luther King Jr. Memorial Library). Similarly, for each public school, one cable service outlet, one modem, and one converter should be provided per school and for every 300 students. Similar equipment allocation rules should be established governing distribution of equipment to UDC and PAC.

Institutional Network: The District has no access to institutional network capability more than 16 years after initial grant of a cable franchise. This is attributable to various factors, including Comcast/DC's and Verizon/DC's willingness to disregard franchise requirements, an ineffective and poorly drafted franchise agreement, and the District's failure to enforce the franchise agreement. The loss to the District in terms of the public resources and capabilities associated with an operational institutional network is immeasurable. Instead, the District has relied primarily on Verizon/DC for local communications links and now pays about $30 million a year for technically limited connections. The value of lost service opportunities associated with not having an operational institutional network in the 1991 to 1998 period is estimated to be at least $12 million and is probably much greater.

Now the District, under the leadership of OCTO, is seeking to make up for lost time and ground by establishing a new District-wide broadband infrastructure, which would support voice, video, and data communications and consist of fiber optic rings interconnecting all District facilities. Comcast/DC, Starpower, and all other providers should be partners in designing and building this network but the network should be controlled by the District, with OCTO in charge of establishing network specifications and of managing the network. All District facilities, including schools, libraries, public health, and traffic and transportation facilities, and all PAC facilities should be connected to this new broadband network. The starting point for establishment of this network should be the 541 service locations currently connected to the District's WAN, with eventual connection of all District facilities to the network.

Access Channel Interconnect Facilities: Each system provider should provide a state-of-the-art fiber optic network which connects to the system access production and other origination sites, other public institutions, and the institutional network. This network is necessary to support transmission of access channel programming and information, including live transmissions, to District residents. The original cable franchise did not include requirements for access channel interconnect facilities. Comcast/DC has patched together a simple network for OCTT's and PAC's signals but the connection does not provide high-quality signals and does not carry DCPS's and UDC's signals. Interconnect services and facilities for access channels should be established which ensure no degradation in signal quality, provide state-of-the-art fiber optic connections to access channel sites and to the institutional network, and reduce costs for public institutions.

Emergency Alert Service: The Comcast/DC system was not equipped with an operational emergency alert system until July of 1998 although the franchise required Comcast/DC to begin providing emergency alert service in 1986. Comcast/DC has provided emergency alert service since

1998 and did not made this system available to the District government until late 1998 or early 1999 or some 13 years after it was required to do so by the franchise. In view of this failure to comply with basic franchise requirements and the District's planned centralization of essential communications functions in a new unified communications center in Southeast Washington, all new franchises should include clear-cut requirements for emergency alert service which may be operated by the District government in emergency situations and which complies with technical specifications established by OCTO.

Promotional Spots: Comcast/DC provides time slots on some commercial cable networks for carriage of television spots produced by OCTT. Improvements in promoting access channels are essential to provide District residents with advance notice of programs and to provide information to District residents with regard to public access training and production opportunities. Current opportunities for promotional spots on cable networks should be retained and expanded to provide promotional opportunities for PAC and other access channel providers.

Program Guides: District residents have expressed concerns regarding the difficulty of finding out when and what public access and other access programming will be aired on local cable systems. This difficulty is partly due to the fact that program schedules in daily newspapers and in monthly cable program guides generally do not even list the channel numbers for access channels. System providers should be required to include program schedule information for access channel programming in program guides and schedules if the information is submitted to the system provider prior to its publication of a program guide or schedule or submission of program schedule information to third-party providers of program guides or schedules.

FRANCHISE ADMINISTRATION AND REGULATION

Rates: In view of the strong views of District residents with regard to rates, uncertainty with regard to the future of competition, and possible delivery of essential services over cable systems at some time in the future, the District should retain authority to regulate rates even if it decides not to exercise that authority or is currently prohibited by federal law from exercising that authority.

Reports: All system providers should submit reports and other information to the District to the extent required by the District to administer the franchise, enforce customer service requirements, enforce and implement applicable laws, and monitor construction and performance.

Construction: Clear-cut and unambiguous construction schedules and strict enforcement requirements for all system providers are necessary to ensure that all District residents have equal access to the same service options and technical capabilities within a reasonable time period. Of equal importance are strict standards and rules for construction and for restoration of the public right-of-way and other affected property.

Much of the aerial plant installed in alleyways (and sometimes in streets) in Adams-Morgan, Capitol Hill, Georgetown, and other "fire zone" neighborhoods by Verizon/DC and Comcast/DC is poorly constructed, with drop lines hanging close to the ground and a tangled maze of drop lines radiating from poles in every direction at a number of locations. These installations should be inspected in connection with the rebuild of the Comcast/DC system, with lines moved to underground locations and/or replaced or rearranged as necessary to reduce visual clutter, improve safety, and comply with DDOT standards. Aerial installation of cable lines in these areas is inconsistent with longstanding District law and should not be permitted for Starpower (or other providers) unless

expressly authorized by DDOT and consistent with District regulations and law.

Use of the Public Right-of-way: The District should establish consistent rules regarding use of the right-of-way and apply these rules to all system providers on a consistent and equitable basis. For example, if the District requires communications companies to make payments into a trust fund to support tech city projects, it should also impose this requirement on cable operators and providers of similar systems unless an individual provider is providing equivalent support pursuant to a franchise or comparable arrangement.

Technical and Performance Tests: In view of the history of signal quality and reliability problems and signal leakage, the District should retain broad authority to develop and implement technical standards and testing procedures to the extent permitted by law. In addition, OCTT should be provided with advance notice of all technical tests so that it can observe tests if warranted. Finally, all system providers should be required to comply with all applicable FCC standards and provide the District with a full complement of mobile testing equipment so that the District can independently verify compliance with applicable technical standards.

Inspection Rights: All plant and facilities of all cable and similar systems should be subject to any DDOT inspection requirements applicable to other users of the public right-of-way. In addition, OCTT should be authorized to inspect all facilities and books and records of system providers to enforce franchise provisions and other applicable law.

Enforcement Measures: Enhanced enforcement measures, including financial penalties, are needed because of problems with Comcast/DC's and Starpower's customer service and because of the failure of both companies to comply with basic legal obligations. Especially important are establishing clearly defined liquidated damages for all significant franchise violations and establishing security funds for quick recovery of liquidated damages and other payments

Performance and State-of-the-art Reviews: Strict requirements for annual reviews of performance and biennial reviews of state-of-the-art should apply to all system providers. These procedures will ensure that the District has the ability to enforce the franchise, secure improvements in performance, and ensure deployment of new technology.

Franchise Term: All franchises should be short-term franchises unless the provider agrees to make a substantial investment in cable-related system capabilities and/or public services (or produces evidence that it has made such an investment in the prior three years) and the investment to be made (or recently made) by the provider is substantial enough to justify a long-term commitment by the District.

Franchise Extensions: The District should not grant franchise extensions unless the District receives tangible and measurable benefits in the form of significant new investments in the system or significant improvement in services or public benefits or unless the District deems a short-term extension to be necessary for legal reasons (*e.g.,* to complete a renewal proceeding).

Purchase or Take Over of the System by the District or a Third Party: The District should reserve the right to purchase the system (or effect the transfer of the system to a third party) at an equitable price (excluding the value of the franchise and taking into account any damage to the District and its residents) if the franchise is terminated for cause. It should also be entitled to acquire the system at fair market value (excluding the value of the franchise) if the franchise expires and is not renewed. In either case, the price to be paid should be established by an appraiser selected by the District.

FRANCHISE FEES AND OTHER COMPENSATION

Franchise Fees: The District should continue to impose a 5% franchise fee on all providers, with all proceeds from these fees (currently totaling about $3.5 million) earmarked for OCTT to cover its regulatory, production, and other activities. The District should establish strict rules to ensure that obligations to pay franchise fees are not circumvented through third-party or other arrangements. Specifically, a 5% fee should apply to all revenues received by any third party in connection with direct sale or other provision of service over a cable system or associated activities and services which would be subject to the franchise fee if provided by a system provider.

Public Service Fees: Periodic public service fees to be paid all system providers should include: (1) a 1% public access fee for PAC; and (2) a $1.40 per subscriber per month fee for the capital costs of public, educational, and government access facilities. Strict enforcement provisions equivalent to those applicable to franchise fees (*e.g.*, audits, reporting requirements) should also be established.

Costs of Franchise Renewals, Extensions, Transfers, and Modifications: The District is, with increasing frequency, required to incur costs for outside attorneys, consultants, and engineers in order to respond to requests by system providers for regulatory action in connection with franchise renewals, extensions, transfers, and modifications. A system provider who requests or benefits from such regulatory activity should reimburse the District for all costs incurred in dealing with any request which requires the assistance of outside attorneys, consultants, or engineers.

Remittance: Payments of franchise fees and public service fees by system providers and third-party service providers should be subject to identical rules, including requirements to make quarterly payments within 30 days of the close of a quarter.

Enforcement: Strict procedures to enforce franchise fee and other financial obligations are essential in view of Comcast/DC's underpayment of franchise fees and PAC fees in the past. These procedures should apply to all system providers and to third-party service providers to the extent possible to prevent circumvention of financial obligations.

CUSTOMER SERVICE

Customer service standards should be adopted by ordinance or regulation rather than negotiated separately with each system provider and included in franchise agreements. The same baseline regulatory protections should be available to all consumers regardless of who their system provider is.

Local Facilities: At a minimum, each provider should establish one customer service center per quadrant and should aim to establish one in each of the District's eight wards. Any provider which provides customer service and/or dispatching operations from a location outside of the District should share the resulting cost savings with District residents by providing improvements in customer service, including 24-hour-a-day access to customer service representatives and emergency repairs. In addition, a core group of trained employees and all necessary equipment and facilities should be based at facilities in the District to ensure responsiveness to local service requirements.

Notice Requirements: All system providers should provide written notice to all customers with regard to price and service options at the time of installation or service connection and every

12 months. All system providers should provide 30 days' advance notice to all subscribers of upcoming changes in rates, services, or channel numbers by means of a method which provides direct and actual notice to subscribers. (This advance notice should also be provided to the District in writing.) Written notice should also be provided with respect to all subscriber equipment provided by the provider and the subscriber's right to use equipment provided by third parties. Finally, written notice should be provided with respect to installation practices, including availability of customized installations, the customer's right to install inside wires and attach equipment to the provider's equipment, the customer's right to receive service at any number of outlets, and availability (if any) of maintenance plans for inside wires. All subscriber notices should be submitted to OCTT at least 10 days prior to their distribution to subscribers.

Telephone Service: Reaching Comcast/DC's customer service representatives via the telephone has been a problem for District residents since cable's inception in the District. This problem is likely to become more important in the future as a wider array of services is offered. At a minimum, telephone service should be available between 6:00 a.m. and 12 midnight every day of the week. Further, in any case in which a system provider does not provide customer service via a District-based customer service facility, it should provide 24-hour-a-day telephone service.

System providers should take no more than 30 seconds to answer a call in person and no more than 30 seconds to transfer a call to an appropriate representative. Compliance with this standard should be measured on a monthly basis and on the basis of total number of calls made (including calls which receive a busy signal), and this standard should be met for at least 95% of calls every month. All system providers should install TDD equipment on at least one customer service telephone line and provide a customer service representative trained in the use of such equipment.

Billing: Clear-cut policies should be established to ensure prompt and complete resolution of billing matters, including clear guidelines for delivery of bills to customers, payment of credits and refunds, and termination of service. The District should also preclude excessive late payment fees by limiting such fees to no more than 2% of the customer's outstanding balance.

Installations and Disconnections: In view of complaints about Comcast/DC's failure to implement installation and disconnection requests in a timely fashion, clear ground rules should be established for installation and disconnection work which ensure smooth transitions between providers and which make it easy to add and drop services and equipment. The District's ineffective access to service rules for residents of multidwelling units should be completely rewritten and replaced by strict new rules which ensure that all occupants of multidwelling unit properties have a clear-cut and enforceable right to obtain access to service provided by all system providers.

Appointment Windows: Clear-cut rules should be established which limit appointment windows to no more than three hours.

Signal Outages and Interruptions: As digital, high-speed Internet, and other advanced services are deployed, signal reliability will become absolutely essential. A high level of performance can be achieved by deploying the proper technology and establishing clear-cut standards for minimizing signal outages and other service interruptions, including automatic payment of credits for service interruptions of 60 minutes or more.

Response to Service Problems or Interruptions: Clear-cut rules should be established which ensure a prompt response (the same day if the provider is notified before noon and within 24 hours if notified after noon) to all service problems and interruptions and require an immediate response

(within 60 minutes of notification) to service problems and interruptions which affect multiple subscribers.

EMPLOYMENT, TRAINING, AND CONTRACTING

Local Work Force: All system providers should maintain a District-based work force to ensure responsiveness to community needs, with the equivalent of one District-based employee for every 333 customers (for initial District-based work forces of about 300 employees for Comcast/DC and 50 for Starpower). These minimum requirements should be adjusted once every three years to reflect changes in each provider's District-based customer base.

Local Work Force Composition: Longstanding requirements of District law that a majority of the local work force be District residents should be retained, extended to management level employees, and applied to Comcast/DC, Starpower, and all other system providers.

Apprenticeship and Training: Longstanding requirements for apprenticeship programs for District residents should be retained and strengthened and applied to Comcast/DC, Starpower, and all other providers. These requirements are necessary to provide new employment opportunities in the technology sector for disadvantaged local residents.

Contracting Requirements: District law attempts to ensure that 50% of the dollar volume of District contracts are awarded to certified small businesses and that 5% of District contracts are awarded to prime contractors who subcontract a portion of the work to local or disadvantaged business enterprises. District requirements applying similar requirements to cable franchisees and OVS operators should be retained and strengthened and applied to Comcast/DC, Starpower, and all other system providers.

APPENDIX A:
TECHNICAL AND OPERATIONS REVIEW–COMCAST/DC SYSTEM

TECHNICAL AND OPERATIONS REVIEW: COMCAST/DC SYSTEM

INSPECTION OF THE COMCAST-DC HEADEND & COMCAST/DC INTERVIEWS

March 8, 1999, 11:00 a.m.

Emergency Alert System (EAS):

- System can be activated remotely by telephone connect via modem.
- 911 system could be hooked up to the system but this has not yet happened — The District is in the process of relocating its 911 center.
- The system has been tested but not yet used for an emergency (it has been in service since July 1998).
- It relies on information transmitted over a local radio station.
- Technically, the system works by sending an IF signal to the modulator for each channel; this signal cuts off the video signal momentarily. An audio message then advises the viewer to switch to channel 23 for emergency information; the emergency information is transmitted only on this channel.

Headend location:

- Headend was initially located at Shannon Place, SE.
- The Florida Ave headend went on-line in 1988.
- The headend was moved across the street from the basement of the Manhattan Laundry building to its current location (a former gas station) in the summer of 1996.

Digital service orders:

- The converter provides the customer access to PPV and premiums; the customer can obtain access to a service simply by punching the request into the converter; the service will be automatically provided without prior authorization; the converter will be swept at a later date to gather information concerning the customer's orders and the customer will be billed for all services received.
- The converter is programmed so that it cannot hold any more than $400 worth of orders at any point in time.
- The converter is swept via a modem hooked to a telephone connection; the customer's box is swept once every 3 days.
- The system currently offers 9 PPV channels.

Digital set-up in headend:

- A total of 8 receivers; 6 are in regular service and 2 are for an AT&T project.
- There is one transponder for each of the receivers; each transponder can carry 12 channels.

Optical transmitters:

- 2 transmitting units in the headend with 8 output devices:

1 unit has 3 output devices and provides regular service to 3 operational nodes serving three residential areas.
the other unit has 5 output devices, with 4 in service and 1 reserved for the McClean Gardens demonstration project; of the 4 in service, 2 are for AT&T (1 is a back-up) and 2 are for Comcast/DC (1 is a back-up).

Connections to the headend:

- PAC and OCTT:

PAC signals (channels 25 and 26) run on a dedicated line from the Bowen YMCA building to the OCTT building; in the OCTT building, they are demodulated and combined with channels 13 and 16. (PAC's facilities used to be housed in the OCTT building.)
OCTT is also connected to City Hall via a fiber optic connection; transmissions of city council meeting are transmitted over this link to OCTT and then sent from there to the headend.
The OCTT and PAC signals are modulated and sent to the headend via dedicated cable from the OCTT building.
They are received and demodulated at the headend and then sent via a 4-way splitter to their modulators in the headend.
The modulator for channel 16 is a Wavtek model LT 1000 (channel IL) — it appeared to be older than (or at least different from) the standard Jerrold Commander 4s for Comcast/DC's other channels).

- Public schools and UDC: connected to the headend via fiber optic lines.

Modulators:

- Mostly are Commander 4s (there are a few Commander 6s) and are originals.

Switch for PEG channels:

- Live PEG shows could be done.
- But a person needs to be at the headend to switch the channel to the system; this has to be done manually.

Status monitoring:

- Switch controller — Cheetah System.
- This system monitors signal levels and frequencies on main trunks.
- Comcast/DC can do tests at night and does not need to send technicians into the field.
- Tests can be conducted without taking the channel out of service.
- It operates by using telephone lines.

System monitoring:

- Done primarily through dispatching system; depends upon human assessment.
- The CSG computer can provide information about system problems by power supply unit (the customer's ANI is cross-tabbed by PSU) — it provides technical as well as billing information and enables Comcast/DC to isolate problem areas.

Fiber optic lines:

- Most of the fiber optic lines now in service are leased from Bell Atlantic. (Bell Atlantic built the system and was initially responsible for maintaining the system; Comcast/DC took over in about 1988.)
- Now Comcast/DC is installing its own fiber lines.
- TCG owns fiber optic lines; TCI's merger with AT&T will give Comcast/DC access to TCG's fiber because AT&T owns TCG.
- 72 fibers run between Comcast/DC's headend and TCG's operations center at 12th and G Street.
- Trunk 6 feeds an optical node at 7th and Constitution; Capital Hill is fed from this location; Bell Atlantic already had fiber there.

@Home:

- Demos at 3 sites (NCTA, AT&T, and Comcast/DC offices).
- First commercial deployment will be to McClean Gardens but will be on a demo basis.
- Comcast/DC will use existing TCG fiber lines that run up Wisconsin Avenue to provide service to McClean Gardens.
- New connections will support 860 MHZ service for McClean Gardens.

Telephony:

- Demo system in service — it can support a little more than 200 lines.
- Telephone equipment in the headend is the Nortel Cornerstone; it routes telephone calls to and from TCG's switching facilities.
- Switching service is provided by TCG (12th and G Street).
- Telephone signals are sent downstream over the cable system at 523 MHZ and upstream at 30 MHZ.
- It is not IP telephony; it is an RF product.
- 12 nodes that can support 212 phone numbers.
- Network Interface Units (NIU) are supplied by Arris International. These units are attached to the side of the house (the older models supported only 2 lines while the newer models can support 4 lines).
- The NIU will be either powered locally (with batteries) or by the system.

SUMMARY OF INTERVIEW: ENGINEERING CONSULTANT FOR THE DISTRICT

December 8, 1998, 11:30 a.m.

BACKGROUND

Scope of consultant's work:

- This consultant has been working with OCTT "for several years." His work started as a review of the overall system and then narrowed to focus on the institutional network activities. Now he is doing a totally new evaluation of the subscriber network and an extensive review of PEG facilities.
- He's been working as OCTT's consultant for 2.5 to 3 years. His work "comes and goes with different administrators and council" and "depends on the government structure."
- He has been working on several projects for OCTT. His work has involved review of the I-Net, the subscriber network, and PEG facilities.

I-Net:

- A few years ago OCTT had him "looking at the I-Net." The I-Net was not built. Comcast/DC offered several scenarios. The reality is that "just a few miles" were "put in." At one point, Comcast/DC offered to provide the city with a grant of "several million dollars" in lieu of the I-Net but the "council didn't go along with it" and now the I-Net is "under further change."
- Comcast/DC cannot find its own maps. Its staff did not "know where cables were installed for I-Net — found in bottom drawer of a credenza. I redrew them and gave a copy to [Comcast/DC]."
- In order to obtain copies of maps, he had to sign a confidentiality agreement with Comcast/DC.

Subscriber Network:

- The second facet of his work contains "a technical audit" which has "been going on for over one year." It started and stopped.
- He'll be doing "more tests next week" and then "a report in January [of 1999]."
- He is "repeating FCC tests [conducted by Comcast/DC]."
- He has encountered many problems due to constantly changing technical staff at Comcast/DC. Cooperation "doesn't exist" with Comcast/DC. "Their records are in disarray." They have "lots of nice people but I have dealt with third or fourth round of technical people who have come and gone and a lack of coordination between regional and local operations."
- "I've gone through three . . . sets of people on [Comcast/DC]'s side . . . this is its modus operandi . . some local companies do what they want and don't read the national's instructions."

- He has completed a review of the results of Comcast/DC's technical tests. "I've reviewed them over an extended time period. These tests were done with a constantly changing methodology. First they used [a particular type of equipment] at the end of the line — some equipment was older, others newer . . . [Comcast/DC] used an old spectrum analyzer which was out of calibration for three years and weren't sure how to use it — so [Comcast/DC] shifted use of this old equipment and combined it with new equipment as per FCC tests." Comcast/DC bought a new spectrum analyzer but it needed new parts.

    - About a year ago the system "was leaking like a sieve. They were providing data and even then showed large holes." A "terrific amount of [cable] theft is going on in the city. The operator will fix it and then some one goes out and creates a leakage."
    - Comcast/DC was "not doing preventive maintenance up until a year ago" but is "now more up to speed. I've developed good rapport with technical staff who told me they've been doing more preventive maintenance in the last year."
    - "Fiber terminal equipment has been replaced in the last couple of months."
    - Problem with system transmitters and receivers in Southeast: "[Comcast/DC] was testing its plant and on the whole east side of the system was performing poorly because fiber terminal equipment was performing poorly — the transmitters and receiver were the problem. This was just changed this summer." "Our tests this spring were atrocious."

PEG Facilities:

- The PEG channels "go from very good to very bad over different times. We're not sure why." Signal problems could be due to "crummy tapes." Not necessarily due to bad equipment but depends on which channel. Where he has seen problems he has asked for new test equipment to pin down what degree of problems can be attributed to various elements.
- Problems could be due to "signal leakage, transmission lines, headend equipment and also connections jarred during operator channel realignments."
- Public access is connected by a coaxial cable "down the road from the headend"; the educational channels are connected to the headend by lines leased from Bell Atlantic; the government access channels are connected directly via coaxial cable to the headend across the street and some government access programming is carried on leased lines
- There is a time-base correction problem at the headend which causes some problems. Connections also get bumped when Comcast/DC tries to realign channels.
- There is an ingress problem on the UDC channels. Cause is uncertain.

Other issues:

- Converters: Operators like Comcast/DC are known to have "upgraded from plain Jane converters but stopped one-third of the way."
- Partial Upgrades: Operators like Comcast/DC also have some of "their plant at 450 MHZ capability with other portions upgraded to 750."
- Methodology:
  - Comcast/DC and the consultant conduct tests together but the equipment and the testing style have changed.
  - The consultant does not conduct independent tests but observes signal quality on TV receivers at a number of subscriber locations.

Comcast/DC's Future Plans:

- System "started with a couple headends." These were "combined together . . . put in 3 fiber nodes and moved the headend within last year — [it is within] within one block of old headend."
  - "Now they will move the whole thing again and subdivide the system into hubs with nodes — in various stages of planning . . . . "
  - Comcast/DC will subdivide the system into sub-hubs with many nodes but the company will not provide the consultant with the specific details.
  - He has noticed that "[Comcast/DC] appears to be putting in special communications around town to tie other things in and planning other telecommunications services with the fiber."
  - "[Comcast/DC] staff has been involved in setting up things at the AT&T office and NCTA headquarters — when they couldn't meet with me. They've had tons of meetings, planning, and training."

FOLLOW-UP INTERVIEW
March 25, 1999

- Consultant is in the process of testing the PEG signals. Consultant asked Comcast/DC to bring the testing equipment but company did not bring the necessary equipment so this limited their testing ability. They did basic tests.
- A Comcast/DC technician told the consultant during an on-site visit that Comcast/DC would be putting in 750 MHz amps. The company was doing repairs at the same time as an upgrade. But when OCTT asked Comcast/DC whether it was doing an upgrade, the response was "not really."
- The consultant is reviewing Comcast/DC's technical reports. He wants to obtain answers on the discrepancies that he has noticed. He asked questions earlier in March [of 1999] and wanted to obtain answers by Monday. Comcast/DC failed to provide answers to the questions because it said it wanted to run the questions by Government Relations.
- The consultant plans to start working on his report within a month [in April of 1999] but it may take longer to obtain information from Comcast/DC.

COMCAST/DC'S ANSWERS TO InPUT'S QUESTIONS[495]

COAXIAL CABLE LINES

TRUNK LINES

- Were most of the system's trunk lines installed during initial construction? **Yes.**
- Describe any upgrading or replacing of the system's trunk lines since initial construction of the system: **During routine system maintenance.**
- Describe the condition and age of the system's trunk lines: **10 years old; average condition.**

FEEDER LINES

- Were most of the system's feeder lines installed during initial construction? **Yes.**
- Describe any upgrading or replacing of the system's feeder lines since initial construction of the system: **Feeder has been replaced during routine maintenance and during plant extensions**.
- Describe the condition and age of the system's feeder lines: **The feeder system is in poor condition (most of the drop system).**

DROP LINES

- Were most of the system's drop lines installed during initial construction? **Yes.**
- Describe any upgrading or replacing of the system's drop lines since initial construction of the system: **During service calls, drop systems are inspected and upgraded or repaired.**
- Describe the condition and age of the system's drop lines: **Drops (aerial) are in fair condition; drops in MDUs are in very poor condition overall.**
- What is the average length of drop lines in the District? **100 feet.**
- What is the maximum length of a the drop line in a standard installation? **150 feet.**
- What are Comcast/DC's standards and practices with regard to nonstandard installations? **They are handled case by case, we have assigned personnel.**
- Describe the characteristics (*e.g.*, shielding) of all drop lines used by Comcast/DC for current installations: **Minimum 67% braid/foil protection.**
- Describe any standards and procedures for inspecting and replacing drop lines: **TCI installation guidelines are followed.**
- Describe the circumstances in which drop lines are buried: **In communities built underground, if a customer pays for it in an aerial neighborhood.**

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495. Comcast/DC responded in writing to these questions. Comcast/DC's written responses are indicated in **bold**. Comcast/DC's failure to respond to a question is noted by a blank line.

- Describe Comcast/DC's practices with respect to the time period within which drop lines are buried following an installation: **Installs in neighborhoods.**

CONSTRUCTION

Month and year of commencement of construction of the Comcast/DC system: **6/85.**

Month and year of completion of construction of the Comcast/DC system throughout the District: **1/95.**

List any unwired or unserved areas in the District, including pockets where service is not available: **None.**

List all upgrades or rebuilds since completion of initial construction of the system:

geographic area of upgrade or rebuild	description of upgrade or rebuild	date of upgrade or rebuild
(AT&T) 21st & M Streets, NW	**Upgrade to 550 MHZ**	**6/98**
(Comcast/DC) 900 Michigan Avenue, NE	**Upgrade to 550 MHZ**	**10/98**
(NCTA) 1700 Mass Ave., NW	**Upgrade to 550 MHZ**	**6/98**

COMMUNICATIONS SERVICES

SERVICE CHANGES

Describe Comcast/DC's practices with regard to notifying subscribers of the addition or deletion of a service: **Customers are informed at least 30 days in advance through various media of changes in programming, rates, or service.**

Describe Comcast/DC's practices with regard to notifying subscribers of changes in channel numbers: **Same as above.**

PROGRAMMING

Describe the procedures used by Comcast/DC to decide which programming services are provided over the cable system: **Decisions are made on a variety of factors: customer demand, available capacity.**

Describe any surveys taken by or on behalf of Comcast/DC to assess the interests of District residents with regard to cable programming in the past three years (specify dates and **attach any reports or other documents containing the results of these surveys**): **No current surveys available.**

PPV

Date Comcast/DC first provided pay-per-view services: _____

Can analog customers obtain access to PPV services? **Yes.**

Describe the process for collecting information regarding a customer's PPV orders and for activating PPV services in individual homes: **Orders are entered into the billing system which connects to the converter controller. This process authorizes the individual accounts through their converter.**

LOCAL PROGRAMMING

Number of hours of locally produced local origination programming produced per month: **0.**

Describe facilities and equipment used for local production (*e.g.*, number of digital editors, type of cameras): _____

Local advertising:

- Describe system used for inserting local advertisements into national programming: **Starnet presently due to change in February or March [of 1999].**

- Does Comcast/DC participate in a regional ad interconnect? ✓

  If so, describe the regional ad interconnect and its current capabilities and services: **The Washington Interconnect, we are able to digitally insert on 17 cable networks. We presently utilize a Starnet hardware system, coupled with a Starnet traffic system. It will change to G-C in February or March.**

  Describe plans, if any, for development or expansion of a regional ad interconnect: _____

- Does TCI or a related or affiliated company (*e.g.*, TCI Media Services) produce ads that are shown on other cable systems in the metropolitan region? **Yes.**

  Describe activities by TCI or any other affiliated or related company (*e.g.*, TCI Media Services) in the advertising area: **We produce roughly 10 local ads per month , as well as long term videos.**

AUDIO SERVICES

Has the Comcast/DC system ever carried FM or other local radio service? **Yes.**

- If so, specify the time period in which this service was carried on the Comcast/DC system: **DMX (Digital Music Express) 1994 to the present.**

EMERGENCY ALERT SYSTEM

Describe how the current emergency alert system works: **The system can be activated by three different ways. The system monitors WTOP-AM and WPGC-FM. When these stations issue an alert, the system is activated. Also, the system can be manually activated at the headend or remotely through the telephone.**

- When did the current system commence operations? **July 1998.**

Describe any use of the emergency alert system in the past three years: **Weekly tests since July 1998.**

Describe procedures for use of the emergency alert system by District officials: **Using the telephone, District officials could activate the system.**

DIGITAL TELEVISION

Describe Comcast/DC's plans, if any, for deployment of local digital processing capability and the anticipated date for deployment of this service: **Comcast/DC has already launched digital services in the Washington DC market.**

INTERNET

Describe Comcast/DC's plans, if any, for deployment of high-speed Internet service, including plans for provision of two-way service and the anticipated date for deployment of this service: **As [Comcast/DC] upgrades and certifies its facilities, we will begin offering @Home service.**

TELEPHONE AND TELECOMMUNICATIONS SERVICES

Describe Comcast/DC's plan, if any, for deployment of telephone service, including the extent to which cable plant would be used in connection with providing telecommunications services and the anticipated date for deployment of this service: **As the facilities are upgraded, [Comcast/DC] will be able to offer telephone service over its HFC network.**

Describe any existing arrangements that permit other service providers (*e.g.*, Teleport Communications Group (TCG), MFS) to use Comcast/DC's facilities or its access to the public right-of-way for telecommunications or any other service or facility: **N/A.**

CUSTOMER EQUIPMENT

CONVERTERS

Provide the following information for all remote converters currently leased by Comcast/DC:

make & model	description of capabilities	number in service	date of first deployment
Jerrold DPV7	**analog**	**91,000**	
DCT 1000	**digital**	**8,600**	**March 2, 1998**
DCT 2000	**digital**	**300**	**Jan 5, 1999**

State whether customers who use converters to receive cable service can use the picture-in-a-picture feature of television sets to view any two channels at the same time:

- For digital service: **Yes.**
- For analog service: **Yes.**

State whether customers who use converters to receive cable service can tape any one channel and view any other channel at the same time:

- For digital service: **No.**
- For analog service: **Yes.**

Does Comcast/DC offer analog customers the option of renting converters with dual tuners and descramblers? **No.**

- If so, how many of these converters are presently in service? **N/A.**

REMOTE CONTROL DEVICES

Provide the following information for all remote control devices currently leased by Comcast/DC:

make & model	description of capabilities	number in service	date of first deployment
MRC 550	**analog remote**	**N/A**	**N/A**
URC 550	**analog remote**	**N/A**	**N/A**
XRC 200	**DCT remote**	**N/A**	**N/A**
TCI 200B	**DCT remote**	**N/A**	**N/A**

Does Comcast/DC offer any remote control devices for sale? **No.**

PARENTAL CONTROL DEVICES

Describe any parental control devices made available by Comcast/DC to customers: **Parental control lock (programming through the converter box or the remote).**

- How many of these devices are currently in service: _____

What affirmative measures, if any, has Comcast/DC taken to disseminate information to customers with regard to the availability of these devices? **Information provided through installation kits, cable guide, customer service representatives.**

CUSTOMER SERVICE

OFFICE & SERVICE LOCATIONS

Specify all locations in the District where Comcast/DC's customers can drop off equipment, pay bills, or resolve complaints and other service issues:

address	services available (*e.g.*, equipment drop off, bill payment)	hours of operation
900 Michigan Ave., Washington, DC 20017	**equipment drop off bill payment**	**Monday - Friday Saturday**
	customer service	**Sunday - Saturday 7 a.m. - 11 p.m.**
	customer complaints	
attachment list A	**bill payment**	**48 locations in DC & MD**
converter contract services	**digital box pick-up**	**Monday - Friday, 8 a.m. - 5 p.m.**

TELEPHONE SERVICE

Describe telephone-based customer service provided by Comcast/DC's customer service representatives (CSR) during regular business hours:

- Specify regular business hours for telephone-based customer service: **7 a.m. - 11 p.m., 7 days a week.**
- Specify where all CSRs who serve Comcast/DC customers during regular business hours are physically located: **900 Michigan Avenue, NE, Washington, DC 20017.**
- How many CSRs are simultaneously on duty for Comcast/DC during regular business hours: **20-40 CSRs between 7 a.m. and 6 p.m.; 10-20 CSRs between 6 p.m. and 11 p.m.**
- Describe Comcast/DC's system for monitoring the performance of its CSRs:
  Monday - Friday, 7 a.m. - 6 p.m.: 20-35 CSRs (agents); 6 - 11 p.m.: 10-30 agents
  Saturday - Sunday, 7 a.m. - 11 p.m.: 10-30 agents.
  describe how Comcast/DC measures the rate and speed of its CSRs' responses to telephone

calls from customers: **Automated system which clocks calls from initial answer by phone switch until answered by CSR.**
attach reports for the past 12 months documenting the rate and speed of CSR response to telephone calls: Jan. - Oct. 1998: Nortel; December 1998: Lucent.

Describe telephone-based customer service provided by Comcast/DC during off-hours: **Call centers after hours beginning Q1 1999; currently answering service.**

- Specify the off-hours in which telephone-based customer service is available to Comcast/DC customers: **11 p.m. - 7 a.m.**
- Specify where all CSRs who serve Comcast/DC customers during off-hours are physically located:
  8100 Dansbury Road, Baltimore, MD.
  Baltimore plan in Q1 1999 = CSR support, Baltimore call center support.
- Describe the extent to which telephone-based customer service for Comcast/DC customers during the off-hours is provided on a consolidated basis or otherwise combined with customer service for other cable systems or is provided by facilities used by any cable operator other than Comcast/DC:
  Call center shared with Baltimore in Q1.
  answering service - DC system.
- How many CSRs are simultaneously on duty for Comcast/DC during off-hours? **27.**
- Describe the extent to which customer service is automated during off-hours: **Auto transfers calls to answering service.**
- Describe the situations in which a service technician would be dispatched during off-hours: **See attachment B (ref outage procedures).**

BILLING SERVICES

Describe billing and payment options currently available to Comcast/DC's residential customers in each of the following areas:

- Annual payment plans (include a description of any associated discounts): **Senior citizen discount: $2.75 (off expanded basic only).**
- Debit card payment plans: **Yes.**
- Credit card payments plans: **Yes.**
- Describe any discounts available for senior citizens: **$2.75.**
- Describe any discounts available for members of other population groups: **None.**

Name of the company that currently provides billing services for Comcast/DC: **CSG.**

- Date when this contractor started to provide billing services for Comcast/DC: **8/27/98.**

Specify the number of days prior to commencement of the billing cycle on which Comcast/DC's billing service contractor mails bills to Comcast/DC's customers: _____

Provide the following information with regard to Comcast/DC's practices in terms of disconnecting service after a customer fails to pay a bill: **Day 55 — minimum balance of $40.**

- Advance notice:
  form and number of notices (*e.g.*, telephone call, letter): **T-Grams, phone calls.**
  information included in the advance notice: _____
  number of days between scheduled disconnection and first written notice: **30.**
  T-Gram goes out first day 30; call at day 45; disconnect at day 55.
- Within how many days after the close of the unpaid-for service cycle does Comcast/DC disconnect service? **Day 56.**
- Describe any special fees or other requirements for reconnecting service after a disconnection for nonpayment: **$24.95 and past due balance, plus one month in advance.**

Describe Comcast/DC's practices with regard to disconnecting service for customers who have voluntarily terminated service: **Customer calls; we set up disconnect date; we stop the billing for the day the technician disconnects the cable services.**

- Within how many days of receiving a customer's request for immediate termination of service does Comcast/DC make a home visit to disconnect service? **1-2 weeks.**

INSTALLATIONS AND SERVICE CALLS

Within how many days of a request for commencement of service at a wired location does Comcast/DC reconnect the customer to the cable system and activate service? **Within 7 days.**

Within how many days of a request for commencement of service at an unwired location does Comcast/DC connect the customer to the cable system and activate service? **Within 7 days.**

Within what time period does Comcast/DC wire unwired multiple dwelling unit (MDU) properties after a resident of an MDU requests services? **The time frame for wiring depends on the complexity of the job and what is required before construction starts (*i.e.*, permits, locates, *etc.*).**

- Explain why Comcast/DC has not wired some MDU properties in the District for cable service although the owner has signed agreements giving Comcast/DC the right to wire the buildings: **Require specific information to answer this question.**

Describe Comcast/DC's practices for appointment windows for home visits for service calls and installations: 4 hours windows.

Describe Comcast/DC's practices with regard to responding to requests for service calls, including how it prioritizes requests for a service call and how quickly it responds to requests for a service call: **24 hours for no picture and next day for other service calls.**

COMCAST/DC'S COMMERCIAL CUSTOMERS & SERVICES: hotels, hospitals, & single users

ward	properties	service outlets	full basic	pay units	digital
ward 1	6	204	6	21	0
ward 2	24	1,490	24	129	0
ward 3	2	2,268	2	48	0
ward 4	2	38	2	17	0
ward 5	2	79	2	12	0
ward 6	3	179	3	10	0
ward 7	2	7	2	13	0
ward 8	2	48	2	4	0
TOTALS	43	4,313	43	254	0

COMCAST/DC'S COMMERCIAL CUSTOMERS & SERVICES: office/private use

ward	properties	service outlets	full basic	pay units	digital
ward 1	19	42	19	0	64
ward 2	228	513	228	0	100
ward 3	8	18	8	0	30
ward 4	5	11	5	0	13
ward 5	6	13	6	0	16
ward 6	11	25	11	0	62
ward 7	6	13	0	0	13
ward 8	3	6	3	0	11
TOTALS	286	641	280	0	309

COMCAST/DC'S COMMERCIAL CUSTOMERS & SERVICES: restaurants/public use

ward	properties	service outlets	full basic	pay units	digital
ward 1	64	112	64	0	0
ward 2	100	172	100	0	0
ward 3	30	51	30	0	0
ward 4	13	22	13	0	0
ward 5	16	28	10	0	0
ward 6	62	108	67	0	0
ward 7	13	23	13	0	0
ward 8	11	19	11	0	0
TOTALS	309	535	308	0	0

THIS INFORMATION IS CURRENT AS OF APRIL 30, 1999.
ATTACH CURRENT RATE CARDS AND SAMPLE CONTRACTS FOR HOTELS, HOSPITALS, & SINGLE USER BUILDINGS; OFFICE/PRIVATE USE; RESTAURANT/ PUBIC USE; AND ALL OTHER COMMERCIAL USES.

COMCAST/DC'S RESIDENTIAL CUSTOMERS & SERVICES

ward	*subscribers:*			*services:*				
	# of subscribers	# of residential units passed	penetration rate	basic only customers	basic & expanded basic customers	pay units	annual PPV sales	digital customers
ward 1	14,098	40,341	34.9%	660	6,321	7,117	NA	1,453
ward 2	18,074	47,885	37.7%	922	8,967	8,185	NA	1,609
ward 3	18,962	39,381	48.2%	861	10,689	7,412	NA	1,419
ward 4	14,132	32,591	43.4%	424	3,926	9,782	NA	1,456
ward 5	12,621	32,986	38.3%	400	3,115	9,106	NA	1,390
ward 6	13,370	36,273	36.9%	479	4,704	8,187	NA	1,453
ward 7	13,036	32,447	40.2%	357	2,756	9,923	NA	1,493
ward 8	9,774	26,756	36.5%	230	1,948	7,596	NA	1,329
TOTAL	114,067	288,660	39.5%	4,333	42,426	67,308	NA	11,602

THIS INFORMATION IS CURRENT AS OF APRIL 8, 1999.

EMPLOYEES & SUBCONTRACTORS

EMPLOYEES

Provide the following information regarding Comcast/DC employees, including employees of related or affiliated companies (*e.g.*, TCI Media Services):

category	*full time employees:*			*part time employees:*		
	# total	# DC residents	% DC residents	# total	# DC residents	% DC residents
customer service representatives	**71**	**39**	**54.9%**	**13**	**4**	**30.8%**
installers and technicians	**132**	**74**	**56.1%**	**0**	**0**	
administrative and managerial	**46**	**9**	**19.6%**	**0**	**0**	
advertising and sales	**24**	**10**	**41.7%**	**1**	**0**	**0**
production	**4**	**0**	**0.0%**	**0**	**0**	
accounting and finances	**12**	**4**	**33.3%**	**0**	**0**	
other	**6**	**5**	**83.3%**	**1**	**0**	**0**
TOTALS	**295**	**141**	**47.8%**	**15**	**4**	**26.7%**

Training for customer service representatives:

- Describe Comcast/DC's initial training for CSRs: **(See attachment).**
  Focus; customer 1st training; CSG billing; phone handling.

- Describe any retraining provided by Comcast/DC for existing CSRs: **(See attachment).**

Providing the following information regarding Comcast/DC's installers and technicians (*e.g.*, installers, advanced installers, service technicians, line technicians, headend technicians):

category	# of full time	# of part time	duties	training
system techs	**8**	**0**	**see attachment**	**see attachment**
service techs	**15**	**0**	**see attachment**	**see attachment**
installers	**53**	**0**	**see attachment**	**see attachment**
construction techs	**11**	**0**	**see attachment**	**see attachment**

Number of employees, if any, assigned to public, educational, and government (PEG) access:

- Full-time: **1.**
- Part-time: **0.**

SUBCONTRACTORS

Describe in detail Comcast/DC's use, if any, of subcontractors for local origination and production: **None.**

Describe in detail Comcast/DC's use, if any, of subcontractors for installations: **Installations are subcontracted periodically on an as needed basis.**

Describe in detail Comcast/DC's use, if any, of subcontractors for construction: **Same as above.**

HEADEND AND HUBS

Provide the following information with regard to the Comcast/DC system's current and past hubs:

HUBS (current & discontinued)			
location (street address)	**functions**	**years in service**	**current status**
Shannon Place, NE	**headend**	**approx. 6-7 years**	**discontinued**
1328 Florida Ave, NW	**headend**	**approx. 9 years**	**discontinued**
1351 Florida Ave, NE	**headend**	**2 ½ years**	**current**

Current headend:

- Address: **1351 Florida Ave, N.W., Washington, DC 20009.**
- Date of commencement of operations at this location: **June 1996.**
- If the headend was previously located at any other address, specify each such location and the dates of operation at each location: **1328 Florida Ave, N.W. (approx. 1988-96).**
- Describe any communications links between the headend and Comcast/DC's main offices at 900 Michigan Avenue, NE: **RF return, data link through Bell Atlantic for control of analog converter boxes.**
- Number of full-time headend technicians and staff: **3.**
- Is the headend staffed on a 24-hour-a-day seven-day-a-week basis? **No.**
- If the headend is not staffed on a round-the-clock basis, describe any ability to monitor system operations from a remote location: **Dispatch monitors the channels.**
- Indicate which of the following systems is used to provide security for the headend and associated equipment and facilities:

  Yes electronic monitoring
  Yes video monitoring
  Yes fence
  No security guards

- Describe in detail the climate control system for the headend: **2 five-ton air conditioners.**
- Provide the following information with regard to headend receiving and transmitting equipment:
  number of satellite dishes at the headend: **8.**
  headend antenna tower:
  location: **1351 Florida Ave, N.W.**
  height: **140 feet.**
  year installed: _____
  list all other headend receiving and transmitting facilities (e.g., broadcast antennas, microwave transmitters and receivers): **Hughes microwave transmitter feed to the White House in case of outage.**
- Provide the following information with regard to other headend equipment:

  describe the power supply system for the headend, including the type of backup system and the age of the headend's power supply system: **400 AMP three phase feed from PEPCO, Cummings 60 K generator provides emergency power, installed May 1996.**

  describe the headend's modulators, including their age and condition: **There is a mixture of Jerrold Commander 4's and 6's. The 4's are approximately 14-16 years old. The 6's were purchased in the last 4 years.**

SIGNAL SECURITY

Describe current signal scrambling techniques and methods for analog signals:

- Audio signals: **None.**
- Video signals: **Sync suppression by Jerrold MVP scramblers.**

Are the video and audio signals for all sexually explicit programming fully scrambled? **No adult services on analog.**

I-NET

Describe all existing I-Net facilities: **Shadow trunk laid throughout various locations of residential network.**

Describe the capabilities of the existing I-Net shadow trunks:

- Channel capacity and bandwith: **63/450 MHZ.**
- List all installed distribution equipment (*e.g.,* amplifiers, power supply units): **None.**

How is the school system's Penn Center production facility connected to the Comcast/DC system? **N/A.**

How is the University of the District of Columbia's production facility connected to the Comcast/DC system? **Coaxial cable.**

How are the production facilities for public access connected to the Comcast/DC system? **Coaxial cable.**

How are the Government of District of Columbia's production facilities connected to the Comcast/DC system? **Coaxial cable.**

Provide the following information for each "shadow" I-Net trunk:

trunk	description of route	specific public buildings passed by I-Net lines	specific public buildings connected to I-Net lines

INTERCONNECTS

Provide the following information with regard to all interconnects between the Comcast/DC system and any other cable system or telecommunications facility in the metropolitan area: **None.**

description	**transmission media (*e.g.*, fiber, microwave, cable)**	**length (miles)**	**route**	**# of channels**	**uses**

COMCAST/DC'S LINE & DISTRIBUTION EQUIPMENT

zone	*amplifiers (#):*		*power supply units (#):*	
	distribution (trunk type)	feeder (line extender type)	standby	nonstandby
1	78	372	25	2
2	90	433	23	3
3	112	547	37	0
4	61	297	22	0
5	241	1161	69	5
6	81	396	29	0
TOTALS	663	3206	205	10

THIS INFORMATION IS CURRENT AS OF 1999.

LINE & DISTRIBUTION EQUIPMENT

TRAPS

Negative traps:

- Number in active service: **5.**

- Describe the circumstances in which Comcast/DC uses negative traps to control access to cable signals: **To prevent the viewing of HBO, Showtime, Encore, Expanded Basic, and Home Team Sports.**

Positive traps:

- Number in active service: **0.**

- Describe the circumstances in which Comcast/DC uses positive traps to control access to cable signals: **None.**

Describe the point(s) where traps are typically installed at customer locations (*e.g.*, at the tap-off point): **At the point where the customer's drop is located at a tap location.**

AMPLIFIERS

Distribution amplifiers:

- Make(s) and model(s):
  Trunk:
  Jerrold SJAS (SJ-450)
  Jerrold SX (SX-550)
  QRF-550
  Line extenders:
  SJLP (JLP-450)
  SJXBLE (BLE-550 and BLE-750)

- Were most of the system's distribution amplifiers installed during initial construction? **Yes.**

  describe any upgrading of the system's amplifiers since initial construction of the system: **Some 550 MHZ amplifiers have been installed.**

- Describe the return capabilities, if any, of the system's amplifiers: **Currently the system has only 13 miles of active two-way pant. All of the system's amplifiers, however, can be upgraded for two-way operation.**

Provide the following information for each of the 15 longest amplifier cascades on the Comcast/DC system:

location	length (feet)	number of amplifiers
Chestnut/Western Ave, NW	**52,800**	**24**
Oregon Ave, NW	**50,600**	**23**
Vebana St, NE	**46,200**	**21**
18th St & Maryland Ave, NE	**46,200**	**21**
4500 Clarke Place, NW	**46,200**	**21**
5800 Potomac Ave, NW	**46,200**	**20**
19th St, NE	**46,200**	**21**
1232 Trinidad St, NE	**46,200**	**20**
1212 Florida Ave, NW	**41,800**	**19**
7532 Eastern Ave, NW	**39,600**	**18**
1471 Roxanna Rd, NW	**39,600**	**18**
3553 Holmead Place, NW	**39,600**	**18**
943 Westminister, NW	**37,400**	**17**
6980 Maple St, NE	**37,400**	**17**
3001 Bladensburg Rd, NE	**35,200**	**16**

Line extender amplifiers:

- Provide the following information for typical line extender amplifier runs:

  average length (feet): **1,300.**
  number of amplifiers per run: **3.**

- Provide the following information for the longest line extender amplifier run in the District:

  location: **PS 251.**
  length (feet): **7,200.**
  number of amplifiers in the run: **6.**

POWER SUPPLY SYSTEM

Main power supply system

- Make(s) and model(s) of power supply units: **Alpha AM60.**

- Were most of the system's power supply units installed during initial construction? **Yes.** describe in detail any upgrading of the system's power supply system since initial construction of the system, including the dates and percentage of the system's power supply units affected by each such upgrade: **Power supply is currently unchanged.**

- Assess the reliability of local commercial power: **Is usually adequate and is the cause of 7% of outages in 1998. Restoration at times is long and time consuming.**

- Identify geographic areas where outages are the most frequent: **Zone 5 (Georgetown/Upper Northwest).**

Backup power supply system:

- Describe the parts of the system that are served by backup power (*e.g.*, main trunks, feeder networks): **The headend, trunk and feeder systems.**

- Number of batteries per backup unit: **3.**

- Describe maintenance procedures for checking and replacing back-up batteries: **Monthly inspection of power supplies are performed by the system technicians. The battery voltage is checked with a volt meter; any not meeting the specs are replaced.**

STATUS MONITORING SYSTEM

Is the Comcast/DC system equipped with a status monitoring system of any sort? **Yes.**

- If so, describe the reach of the status monitoring system (*e.g.*, optical nodes, amplifiers, power supply units) and the number of transponders in the system: **13 points in the system are currently monitored at the end of a trunk run. 1 unit is utilized as the rotating monitoring device.**

- If so, specify the date this system was installed _____ and the date this system was activated: _____

COMCAST/DC'S FIBER AND COAXIAL LINES

zone	*fiber optic miles:*			*coaxial cable (450 MHZ) miles:*		
	under-ground	aerial	total	under-ground	aerial	total
1	6.90	0.00	6.90	30.65	90.85	121.50
2	7.11	0.00	7.11	36.54	105.65	142.19
3	0.00	0.00	0.00	55.27	133.63	188.90
4	6.89	0.00	6.89	30.09	72.76	102.85
5	2.75	0.00	2.75	121.86	284.53	406.39
6	4.24	0.00	4.24	33.16	96.29	129.45
TOTALS	27.89	0.00	27.89	307.57	783.71	1091.28

COMCAST/DC'S FIBER AND COAXIAL LINES: total fiber & coaxial cable lines

zone	under-ground (miles)	%	aerial (miles)	%	total (miles)
1	37.55	29.24%	90.85	70.76%	128.40
2	43.65	29.24%	105.65	70.76%	149.30
3	55.27	29.26%	133.63	70.74%	188.90
4	36.98	33.70%	72.76	66.30%	109.74
5	124.61	30.46%	284.53	69.54%	409.14
6	37.40	27.98%	96.29	72.92%	133.69
TOTALS	335.46	29.97%	783.71	70.03%	1119.10

THIS INFORMATION IS CURRENT AS OF 1999.

OPTICAL CAPABILITIES

OPTICAL NODES			
location	**number of homes passed by the node**	**make & model**	**installation date**
7th & Constitution	**33,786**	**Harmonic Light-wave 3830**	**6/98**
27th & Penn Ave., SE	**30,900**	**Harmonic Light-wave 3830**	**6/98**
Shannon Place, SE	**37,047**	**Harmonic Light-wave 3830**	**6/98**
21st & M St., NW		**Harmonic Light-wave 3830**	**10/98**
13th & Otis St, NE			**12/98**

- Describe how the Comcast/DC system's optical nodes are powered (include a description of any special powering requirements or equipment): **Alpha standby power supply.**

- Describe status monitoring equipment, if any, for optical nodes: **None.**

FIBER OPTIC CABLES

- Number of fiber strands per node: **4.**

  number of strands per node in service and the use of each strand: **1 primary, 1 secondary, 1 return, and 1 spare.**
  number of strands per node reserved for future use: _____

- Describe the main routes for the system's fiber optic cables and the year each was installed: **Fiber leased from Bell Atlantic.**

- Describe Comcast/DC's plans for deployment of additional fiber optic cables, including the areas to be served and any planned reduction in size of node service areas: **Undetermined at this time.**

OPTICAL TRANSMITTERS

Describe extent to which and circumstances in which optical signals transmitted from the headend are split and distributed to more than one optical node or other optical redistribution point in the network: **N/A.**

Optical transmitters in the headend:

- Make and model: **Harmonic Lightwave 4700.**
- Number: **8.**
- Number of nodes served by each transmitter: **1.**

Optical transmitters in the network: **0.**

- Make and model: _____
- Number: _____
- Number of nodes served by each network transmitter: _____

PEG SERVICES

Describe any studio or production equipment provided by Comcast/DC to area institutions for PEG use (*e.g.*, vans, cameras, editors, decks, modulators, transmitters):

user	equipment
public access	**video cameras, video switcher, character generator, audio board, video decks, video monitors, microphones, lights, and lighting board**
District government	**N/A**
DC public schools	**N/A**
DC public libraries	**N/A**
University of the District of Columbia	**N/A**
other public institutions	**N/A**

Describe any financial or other support provided by Comcast/DC to PEG institutions or in the PEG area:

1% of gross revenues are provided annually to public access corporation. One full-time local access coordinator serves needs of public access.

List all District and other public buildings, including schools buildings, connected to the Comcast/DC system:

facility/office	address	list all free services provided at each location
DC public school list	**See attachment C**	**free basic (and/or expanded basic)**
Government offices	**See attachment C**	**free basic (and/or expanded basic)**
Fire and Police Departments	**See attachment C**	**free basic (and/or expanded basic)**

SPECTRUM ALLOCATION

Downstream frequencies:

- Frequencies and total channels (6 MHZ slots) activated and in use for analog service: **63 analog channels.**
- Frequencies and total channels (6 MHZ slots) activated and in use for digital service: **ch. 29 = 253.25 MHZ; ch. 30 = 259.25 MHZ; ch. 31 = 265.25 MHZ; ch. 32 = 271.25 MHZ.**
- Frequencies and total channels activated but not in use: **0.**
- Frequencies that are not usable: **487 MHZ.**

Upstream frequencies:

- Frequencies activated and in use: **20-26 MHZ = @Home; 30-36 MHZ = telephone.**
- Frequencies activated but not in use: **5-20 MHZ; 26-30 MHZ; 30-40 MHZ**
- Frequencies that are not usable: **N/A.**

Guardband frequencies: **75-25 MHZ; digital navigator data.**

TRUCKS AND VEHICLES

type	number	uses	additional information
supervisor's vehicles	**16**		
standard installation & service vehicles	**97**		
bucket trucks	**9**		
construction utility trucks	**2**		
mobile vans	**2**	**assigned to TCI Rebuild Group**	**Media Services**
other (car)	**1**	**construction**	
TOTALS	**127**		

APPENDIX B:
SUMMARIES OF INTERVIEWS

SUMMARY OF INTERVIEWS

SUMMARY OF INTERVIEW: COUNCILMEMBER A

October 15, 1999, 3:00 p.m.

PAST PERFORMANCE

- Councilmember A has heard nothing but complaints about Comcast/DC's service. District residents tend to hold the view that "if I had an option I'd switch in a heartbeat." "No one has anything good to say" about Comcast/DC.
- Complaints include:
  - not being able to get through to a customer service representative on the telephone;
  - not being able to get discrepancies in bills resolved;
  - poor signal quality for over-the-air broadcast stations (the signal for channel 4 is irregular in the Councilmember's ward);
  - failure of technicians and installers to show up after the subscriber takes a day off of work to have cable installed or fixed;
  - District residents complain that "rates are too high" but Councilmember A noted that perhaps they would not feel this way if they were receiving better service.
- Councilmember A said that the local partners [DCI's shareholders] should be held accountable for past performance problems and "the lawyers should look at" how this compensation should be obtained.

COMPETITION

The District's policies should be pro-competitive,

- Councilmember A expressed the view that it is time to relinquish local ownership requirements in a new environment of competing service providers. In such an environment, it is no longer critical to maintain local ownership.
- Councilmember A noted that it would be difficult in a competitive environment to negotiate a new franchise "the way we did" the existing franchise.
- Policies should be established to ensure that the local infrastructure is not "dug up every day."

- Councilmember A's view is that "everyone should pitch in in an equal way" but contributions could be made in the form of fiber optic lines for the District's I-Net or dollars.
- Councilmember A expressed support for the establishment of open access requirements for unaffiliated ISPs.
- Councilmember A favors continuation of regulation in a competitive market while noting the importance of providing a way to cover the costs of regulation. In Councilmember A's view, the cost of regulation should be shared by all providers.

PUBLIC AND COMMUNITY SERVICES

Government Channels:

- Councilmember A expressed the view that the government channels (13 and 16) "are very valuable." They are "extremely valuable in informing the citizens" about local government. Councilmember A noted that the government channels played a role in influencing the outcome of the 1998 elections.
- Councilmember A believes that the government channels "should be improved" from "the transmission, the production, [and] the presentation." All are "amateur night and we could present more professional video."
- Councilmember A is interested in providing more information about District services over the cable system. If combined with Internet provisioning, this application would be "even more helpful" for District residents.

Public Access Channels:

- While not watching the public access channels on a regular basis, Councilmember A expressed the view that "they perform a service" but that program quality is "spotty." Councilmember A believes that the channels "ha[ve] not taken off the way [they] might have." This is in part due to the fact that PAC has not promoted them enough. There are a lot of young people in the District who would be interested in learning about the availability of PAC's technical training programming, but PAC does not advertise this service in *City Paper*, a newspaper widely read by younger District residents. "Someone could do an article" on the public access opportunities available. PAC should do a better job of promoting its programs and service offerings.
- Councilmember A noted that "we need to figure out how in a com-

petitive environment to protect the public access channels." "Everyone should make a contribution" in a competitive environment.

Educational Channels:

- Councilmember A expressed support for educational access channels but also noted the need to ensure that they are appropriately utilized. The existing educational channels have not been well utilized. The school system is hardly using the channels that it now has.
- Councilmember A expressed support for the deployment of high-speed Internet access in the schools, noting that such a service is "a very good thing to look for."
- Councilmember A noted that the schools already have access to the e-rate for telecommunications services and that "augment[ing] that makes sense."

Institutional Network:

- "We definitely need to get into that [providing a separate I-Net for the District]." Thinking "grand on this," Councilmember A stated that the District should establish an I-Net and be able to lease bandwidth to third parties.
- Councilmember A noted that the District is at fault for failing to enforce franchise requirements concerning the building of an I-Net in the existing franchise.
- Councilmember A's view is that the District is not currently receiving proper compensation for use of the public right-of-ways from the District's various franchisees. There is an opportunity to require all service providers to contribute to the financing and/or the building of a fiber optic network to be controlled by the District.
- Councilmember A noted the need for the establishment of "a tech city fund" into which all new players, including competing local exchange carriers (CLEC), Internet service providers (ISP), and OVS players, should "pay[] to play to develop a high-tech infrastructure for the city."

SUMMARY OF INTERVIEW: COUNCILMEMBER B

August 18, 1999, 2:00 p.m.

LOCAL EMPLOYMENT REQUIREMENTS

- Councilmember B would like to see local workforce requirements in the next cable franchise
  - To create more jobs for District residents; and
  - To ensure quicker response to service requests by the cable operator.

PUBLIC AND COMMUNITY SERVICES

General:

- Improve the facilities of PEG providers and actually make the facilities available to community members;
- Increase ability to cover events at remote sites;
- Increase coverage of local events, including ANC events and public rallies, using a C-SPAN-like format; and
- Reserve channels for future PEG use to respond to new local initiatives to produce and provide more PEG programming.

Specific Institutional Needs:

- Schools and Universities:
  - Provide a two-way broadband network which serves the public schools and local universities;
  - Connect all public schools together by a broadband network for internal and external communications;
  - Connect all local universities together by a broadband network to share information, with connections to the cable system so that District residents can have access to in-home distance learning opportunities; and
  - Provide wires and equipment in the public schools for high-speed access to the Internet.

- Public libraries:
  - Provide a two-way broadband network which connects all the public libraries together for internal and external communications; and
  - Provide high-speed Internet service in the libraries; and
  - Connect all libraries to the cable system for improved communications to the public.
- DC General Hospital:
  - Connect DC General Hospital to the cable system so that patients can receive cable service and the hospital can communicate with the public;
  - Provide a two-way broadband network which connects DC General's main facility to its neighborhood and school-based health clinics and will support development of community-wide patient databases.
- Transportation:
  - Provide a two-way broadband network that will facilitate and support an intelligent transportation system;
  - Provide a channel on the cable system to be programmed with local transportation information;
  - Computerize the traffic system, including smart traffic lights and remotely programmable road signs; and
  - Consider providing computerized schedules and bulletin boards at bus stops which would inform District residents of such matters as the time at which the next bus will arrive.

SUMMARY OF INTERVIEW: COUNCILMEMBER C

July 12, 1999, 10:00 a.m.

PAST PERFORMANCE

- Councilmember C's office has received complaints from constituents about service problems. These include that it sometimes takes "days" for the company to answer the phone. In fact, one constituent reported that she could not get an answer for four days.
- Signal quality on channels 4 and 9 is a problem.
- There are problems in initiating service. It is difficult to get a Comcast/DC person on the phone and then to the home to do the hook up.
- Billing problems are numerous, ranging from no bills to erratic bills to late payments fees that bear little relationship to the administrative costs of collecting late payment.
- "The biggest thing is paying for and getting lousy reception."
- The packages of programming services do not reflect subscriber interests. A greater diversity of programming channels should be available.
- In general, Councilmember C's constituents are very unhappy with the service provided by Comcast/DC.

FUTURE COMMUNITY NEEDS

- The District is the nation's capitol and is a community which needs access to all available technological options.
- Future community needs include wiring the public schools and obtaining high-speed Internet access for them. It is important to get Internet and other services into the schools.
- The libraries should be connected to the cable system. E-mail accounts should be provided for community residents through the public library system. The main library in Councilmember C's ward was recently equipped with new computers that are always in use. Anything the District government can do through the franchise renewal process to increase the number of computers in the libraries for Internet and other uses would respond to unmet community needs.
- All areas of the District should be wired for cable. A number of neighborhoods in Councilmember C's ward are still unwired.

SUMMARY OF INTERVIEW: COUNCILMEMBER D

May 20, 1999, 3:00 p.m.

COMPETITION

- Deregulation is generally the right approach to cable television. Unleashing the power of the competitive market is key. What really matters is providing District residents with access to bandwidth from multiple sources. Who provides the bandwidth is not important.
- In a competitive environment, a reduction in the budget for the District's Office of Cable Television and Telecommunications (OCTT) might be warranted.
- A level playing field should be established for all cable providers in the District. One option would be not to ask for public services and simply to allow competition to respond to community needs. A pro-competitive policy might also rely on a gross receipts tax instead of a franchise fee.

PUBLIC AND COMMUNITY SERVICES

- Public access could be provided via a grant from the Mayor's office through a competitive process (instead of earmarking a percentage of funds for PAC), with no predetermined organization designated to receive public access funds.
- Future community needs include securing broadband capacity for District use in accordance with the goals established by the Office of the Chief Technology Officer (OCTO) (*e.g.*, 24 dark fibers). The District could realize major cost savings by establishing such a network (the District's Bell Atlantic bill is currently about $35 million a year).
- GIS should be implemented to enhance the District's ability to develop itself as a database arbitrageur. Departments that could utilize GIS include the Department of Public Works, the Police Department, the Department of Consumer and Regulatory affairs, and the Treasurer's office. There is strong interest in a District-wide GIS program, with the National Capital Planning Commission taking a leadership role. Federal agencies, including the State Department and the Defense Mapping Agency, are also interested in participating in the GIS program.
- Public-private partnerships should be fostered and encouraged. An

example of such an arrangement is the Link and Learn Partnership sponsored by Microsoft. This operation is based at Waterside Mall and provides a computer lab and free workshops for community residents to learn how to use computers.

SUMMARY OF INTERVIEW: COUNCILMEMBER E

July 23, 1999, 3:00 p.m.

PAST PERFORMANCE

General Concerns:

- Councilmember E's office has not received a lot of cable-related calls recently but has four key concerns with regard to Comcast/DC's performance:

  1. Constituents have complained about the poor quality of the installation work done by Comcast/DC.
  2. Comcast/DC does not provide an adequate selection of programming; the programming provided is "not the right selection."
  3. Rates are too high.
  4. The quality of signal reception is poor.

Public and Community Services:

- The quality of the signals for channels 13 and 16 is particularly poor.
- There are problems with remote control operations for these channels. Sometimes OCTT's production staff does not put the correct name of the person on the screen.
- There is a clear community benefit to maintaining the PEG channels but also a clear need for improvement in quality of these services.
- Public access has provided some shows over the years that make the channel worth keeping. "It's a public resource, an opportunity, worth keeping."
- The proposal by WETA to use one of the public access channels for its own purposes was not a good idea.
- Capital funding should be provided up-front for public access.

FUTURE COMMUNITY NEEDS

Public and Community Services:

- An institutional network for the District is "worth pursuing" in the renewal process.
- The District should "go after as much as [it] can get" but also should prioritize its needs.
- In the past, the public schools have tended not to take advantage of computers and other equipment provided to them by the District.
- While it is important to provide high-speed Internet "access for the kids," the "best technology" in terms of equipment is not as important for schools kids as it is for government offices.
- Hook-ups to the cable system are essential for schools. The schools should all be connected to the cable system, and the school buildings should all be interconnected.
- The public schools may not be able to obtain access to high-speed Internet service if it is not provided free of charge by the cable operator.
- In terms of relative priorities, greater priority should be given to the public libraries than to the schools. The libraries are a resource for the entire community. The libraries are experiencing a budget crunch and unless the cable operator provides the necessary connections and free service, the libraries probably will not be able to provide critical services to the community in the future.
- Establishing a smart broadband network to automate the District's transportation system and provide other public services "should be on the table" during franchise renewal discussions.

Other Issues:

- The District should establish local workforce requirements and require a local presence by the cable operator.
- The franchise should include an explicit requirement that a production studio be located in the District.

SUMMARY OF INTERVIEW: COUNCILMEMBER F

July 20, 1999, 9:00 a.m.

PAST PERFORMANCE

Councilmember F states that Comcast/DC has "lots" of "serious performance problems." Constituents generally have "bad feelings" about Comcast/DC. Among other things, it has not complied with its franchise obligations. Performance problems include:

- Constituents have been offered cash bribes by installers to receive premium channels at no cost. Comcast/DC does not complete proper background checks on its installers and service technicians. A Comcast/DC installer recently robbed a Safeway and murdered a man walking his dog in the neighborhood of the Safeway.
- Service technician had to come to Councilmember F's house three times to complete a repair.
- Comcast/DC's handling of telephone calls is "ridiculous."
- Constituents have reported billing problems. It was a "fiasco" in 1998 when Comcast/DC changed its bills.
- Constituents are very dissatisfied with cable rates, viewing them as "exorbitant."
- Constituents are very dissatisfied with programming options. The basic service package is "too limited." The subscriber does not have much choice. The programming services included in the basic service is more limited than that offered on many other cable systems in the area.
- The system carries too many home shopping networks. Some could be dropped from the basic tier and replaced by ESPN2 and Comedy Central.

FUTURE NEEDS

- Councilmember F would like to "go beyond issues tied to franchise renewal" as it is essential that the District deal with the "new paradigm." Broad policies governing municipal right-of-way regulation should be researched. It may be that the District needs a new law. The District should explore all possibilities and look at other alternatives to cable franchising.
- The top priority should be to figure out how to bring good cable service to the District; a secondary priority is the creation of more jobs in the District.

- There is a great deal of value in "having an I-Net" for the District's use.
- Computerized operation of traffic signals in the District would be "wonderful."
- The District should establish a better web site and develop web-based applications for community services.
- The District's database should be integrated into a single database. There are, for example, major problems associated with the school system having one system for administrative matters and another for academic matters.
- Access to high-speed Internet service in the schools would be valuable for the community.
- The government access channels are "terrible" and should be improved and enhanced. "Signal quality is very poor." OCTT "needs to be more aggressive and professional in the operation of its channels." Perhaps consideration should be given to consolidating the two government channels to save money.

SUMMARY OF INTERVIEW: OFFICE OF CHIEF TECHNOLOGY OFFICER (OCTO)

June 7, 1999, 9:30 a.m.

FUTURE NEEDS

The District's cable-related needs include:

- Franchise fee of 5% of gross revenues (including value of free services);
- Requirement that the cable operator (and other users of the District's right-of-way) provide at least 24 pairs of lit fibers to the District (and use of half of any new bandwidth) for its broadband network;
- Full fiber connections to each of the District's 541 locations and any new District location established in the future, with each fiber connection made to a point of demarcation inside each District building;
- Right of the District to sell or lease bandwidth on the this broadband network to third parties;
- Two 5ESS telephone switches;
- Incremental increases in PEG facilities, including at least a 50% increase in PEG channel capacity and closed circuit channels on the residential network for videoconferencing;
- A short term for the franchise; and
- Full OCTO participation in all stages of the franchise renewal process.

BACKGROUND

For more than 10 years, the District effectively disinvested in technology. It engaged in no real planning during that period and did no systematic acquisition of technology. Because of this practice, the Y2K problem was particularly challenging for the District, especially with the late start (in June of 1998 when OCTO first began to operate and to develop citywide technology policies for the District).

A new broadband infrastructure is essential in order for the District to become Tech City. The number of technology-related businesses in the region is 3,000 and the number of technology-related employees is 30,000. Three major information service companies are largely based in the District: BET, Qwest and MCIWorldcom. Numerous other high tech companies operate in the region, including AOL, and may very well supplant government as the region's economic engine.

- The District should become the technology capitol of the nation.

- The District should become a City of Access in which information technology supports both economic development and improved access to city services.
  - The District can respond to the needs of the business community by expanding the local economic base and serving as a national arbitrageur of information.
  - The District can respond to the basic needs of District residents by improving government services, providing equal access to technology, supporting the District's children, and rebuilding the District's human service network.
- In order to become a City of Access the District must first: (1) stabilize operations and institutionalize sound management practices; (2) build a District-wide infrastructure; (3) implement District-wide Web-enabled applications on the network; and (4) integrate all District-wide information technology.

Stabilizing Operations:

- The Control Board for the District established a 10-person leadership team and the Chief Financial Operator identified 269 management reform tasks, 12 of which pertained to technology.
- The initial priorities, which OCTO began to implement on June 3, 1998, were to stabilize operations by: (1) ensuring Y2K readiness; (2) updating the District's phones; and (3) establishing a wide area network (WAN). The District completed these activities, essentially stabilizing operations and establishing a foundation for moving forward and developing and deploying an advanced infrastructure:
  - The phone system was updated in 1998-99 by replacing the thousands of rotary phones still in operation. A total of 22,000 ISDN lines with touch tone service were installed throughout the District government.
  - The District built a WAN for Internet and data service in 1998-99 which serves 541 locations. The WAN is now fully operational and includes some fiber backbone and Cisco routers. It delivers signals at 56K and T1 speeds.

Building a District-wide Infrastructure:

- The next step is to build a new District-wide broadband infrastructure that will support voice, video, and data communications and consist of fiber rings interconnecting all District facilities.

- The District is in a unique position in that it combines all features of city, county, and state government. The District should develop a showcase broadband system that provides the highest quality of service at the most cost effective prices and is controlled by the District.
- The District is now paying a high price for service–$30 million per year to Bell Atlantic–and receiving technically limited services in exchange. The District's contract with Bell Atlantic is scheduled to be renegotiated in December, 2000. The District's needs include having the ability to provide service itself if necessary.
- The cable franchise renewal process is critical to the development of the District's broadband infrastructure and implementation of the District's Tech City plans.
- OCTO participated in negotiations with Comcast/DC in late 1998 and early 1999 concerning Comcast/DC's request for District approval of a transfer of control of partnership interests from TCI to AT&T. Those negotiations considered Comcast/DC's failure to comply with franchise provisions requiring the company to provide an institutional network for the District.
- The District approved the transfer of control request without securing any compensation for the District, reserving the question of proper compensation for consideration in the context of the renewal process. According to OCTO's calculations, Comcast/DC should pay the District at least $12 million as compensation for the value of lost service opportunities associated with having access to an operational institutional network between 1991 and 1998.

Implementing Web-based Applications:

- Ultimately, all District services should be integrated and provided via Web-based applications using Internet protocol. In this way, universal access to District data can be readily assured.

Integrating Operations:

- Data operations for all District offices and agencies should be combined and provided over a single all-purpose integrated broadband network. (Under current practices, data is not combined, which means that data pertaining to such essential matters as child abuse and neglect is maintained separately in various databases around the District that are controlled by different agencies and departments (*e.g.*, DC General, the police department, public schools, and the human services department).

- In connection with the Tech City initiative, the District could become an information arbitrageur for the nation, with the District serving as a repository of municipal, county, state, and federal information. The District should be positioned to offer information and content to ISPs.
- The District would integrate information into centralized data bases and establish District-wide data repositories. By example, information gathered by the police and human services departments, the school, and DC General Hospital could be combined and centralized to provide comprehensive data on child abuse.
- Another example of a possible source of integrated data is the District's new Unified Communications Center (UCC):
  - UCC consolidated 911 emergency calls and 311 nonemergency dispatch into a single facility. This facility also includes network operations and the city help desk.
  - UCC could provide a way to assess the performance and responsiveness of the District government by counting and classifying calls and other communications from community residents.

OTHER ISSUES

Tech City Trust Fund

- Currently a "telecommunications" provider need only file for permission to install facilities in the public right-of-way in the District and show that it is a "viable concern."
- A per linear foot charge or a similar charge should be imposed on all telecommunications providers.
- The District should establish a trust fund financed by the proceeds from these and other fees (*e.g.*, 911 fees) to implement Tech City projects for funding.

SUMMARY OF INTERVIEW: DISTRICT OF COLUMBIA PUBLIC SCHOOLS (DCPS) LEARNING AND NETWORK SERVICES, DEPARTMENT OF INSTRUCTIONAL TECHNOLOGY

June 10, 1999, 10:00 a.m.

BACKGROUND

- DCPS's Office of Learning and Network Services is responsible for television in the classroom. This office runs the Instructional Television Fixed Service (ITFS) program for DCPS. This service is distributed to 70 sites in DCPS facilities via microwave and then within each school by wires to the room that is equipped for ITFS. ITFS is not distributed over the cable system.
- ITFS is a microwave service and is transmitted from Penn Center. The National Institute for Instructional Television (NITV) is the actual licensee. DCPS entered into a partnership agreement with NITV in 1984 or 1985 and the service first went on the air in 1987. NITV has similar agreements with other school systems in urban areas. (Federal regulations require that ITFS licensees devote a portion of air time to educational and similar programming.)
- ITFS and DC28 are completely separate operations but were once part of the same division. Now channel 28 reports directly to DCPS's central administration while ITFS is part of the Instructional Technology office. (This office is also responsible for computers for the schools.)
- Initially (1984-85), DCPS's ITFS facilities were installed at Comcast/DC's Florida Avenue location. ITFS broadcasts originated at the Florida Avenue location. Later, the ITFS facilities were moved to DCPS's Penn Center facilities where all broadcasts now originate.
- In the 1980s, DCPS provided training in video production techniques and scripting. This program was managed by library media centers, a few which are still in existence.
- In the late 1980s and early 1990s, the ITFS channel carried a live production entitled "Math Tips" in which two math teachers discussed math problems with students using a live call-in format. "Math Tips" was a regular program that was carried every day from 4-6 p.m. The staff for the program was excellent, and "Math Tips" was popular with students. The program was discontinued when the office lost virtually all of its funding.
- In 1995, OCTT proposed to develop a broadband network for the

public schools in connection with resolution of a legal dispute with the cable company. OCTT retained William Pohts to develop a design for this network. He proposed establishing a closed circuit channel on the cable system for school use. In addition, his proposal also recommended a second cable drop and a single TV/VCR/cart package for each school building. This plan was never implemented.

- In 1995, DCPS assembled data on all technology in the department but the data was not compiled or analyzed. Over the years, there have been various efforts to develop plans and prepare reports with regard to information technology. These include: "Info Technology Strategic Plan: 1995-1998" (Department of Administrative Services); and "DC Goals 2000" (Department of Education).
- In 1996, DCPS was approached by Bell Atlantic and AT&T regarding the possibility of bringing fiber optic lines into the schools but nothing happened.
- In 1998, Comcast/DC stated that it planned to provide high-speed Internet access: "They make overtures, but nothing concrete [happened]."

CURRENT SERVICES AND EQUIPMENT

- Currently, DCPS's ITFS system reaches 70 sites, with 2 dedicated channels (one for elementary school students and one for high school students). DCPS transmits programming 6 hours a day from the Penn Center facility. (Commercial programming is provided by NITV's commercial partners to commercial customers during the remaining 18 hours of the day.)
- ITFS is typically delivered to libraries and media centers in the schools rather than individual classrooms. Very few schools have installed closed circuit systems for the distribution of ITFS service. (Some school principals have used their own funds to build closed circuit systems but these schools are the exception.) This greatly limits the usefulness of this service and access to it.
- Individual classrooms are generally not equipped with TV sets or VCRs. Teachers must reserve equipment and arrange to have it moved to the classroom. Alternatively, they may use audiovisual centers for television viewing.
- In 1984, DCPS entered into an agreement with Meyersen Academy in Cincinnati, Ohio, for training programs for professional development, including principal training. This programming is downloaded by satellite dish at the Penn Center facility.
- Each school now has one cable drop but it took a "real battle" to get these drops installed. Comcast/DC claimed that it could not get

access to conduit and therefore did not connect a number of the schools to the cable system until recently.

- Some schools have some video equipment (*e.g.*, one camcorder). Some DCPS schools sponsor video fairs where the students produce 15-20 minute tapes (but the students typically have to find their own cameras).
- The school system's primary focus is on computers rather than television. In the 1980s, every school had one or two computer labs but the program was not maintained because of the staffing costs associated with providing a computer technician for each of the District's more than 160 schools at the time. An aggressive plan is being implemented to place computers throughout the school system, including in the lower grades.

FUTURE NEEDS

- DCPS is interested in wiring all public schools for ITFS and establishing mini-headends in each school. This will give DCPS the infrastructure to provide live in-house programming via a closed circuit network, using a cadre of the system's best teachers.
- In the first phase, 20-30 additional schools would be equipped for ITFS service, bringing the total number of ITFS-served schools to about 100 or about two-thirds of DCPS's schools, and at least six classrooms would be wired per building. In the next phase, all schools and classrooms would be connected for ITFS service. A cable drop would also be added by the wall mount which could connect the system into the District's cable system.

SUMMARY OF INTERVIEW: DISTRICT OF COLUMBIA PUBLIC SCHOOLS (DCPS) CHIEF TECHNOLOGY OFFICER

August 5, 1999, 10:30 a.m.

SUMMARY

Using funds from the Bell Atlantic Trust Fund and subsidies provided by the federal e-rate program, the District of Columbia Public Schools (DCPS) has developed a wide area network (WAN) which meets DCPS's short-term data needs but not its long-term needs for heavy data and video traffic. All of DCPS school buildings have been wired and connected to DCPS's administrative headquarters via leased T1 lines and to the Internet. DCPS is interested in developing its own broadband network, with at least 6 pairs of OC3 fiber optic lines per school and the ability to deliver video signals.

BACKGROUND

DCPS established a Chief Technology Officer for the agency in 1998 to oversee and coordinate its information technology and management information systems departments. Its first task is to revamp the data system for DCPS's special education system. This system will track demographics and the needs of special education students and is essential for proper operation of this key component of the school system.

The federal e-rate program currently provides DCPS (and the pubic libraries) with 81% discounts on certain telecommunications costs (*e.g.*, construction and services). These funds can be used to pay for telecommunications services and to acquire facilities from either Comcast/DC, Bell Atlantic, or other providers.

DCPS staff developed an e-rate proposal in 1997 that would have resulted in the building of a WAN for DCPS through a partnership consisting of Comcast/DC, IBM, and Cisco. DCPS examined several proposals, including Bell Atlantic proposals, before recommending the selection of the Comcast/DC-IBM-Cisco proposal. (Bell Atlantic's bid was not competitive in cost or technical terms in part because it was limited as to what it could offer by tariffing requirements.) Under this proposal, DCPS could have received about $30 million in e-rate funding to build a state-of-the-art fiber network for DCPS. This project was ultimately not approved by District officials for various reasons and no request for construction-related assistance was submitted to the federal agency that administers the e-rate program for the FCC. Instead, DCPS opted to submit a simple request for a subsidy for its monthly service charges and continues to receive all of its service from Bell Atlantic, the incumbent service provider.

CURRENT SERVICES AND EQUIPMENT

DCPS has established a WAN which was completed in about 1997 or 1998. Prior to establishment of this network, DCPS wired the schools on a hit-or-miss basis as funds became available. The junior high and high schools were initially wired with 56K connections while the elementary schools were not wired at all.

The existing WAN was established using money provided by the Bell Atlantic Trust Fund. This trust fund was established by the Public Service Commission (PSC) to settle a rate case against Bell Atlantic. The PSC and Mayor Marion Barry encouraged Bell Atlantic to work with the schools and libraries to address their telecommunications needs. Bell Atlantic ended up using trust fund monies to install a network of T1 data lines for the schools while Cisco provided about $2 million in equipment to route signals within school buildings. This Bell Atlantic Trust Fund project evolved into the "IDEALS" project and was used to establish data networks for both the public libraries and schools in the District. In simple terms, this network was created by installing Cisco routers in each school, with Bell Atlantic T1 lines running from each school to a Bell Atlantic SMDS cloud. These networks have limited capability and represent an interim rather than a long-term solution to DCPS's network needs.

The WAN connects DCPS's 150 school buildings together, with each building connected by SMDS T1 lines (these are ISDN-type lines) to a Bell Atlantic cloud, which is then connected to the host site at DCPS's headquarters at 825 North Capitol. From there, signals are connected to Bell Atlantic's Internet cloud via 10 Mbps pipes. Initially eight classrooms in each school were wired with dual category 5 lines, with all classrooms wired by the end of 1999.

DCPS's administrative headquarters has one B class Internet domain license and each school has a C class domain license, which allows 254 computers to talk to each other or be connected to the Internet at the same time. Each school is equipped with an "entry-level catalyst switch" that is provided by the District (through OCTO) and is capable of 10 Mgbs switching, with a capability for 100 Mgbs uplinks. Each school is equipped with a switch; ultimately DCPS plans to install a switch in each classroom, creating switch-on-switch configurations in each school. DCPS will need to replace these 10 Mbps switches in the relatively near future as they are not high end (their estimated useful life is no more than 5 years (through 2003)).

The WAN's data lines are owned by Bell Atlantic rather than DCPS. The Bell Atlantic Trust Fund paid for the cost of installing these lines but does not pay any associated monthly charges. DCPS pays monthly fees to lease the lines, with the help of an 81% subsidy provided by the federal e-rate program. [According to USAC, the entity which administers the e-rate program for the FCC, DCPS is receiving $1,963,000 in e-rate subsidies for telecommunications services and $51,981 for Internet service for a total subsidy in 1999-2000 of $2,014,981. On total telecommunications and Internet costs of close to $2,500,000, DCPS's share is about $472,650.] In addition, DCPS also pays Bell Atlantic about $3,500,000 per year for telephone service.

Computers:

The elementary schools are supplied with Macintosh computers (20-30 per school). The junior and senior high schools are supplied with IBM clones. About $10 million in computers were installed in DC schools in 1998.

FUTURE NEEDS

DCPS's number one goal is to secure increased bandwith for each school. Each school should be able to obtain access to as much bandwith as it needs. Initially, each school should be served by at least 6 pairs of OC3 connections, with OC12 connections (upgradable to OC48) for core "feeder schools." Bell Atlantic is not in a position to provision OC48 lines (Bell Atlantic sells speed and service but does not sell or lease equipment). OC3 lines are the bare minimum required for heavy data traffic and video service. For DCPS, it is essential that DCPS have control over the bandwidth so that it can manage and configure the bandwidth as DCPS's needs evolve and grow in the future. The basic topology for the network could initially be ATM-based (to assure quality) plus OC3 connections to each school, with local traffic routed over dual category 5 lines.

DCPS plans to develop a new e-rate proposal (after considering another round of competitive bids from service providers) when the next cycle begins in late 2000. But to be considered as a possible partner in this next round, "Comcast/DC will have to ramp up their service" as the company is having basic problems in delivering ordinary cable service.

DCPS will also look at alternative ways to secure access to the necessary bandwidth, including microwave-based delivery, and to expand and supplement the basic network that is established. There are OC3 radios now, and it may be possible for DCPS to access ITFS bandwidth (via DCPS's facilities on River Road).

Multimedia:

DCPS is interested in having the ability to provide multimedia instruction to its students. DCPS is interested in establishing a program which ties new technology to curriculum. DCPS would first develop prototypes and establish before and after measurements in order to establish the viability of the new teaching methodology.

SUMMARY OF INTERVIEW: DISTRICT OF COLUMBIA PUBLIC SCHOOLS DC28 (TELEVISION STATION)

April 7, 1999, 9:30 a.m.

BACKGROUND

- DC28 had a 5-person staff in 1993 and a 4-person staff in 1994; in 1999, it had a 3-person staff that did the work of many more.
- All District public schools are connected to the cable system and can view channel 28 in classrooms and media centers that have been connected to the cable system.
- The DCPS schools provide very little classroom training in video production. Roosevelt High School has a class in broadcasting but it is very much an entry-level class. Duke Ellington has a small visual media program. DC28's internship program is the primary way for DCPS students to learn video production.

Intern Program:

- The intern program is the centerpiece of DC28's operations. DC28 recruits interns from the high schools and focuses primarily on students who are interested in learning broadcast journalism. DC28's general manager interviews all intern candidates. All interns must either already be honor roll students or sign a contract in which they agree to become honor roll students. The internship program is promoted on channel 28 and by word of mouth.
- The intern program began with 2 students in 1993 and rose to 22 in 1998 and then 44 in 1999. Interns work at DC28 after school and receive credit for community service hours.
- The intern program is funded by various outside sources, including grants and Summerworks funds through the District, but is not supported in any way by Comcast/DC. DC28 is interested in sponsorships and grants.
- DCPS has "created a monster in a real good way." A number of graduates of the internship program have gone on to very successful college careers in broadcasting and related fields.

CURRENT SERVICES AND EQUIPMENT

Programming:

- Channel 28 is programmed 24 hours a day and delivers programming to all DCPS schools as well as the homes of cable subscribers. This channel responds to educational and information needs of District students and teachers.
- DC28 carries educational programming which deals with science, math, and reading. This includes programming provided by NASA, Sea World Project Oceanography, MCTV (Mass), and TEAMS (San Diego), University of Florida (Project University). DC28 also uses programming supplied by the Navy, Marine Corp News, Army Newswatch, and Air Force News (some 10% of District students are junior ROTC members).
- DC28 alerts teachers as to the availability of programming on channel 28 by sending a weekly schedule to all schools. DC28 also advises teachers of the programming that is available via satellite and tapes that are requested but cannot be shown live.
- DC28 covers school board meetings but coverage is taped rather than live because the board room at 825 North Capital Street is not connected to the cable system.
- DC28 provides a weekly student news show program and one one-hour talk show every two weeks. DCPS students produce about 4 hours of original programming per week.
- Channel One is beamed into some schools over the cable system.

Channel 28's Signal:

- DC28 maintains a record of how many times the signal goes out. Comcast/DC often tries to blame Bell Atlantic for outages. (Bell Atlantic provides the fiber connection between DC28's Penn Center facility and Comcast/DC's headend.) It was out for about 5 times in 1998 for stretches of 4 or 5 hours.
- 90% of the programming received by DC28 via satellite is crystal clear when received at DC28's facilities. All the programming produced in-house that is transmitted to the headend leaves DC28 in crystal clear form. Signal quality "gets screwed up" at Comcast/DC's headend. DC28 is powerless to make sure that Comcast/DC's headend equipment is operating properly. If time base correctors (TBC) have been set to manual, for example, they will not automatically make the necessary changes, resulting in signal quality problems.
- Channel 28 is connected to the headend via lines leased from Bell

Atlantic.

- Testing of the emergency broadcast system is only supposed to occur once a week. A testing message appeared on channel 28 during INPUT's visit to DC28 and, according to DC28 staff, it was the second of the morning.

Production Equipment:

- Annual budget for equipment: DC28 had essentially no equipment budget in 1997. Current superintendent and her deputy (Arlene Ackerman and Lois Brooks) have been "very helpful" in supporting the station and providing additional funds for equipment acquisition.
- Ongoing equipment upgrades: DC28 is gradually upgrading is equipment and to the extent possible will invest in equipment with converter switches for later conversion to digital form.
  - On-air programming is being upgraded from pneumatic, 3/4 inch and VHS to SVHS and Betacam, with new graphics and Avid editing. Resolution will stay at about 99%.
  - Graphics are being upgraded. The old character generator (a Commodore, 1969-74 vintage) was recently replaced by a Powerpoint system.
  - 2 new Avid Express editors were placed in service on April 3, 1999. Each is equipped with 2 18 Gb hard drives (the book price for each editor is about $70,000 although the school system received a sizeable rebate on the purchase). DCPS plans to acquire a third Avid editor in 2000 and a fourth in 2001.
  - The dated playback system is being replaced. (It dubbed down satellite programming and could handle 24 hours of programming; it included 4 VHS and 6 3/4 inch decks.) DC28's new system has 5 VHS and 6 betacam decks and 10 VCRs and eliminates the need for retaping. The new system will provide more control and faster logging capability.
- Other equipment:
  - Of the 4 cameras in service in 1999, 3 are huge pneumatic tube cameras. These tube cameras are ancient, and the tubes cannot be replaced. DC28 also has 1 CCD camera, which is a gift from USO. It would cost about $30,000 to buy.
  - Master control was redone in 1997; the switcher is a versatile Grass Valley switcher.

- The soundboard is capable of handling 8 microphones (it provides audio control for the decks).
- The teleprompter is old (it uses floppy disks).
- DC28's boom mike was donated by USO.
- The recording system is time-based and not digital. The new system will be time-code based.
- DC28 has 2 old editors as well as the new Avid editors. The master control unit can also be used for editing if necessary.
- DC28 has 12-15 computers that are used by the interns to prepare for news scripts.
- DC28's video toaster is old (late 1960s).

Classroom Equipment:

- TV sets generally are located in libraries or media centers in the schools. Many classrooms are not equipped with TV sets or cable TV outlets.
- All the schools were eventually connected to the cable system, but the splits inside the buildings were the responsibility of the schools.

FUTURE NEEDS

- DC28 needs $500,000 for equipment purchases per year.
- At least one additional channel should be assigned to the school system. The second channel could be used, for example, for staff development. It should be equipped so it can operate as a closed circuit channel.
- A link should be established between DCPS's administrative offices at 825 North Capital and the cable headend so that board of education meetings can be carried live on DC28.
- Funding should be provided for training for the DC28 staff. The DC28 staff needs to be able to attend trade shows to see new equipment and services and talk to vendor representatives. DC28 staff also needs to be able to take graduate courses in video production and related subjects degrees (University of Maryland's broadcast program).
- DC28 needs the funds to double its staff from 3 to 6 so schedules can be staggered.
- DC28 needs to establish and implement a new on-air programming system that provides at least super VHS or Betacam quality.
- Channel 28's signal, when delivered to schools and District homes, must be as clean as possible.

- Channel 28 should be distributed on the cable systems serving Prince George's County as soon as possible (68% of DCPS's teachers and staff live in Prince George's County), to the rest of Maryland and to Virginia by the end of 2000, all along the east coast by 2004, and throughout the nation after 2004. Channel 28 should be developed into a showcase channel that reflects the District's position as the nation's capital.
- DC28 needs the following equipment to implement the initial stages of its internal 10-year plan:
  - 6 new cameras (3 studio and 3 field units);
  - a field teleprompter unit, with a laptop computer;
  - more viewing stations so the interns can time code tapes;
  - new players and monitors;
  - new tripods; and
  - 2 new digital editors.

SUMMARY OF INTERVIEW: UNIVERSITY OF THE DISTRICT OF COLUMBIA

April 15, 1999, 10:30 a.m.

SUMMARY

The University of the District of Columbia (UDC) is the main provider of adult education for District residents and, as such, its future depends in part on its ability to provide adult education to the home. UDC views channel 19 as critical to this mission. UDC's future needs include obtaining four channels: (1) a channel for internal academic uses; (2) a channel for in-home adult education; (3) a channel to continue the District's local arts channel; and (4) an audio channel. UDC anticipates a need for a separate a production studio for distance learning, special classrooms for interactive distance learning, other interactive capabilities, and Internet capabilities. Finally, UDC's studio and production equipment is in need of upgrading and augmentation, with a particular emphasis on digital equipment and increased automation.

BACKGROUND

- From 1984 to 1991, UDC did not have a channel on the Comcast/DC cable system. Recommendations for the original franchise agreement included a requirement for a channel for UDC but for some reason this requirement was not included in the final franchise agreement.
- In 1991, Richard Maulsby, then the OCTT's executive director, assigned one of two unused PEG access channels to UDC. UDC began to provide service over this channel, channel 19, in 1991. OCTT provided some initial funds to establish the channel but these funds were quickly exhausted and UDC has been entirely responsible for equipping and staffing the studio since commencement of operations in 1991.
- In 1991, Maulsby became the executive director for channel 19 and served in that position until 1993.
- A fiber connection was established by Bell Atlantic in 1994 and provides a connection from the UDC studio to the Comcast/DC cable system. This was installed to carry a Barry inaugural event and is a leased line for which UDC must pay monthly service charges.
- At one time, channel 19 had a $500,000 budget, 10 full-time staff members, and field production equipment. Channel 19 was essentially wiped out, starting in 1993, as a result of budget cuts associated with the District's financial crisis. Communications was one of the first areas to be cut when the District ordered major cuts in UDC's budget. By 1995, channel 19 was essentially a one-person operation

devoted primarily to selling UDC's radio station, a popular jazz-oriented station. (UDC's radio station was sold to C-SPAN in 1995 or 1996 for $13 million; the proceeds of the sale went to the District government and were not reinvested in UDC.)

- Channel 19's operations are not part of UDC's academic operations and, since 1996, have been housed in the president's office. Channel 19 provides a service to UDC and is not an extension of UDC's academic program.
- UDC has a mass media department but it is separate from Channel 19. Through this department, UDC provides training in public relations, advertising, design, print journalism, and television and prepares students for entry-level jobs. The department's equipment is dated, and the department is attempting to obtain new technology to respond to heavy student interest. On a 1-10 scale with 10 representing state-of-the-art, "The mass media program is at a 1 . . . They don't do any programming on the academic side." "[The mass media department] need[s] equipment."
- About 7 or 8 interns work at channel 19 every semester. The internship program is a community service program and is open to students at other area universities.
- UDC's student enrollment has dropped from 14,000 to 5,000 in recent years. The UDC student body consists primarily of working adults, with an average age of 29. Many of the students in the mass media program also work in related fields in order to enhance their skills.
- Channel 19's mission is "to produce educational programming for distribution locally, nationally, and internationally." This mission parallels UDC's three-point program of teaching, educational proficiency, and community service.
- UDC is a land grant university. Federal law requires that land grant institutions provide community services and, as a result, UDC must be accessible to the public by various means. Channel 19 and associated activities are one way to comply in part with this requirement.
- UDC no longer has much of an infrastructure for continuing education. This was "more developed earlier, before the cuts." With the proper resources, channel 19 could run a continuing education program. In fact, a core component of UDC's mission is adult education.

- UDC made a new commitment to channel 19 in 1998 and the channel is slowly being rebuilt as funds are made available in small increments. The low period for channel 19 was 1995-98.

CURRENT SERVICES AND EQUIPMENT

- The staff currently consists of two full-time and three part-time employees. This staff produces all local programming for channel 19 and manages all channel 19 operations.
- Channel 19 has been carrying the Classic Arts channel since 1998. It began to do so because of its own staffing and equipment limitations and the resulting inability to produce programming. Ironically, the Classic Arts channel has turned out to be one of the more popular programs on the cable system.

Equipment and Facilities:

- The UDC studio is connected to the cable system by a leased fiber optic line that was installed in late 1994 in connection with coverage of an event associated with Marion Barry's inauguration as mayor.
- The loss of signal quality that occurs after the signal leaves the UDC facilities is noticeable. The contrast between the quality of outgoing signal and that of the signal retransmitted on the cable system is significant.
- On a scale of 1-10 (10 being state-of-the-art equipment), UDC's equipment rates a 3 or 4 in terms of the quality.
  - UDC does not have an automatic playback system.
  - UDC has a rotating C and KU band digital satellite receiver supplied by Annenberg. This General Instrument-manufactured equipment receives the PBS signal and all associated digital signals. Annenberg's educational programming is distributed via the same satellite as standard PBS fare with PBS programming transmitted on the horizontal intervals and the Annenberg programming on the vertical intervals.
  - The Classic Arts channel is received via a satellite antenna.
  - All production and editing equipment is 3/4". The editing equipment is dated Grass Valley Group equipment.
  - The studio is professionally equipped and organized and equipment and includes three chip cameras.
  - UDC recently acquired two Avid digital editors (October of 1999).
  - Channel 19 recently acquired four new Sony Trinitron monitors (for monitoring the Annenberg, Classic Arts, preview, and actual air feeds).

  - UDC recently purchased new Scala software and associated equipment to professionalize the channel's image. It includes a modem which enables UDC to transmit its Internet page over channel 19.
- Channel 19 does not have any source of funds other than what UDC provides to it each year from its operating budget. In 1998 and 1999, channel 19 received $70,000 each year from UDC to acquire equipment. It is carefully and gradually upgrading its equipment on a piece-by-piece basis.
- In response to a request from Mayor Anthony Williams for an investment plan for UDC, the UDC president submitted a plan in 1998 which recommends spending of $850,000 on equipment for channel 19.

Programming

- The Classic Arts channel runs every day from 6-10 a.m. Annenberg programming runs between 10 a.m. and 4 p.m. The Classic Arts channel runs again between 4-7 p.m. UDC programs run from 7-11 p.m. "The Classical Arts channel [] is a big hit in ward 3 in particular."
- Annenberg used to provide funding for many public broadcasting productions in the 1980s and 1990s. Annenberg was not satisfied with the way PBS was using the programming to make money. Annenberg then entered into a partnership with Harvard University and developed noncommercial adult education programming, which is distributed via satellite from 10 a.m.-10:00 p.m. Monday through Thursday and Saturday. It is high-quality adult education programming that is developed in the Boston area. UDC has secured the legal right to use PBS's adult learning service but cannot run it on the cable system during all the hours it is actually available because of competing community interests in the Classic Arts channel and UDC's original programming.
- Annenberg's programming comes in on the vertical blanking interval of the PBS satellite feed.
- The amount of original programming currently being developed by UDC is "more than when 12 people were here" because the small UDC staff has figured out how to be efficient, using students to provide supplemental assistance.

FUTURE COMMUNITY NEEDS

- UDC is a provider of adult education services and needs the resources to fulfill that mission. The District should provide the support needed to fulfill this mission. "[UDC is] clear on what the residents served by UDC need. We need a better educated adult population." UDC is, in many respects, a trade school. Its future depends "on being able to offer our programming to the home." Channel 19's goal is to be the adult education channel for the District.
- UDC's access operations will remain a small operation, with a small number of high-quality employees (whose compensation should be commensurate with high-level training and skills) and access to the "right technology." With such an arrangement, UDC should be able to produce more programs than is now possible because of the limited capabilities of the equipment currently available to UDC.

Channels:

UDC needs at least three video channels and one audio channel on the cable system: (1) a channel for internal academic use (for sharing programming with area schools and universities); (2) a channel for adult education programming; (3) a channel to continue the District's local arts channel; and (4) a separate channel for audio service (to be able to carry live audio service, including UDC's jazz program). The ability to carry classes live on the cable system is also important, which means that fiber links should be established between some UDC classrooms and the cable system.

- One channel is needed for internal academic use (*e.g.,* to send programming to District public schools, to UDC classrooms, and to other area institutions). This channel should be equipped for narrowcasting to particular institutions or locations. In the past, UDC provided college preparatory courses in mathematics and science to the DCPS channel (channel 28) but DCPS stopped retransmitting them over the cable system. This was a very successful set of programs for students and could be reinstituted if UDC had the channel capacity and the necessary technical support to transmit this service to the schools or to District homes.
- One channel is needed to deliver adult educational programming to the homes of District residents. With a full-time adult education channel, UDC could transmit the Annenberg channel full time and other course material to the homes of District residents who do not have the time to come to the UDC campus for course work. UDC is further along than other area institutions in the field of continuing education and is fully committed to adult education. Remedial education is also an important element of UDC's mission and could be

provided in the home via cable instead of (or in addition to) on-campus. UDC could also offer advanced courses over the cable system.

- One channel is needed to carry the Classic Arts channel full time. In some respects, channel 19 is now identified with arts programming. The Classic Arts channel provides archived films and videos pertaining to theater, music, and literature. It has become very popular with District residents and is especially popular in ward 3. It is one of the only high-quality noncommercial channels on the system.

Equipment and Facilities:

- Channel 19's goals include establishing a fully automated playback system and converting to full digital operations, including digital playback, by 2001. The studio should be a user friendly system that can be operated by a staff of perhaps as few as two people while still being capable of responding to essential community needs. With full digital recording and editing, a small number of people can produce a high-quality product and students will develop professional skills and new employment opportunities.
- UDC is interested in establishing a separate production studio for distance learning and a special classroom or classrooms for interactive distance learning.
- UDC needs a separate area in the studio that can serve as a studio for faculty and student training without interfering or hindering regular studio operations. Teachers could then have an opportunity to use information technology to expand the reach of their "intellectual property." The need for training for teachers in the use of information technology is significant.
- UDC is interested in providing audio services both over the cable system and the Internet. UDC is interested in replacing the audio facility that was lost when the District government required UDC to sell its radio station in 1995-96. To accomplish this, it will need an audio studio as well as a channel.
- UDC owns a "world-class" jazz library (the Felix Grant Archives). UDC is interested in having the ability to use this collection for both video and audio broadcasting and distribution via the Internet.

SUMMARY OF INTERVIEW: DISTRICT OF COLUMBIA PUBLIC LIBRARY (DCPL)

May 18, 1999, 9:30 a.m.

SUMMARY

DCPL's mission includes harnessing new information technology to enhance its ability to serve as community information centers. DCPL's cable-related needs include:

- Connecting the main library and the 16 other unconnected libraries to the cable system and providing access to cable service in all District libraries;
- Acquiring an access channel on the cable system to transmit community programming to a wider audience, including those who do not visit DCPL facilities.
- Developing a studio and production equipment to produce programming;
- Securing access to interactive and closed circuit capabilities so that it can properly serve underserved members of the community;
- Serving as Internet access centers for the community; and
- Obtaining access to fiber-based communications network owned and controlled by the District that can readily be expanded as future services develop.

BACKGROUND

- The DCPL system consists of 26 library buildings and one other facility:
  - 1 main library (the Martin Luther King, Jr. Library) (400,000 square feet);
  - 4 regional libraries (@80,000 square feet);
  - 17 branch libraries (@10,000-20,000 square feet);
  - 4 small community libraries (@1200-1500 square feet); and
  - 1 kiosk (150 square feet).
- The current budget for the DCPL is $23 million. This amount is "static" this year. A $1 million increase was provided in 1998 for the limited purpose of extending hours at the branch libraries.
  - DCPL has 50% of the book purchasing power it had 30 years ago. The total available for acquisitions each

year is $2.5 million. This amount must cover not only the cost of books but also all subscriptions, including subscriptions to electronic databases.

- Library use: under traditional measures of library use (book circulation), library use tends to fall in areas with low income. DCPL needs to develop strategies to market library services and reach areas of the community that are underserved and are in need of library-type services.

CURRENT SERVICES AND EQUIPMENT

Cable Service:

- The main library (MLK) and 16 of DCPL's 25 branch and community libraries are not hooked up to the cable system. In fact, no libraries in wards 1, 2, and 4 are connected to the cable system.
- The libraries are natural places for the public to have an opportunity to view cable television. The libraries could serve as a place where the have-nots who cannot afford cable service could come and view cable television. As it is, monitors cannot even be placed in the lobby of the MLK Library to show the PEG channels to the public. Indeed, events at the MLK Library are sometimes filmed and retransmitted over the cable system but cannot be viewed any where in the MLK Library.
- The National Cable Television Association (NCTA) has stated that the cable industry plans to wire the nation's public library libraries. Comcast/DC announced that it planned to wire the libraries a couple of years ago. Comcast/DC General Manager Earl Jones advised a DCPL official at a social function that Comcast/DC planned to wire the libraries. Nothing has been done to correct this violation of the franchise agreement.
- The main library has a roof-top master antenna system that receives local over-the-air broadcast stations. The main library does not have an in-house video system. As natural community information centers, it would be easy to place a television set in the main lobbies but many have no cable connections.

Data Service and Networks:

DCPL was recently wired for ISDN-type service and Internet access:

- Bell Atlantic set up a $4 million trust fund to wire the schools and the libraries. It did so only after the DC Public Service Commission gave Bell Atlantic the choice of either paying a refund to telephone customers or setting up a trust fund for area public institutions in order to settle a rate case. Proceeds from the trust fund can only be used to cover installation costs and cannot be used to cover monthly service charges.
- Under this arrangement, DCPL is using Bell Atlantic's SMDS service (switched multimegabit data service) under a 5-year master contract for the District that is administered by OCTO. SMDS is an expandable virtual network that provides ISDN voice and data service. (Comcast/DC, along with the entire District government, was converted to ISDN service for voice and data under the Bell Atlantic 5-year master contract.)
- The MLK library is served by 6 fiber strands running between the floors. MLK is connected by 10 MB pipes to the SMDS cloud and 4 MB pipes to DCPL's Internet server. Each branch library has T1 connectivity to the cloud and the Internet server (*i.e.*, T1 to MLK and then to the cloud or the Internet server).
- Bell Atlantic installed up to 14 data drops in the larger branch libraries. Some of these drops are to be used to access DCPL's on-line catalog.
- Bell Atlantic began to install this system in June 1997, starting by wiring the main library. By early 1999, all the libraries (but not the kiosk) were connected to this new network. All libraries now have access to the Internet via this network.
- The problem with this network is that DCPL leases all the network lines and pays for them through the federally-subsidized "e-rate" program. The size of this discount rises in direct relationship to the percentage of children in a community that are enrolled in the federal school lunch program. In 1998, the District's discount was 81%. Under this program, Bell Atlantic determines the charges; Comcast/DC verifies them to the FCC; the FCC then reimburses Bell Atlantic. The e-rate applies to all telecommunications charges for voice and data, including any new connections. [According to the entity which administers the e-rate for the FCC, the subsidy for DCPL is about $363,000 in the 1999-2000 fiscal year (with $53,000 for Internet access and $308,000 for telecommunications service.] (DCPL's actual expenditures for telecommunications service are

about $189,000 per year, after the e-rate subsidy is taken into account).

- DCPL is concerned that the e-rate may be eliminated because of opposition by Congress and the telephone industry. If Congress dismantles the e-rate program, DCPL would have to discontinue a number of services. The e-rate program "is a very political program. Libraries and schools have been effective so far lobbying Congress." DCPL must apply every year for the money. "If [the e-rate] goes away, [DCPL] literally will have to shut down service or find money from some place." DCPL "can't absorb the cost."
- DCPL's Internet gateway service is also provided by Bell Atlantic under a master 5-year contract between the District and Bell Atlantic administered by OCTO. Originally DCPL was connected to UUnet via T1 lines. This arrangement ended when Bell Atlantic installed the new data network.
- Bell Atlantic also provides $60,000 a year for technology training, which is used to train DCPL staff.
- OCTO is establishing an Intranet (via its WAN) which will connect all library staff together and allow staff to communicate with each other via e-mail.
- With the new network in place, all the rotary phones in the DCPL system were finally replaced by early 1999.

Computers:

- The Gates Library Foundation recently contributed $1 million to upgrade DCPL's software and computer hardware and to make the system Internet friendly. The Gates Foundation also provided 2-year funding for a trainer for the MLK Library.
- Between the new data network and the computer enhancements, DCPL is now Internet friendly.
- The foundation targets low-income areas and has started to move into urban areas. The DCPL system is the only library system in the country where the foundation provided PCs for all the branches. The foundation invested initially in rural America, providing computers for most of the libraries in Arkansas.
- In June of 1997, the foundation installed computers at the MLK Library; by about June of 1998, it had upgraded the computers in one branch library in each of the District's 8 wards; by early 1999, it had completed the upgrade of the computers in all the remaining branch and community libraries.
- The foundation provided PCs, Windows NT Office 97, and other Microsoft applications, CD data, and programs for children.

- The numbers of computers in library buildings connected to the Internet are:
  - 1 computer in the 4 community libraries;
  - 4 computers (2 in the children's section and 2 in the adult section) in each of the 17 branch libraries
  - 6 computers in the 4 large regional libraries
  - 58 computers in the Martin Luther King Library (10 are in the training room and 48 are in public spaces). Computers in the lobby have 15-minute time limit while all others have a 1-hour limit.

FUTURE COMMUNITY NEEDS

General Goals:

- The DCPL libraries are "community centers" where "people come for information." It is important to understand the information access patterns of the unserved population in the District and respond to those patterns through creative applications of new technologies. DCPL should provide a library system which responds to the entire community's information needs. A study was done which showed that libraries tend to respond well to the needs of the middle and upper middle classes but not those of the lower classes. In fact, DCPL's services tend to be more heavily used by the middle class and upper middle classes. DCPL would like to be able to do much more to serve the information needs of the low-income population and other unserved population groups. The information needs of low-income persons tend to be met by means other than the print media, which means new technology-based approaches need to be developed and implemented by DCPL. There is a direct relationship between library use and income, with use rising in relation to income.
- In the future, DCPL's primary mission is "literacy." It needs to enhance its ability to manage information and to provide information literacy for all sectors of the community. For example, the middle and upper middle classes may need assistance in filtering through information on the Internet and in learning how to use software applications.
- DCPL has established a Strategic Planning Committee–the S-TEAM–to develop proposals for the updating and replacement of technology.
  - Goal is to establish 3 or 4 priority areas, with a combination of citywide priorities and local interests.
  - The committee includes about 10 staff members and

will use the branch libraries to reach into the community to seek additional feedback and ideas.

- One goal of this process is to ensure that DCPL "never again is the last to implement new technology." DCPL will attempt "to choose one cutting edge information service and do it exceedingly well. S-TEAM wants to become a pioneer."
- Of particular interest to the S-TEAM is the use of new technologies, particularly interactive video, to reach underserved minority populations in the District.

- DCPL would like to better equipped to respond to the information needs of unserved population groups in the District. For example, it could define the information needs of low-income female heads of households and immigrants and develop new techniques to respond to those needs. In doing so, DCPL must have the information to support other institutions and to disseminate information. For low-income and immigrant families, the schools tend to be the primary providers of content. DCPL can serve as a support institution for the schools and for families. It could develop programming to enhance readiness skills for toddlers. It is essential that information technology reach all strata of society and provide new opportunities for the low-income population and other underserved population groups in the District.

Access Channels and Production Equipment:

- DCPL needs video production and internal and external broadcast capabilities and well-designed space to attract participation in the development of programming content.
- The ability to distribute video information would "allow a whole new venture in marketing library services and working with new groups."

Broadband Networks:

- All 26 library facilities should be linked together for cable and broadband service.
- DCPL is interested in securing full access to a fiber-based communications network owned and controlled by the District. It would like to end its dependence on leased communications lines for financial reasons (the federal e-rate program currently provides deep discounts but DCPL cannot rely on this program on a permanent basis) and for service reasons (the flexibility to develop and expand its communications capabilities as new services are developed and deployed).

- Comcast/DC needs access to closed circuit video conferencing capabilities for training purposes: "We could seriously utilize a closed circuit system to broadcast training to all our branches to maximize the use of their time."
- This interactive closed circuit idea also requires interior designs for library space that "draw the audience in." For example, the ability to post a neon or similar sign in a prominent space that says "Videoconferencing today. Come on in."
- DCPL would use interactive video to bring various sources of information together. DCPL needs to be able to address community needs "interactively and remotely."
- DCPL could designate 5-8 branch libraries as fully interactive sites. Other branches would also be hooked up for passive participation. Using a call-in-type formula, responsive programming could be developed to serve the unserved populations of the District.
- DCPL could provide interactivity facilities for the community. It already sponsors training programs and various events for seniors, children, computer literary, and other matters. "[DCPL has] a tremendous amount of content right now." But it needs new ways to telecast these services and provide them to many more community members.
- DCPL is interested in developing a pilot call-in program that would involve working with and developing the information sources of low-income heads of households in the minority community in, for example, the health care area. An interactive call-in program could be developed with nurse practitioners and pediatricians that was aimed at the low-income population. According to a recent, study the first priority in terms of information needs for members of this population group is information on health and child care. For this information, they tend to turn to mothers, sisters, and health professionals rather than structured sources of information. Their second priority concerns information relating to ensuring neighborhood safety and security. For this information, they tend to turn to neighbors. Their third area of information needs concerns job training and employment opportunities. For this information, they turn to high schools, newspapers, and social service agencies.

Computers and Internet:

- DCPL goal is to have at least twice as many Internet-connected computers per branch library or 8 to 12 (instead of the existing 4) as they are now being used to search DCPL's catalog.
- DCPL would like to be able to more fully utilize the Web. Comcast/DC has established an "excellent" Web page that is graphically interesting and maintained through an office at MLK.
- By January, 2000, DCPL's new on-line system had been activated and has a Web interface. It is now the primary means for the public to access DCPL's catalog.
- DCPL cannot count on the Gates Foundation for additional computers in the future or for upgrades and repairs of the existing computers. The foundation has made no commitment to provide support to DCPL in the future.
- DCPL is interested in having the ability to provide support and training for commonly used software. In particular, DCPL would like to be able to provide remote support for a select number of commonly used software applications. In contemporary terms, the ability to use software is a form of information literacy. This undertaking will require staff expertise as well as equipment and software.
- DCPL has developed minimum standards of computer-related competence for its staff. With the Bell Atlantic training money, DCPL hopes to be able to provide computer training to all members of its staff regardless of their job responsibilities.

SUMMARY OF INTERVIEW: DEPARTMENT OF PUBLIC WORKS (DPW)

July 28, 1999, 2:00 p.m.

SUMMARY

For the Department of Public Works (DPW), cable-related community needs include:

- requiring the cable operator to comply with the District's permitting requirements and other requirements associated with repair and use of the right-of-way;
- obtaining the ability to distribute DPW-related information to the public over cable channels and cable-based Internet services, including traffic information, trashing hauling information, and emergency information;
- obtaining access to a broadband network with interactive capabilities for such services as video conferencing and closed circuit communications;
- developing a District-wide state-of-the-art "smart" traffic and transportation management system for traffic lights and programmable signs;
- providing improved access to up-to-date scheduling and touting information at bus stops and subway stations; and
- obtaining access to enhanced Internet capabilities for improved Web-based operations, including on-line permitting procedures and automated vehicle tracking systems that incorporate GIS and GPS.

BACKGROUND

Right-of-way Use:

- Comcast/DC is the exception to the rule. The current franchise requires the District to repair street damage caused by Comcast/DC and then to seek reimbursement from the cable operator for costs incurred. All other providers must repair street damage themselves. The latter approach is preferred by DPW because it eliminates the delay associated with obtaining government funding for the work and soliciting bids. The Comcast/DC franchise is anomalous and the new franchise should reflect current practices as well as other adjustments that may be needed to ensure that the cable operator completes all necessary repair work completely and complies with all applicable performance standards.

- DPW should have remote access to information about Comcast/DC's construction activities. This is necessary to ensure effective and full implementation of an on-line-based application and permitting process that it is developing.
- Comcast/DC does not currently pay any inspection fees to DPW. Only companies that have agreements with DPW are required to pay these fees. Comcast/DC should be required to pay these fees, and its plant should be subject to inspection in the same way as other providers are subject to DPW inspection.
- Other users of the right-of-way include Metricom, which is installing radio transmitters that are attached to street lights. It has had this right since about 1996-97. A number of other companies have permits to install fiber optic lines in the District's right-of-way.

FUTURE NEEDS

Internet Capabilities:

- Consultants for DPW are working with Pepco to develop a system that would enable utilities and other providers to submit permit applications and provide drawings and maps on-line. This approach would shorten the application time and allow DPW to move to a computer-based system for record storage. Training is underway and a pilot project is providing a test of the system.
- DPW is interested in establishing a more powerful and automated Web site that could be quickly and easily adjusted and updated by DPW staff without having to use a contractor to implement changes in the Web site or its capabilities.

Public Information:

- Government channels should be expanded to carry DPW programming and information. DPW is a major source of information, which could be more effectively and rapidly disseminated to the public via cable channels and cable-based Internet service. Examples of such information includes information concerning traffic problems, construction project and detours, and weather conditions. The information provided could vary from season to or even from area to area. Examples of this type of information include information regarding leaf removal in the fall and snow conditions in the winter, bulk trash removal schedules in particular neighborhoods, transportation detours and construction, and emergency transportation situations. District residents "would welcome this information" especially if were all

accessible via the Internet.

- By integrating with GIS and/or GPS, information could even be provided concerning the location of snow removal and other vehicles.
- The District should provide a 24/7 video channel on the cable system and the Internet which shows traffic flow at well-used roads and intersections around the District or at hot spots on an as-needed basis.
- A video channel on the cable system might be shared by DPW and the District's Department of Public Safety.

Broadband Network:

- DPW is interested in obtaining access to cable-based videoconferencing capabilities for training purposes. With access to such capability, DPW could hook up a group of remote sites and provide in-house training. DPW could also use this capability to communicate directly to all DPW employees on matters of general concern.
- DPW is also interested in having the ability to remotely access a DPW channel on the cable system so that it can transmit a crawl message as needed for such matters as emergency street closings or to announce a temporary change in parking rules or restrictions.

Traffic Control and Management:

- DPW is building a new traffic control system that will be managed by a new traffic control center installed at the Reeves Center at 2000 14th Street. The planning and design stage began in 1999 and is expected to be completed by 2001 or thereabouts. Construction of the system probably will not be completed until the 2003-04 period.
- The District intends to establish a system similar to the traffic operations system in Maryland which will be equipped to monitor, operate, and change the timing of traffic signals throughout the District from a traffic operations center or on an automated traffic-sensitive basis. This will require establishing a computerized system that can respond to changes in traffic patterns and volume along any route or at any controlled intersection in the District.
- Federal highway money is available for this project, which is already "in motion." The total anticipated cost of the project is about $57 million. The federal government has obligated $5 million for the design phase, with a total of $50 million in federal funds ultimately available (and guaranteed) for the project.
- The current traffic light system for the District is dated. Some 1260 intersections are controlled by traffics lights and connected electronically either by twisted pair and microwave. This system was a state-

of-the-art system when it was developed many years ago.

- "We have conduits in place [for a traffic control system]." About 80% of the existing system is in PEPCO conduit while some is in conduit owned by the District. In the next three years (2000-2003), Pepco will be installing new fiber optic lines that will be connected to every street light and placed in every conduit that Pepco owns. (About 40% of Pepco's lines are overhead and 60% are underground). New providers should be required to reserve conduit for DPW for traffic lights and other DPW-related activities.
- Under the plan being developed, DPW would replace all the old cables with fiber optics or other new technologies. Traffic lights and traffic control signs would be integrated and fully automated and synchronized.
- The new system could also include cameras at intersections and other locations. (Local television stations already employ cameras at intersections as does the Virginia Department of Transportation. Montgomery County uses cameras to issue tickets to drivers who run red lights. [The District has a similar system, but it is a for-profit operation run by Lockheed Martin under a contract with the District. The Lockheed Martin network includes cameras at about 35 intersections in the District.] In the District, perhaps as many as 200 sites could be equipped with cameras, including sites where illegal dumping is suspected.
- DPW would like to be able to integrate its traffic signal system with traffic control signs on the interstate highways in the District and the region.
- DPW is interested in coordinating the development of this system with the cable franchise renewal process as a smart traffic control system could be tied into the institutional network planned for the District.
- The District's Office of the Chief Technology Officer (OCTO) is aware of this project. DPW has met with OCTO regarding use of the public right-of-way. DPW does not object to a cost sharing approach if it would improve the District's technological base. OCTO could provide in-kind services and help manage the system.
- Opticon has conducted a pilot project along the traffic corridor near to Howard University Hospital. With this project, emergency vehicles are equipped to change traffic signals by radio transmissions that preempt and change traffic signals in the area so that ambulances and other emergency vehicles can pass through intersections without having to stop or slow down. The technicians had questions as to whether this system should be expanded beyond the pilot project stage.

- DPW's intention is to automate and integrate the District's programmable road signs and its traffic signals. "We can have variable signs now, centrally controlled and programmable at the site." DPW would like to have the ability to program and change traffic signs as well as traffic lights from the Reeves Center.
- Federal Intelligent Transportation System (ITS) funds are already available for the metropolitan area. The State of Virginia, the Metro Planning Board, and the National Transportation Planning Board are managing this project. In 1998, $6 million in federal funds was provided for this region for ITS projects but no funds were allocated for District-based projects. The District is interested in establishing a network of programmable signs that could be integrated with an automated traffic signal management system, operated remotely, and coordinated regionally.

Tracking System for District Vehicles:

- DPW is developing a system to monitor snow operations equipment and to communicate with snow removal vehicles. This would enable DPW to know where the snow removal vehicles are at any point in time and which ones are fully functional. This tracking system could also be used to track other District vehicles, including trash trucks and street repair vehicles.
- The department experimented with a system that used global positioning technology in 1998. DPW is looking into whether there is some underground beacon-type application available. A number of conduits may be available for installation of such a tracking system.
- This vehicle data could be tied to a GIS system, which could incorporate global positioning, with the data accessed via the Internet.

Mass Transit:

- DPW is the District's liaison to Metro.
- The widespread availability of automated information concerning transit routes and schedules would be valuable to the community.
- Messages and other information could be transmitted to bus stops and subway stations for customer use. Touch-sensitive screens could be installed at Metro stations and/or bus stops. A network of kiosks with electronic messaging capability and routing and scheduling information could be deployed. Kiosks typically cost $8,000-15,000; Montgomery County is making heavy use of kiosks in connection with its transportation management system.
- The District has entered into a franchise contract for bus shelters,

which expires in 2003. The vendor has begun to discuss the possibility of integrating technology into these shelters in connection with renewal of this contract. Kiosks or similar technology could be installed at bus shelters throughout the District.

- Automating the school transit subsidy program: Currently DPW manages a $3.2 million program which subsidizes the cost of the bus and rail passes used by students. DPW has established a computerized system which prepares identification cards and sends them to the school for distribution to students. DPW is attempting to move this operation to on-line operations to the extent possible. The current system is labor intensive and requires a lot of paperwork. It will be difficult to fully automate the system as some parents do not turn the forms in ahead of time, which means DPW must handle requests on a walk-in basis. DPW is searching for ways to fully automate the system and make it more reliable, verifiable, and efficient.

SUMMARY OF INTERVIEW: DC GENERAL HOSPITAL

July 23, 1999, 9:30 a.m.

BACKGROUND

DC General Hospital Public Benefits Corporation (DC General) serves the community through a 250-bed public health facility located in Southeast Washington and 156 neighborhood and school-based health clinics. Its primary mission is to serve the underinsured and disenfranchised population of the District. It serves this population through its main hospital facility and a network of health clinics scattered around the District and located primarily in public school building. DC General is the largest public institution in the Southeast quadrant of the District (except for St. Elizabeth's). DC General views itself as a community educational institution as well as a public medical facility. Its goals include providing a full range of mental, spiritual, and physical care for District residents.

Currently DC General has no broadcasting capabilities and an antiquated internal video system and is not connected to the Comcast/DC cable system. DC General's cable-related needs include:

- developing internal and external communications networks;
- providing cable service in all patient rooms and other DC General facilities;
- obtaining facilities and equipment to produce video programming for staff training and community education;
- distributing programming and information through an in-house distribution system as well as over the cable system to District residents;
- interconnecting the hospital and 156 neighborhood and school clinics via communications links to establish an integrated database for community health care and other internal communications capabilities; and
- establishing and providing Internet-based community health education, training, and remote diagnosis capabilities.

DC General's Public Health Network

"[DC General] control[s] all the public health service for the District of Columbia." This "means the schools (nurses), the neighborhood health clinics, and residents coming to the main hospital." The network consists of 148 school-based clinics (all District public schools, including all high, junior high, and elementary schools) and 8 neighborhood clinics. None of DC General's facilities is connected back to the main hospital via broadband or any other communications link that is controlled by DC General or the District. DC General's neighborhood clinics serve large popula-

tions, with the Southwest clinic at 850 Delaware Avenue providing service to over 200,000 patients a year. The main hospital campus consists of 15 buildings.

CURRENT SERVICES AND CAPABILITIES

Access to Cable and Other Television Services: DC General has no connections to the cable system at its main facility in Southeast or any of its neighborhood clinics. Among other things, this means that patients at DC General do not have access to cable service while hospitalized. In about 1996, Comcast/DC offered to wire the hospital for nothing (Comcast/DC claimed the actual cost would be $100,000) in exchange for the hospital agreeing to sign a five-year service contract and to pay for service. Because of cost considerations, this was not a viable option for DC General. An "alternative provider" also approached DC General but did so at a time when DC General was in the middle of a budget crisis and could not afford to enter into a costly service contract for a new service.

DC General has a limited and dated in-house television distribution system. Local over-the-air broadcast channels are received by a rooftop antenna at the main hospital building. (DC General has additional space for antennas on its roof and currently rents space out to a number of commercial providers.) These signals are then transmitted to a small utility closet in the main hospital building (which also houses one rack of 2 3/4" VCRs and other miscellaneous stored items such as paper) and from there via coaxial cables to patient rooms (but not to the intensive care unit). This system allows for reception of local over-the-air broadcast stations in each patient room. The hospital once charged a $2 per day fee for rental of a television set (for maintenance) but the maintenance contract has been terminated and the staff was not certain that a rental fee is currently being charged. The television sets at DC General tend to be old and some are in poor condition.

Up until about 1995, DC General broadcast patient education films over its internal video network. At the heart of this network were 3 VCRs (2 of which are still located in the small utility closet) which were used to provide programs and other video services to patients over one of the channels on the internal distribution network. An old Atari Chyron (character generator) was used to provide information regarding what was to be shown on the channel.

Video Production Capabilities: DC General's internal video production capabilities are almost nonexistent and are primarily associated with the hospital's 200-seat auditorium. The auditorium is heavily used for training doctors and other health professionals but is very poorly equipped for in-housing training and not equipped at all for live broadcasts to external sites.

DC General currently serves as a teaching institute for Georgetown and Howard Universities and sponsors a "grand round"–continuing medical education for credit–every Wednesday morning for doctors. Nurses can also earn continuing education credits through this program. These seminars are not currently videotaped or distributed to any sites outside of DC General.

The auditorium contains a tiny "control room," which is located at the rear of the room and close

to the ceiling. This control room houses two slide projectors (one of which is broken) and a simple stationary camera. The camera is an old security camera. It is fixed (it cannot rotate or swivel) and does not have any zooming capability. In other words, it can only film people at fixed locations on the stage and cannot provide any close shots or audience shots.

The signal from the camera is transmitted to a conference room on another floor where it can be viewed and/or sent back to the auditorium for display on monitors. The staff set up a simple system in the conference room that allows for video signals to be sent back to the auditorium from a VCR connected to a television set. With this set up, the signal can be carried from the conference room back to the auditorium and displayed on to two wall-mounted monitors in the auditorium. There is no editing equipment or equipment for adjusting the signal. The equipment in the auditorium (the slide projectors and the camera) and the conference room are about 25 years old.

Most of the audio system in the auditorium does not work. This means that no music or other sound can be piped into the auditorium. The only portion of the audio system currently in service is a simple and limited portable PA system consisting of speakers and standup mikes on the stage for use by presenters. There are a number of floor audio plugs that could in theory be fed into the control room, but the plugs are all "male" and cannot actually be connected to the control room. (Male-to-female converters are needed to transmit the audio to the control room and are difficult to locate because of the age of the equipment.)

Members of various religious denominations visit the hospital as patients or visitors and represent a large cross-section of the community. Currently the hospital offers both Protestant and Muslim services every day at noon which could be transmitted into the room of patients if there were in-house video production capabilities and distribution channels.

External Broadcasting Capabilities: DC General's external broadcasting capabilities are nonexistent. It does not have an access channel or access to any other distribution channel for reaching District residents in their homes. In fact, not even DC General's 200-seat cafeteria is connected to the auditorium's video system.

DC General has developed various programs which indicate its interest in production.

- DC General recently produced a video entitled "Violence and Recovery from Violence." This production brought various representatives from the city together and involved them in public health education. It involved hospital staff, community members, the press, elected officials, and local television personalities (Maureen Bunyon). Atlantic Video loaned cameras and studio space. The program ran on cable channel 16 and on broadcast channel 32 as well as on radio channels 1450 AM and WOL & WOLB (Baltimore). It was also webcast and was in part funded by a grant from the Kellogg Foundation. (DC General received a $5 million grant from the Kellogg Foundation for

research and community education.)

- DC General also produces a weekly radio program, PCS Pulse, through a contract with a private production company. This project is partially funded by the Kellogg Foundation. PSC Pulse is designed to improve the public's awareness of mental and physical health matters.

Members of the staff described the opportunities for DC General to serve as an interactive community media center. During Breast Cancer Awareness week, for example, several remote sites were established (using equipment and staff provided by the US Department of Defense (DoD) on a temporary basis, and information was broadcast to the chapel, main lobby, and cafeteria

Internet and Data Communications: As of 1999, DC General does not have an Internet web site but is in the process of constructing one. DC General has T1 access and a license for 65,000 addresses. DC General's MIS system "is not up to speed" and does not have the staff to use the existing system. MIS is in the process of upgrading the system to establish a Windows platform.

The hospital is not linked to the neighborhood and school-based clinics for data communications. "The nurses in the schools are the closest to the community." They maintain their own records in their offices in the schools. DC General is "trying to interconnect our computer databases together so that all hospital, neighborhood, and schools records are shared" but this has not yet taken place.

FUTURE NEEDS

DC General has the potential to serve as both a community educational center and a public health institution. DC General envisions becoming a place for broad-based mental, spiritual, and physical care for District residents. It would like to be seen as a source of information and as a place for healthy residents as well as well as sick residents.

To implement this vision, DC General has significant needs for funding for staff, facilities, and equipment so that it can become a community media center. Among other things, it needs two-way broadcasting capabilities and associated production equipment, an access channel on the cable system, a network to link together the hospital and the 156 school and neighborhood clinics for a wide range of communications, and access to a wide range of communications services in all hospital rooms and its 156 clinics.

With proper staffing, facilities, and equipment, DC General could:

- Expand Community Awareness of DC Generals Services through a Public Health Cable Channel: This could be accomplished by transmitting public health information over a full-time cable channel and by video streaming it over the Internet. By programming its own cable channel, DC General could establish itself as a community resource for mental, spiritual, and physical care.

- Provide Cable Service in Patient Rooms and Other Facilities: Comcast/DC currently does not provide cable service within any of DC General's building. Cable service should be available in all patient rooms and clinic facilities.

- Broaden Staff Training: With enhanced internal communications capabilities, training could be provided on a 24-hour basis and could be tailored to accommodate the varied work schedules of staff. Currently it is difficult for employees to get time off to receive training. DC General also has problems "with connectivity" between the 148 schools clinics and DC General's main campus in Southeast. Staff training could also include a job skill improvement program for nonmedical personnel in such areas as computer use and financial systems.

- Initiate Distance Learning for Medical Training and Broadcast Medical symposiums: With broadcasting capabilities, DC General could expand the reach of its training sessions and reach doctors and nurses who are unable to travel to DC General for training. Fully developed Internet capabilities would even allow DC General to deliver these teaching classrooms to a national audience.

- Initiate Remote Diagnosis: It is essential for DC General to develop its own data network and secure financing for staffing, facilities, and equipment for a telemedicine program that can provided remote diagnosis. "We need to build an infrastructure to reach over 156 sites." DC General staff explained the benefits of such capabilities by describing the success of a similar but limited and temporary system established by DoD on DC General's campus in about 1996. DoD ran cables between the hospital building and its breast cancer mobile van for remote diagnosis and the service was well received.

- Transmit Information among the 156 School and Neighborhood Clinics and the Main Hospital Facility: A system linking together all; DC General facilities, including the 156 clinics, could be used to provide health education to both medical personnel and patients and to interconnect all medical records. (The three different points for possible contact by District residents who use DC General resources are school health clinics, neighborhood health clinics, and the hospital itself. The records of these facilities are not linked together.) This interconnection would enable health care providers to obtain access to all the patient treatment records that have been collected at various

public health outlets. For example, school-based nurses could receive information from and provide information to the system, enabling DC General to better identify patterns of child and sexual abuse.

- Provide Access to the Internet for Disenfranchised District Residents: DC General would like to become "a lab for the community to be able to get on the Internet for free . . .We could be a community resource for this sector of District's population for the Internet. If we had the infrastructure here we could provide the resources. . . . We provide a school immunization and a dental program which brings the kids and parents here. They could access the Internet [at the same time]." There is no institution of higher education in the quadrant (Southeastern University in actually located in the Southwest quadrant. "[DC General is] the largest public institution in this quadrant besides the stadium. We are positioned to substitute for the absence of public institutions . . . It means a whole new public mind set about what a public resource the hospital is . . . There is so much potential with the right resources."

SUMMARY OF INTERVIEWS: OFFICE OF CABLE TELEVISION AND TELECOMMUNICATIONS (OCTT)

December 1, 1998, 10:00 a.m.
(followup on January 6 and 26, 1999)

BACKGROUND

OCTT:

- Functions:
  - OCTT's regulatory responsibilities include ensuring compliance with the franchise. OCTT also monitors consumer complaints. OCTT has jurisdiction over cable services while the PSC has jurisdiction over noncable services.
  - OCTT's programming responsibilities include running channels 13 (legislative (council)) and 16 (executive). OCTT also coordinates activities for the public schools (channel 28; JD DiMattio) and UDC (channel 19; Ed Jones). The PEG Partners meet at OCTT the first Thursday of every month at 9:00 a.m.
  - OCTT has 8 full-time staff members, which includes the programming department.

- Finances:
  - OCTT is part of the economic development cluster of agencies.
  - It is funded by the District's general fund and receives an amount each year which is equivalent to franchise fee revenues.
  - OCTT's annual budget is about $2.8 million in FY 1999. ***[OCTT's budget for FY 2001 is $3.5 million; its budget for FY 2002 is projected to be $3.7 million].***
  - The District also receives a 5% franchise fee from Starpower.
  - OCTT would like to be funded and operated more like a self-supporting enterprise fund.

OCTO:

A new office—Office of the Chief Technology Officer (OCTO)—has been established by the District to centrally coordinate the acquisition of telecommunications services and facilities. Its top priority is the building of DC-Net, a fiber-based network that would connect together all District and other public facilities for all forms of communication.

Comcast/DC:

- Comcast/DC is not accustomed to regulatory oversight.
- New general manager (Brad Anderson) has improved Comcast/DC responsive to OCTT requests.
- Relationship is "cordial but strained"; the District has been ignored by Comcast/DC.

Cable TV Advisory Commission:

- Richard Maulsby is the Chair.
- It meets at OCTT once a month.
- Its role is to assist OCTT.
- About 80% of its members are appointed by the mayor.

Franchise Process:

- OCTT ➜ mayor ➜ council ➜ financial control board ➜ Congress.
- OCTT negotiates the franchise, which is first presented to the Mayor for his approval and then to the City Council for hearings and review; the City Council may reject, accept, or modify and accept the franchise; the franchise then it goes to the Control Board for final approval.

Rate Regulation:

- The District regulates basic service rates and associated equipment charges.
- The District challenged the rates charged for expanded basic service in 1997.
- The District has not approved Comcast/DC's 1998 increase in basic service rates although OCTT's law firm says that the new rates are "reasonable."
- Comcast/DC's 1996 rate increase is under appeal.

CURRENT SERVICES AND EQUIPMENT

PEG:

- Municipal Access:
  - OCTT buys its own equipment.
  - It did not receive any equipment from Comcast/DC (only PAC received equipment from Comcast/DC).
  - OCTT needs digital equipment for all operations.
  - As of 1999, the municipal channels have signal quality problems channels, including bad audio. There is leakage on channels 13 and 16, which appears to be somehow connected to this building.
  - OCTT runs 2 studios (and an additional small studio for the lottery).
  - Production equipment was purchased in the early years of the franchise and is dated. ***[OCTT updated its studio equipment in 1999 with state-of-the-art equipment and secured funding for a mobile van in late 2000.]***

- Educational:
  - Channel 28: The school system built its own production facility at Penn Center.
  - Channel 19: UDC has its own on-campus production facility.
  - These facilities should be upgraded to state-of-the-art standards.

- Public Access:
  - The Public Access Corporation (PAC) manages channels 25 and 26. Nantz Rickard is PAC's executive director and has held this position since 1994.
  - Originally 4 channels were assigned to public access but 2 were shifted by OCTT to public schools and UDC.
  - PAC has an office located at 1400 20th Street and playback facilities at 14th and W at the YMCA.
  - PAC has its own equipment and can also use Comcast/DC's equipment

- PAC would like to upgrade to state-of-the art standards. PAC would like to establish a central media center with a common space and individual departments.
- PAC receives 1% of gross revenues every year (about $500,000); PAC also received a one-time payment of $500,000 in 1989.
- PAC is well financed; there is some controversy over whether UDC and the public schools should have access to a portion of the funds currently assigned to PAC.
- Comcast/DC owed PAC money. OCTT had to threaten to revoke franchise in order to get Comcast/DC's attention.
- Kojo NMandi is chair of the PAC's Board of Directors.

I-Net:

- Original franchise required a full-blown I-Net.
- This requirement was reduced in the amended franchise by a Comcast/DC-backed amendment adopted in 1985 but Comcast/DC was still required to lay shadow cable (parallel to the residential network) and to market service to business customers. It was also required to provide 10% of the R-Net capacity to DC for institutional use.
- Comcast/DC laid some I-Net cable but it was never activated and Comcast/DC used what was installed for other purposes.

Service for Government Buildings:

- All District agencies are entitled to one free drop for basic service per agency.
- Comcast/DC provides expanded basic service to original installations but only basic service for new installations.
- Each school building receives one drop per school and then splits the signal within the building.
- OCTT is trying to find out how many outlets have been installed in each government building.
- Comcast/DC has attempted to charge extra to install service at DC General Hospital and the DC Jail in Southeast Washington. Comcast/DC claims that its lines do not pass these 2 facilities. DC General's position is that it should not be required to pay for this

service.

Internet Access:

- The schools and libraries are being wired for Internet access.
- Some funds were provided for this project by the Bell Atlantic Infrastructure Trust Fund (ITF). Marlene Johnson is the Chair of the ITF (she is also head of the PSC).
- InPUT's needs assessment should cover the needs of these institutions and consider ways to build on what they already have. Considerations should be given to the relationship between the current facilities of public institutions and the ability to use them to obtain access to the cable system's updated fiber optic infrastructure.

Customer Service:

- The District has not adopted a consumer protection ordinance although it did adopt the FCC customer service standards in August of 1993. Comcast/DC resisted OCTT's initial efforts to enforce the FCC's customer service standards. Comcast/DC now accepts the fact that OCTT has the right to enforce these standards.
- Comcast/DC has not been "consistent and cooperative" in its dealings with OCTT. Comcast/DC has submitted false data.
- OCTT received more than 3,600 calls between March and November, 1998 complaining about Comcast/DC's failure to answer the telephone. OCTT received 1,551 calls in September of 1998; this number fell to 400-500 calls in October. Service has improved recently. Comcast/DC installed a new phone system in the past two weeks [November of 1998], but shut their lines down for training.
- During Thanksgiving and Christmas, Comcast/DC has shut down as well. OCTT gave Comcast/DC a verbal warning and indicated that it was "not a slap on the hand." After OCTT received 1551 calls in September of 1998, it required Comcast/DC to send a staff person to OCTT's office to help with handling all the calls.
- OCTT will begin asking for raw phone data for each month (From the 1st of the month to the 30th of the month).
- OCTT's customer service representative spends 2-3 hours per day on the phone with Comcast/DC dealing with customer service problems.
- Outages:
  - 13th, 14th, and 16th Street corridors are getting a number of outages.
  - Anacostia is the area where problems are the most serious. Outages in Anacostia. This may in part be the

result of excessive splicing associated with theft of service. Cable theft is a serious problem in the District. A stronger statute is needed as theft of service can cause serious signal leakage problems.

Construction:

- The last report provided by Comcast/DC was for the 1991-92 period.
- Comcast/DC has not provided any updates on construction since then.
- As of 1999, Comcast/DC has not approached the District to advise it of Comcast/DC's upgrade plans.
- There are "question marks" with regard to unwired areas. A number of MDUs are not served. Availability of service in the Foggy Bottom area, for example, is mixed.
- Comcast/DC has a mandatory right of access to MDU properties.

Cable Plant:

- The cable system once included 2 or 3 hubs as well as a headend that was located in Anacostia. [The headend is now located at Florida Avenue, N.W., and the hubs are no longer in operation.]
- The cable plant consists of about 1100-1200 miles, with 250-300 underground miles and the rest aerial.
- The R-Net is a one-way system.
- OCTT has asked Comcast/DC to provide information concerning the value of its services and equipment but has not received this information.
- Rebuild: Comcast/DC says it is going to start to rebuild. The rebuild will be provided as part of renewal. It is getting ready to begin building next month [in January, 1999].
- Fiber Optics: There may be 2 nodes in Southeast and Anacostia.

Interconnections:

- Comcast/DC has not acknowledged the existence of any interconnections to other cable systems.
- Fiber optic lines are being laid for an advertising interconnect. Fiber construction has been spotted in Montgomery County in connection with this advertising interconnect
- Comcast/DC has disclosed nothing with regard to construction.

Technical Tests:

- Comcast/DC did a fly-over to test signal leakage.
- The District has retained, William Pohts, an electrical engineer, to conduct various technical tests:
- Pohts "is going to test the PEG sites."
- Pohts is gathering copies of records of Comcast/DC's technical tests and is retesting Comcast/DC test points.
- Pohts has inspected Comcast/DC's headend equipment, including modulators and transmitters.
- Pohts is checking Comcast/DC's maintenance of its wires and grounding systems.
- Pohts has conducted in-home tests of signal quality.
- Pohts has inspected Comcast/DC's 900 Michigan Avenue headquarters.

Services:

- HGTV was moved from analog service to digital service. This change resulted in more than 100 phone calls to OCTT.
- Comcast/DC removed TNN from the cable system a few years ago and this too provoked complaints by citizens.
- Comcast/DC Removed PPV channels and Sega to implement digital service.
- Comcast/DC attempted to get rid of VH1, running it on a part-time basis. It has since been restored to full-time operation.
- Digital:
    - OCTT has received may be a dozen complaints regarding digital service, with most complaints concerning how long it takes for Comcast/DC to complete an installation of this service.
    - OCTT has also received 5 or 6 complaints about the quality of the service itself.

Converter Boxes:

- Comcast/DC recently changed to a different converter box.
- All the boxes went out during the recent de la Hoya fight. According to Comcast/DC, the problem was due to a switch in the billing system. Comcast/DC said the system did not recognize the new codes associated with the new billing system.

Revenues & Revenue Audits:

- As of 1999, Comcast/DC receives gross revenues of about $50 million from District subscribers.
- The franchise agreement authorizes a yearly financial audit.
- OCTT did a financial audit for 1996 with the assistance of the Inspector General and an outside firm and discovered underpayments of $300,000-400,000.

FUTURE NEEDS

- Building a District-wide optical network that will link together all District and other public institutions for voice, video, and data communications;
- Establishing an umbrella media center for the whole community that would support public access and other community-based media activities;
- Upgrading connections for all PEG operations to the cable system and providing a clean and clear signals for all PEG channels on the cable system;
- Providing state-of-the-art production and other equipment for all PEG users.
- Linking the District's two government channels to the Internet; and
- Compensating the District for past breaches of the franchise and performance problems, including failure to provide an I-Net, failure to comply with franchise requirements governing work force composition, and a history of poor customer service.

COMPETITION

Regulation/licensing of Alternative Carriers:

- The Department of Public of Public Works (DPW) grants permits. DPW's public space department has lead responsibility.
- MFS and TCG have business licenses that were granted by the Department of Consumer and Regulatory Affairs.
- A task force was established to examine how these entities should be regulated but it did not work out.
- Antennas are regulated by the Department of Administrative Services (DAS).
- There is no clear licensing category for SMATV.

Starpower:

- Starpower is currently operating pursuant to an interim agreement (1

year plus a 6-month extension). The one-year term expires at end of 1999. ***[This agreement was subsequently extended until December of 2000 and, since that time, has been operating on a month-to-month basis.]***

- The entry of Starpower into the local market introduces new service and competition.
- The Starpower system is providing 860 MHZ service.
- Starpower has wired OCTT's offices and would like to pick up the PEG channels at OCTT's offices.

Open Access:

- AOL has sought the District's support for an "open architecture" but has not been specific as to what the District should do to ensure that outcome.

SUMMARY OF INTERVIEW: OFFICE OF CABLE TELEVISION AND TELECOMMUNICATIONS (OCTT) DEPARTMENT OF PROGRAMMING (CHANNELS 13 AND 16)

March 25, 1999[1]

SUMMARY

The basic infrastructure for the government channels is dated and needs to be updated and replaced. Advanced features such as Internet video and audio streaming and interactive video servers should be added once this basic infrastructure has been updated. The facilities and equipment for channels 13 and 16, including audio, editing, control, recording, and playback equipment are all out of date. These facilities and equipment should be upgraded to provide state-of-the-art analog and digital production capabilities. Channel 13 should provide increased coverage of the city council while the mission of channel 16 should be broadened to executive branch agencies and other public services. All of these activities require increased and improved staffing and equipment capabilities as well as access to fiber optic distribution lines for remote productions.

BACKGROUND

OCTT's Director of Programming is responsible for operation of channels 13 and 16. A new director has been managing these two channels since February, 1999. The department had 2 full-time staff members in February but an additional 12 production people began work in April, 1999. OCTT works closely with the Lottery Board, sharing personnel and facilities in connection with live video coverage of the lottery.

PRODUCTION AND EDITING FACILITIES

- All the production and editing facilities need to be upgraded. All the equipment is original equipment except that field equipment which includes some newer Betacam cameras. OCTT's short-term goal is to rebuild the basic infrastructure for programming by replacing the existing facilities and equipment, virtually all of which are worn out and dated. The standards for the government channels must be as high as those for commercial channels. Once that new infrastructure

1. Since this interview, the District spent its own funds to upgrade OCTT's studio equipment to state-of-the-art standards, and OCTT now provides commercial-quality programming for channel 16. The District has not, however, upgraded the equipment used to cover city council meetings or acquired closed captioning equipment.

is in place, OCTT can expand capabilities further by deploying advanced production capabilities.

- As of 1999, OCTT does not have any digital equipment. Digital equipment is essential for OCTT's operations but OCTT does not plan to convert entirely to digital operations. It needs state-of-the-art industrial-quality analog field production equipment.
- Studio cameras, which are about 4-5 years old, should be high end.
- The playback equipment is "dated" and all-new playback equipment is needed. The production people shoot in Beta and then "take the quality down to 3/4 inch" because the playback equipment is 3/4 inch. The playback equipment is about 11 years old. The playback system should be upgraded to support Beta decks.
- Current editing equipment is 3/4 inch and Beta. OCTT needs at least 4 Avid digital system editors (2 for on-line editing and 2 for off-line editing). Beta editing equipment must also be retained.
- The audio system needs to be upgraded. Wiring is mono-based and must be upgraded to support stereo.
- The character generator needs to be upgraded.
- The master control room is connected by fiber optic lines to five sites in the downtown area but the connection from OCTT to the headend is coaxial cable:
  - Fiber runs from One Judiciary Center to the control room (one connection is for the mayor's press office and another for the council chambers; several other connections provide links to two hotels and other sites in the downtown area).
  - The are two entry points into the master control room for fiber optic lines.
  - It costs about $14,000 per year per channel to lease a fiber optic line.
- Fiber optic lines also connect the lottery studio to NewsChannel 8.
- The master control and edit suites need to be upgraded to digital. The two control rooms (for the main studio and the lottery) are connected but one of these rooms must be reserved for the lottery. Short edit packages could be done in the lottery control room and longer edits in the master control room.
- OCTT needs a fully equipped mobile van that can transmit from remote locations. (A van of this sort usually costs about $1 million.) ***[The District received a total of $5 million as part of a settlement agreement with AT&T and Comcast entered into in late 2000 with respect to the transfer of the franchise from AT&T to Comcast; $1.6 million of this amount is allocated to OCTT to acquire a mobile van and to provide compensation for attorneys' and consul-***

tants' fees.]

CHANNEL 13 (CITY COUNCIL)

- The council chamber is equipped with four cameras. The cameras can be remotely controlled from OCTT's facilities but cannot be adjusted.
- The city council is interested in increased coverage of its activities. For example, OCTT could provide live coverage of committee meetings or hearings. (OCTT currently provides occasional taped coverage of these proceedings.)
- The format for channel 13 has traditionally been "talking heads." OCTT intends to develop new program formats such as C-SPAN-style interviews. For example, a committee chair could be interviewed with regard to the agenda for his or her committee.
- The council chamber should be equipped with a new character generator and switcher (now character generation is done from OCTT's 14th Street facilities).
- New equipment is needed in order to monitor the council signal from the master control facilities at OCTT's offices. There is no monitor at OCTT's facilities to adjust the council signal. This means that the signal cannot be adjusted remotely.
- Channel 13 will continue to provide full coverage of council proceedings but would like to enhance these offerings by providing more opportunity for feedback. "Citizens want a way to hear and speak to what they see on that channel." An interactive element of some sort should be provided in connection with this channel.

CHANNEL 16 (MAYOR AND EXECUTIVE BRANCH AGENCIES)

- One Judiciary Square is connected to OCTT's facilities by a fiber connection, with a fiber drop to the mayor's press conference room. Live coverage of the mayor's press events is provided by plugging in field cameras. OCTT has improved the quality of the coverage of the mayor's press conferences. For example, the mike is now connected to a mixer, and the lighting is being set up properly.
- OCTT plans to develop channel 16 into something more than just the mayor's channel. OCTT would like to "broaden the focus" of the channel: "It's our job to let citizens know what these [District] agencies are all about." For example, OCTT recently provided coverage of Jackie Flowers, the new small business director.
- OCTT would like to do more than just provide coverage of government events by providing "more programming that is community based." For example, it could provide programming devoted to the

idea of bringing a major league baseball team to the District.

INTERNET

- OCTT has already begun to consult industry people with regard to possible Internet applications.
- OCTT is interested in providing "steaming audio and video" of council and other government events and proceedings. A number of groups, including lobbyists, already rely on the government channels for coverage of government events. Lobbyists, for example, are interested in obtaining access to segments of events. With video streaming, interested persons could just download the segments in which they are interested.
- A "server would allow us to download."
- OCTT would "like to feature more information for tourists and have a connection to the hotel and restaurant association via our Web Page."
- OCTT would like to set up an e-mail system so the public can tell OCTT what it wants and OCTT can more effectively tailor programming to the needs of the public.

SUMMARY OF INTERVIEWS: PUBLIC ACCESS CORPORATION (PAC)

March 5 and 26 and April 8, 1999

CURRENT SERVICES AND EQUIPMENT

PAC Operations:

- PAC's 2 channels (channels 25 and 26) run video programming every day, 11:00 a.m.- 11:00 p.m. (12 hours each), and carry video bulletin board service between 11:00 p.m. and 11:00 a.m..
- PAC has been in operation since February of 1987; it was incorporated in August of 1986.
- The franchise agreement required that Comcast/DC's studio operations begin by March 14, 1987, with first monies provided to PAC by March 14, 1988.

Public Access Channels:

- The franchise requires 4 public access channels and 2 government access channels but the District has moved channels around throughout the term of the franchise. PAC was required to relinquish channel 19 (for UDC) and channel 13 (for the city council), leaving 2 public access channels. The District allocated its 2 channels to the public schools (channel 28) (via a letter by city council representatives) and to the executive branch of the District government (channel 16).
- Technically, channels 13 (city council) and 19 (UDC) are still under PAC's control according to the franchise, which designates them as public access channels.
- OCTT took channel 13 away from PAC in about 1994, which is about the same time as the city council was involved in discussions with PAC regarding a contract for coverage of city council meetings.
- OCTT stepped in and offered to cover the city council, activating channel 13 a government access channel without providing PAC any advance notice.
- No formal documents exist to reflect these arrangements and changes in the franchise agreement.
- In 1998, the Freedom Forum, in cooperation with WETA, asked the District to allow it to take over channel 26 (one of the system's two public access channels) so that it could distribute national "public affairs" programming to District residents. The Freedom Forum has

a $24 million production studio in Virginia and offered to provide youth training and a mentorship program. Fairfax, Arlington, and Montgomery counties were also approached by the Freedom Forum. The city council did not take any action on the Freedom Forum's proposal.

PAC Facilities:

- Franchise agreement does not require that Comcast/DC provide a telecasting facility or to provide upstream connections between any of the PEG studios and the headend.
- PAC does not have its own studio. It has field production equipment, editing equipment, and administrative offices at 1400 20th Street. Playback equipment and personnel associated with the operation of the channel itself are located at the Bowen YMCA on W Street, N.W., near to OCTT's offices and Comcast/DC's headend). PAC bought the field production equipment with its own funds. (There are 4 old editing units at 1400 20th Street).
- The OCTT building was first occupied in 1990, and the original plan was that it would also house both the PAC and OCTT facilities:
  - The OCTT building includes a studio that cost about $2.5 million, was paid for by the District, and has been in operation since about 1990.
  - PAC's space in the OCTT building was reduced to 1,000 square feet and a control room.
  - OCTT would not make a long-term commitment to PAC for studio space (although OCTT was aware that PAC needed space on a permanent basis).
  - OCTT evicted PAC from the OCTT building in 1992 and PAC moved its telecasting facilities to the Bowen YMCA building, which is behind the OCTT building. PAC's offices were on the third floor of the OCTT building. [This space has been unused since PAC moved out in 1992 although OCTT renovated the space in late 1999 and now occupies the space.]
  - OCTT entered into an arrangement with the DC Lottery to use space in the OCTT building. The DC Lottery moved into OCTT's space in 1993.
  - With a change in administration in 1992, a new OCTT director was appointed and the former OCTT director took a new position at UDC and assumed responsibility for development of UDC's studio and channel. He proposed that PAC move to UDC and

share space but pay $25 a square foot plus utilities, *etc.* He proposed that franchise fee revenues be used to pay PAC's rent but the city council was not willing to shift franchise fee revenues to UDC for this purpose.

Comcast/DC's 1% Annual Payment to PAC:

- Comcast/DC underpaid PAC for 4 years (1994-97) (this disagreement has been eventually resolved for the most part but only after extensive efforts over an extended time period by PAC and OCTT to recover the unpaid amounts).
- PAC has no right to audit Comcast/DC's books (it has no "standing"); PAC found out that it was being underpaid only when it found out the franchise fee revenues received to fund OCTT's budget (for 1997-98, the underpayment of franchise fees was about $350,000). PAC had to request an audit of the cable company before it was able to obtain any resolution.
- PAC receives one check per year from Comcast/DC in the first quarter following the close of the fiscal year (the March-April time frame). Comcast/DC does not provide PAC any advance notice as to the actual amount of the payment.
- PAC's fiscal year is July 1 - June 30 so that Comcast/DC payment covers PAC's expenses for the last quarter of its fiscal year (April 1-June 30) and the first three quarters of the following fiscal year (July 1 - March 31).
- The most recent payment (for 1998) was $547,923.32 (Comcast/DC) and $23,222.94 (TCI Media Services).

Comcast/DC's Studio Facilities:

- Comcast/DC opened a small jerry-built studio facility in 1988 but did not meet the March, 1987, deadline specified in the franchise.
- PAC may use Comcast/DC's studio at its Michigan Avenue facility but is only allowed to use this facility 38 hours per week; time must be scheduled in advance by a fax request from PAC. The request must specify the name of the user and the purpose of the use. Problems arise when a user wants to change a schedule.
- Comcast/DC's Michigan Avenue facility is closed on Tuesdays and Sundays. Hours are 1:30-9:00 p.m. on Monday, Wednesday, Thursday, and Friday and during the day on Saturday.
- Comcast/DC's facility does not include any editing or field equipment. PAC supplies all this equipment itself, which is housed at the

Bowen facility and PAC's offices.

- Comcast/DC's equipment is 3/4 inch. When equipment breaks, it takes months to get it fixed.
- It would cost about $50,000 to upgrade this studio by fixing the lights, installing a switcher, *etc.*
- PAC initially used a Comcast/DC studio that was located at the current headend site (formally a gas station). At that time, PAC was directly connected to Comcast/DC's headend, which was located across Florida Avenue from the Comcast/DC studio in the Manhattan Laundry building.
- Comcast/DC kept the gates to the studio facility locked. It was difficult for the public to gain access. Public access users would have to find the security guard to obtain access to the facility. Users were discouraged and use of the facility dropped. Comcast/DC limited the hours of studio operation to 6 per day.
- In 1993, Comcast/DC moved the headend from the Manhattan Laundry building to the other side of Florida Avenue where Comcast/DC's studio and PAC's facilities were located and took over PAC's studio space. The purpose of the move was so that Comcast/DC could save rent money.
- Comcast/DC has never provided any live capability. Although an upstream connection runs from the Comcast/DC studio at Comcast/DC's Michigan Avenue facility to the headend, Comcast/DC has told PAC that the modulator does not support live transmissions.
- Comcast/DC also uses the public access studio for its own productions.
- A former Comcast/DC general manager approved a plan for an upgrade of the public access studio equipment in 1996. Her employment as general manager was terminated, and her successor did not implement her plans.
- Comcast/DC transferred local origination from Comcast/DC to TCI Media Services in about 1994. Comcast/DC does not provide any real local origination programming. TCI Media Services does not really produce any local origination programming. As of 1999, it mostly produces advertisements for digital ad insertions in some 17 channels. TCI Media Services has high-end equipment for these ad productions but this equipment is not available for public access use.
- Comcast/DC says that its local origination operation is not subject to the franchise agreement because it is run by TCI Media Services.

PAC's Facilities at the Bowen YMCA:

- PAC has 3 character generators but all are very old Commodores.
- PAC had no playback equipment between 1987 and 1999 and effectively programmed the public access channel manually. New equipment was acquired in 1999:
  - A new playback machine: this machine operates manually rather than automatically and represents a short-term rather than a permanent solution.
  - 2 new SVHS decks for use with channel 26 in 1999: with this new equipment, PAC was able to begin to run programming as well as the video bulletin board on that channel in late 1999.
- With the acquisition of new equipment, PAC has a total of about 15 decks to operate the 2 channels. Most of the decks are 3/4 inch, break down with some frequency, and are difficult to repair.
- The air conditioning system at the Bowen facility is old and underpowered.
- The Bowen facility has very little space for tape storage.

Signal Quality:

- The signal quality for the public access channels degraded significantly in 1993 when Comcast/DC moved its headend across Florida Avenue from the Manhattan Laundry to the old gas station and PAC moved its facilities form the old gas station to the Bowen YMCA.
- The return signal for channel 25 on the subscriber network is very fuzzy and weak. It is in sharp contrast to the quality of the outgoing signal and the commercial channel signals.
- PAC was told at one point by Comcast/DC that the public access signals were being transmitted over coaxial cable to OCTT offices from the Bowen YMCA and were combined with the signals for the government access channels at OCTT, remodulated, and transmitted via coaxial cable across the street to Comcast/DC's headend.

FUTURE NEEDS

General Goal:

A proactive community television model should be established for the District. This means that resources should be provided for the facilities, equipment, staff, and other items needed for an active programming operation. PAC needs the resources to expand activities and proactively cover community events and promote participation in public access production.

Central Facility:

- Establishing a central facility that houses playback equipment, editing equipment, master control equipment, studios, and administrative offices is essential.
- The District owns a building, the Brooks Mansion in the Brookland area, which would be ideal. It is located at 901 Newton (where Michigan and Monroe split) adjacent to the Brookland metro stop and Comcast/DC's central facilities.[2]
- The area is safe and accessible by various modes of transportation. It has its own parking lot and is served by Metro's Red Line.
- The Brooks Mansion already belongs to the District and is an historic structure that once was used by UDC.
- The building is currently vacant and is in poor condition. PAC is willing to renovate and maintain the building provided that it is guaranteed a long-term lease with a low rent that reflects PAC's nonprofit status and public orientation.
- The building is about 14,500 square feet and contains about 10,000 square feet of usable space.

Studios:

- PAC is interested in providing a studio for children with child-scale equipment. Children cannot readily use standard-sized equipment. PAC would like to have special equipment and a separate studio for children.
- PAC is interested in providing a hotline studio. This could be similar to studios provided in Chicago and Boston and would provide a live interactive studio that could be remotely operated. With this capability, live call-in homework hotlines could be provided, with nonprofits handling the questions. Perhaps interactive after-school tutoring could be provided.
- A full-fledged studio should be provided for regular public access use. This facility should be a single centralized facility. Right now, there are serious problems with disbursing operations among Bowen, 1400 20th St, and Comcast/DC. A core facility should be established that is linked by fiber lines to community centers, with at least one community center per ward. Preferably, these would be existing community centers where neighborhood residents tend to congregate. Such a system has been set up for the borough of Manhattan in New York City. The access entity was given funds so that it could make grants to community groups. Either OCTT or PAC could organize

2. Subsequent to this interview, the District and PAC entered into a long-term lease with regard to the Brooks Mansion and PAC is in the process of renovating the facility and establishing a central facility for public access.

these community operations and secure the cooperation of existing community-based organizations. Facilities can be linked by fiber optics and facilities concentrated in particular locations to reduce costs.

Funding:

- Funding is needed to provide state-of-the-art equipment, finance renovations at the Brooks Mansion, and to update and maintain equipment at state-of-the-art levels throughout the franchise.
- Annual funding equivalent to 2% of gross revenues is needed to cover operating and other ongoing costs and to expand PAC's activities to serve all sectors of the community.

SUMMARY OF INTERVIEW: DISTRICT OF COLUMBIA ASSOCIATION OF DEAF CITIZENS BOARD MEMBER

November 8, 1999, 1:30 p.m.

SUMMARY

The District of Columbia Association of Deaf Citizens (DCADC) supports the provision of closed captioning for all programming carried on channels 13 and 16. Closed captioning is necessary to provide deaf and hard of hearing persons with the same access to government information as other members of the community.

BACKGROUND

DCADC is a nonprofit organization which represents the deaf and hard-of-hearing residents of the District as well as persons and organizations associated with deaf and hard-of-hearing persons. It is affiliated with the National Association of the Deaf. DCADC members participate in monthly meetings of a coalition of organizations that represent the deaf or provide services to members of the deaf and hard-of-hearing community. DCADC's mission includes empowering deaf and hard-of-hearing persons and establishing a political and social network for action on their behalf. One of the issues of central important to DCADC is ensuring that deaf and hard-of-hearing District residents have access to channels 13 and 16.

Current estimates indicate that about 5,000 District residents are hearing impaired. This number probably underestimates the actual number of hearing impaired as senior citizens who gradually lose their hearing are often not counted in the hard-of-hearing category.

By federal law, all television sets sold after 1995 must be equipped with closed captioning equipment. New television sets include captioning chips but captioning is available only if the provider of the programming also transmits the information necessary to create the closed captions.

FUTURE NEEDS

Channels 13 and 16

Channels 13 and 16 do not include closed captions. Occasionally a sign language interpreter is provided but interpreters are not always available and it is difficult to read hand movements on television unless the camera focuses solely on the interpreter or to ensure that the interpreter is always included in the television picture. In addition, the deaf and hard-of-hearing community is very diverse. Some of them "sign" (*i.e.*, practice American Sign Language), some do not sign at all, and others sign but cannot easily follow the underlying proceedings and watch the interpreter at the

same time. Closed captioning would clarify what is happening and the context of the proceedings.

OCTT needs to "find out what it costs to closed caption its programming." Because this programming is produced by the District government, closed captioning should be required legally. DCADC will pursue this agenda: "We will take more action on this if nothing is done." DCADC is more than willing to work with OCTT to bring this service to the community.

In general terms, the District government needs to improve its communications to all District residents. The lack of closed captioning further removes a large group of residents from becoming involved in local government proceedings but is not the only problem. DCADC members are frustrated by their inability to know what is "going on" but this frustration is not limited to just the hard-of-hearing and the deaf. There is not enough communication to District residents about what its government is involved in and how District residents could participate.

Other Channels:

Other channels also should be closed captioned. For example, CNN does not carry closed captioning during the late night and early morning hours, although it does during the day. Deaf and hard-of-hearing District residents would watch more news programming if it were closed captioned. Current closed captioned programs include soap operas and news information on Channels 4,5,7, and 9, but all programming should be captioned.

Closed captioning is also beneficial for other segments of the population. The District population includes many residents who do not speak English. Closed captioning would allow those who do not speak English to obtain access to more local and national news and other information and programming, allowing them to practice reading and understanding English while simultaneously learning about current affairs.

Programming for or about the Deaf:

In general, the availability of programming produced by deaf persons or programming for or about deaf people or culture is very limited. More than 10 or 20 years ago, PBS provided programming that was produced for or by deaf or hard-of-hearing persons. This programming also helped to educate the general public about deaf issues. this programming was apparently killed for budgetary reasons. Programming should be provided over the cable system that will serve the deaf community, broaden the public's understanding of the deaf, and increase the awareness of the common issues affecting both deaf and nondeaf persons.

Internet:

In addition to closed captioning, the Internet could also increase participation by deaf persons in public proceedings. If, for example, channels 13 and 16 were closed captioned, deaf and hard-of-hearing persons could use the Internet to send e-mail to the council members during any call-in programs, allowing the deaf and hard-of-hearing. In this way, deaf people could communicate their concerns or appreciation without having to use the telephone. (Communications by deaf people via the telephone tend to be difficult because the telephone relay system requires the participation of a third party to serve as an intermediary between the deaf person and the other person.) E-mail and Web-based communications could greatly enhance the effectiveness of communications between deaf residents and other citizens and public institutions.

Customer Service:

Comcast/DC apparently ignores or disregards issues raised by the deaf in the District. DCADC representatives have contacted Comcast/DC about the lack of closed captioning on a number of channels but their complaints have been ignored or disregarded. The only way for deaf people to communicate with customer service operators is through a telephone relay system rather than by direct contact through TTDY.

SUMMARY OF INTERVIEW: MAYOR'S LIAISON TO THE GAY AND LESBIAN COMMUNITY

November 12, 1999

BACKGROUND

Estimates of the percentage of adult residents of the District who are Gay or Lesbian are in the range of 10 percent for a total of about 42,000 Gay or Lesbian residents. The District is also served by a large number of associations which respond to the various needs of the Gay and Lesbian community and are often organized on the basis of particular interests (*e.g.*, sports, a political cause, a social interest).

FUTURE NEEDS

- The Gay and Lesbian community makes heavy use of the cable system's public access facilities and channel (*i.e.*, DCTV) for such purposes as videotaping meetings of groups which represent Gay or Lesbian interests, including GLAA and the Gertrude Stein Democratic Club. Financial support for facilities and equipment for public access to improve the capabilities of the Public Access Corporation would benefit the Gay and Lesbian community.

- Gays and Lesbians in the District are heavy users of the Internet because of their specialized needs, including specialized Internet web sites provided by Women in the Life, the Washington Blade, and the Gay and Lesbian Information Technologists group. Franchise requirements which ensure high-quality and high-speed Internet connections would benefit the District's Gay and Lesbian community.

- The District's Caucasian Gay and Lesbian population tends to fall into higher income brackets and, as a result, is more likely to subscribe to cable and Internet services than the average District resident. Any future requirements that will ensure improvements in service quality and access to advanced video and information services will respond to the technology-related needs of this large subset of the District's Gay and Lesbian population.

SUMMARY OF INTERVIEW: MAYOR'S OFFICE OF LATINO AFFAIRS

November 18, 1999, 8:45 a.m.

BACKGROUND

- About 80,000 Latinos reside in the District. This population includes Salvadoreans, Bolivians, Peruvians, and other Central and South Americans. About 250,000 to 300,000 Latinos reside in the metropolitan region.

FUTURE COMMUNITY NEEDS

- In broad terms, the most significant needs for Latinos in the District concern health issues, housing, education, and job opportunities.
- Locally focused cable television channels could provide training programs to develop job skills for Latinos, including computer and Internet skills.
- Internet applications of the cable system would be extremely valuable by providing easy access to homework for students and parents and to provide information concerning educational opportunities in the District and elsewhere.
- State-of-the-art technology (*e.g.*, a municipal broadband network) that linked neighborhood health clinics to doctors could help improve responsiveness to the health needs of the Latino community and reduce transportation and health care costs.
- Bilingual families need cable television because that is the best source for Spanish language programming. Of tremendous value would be locally produced programming which specifically addresses issues of concern to the Latino community and is distributed over the cable system. This could be similar to a weekly program that is produced in Fairfax County and is programmed completely in Spanish with an open phone line for viewers to call in. If a similar programming service were provided over the cable system in the District, it could include educational material on the services available in the District for Latinos.

SUMMARY OF INTERVIEWS: STARPOWER

May 11, 2001, 2:00 p.m.

SERVICE AREA

Starpower provides service in all four quadrants, with about 25% of its subscribers in Northeast, close to 75 percent in the Northwest and Southeast quadrant, and a smattering of apartments in Southwest. The Southeast and Northwest areas were built initially and about the same time, while Starpower finished most of its construction in Northeast last year.

The system is an 860 MHz system, with nodes designed for 150 homes and coaxial cable runs of no more than 900 feet. While Starpower allows itself a margin of 5-10% on the high side of 150 homes, if necessary, the system's nodes actually average about 130 homes. The system uses 54-600 MHz to provide 94 basic service channels, 87 which are programmed some or all of the time.

Four of the 87 channels are currently carrying duplicate signals of local television broadcast stations. This is due to the fact that a number of homes within close range of the broadcast stations' transmission towers are adversely affected by strong broadcast signals which ingress into television sets at the lower end of the spectrum and interfere with cable signals (*e.g.*, channels 4 and 5).

REGULATION

Starpower is currently hindered in its effort to serve the entire District by a "moratorium" on construction of aerial plant in large parts of Georgetown, Adams Morgan, and Capitol Hill. (Under this policy, Starpower can only serve these areas if it installs all plant underground, including plant installed in alleyways where Comcast-DC has been permitted to install their lines on poles above ground.) The Department of Transportation and OCTT have been advised of the company's concerns, and they are in discussions but no progress has been made. OCTT has asked Starpower to "draft a plan."

Requiring Starpower to install plant underground in these areas would triple installation costs. With the tightness in capital markets, this policy has forced the company to reconsider its plans to build out all of the District. The District's policy requires all companies to install their plant underground and but does not require Comcast-DC to move their lines from aerial to underground locations. The purpose of the District's policy is to ensure that power and communications lines do not interfere with firefighting equipment and personnel in densely populated areas.

APPENDIX C:
SUMMARIES OF FOCUS GROUPS

SUMMARIES OF FOCUS GROUPS

SUMMARY OF FOCUS GROUP: CONSUMERS
July 1, 1999

SUMMARY

Participants

Consumer L: He is 38 years old and lives in Ward 8. He owns two computers, both of which are equipped with modems and have Internet access.

Consumer U: She is older than 38 and lives in Ward 6 (Capitol Hill). She is a cable subscriber; she has a computer at home and another at work and has access to the Internet.

Consumer E: He is 42 and a cable subscriber. He has two or three computers at home and Internet access.

CURRENT SERVICES

Rates

Question: Did you think cable rates need to be improved?

Consumer L: He says that rates are "excessive." Cable rates have not decreased as a result of deregulation but instead have increased. He says that the free enterprise system of competition will be the "determining factor" in reducing rates.

Consumer U: She describes Starpower's pricing and how it offers twice as many channels as District Cablevision. She expresses annoyance that District Cablevision has placed new channels on the digital tier. This, in her opinion, is a "hidden rate increase."

Consumer E: He expresses disappointment that "rates are where they are." He and his wife are not big television viewers and so he debates whether the family really "needs" cable service. Competition in the cable market should give him the ability to compare prices and pick the provider who provides the best service at the best price. He would look with favor at competition because current rates are too high.

[All participants favored a competitive local market.]

Question: How about if you had the option to select and pay for only those programs you actually watch?

Consumer E: He says that he fully supports having this option. He would like to see a basic setup and then to select additional shows only when he wanted them. He would be willing to pay a "premium" price to receive the shows he really wants.

Consumer U: Her home is small, and every room is equipped with a TV. Capitol Hill has very bad television reception so cable is needed for over-the-air television stations. When the cable system goes out, she has no access to television at all. She says that she would like to see a large expanded basic tier and then a selection of premium channels that she could pick from. She would like to see more *a la carte* choices but not to the extent that it results in higher prices.

Question: Would you like to see improvements in signal quality?

Consumer L: He has not experienced signal quality problems

Consumer U: "Capitol Hill is horrible. Channel 4 comes in double vision and snowy. It's very bad. Channels 2 and 3 (HBO and Showtime) come in very badly." "If there is a cloud in the sky or if you sneeze, the signal goes off."

Consumer E: In Ward 4 the reception is generally "great." But "if there is a storm . . . there is a high probability that [the signal] is going to go out" and nothing can be done about it because telephone calls will be answered by an automated system, which frustrates him more. He is a sport fan and planned his day to watch a particular play-off basketball. When his signal went out, he called a friend who worked at District Cablevision. They discovered that the outage was isolated to Ward 4. Before the game started, District Cablevision "got it fixed." The automated phone system's recording said that zipcode 20012 was experiencing problems and that District Cablevision was trying to fix it.

Question: Would you like to see improvements in customer service?

Consumer U: "Definitely." She states that District Cablevision does not have enough staff and that staff members are "nasty" and often "extraordinarily curt." If a customer calls customer service, "they assume you haven't paid your bill." The signal goes out often. The customer service representatives "need telephone training." She says that when she calls to try to find out what the problem is, she assumes that District Cablevision should know what the problem is. Instead, the CSRs often say that they do not know, that they have no way of finding out, and that they have no way to contact service people in the field. She indicates that she believes the last assertion to be untrue, noting that in one case, the CSR did contact people in the field and

identify the nature of the problem.

Consumer L: He has not had any bad experiences with the staff answering the phone. But he has had experience with unskilled installers. He requested a second cable line in his house, and the installer placed a nail directly through the first cable line so that he had to come out twice and Consumer L had to reserve four-hour time blocks on two different days to accommodate this bad installation. "Your day is spent waiting on the cable man." He says that was not advised that he had the option of weekend installation times.

Consumer E: The people who have provided service at his home seemed to be "fine" and "very nice." But he did receive a call from District Cablevision stating that the company planned to terminate his service for nonpayment. Later his wife called and after some research the CSR discovered that the company had posted a payment incorrectly and that in fact their bill had been paid. "They almost lost a customer" due to this misposting. He is "ready for some competition."

Question: Are the bills clear? Do you have any experience with late payment fees?

Consumer L: He has no problem understanding the bills. His chief concern is that the prices are too high.

Community-based Programming

Question: Did you know you can access video training and place your programming on the cable system's public access channels?

Consumer L: He says that he is not aware that such training is available.

Consumer U: She says that she is aware of the channels' existence and that people were put programming on the channels.

Consumer E: He says that he knew the channels exist but he did not know that he could have received training, which he would have done to understand the process.

Question: Would you like to see more community-based programming on the cable system?

Consumer L: "Absolutely. That's critical." "The community needs to have an input into what is being projected on the airways and it needs to be an expanded input in my opinion so that community programs, community events, issues that are very important to members of the community can be dealt with in a very public, visual fashion . . . I watch those channels all the time . . ."

Consumer U: She says that she never watches those channels.

Question: Sometimes the signal quality on these channels seems to be less . . .

Consumer E: "[The signal quality] is significantly less."

Consumer U: She uses the Internet for issue-oriented discussions and does not mind that the Internet is not as visual a medium. She finds the Internet to be very helpful. "Maybe at some point when the computers and the TVs come together and you end up having chat TV it will be interesting. But I remember during the impeachment . . . there was an organization that got started on the Internet and it was trying to get community support to tell the Congress not to waste their time and do this and a lot of people from around the country were talking to each other and signing up for things and that's the type of thing that would helpful locally because we have a lot of issues." She supports the idea of using technology to involve the public more in things but technology is not doing right what it could do.

Consumer E: He thinks "it's important and good . . . It's a good vehicle to have to be able to voice some thoughts and processes and share that with other people. I think you probably run into problems when you have a lot of diverse programming . . . there are some problems there for sure . . . But other than that I feel it's worth having."

Consumer U: She notes that in New York City some people have put pornography on the public access channel.

Consumer E: He suggests that "that's the type of thing [that needs to be resolved]."

Question: Channels 19 and 28 are educational channels on the cable system. Do you know that those channels are on the system and do you feel these are an important resource for the schools?

Consumer L: "Absolutely." He is aware of the existence of those channels and states that "they provide a good function for the community, again."

Consumer U: "I love channel 19 and I love Classic Arts." She notes that there does not appear to be much UDC-based programming on this channel. "As long as we're on educational . . . one thing that got [her] really angry was when the company added the History channel they didn't add it to the basic channel, they added it to the digital tier, and I thought this was a great community disservice, especially in our community where I feel our citizens need as much free educational materials as we can provide for them. I was only hoping they maybe they provided it free to the schools [but she did not call the school department to check] . . . I just thought that was horrible."

Consumer E: He says that he watches channels 19 and 28 and particularly the school board hearings. He states that he thought that these channels were "important."

Question: Channels 13 and 16 are the local government channels. Do you see value in having more programming like this on the cable system?

[All participants say that they are aware of these two channels.]

Consumer E: He says that he sees value in these channels; he watches "[channel] 16 quite a bit. Just because I like to be informed. I'm a lawyer so I like to see what's happening . . . I watch 16 more than most people." He states that he sees these channels as valuable because they allow the public "to see what's going on and sometimes it's disappointing to see what's happening. Government is right there . . .You can see government at work."

Consumer U: She is a more avid viewer of channel 13 than channel 16. "I think it's very, very important." It is one of her husband's favorite channels. At one point there was a bill that was important to both her and her husband. One time she sat through four hours of council hearings and the council did not address her bill. She notes that it would be "very nice" to have a current agenda run on the council channel to know what issues the council was scheduled to address during the day. She notes that that might be difficult because the council sometimes changes its agenda but something would at least be helpful. "We definitely need to keep those channels."

Consumer L: He does not watch the channels a lot but he does watch them. If the channels are covering something of particular interest to him, he will watch. He views the channels as a valuable resource for the community.

FUTURE SERVICES

Consumer U: She mentions that it took a two-year call-in campaign to get the Sci-Fi channel on the cable system.

Question: If you had the ability to send a video from your home directly to the VCR in another home at the push of a button, would you be interested in that service.

Consumer L: "I certainly would be. Absolutely. I think it would be beneficial – just to share information." He said that there are times when he would like to share what he is watching with relatives or friends. It "would be a great service."

Consumer U: "That would be a fantastic service. Especially now when families are all over the country. It's nice if there's a new baby or a new house." She and her husband rented a video camera when they bought their new house and conducted a video tour of

their house, which they mailed to her father. She said that it would be wonderful to be able "to say OK turn on your VCR at such and such a time [and receive our video].

Consumer E: "I think it would be good." He says that he does not know how often he would use it but would like to have access to the service to use it if he wanted to.

Question: How about being able to dial a number, order a movie, and have it be transmitted in cinema quality to your home to watch when you want to watch it?

Consumer E: "That's the one I like." He states that he would value having the ability to order movies and then to watch them when he has the time. "That's the freedom of choice and I'd like to be able to have that."

Consumer U: She notes that a subscriber's schedule is dictated by the rigid schedules for pay-per-view services. The subscriber has to adjust his or her schedule in order to be home to view the channel when the desired show is provided. Pay-per-view movies also cannot be ordered on the spot and watched at any time. If the movie is not ordered within a particular window of time, it cannot be ordered at all. "There are problems with the way it is now."

Consumer L: "Yes, it would be very convenient for me." He says that he would probably order more movies if this capability were available and described it as a time saver.

Question: Would you be interested in receiving phone service from your cable company?

Consumer L: "Sure. Why not. It's competition."

Consumer U: She says that she was glad to see AT&T buy District Cablevision because when she had a cable problem she wrote District Cablevision and never heard back from the company. AT&T is her Internet service provider. She receives good service from AT&T and has had very satisfactory customer service from AT&T. If District Cablevision was offering the phone service, she would not want it because she sees the company is "inept" and "doesn't want somebody who is inept" providing telephone service.

She subscribes to Starpower for one of her telephone lines and has not noticed anything worse or better than Bell Atlantic's local telephone service.

Consumer E: If this would result in price reductions, having this service option would be "great." A company that could provide "bundled" service, with all the bills listed in the same bill, would be appealing. If there was one company that could provide all those services, then he would "certainly do that." If District Cablevision could offer cable

and phone "that would be fine" but "it has to be good service." "I'm waiting for that – for the one that can offer all three and eliminate all the different bills."

Question: Would you be interested in having high-speed access to the Internet?

Consumer U: That would be "Heaven." "It's much faster" She says that she sees great benefit in being able to access "broadband" cable speeds. She is "very interested in getting the Internet through the cable." She would not subscribe to Web TV because she does not like Bill Gates.

Consumer L: He notes that he subscribes to the Internet service provided by Web TV. He is very pleased with this service and has no complaints. It is as easy to use as a regular computer. His children use it. It has reduced the frequency of their visits to the library. They use it for their homework and research assignments and find it very useful. He says that he would "absolutely" like to see high-speed Internet service provided over the cable system.

Consumer U: She says it would be a problem if the current cable operator was the only provider of high-speed Internet service.. This would be "trouble . . . because it would be down half the time." [The other two participants agreed with this assessment.]

Consumer E: "It would great if it's faster." He surfs the Internet and trades stock on line. He tells a story of desperately needing to get a "trade in" on the Internet and he simply could not get access to the Internet and so lost the chance to make an important stock transaction. He notes that quick and consistent on-line access should be a high priority.

Consumer U: She notes that some day there will be a hand-held tool to access the Internet.

Question: Would you like to have the ability to use local library services via the Internet?

Consumer L: He has three children. "Yes, we visit the library quite often and this would be great just in terms of convenience . . . to be able to download information from the local library system."

Consumer E: He has two children and says "it would be great" but this it is also important for his kids to "get out and experience . . ." As a lawyer, the Internet is allowing him to access information instantaneously, information that would, in the past, have taken a large amount of time to uncover. He has noticed that some of the younger lawyers do not know how to obtain information without using the Internet. In his view, they are losing out by not having the more labor-intensive experience of hands-on research and do not appreciate the value and joy of discovering information the old way. "So we have to be careful about that."

Consumer U: Society needs to be careful that it does not weaken the next generation by introducing all this technology and depriving young people of the basic knowledge of how to do things without using a computer. She doubts whether cashiers in stores would even know how to process a purchase without computers.

Question: Would it help the community to get a better sense of the resources available at the local libraries if the libraries had a local library Web site?

Consumer U: She notes that there is a big fight going on in the District because citizens are trying to gain access to District laws and regulations on-line. There has been some resistance within the District government to providing access of this sort.

She says she supports being able to get more information about or access to government services via the Internet. She provides the example of renewing a driver's license. She says that it would be of great benefit to be able to "sit in front of your TV and hit a button and they could take your digital picture that way and then send you something immediately via e-mail that you could put on your license until a version came in the mail . . ." She also supports being able to use the Internet to reach District Cablevision rather than driving to its Michigan Avenue offices. "There is something to be said for being able to do some things from your home or when you want." Also most government agencies close at 4:00 p.m. This would provide residents access to city services in the evening hours.

Question: Would be interested in having the ability to vote in local elections via the Internet?

Consumer L: He says that he does not favor this service option. People should have to "get out" and go to the polls. He also notes concern about the possible electronic tampering of election results. He says that he likes the idea of actually having to go out to vote. He says that it is important to "get up and get out of the house" to vote.

Consumer U: She says that many more issues should be voted on via referendums. She supports use of the Internet to facilitate people voting on more issues through referendums rather than simply leaving things to Congress. In her view, the public has lost control of government by turning decision-making over to Congress. Internet voting should increase turn-out because weather would not hinder the ability of voters to travel to the polls.

Consumer E: "If the safeguards are in place, if it would increase participation, I would say, sure." But he also says that if people are physically able to go to the polls in person, then they should go. He says that Internet voting could also increase voter participation by eliminating weather as a barrier to voting participation.

Question: Would you be interested in a local transportation channel?

Consumer E: He accessed Yahoo.com and its maps, provided his address and destination, and received a "crystal clear picture" of the route he should take to get to his destination. He says that he can envision the enormous value in having such a service over the Internet. He also says that there could be significant value in having the ability to access information with regard to traffic volume at various intersections along his route to work. WTOP and channel 8 provide some coverage of this sort and it is very valuable.

Question: Do you believe that technology is creating the haves and the have-nots (a digital divide)?

Consumer E: "Sure. If someone does not have the access how would you give them access to vote? Probably the libraries." "We have that problem right now, outside of the Internet."

Consumer U: She is a member of the technology subcommittee of the local bar association. One of the issues this year for the subcommittee is to provide computer and Internet access to District residents who do not have access to technology. The subcommittee is looking at having large law firms donate used equipment and making sure that libraries are equipped with computers. Perhaps ATMs in supermarkets could be enhanced to provide stripped-down computer-type capabilities. Then, District residents could be provided with access to a limited number of services "right there at the supermarket."

Question: Could you tell me about change or improvement you would like to see in the cable system within the next few years?

Consumer E: "Probably more selection or better programming or the opportunity for better programming. Probably more important – reduced cost. I remember when I was in school . . . I would never pay for TV and then you find that this is what you're doing – with the ads! At least bring the cost down."

Consumer U: Her priority concerns are cost and signal quality. On Capitol Hill, it appears as though no cable lines have been installed underground. District Cablevision has not installed fiber optic lines although Starpower is installing fiber optic lines. With better technology, the cable operator could provide both more and better channels. District Cablevision claims that it has never made a profit but, based on the prices subscribers are paying, this would mean "incredible mismanagement." "I would like to see District Cablevision go away." She says that her preference is that the District not renew the franchise. "Brand new management, brand new everything" should be provided.

Consumer L: He says he would like to see lower prices. Prices should be "in line with what they are providing. It's out of sync at the moment." He would like to see more educational programs. "I love the Discovery Channel, the Animal Planet. I love stuff like that because I'm learning something" as are his children. He says that the community should be offered more educational programming and less violent programming. "There's a lot of junk of cable these days. I have to be more vigilant in what my kids watch."

Consumer U: She supports providing subscribers with more control over the types of programs and the schedules of the programs they watch. She states that there must be a way to distribute programming to a home at a particular time of day designated by the subscriber. She says that there must be a way to "key in a channel" on a temporary basis at the time when the subscriber wants to see a program.

Consumer U: She says that it is annoying to discover that Montgomery County or Virginia residents can receive a channel that is not available to District residents.

Consumer U: She says that she testified at a public hearing about a year ago and was told that District Cablevision paid people and bused them in to testify.

She says that the company should "get rid of the box." She "hated hooking up the stupid box." She was faced with the choice of paying more to subscribe to just HBO and Showtime (without a box) than to subscribe to a package of programs that included HBO and Showtime as well as other services but could only be received with a box.

SUMMARY OF FOCUS GROUP: SENIOR CITIZENS
May 28, 1999

SUMMARY

The participants believe there is a significant need for improvements in District Cablevision's customer service. They believe that rates for cable service are too high and that they are forced to pay for programs they would rather not watch. All supported competition in the local cable market, most associating competition with lower rates. While characterizing themselves as not being big television viewers, all expressed interest in using computers and would like the opportunity to learn more about how to use computers. They also saw a future need to for more Internet and video programming relevant to the needs of senior citizens.

BACKGROUND

Participants

Senior L: Senior L lives in Ward 4, is a "senior citizen" in age, and subscribes to cable. She has lived in the District since 1965.

Senior O: Senior O retired in 1982. He lives in Ward 4 and has lived in the District since 1982. (He is a District native who returned to the District after living and working in another city for many years.) He is not a cable subscriber and does not consider himself a television viewer.

Senior I: She lives in Ward 2 but has lived at her current location for only a couple of years. She is a cable subscriber but not a frequent viewer of television. She listens more to the radio because she can hear the radio in all the rooms in her house.

Senior R: She has lived in Ward 5 since 1964, is retired, and is a cable subscriber.

Comments before Questions Began

Senior L: The viewers "should have some say in what types of movies are going on there." She states that there is too much violence and that these concerns should be taken into consideration when District Cablevision decides what programs to carry.

Senior I: She says that she would like to see more local programs on the cable system, especially originated by the youth and senior citizens. The population of senior citizens and the number of senior-oriented groups is increasing. "We don't stop just because we've been retired." She describes senior citizens as an energetic and dynamic people.

CURRENT SERVICES

[None of the participants subscribes to digital services.]

Question: Do you feel rates are just right or need improvement?

Senior L: She stated that rates "are too high." She believes that rates are often increased without providing any "extras." Changes in District Cablevision's service offerings are also never properly explained to her. For example, the cable company recently started providing her the Disney channel although she never requested this service.

Senior O: He says that he has not paid attention to rate increases because is not a cable subscriber.

Senior I: She subscribes to cable in order to receive a clear television signal because she is surrounded by apartment buildings which affect the quality of over the air signals. She does not have time to watch much television. She feels she should not have to pay anything in order to receive a clear signal.

Senior R: She says that cable service is "a bit expensive" In her view, the cost "could be less" if the company allowed subscribers to pay for only the channels they actually view. She would prefer to subscribe only to the channels that she actually watches instead of being handed a package of channels. The quality of the signal she receives is inconsistent. She also sometimes receives movies to which she does not subscribe. She finds District Cablevision's bills confusing. She also finds the different prices charged for different converters to be confusing. She says that she has the sense that prices may differ among subscribers for the same service.

Senior L: She expresses concern that her rates have increased although new services have not been provided.

Senior L: She would like to be able to choose the programs she wants to watch and only pay for those. She says that she does not want to receive sports programs but nonetheless receives them because of the way the cable operator provides service.

Customer Service

Senior L: District Cablevision's service representatives have been "very courteous" to her.

Senior R: She states that District Cablevision's representatives are "better than they used to be." "They used to be very abrupt." The representatives treated her as though it was wrong for her to call them. Within the past year, communications with the company "have improved." She says that she has also noticed that her service always seems

to break down on the weekend when it is impossible to reach a District Cablevision representative. Her neighbor also had signal quality problems the previous week, which appeared to be due to a bad box. It took the company two weeks to fix the problem after numerous calls by the neighbor.

Senior L: She has experienced problems with her cable service after a storm. District Cablevision was able to fix the problem remotely. She questions why so many extra wires have been installed around her house.

Senior R: She describes a situation where her neighborhood made heavy use of air conditioners, drawing on the power and possibly causing the cable to go out and stay out for extended periods of time.

Competition

Question: How would you feel about having the option of receiving cable service from an alternative provider in the community?

Senior R: She says that subscribers "should have a choice" as they do in the telephone industry. Cable subscribers should have options on service providers and the rates offered.

Senior L: She would like to have an opportunity to perhaps receive service for lower rates, which could be an outcome of competition.

Senior I: She says she supports having choice for subscribers and compares it to the gas industry. In her view, competition should lead to lower rates, and she liked the idea of realizing savings.

Public Access Channels

Question: Did you know that there is a public access channel available to the public for programming which is produced by any member of the public that chooses to receive the training? Do you view this as a good thing?

Senior L: She notes that the seniors have access to many activities sponsored by the senior center but immobile seniors cannot get themselves to the center to participate. A public access channel could give them opportunities to participate.

Senior I: She says that she is familiar with public access but is too busy to watch it. She would like to participate if she had the time.

Senior R: She finds it difficult to program her VCR so getting involved in producing public access programming would be too much for her.

Question: **Would you be interested in more programming focused on local communities activities and issues?**

Senior R: She says that she would enjoy this type of programming because it should provide her with useful information – like learning how to program her VCR.

Question: **Are you familiar with the programming on the educational channels 28 and 19?**

Senior R: "[Channel 19] is a blurred mess on mine. It's got goo-goo lines." But she says she enjoys the Classic Arts channel on channel 19 and likes listening to the music provided on that channel.

Senior I: She says that she does not have time to watch these two channels but knows that they are available.

Question: **Would you like to see more local educational programming over the cable system?**

Senior L: "Yes, definitely." It would also be a good idea to have a Spanish language channel to respond to the needs of the large Spanish-speaking population in the District.

Senior L: She says that it would be helpful to have programming that also teaches Spanish.

Senior O: He asks what time of day educational programming is available. He notes that channel 22 offers educational programs at 5:00 in the morning, a time when not many people can watch it.

FUTURE SERVICES

Question: **Would you like to be able to send a video from your home, directly to a VCR at the push of a button?**

Senior R: It would be too complicated for her.

Senior I: It is another option that she would like to have.

Senior O: He would like to have access to this capability. In his opinion, it sounds like an interesting thing.

Senior L: She would like to have access to this capability. She describes one possible use as sending a videotape of a party to friends who are interested in the party but cannot attend.

Question: **Would you be interested in having the ability to dial a number, order a new movie, have it transmitted in cinema quality to your home, and store it to watch it whenever you want?**

Senior R: She would like to have access to this capability because she likes watching movies and would enjoy having access to movies soon after they first play at the theaters.

Senior I: She would rather go out to a theater to see a movie.

Senior O: He would be interested but would not be likely to use it very often. Even so, he would still like to have the capability.

Senior L: She would like to have this service option because so she could see movies she might otherwise miss.

Question: **Would you be interested in being able to receive telephone service from your cable operator?**

Senior R: She would be interested in having the service.

Senior I: She would be interested in this service option.

Senior L: She says that these two services "should merge." This would make things less confusing.

Senior O: No opinion.

Question: **Access to high-speed access to the Internet over the cable system?**

[Three out of four participants owned computers and the fourth would like to own a computer.]

Senior O: He would use the Internet if he had a computer.

Senior I: She is an Internet surfer and, as a result, is not a television viewer.

Senior R: She is not interested because she cannot sit still long enough. She plays games on the computer when she visits her daughter. She would not use the computer for photo e-mails.

Senior L: She has a computer but she does not know how to use it. She would be interested in learning how to use the computer and the Internet.

Question: **Would you be interested in getting more information about the District govern-**

ment over the cable system via traditional or Internet means?

Senior L: She watches channel 13, which provides bulletin board updates of the schedule of council hearings and finds this sufficient. She would not use the Internet for up-to-the-minute updates on this schedule.

Seniors I/R: The city council should establish a web page which lists its schedule of meetings and provides other types of information.

Senior O: She would like to be able to get more local government information over the cable system.

Question: Tell me about any changes or improvements you would like to see in cable service over the next five years.

Senior R: She says that cable service "needs improvement." Of special concern is "the length of time it takes them to repair after it goes out." She would like the company to at least provide a recording on their phone system noting that there is an outage so a subscriber knows that the company is doing something to address the problem.

Senior I: Very few of the people she knows watch television any more. "There's nothing interesting on. Why sit there and watch something you don't want to look at?" "Maybe different programming."

Senior O: Senior O does not have the time to watch television. He would like to see educational programming run at a later time in the day.

Senior L: She "would like people to be able to select their own shows and cut out a lot of the movies that they have because kids are getting too many ideas of what to do on the TV." She states that this is not interesting to adults but "children are inquisitive" and they are going to try to copy violence. She would like subscribers to be able to block programming so that they only receive programming of their choice. She would like to see rates go down through competition and more local programming.

SUMMARY OF FOCUS GROUP: STUDENTS (GROUP # 1)

June 4, 1999

Question: Do you feel it would be of benefit to students in schools to have more access to video production equipment and classes?

Student # 1: There should be more video production classes. If DC28 did not exist, there would be no facilities for students to learn video production skills. This student mentioned the Suitland schools and the benefits provided by that school systems for students in the video area. He suggested that when he goes to college, he will have a real advantage over the other students because of his familiarity with all the equipment and his production skills. He anticipates that his college teachers may even ask him to help teach, based on his current skill level, skills which he attributes solely to his experiences with DC28.

Student # 2: This students wishes that she had had exposure to video production skills at an earlier age. If students are exposed to video production at an earlier age, it would help them decide if they have a possible career in this field. She rates video skills as more practical than, for example, sewing, as video skills have direct value to professional development. A whole course in sewing was too much. She believes that she should have had access to video training in junior high school. That would have given her a head start, a jump on defining her future career goals and her major for college. "Junior high school . . . definitely . . . and try to teach them the basics of camera work and the basics of scripting."

Question: What skills have you learned through your DC28 internship?

Student # 2: DC28 taught her how develop commercials–from the theories concerning how to attract viewer attention to the production skills needed. She learned scripting, camera work, and the basics of "putting stuff together."

Question: Have you had a chance to work with the Avid (digital) editors?

Student # 1: This student says that he has not been able to use it by himself but he hoped to learn more about this equipment this summer.

Question: Do you wish that you been exposed to computers at an earlier age?

Student # 1: He has computers at home and received his first computer in the eighth or ninth grade. When he was younger he would write out his reports in long hand and his

mother would take his reports to her office and type them up for him. He wishes he had had access to computers at a younger age. His cousin is in the fourth grade and is already familiar with computers.

Student # 2: She had access to "old computers with the big giant floppy disks" in elementary school (J.O. Wilson in Northeast Washington). The school introduced the students to computers, computer equipment, keyboard use, and software programs, but then her exposure to computers in the school system "slacked off." The computer program stopped because funding was cut off. The school system did not have the teachers to train the students in the use of computers. This program stopped after she finished the third grade. From then on, she had to learn on her own until she reached high school where she was taught how to word process. Her high school class teachers ask students to type their papers, and the easiest way to do that is via the computer, so there is a clear incentive to use computers in high school.

Question: Would you be interested in your parents having electronic access to information about your school activities via the internet?

Student # 1: This student does not want to have the burden of having to tell his mother about a parent-teacher conference that will take place on a bulletin board, for instance. But he said if he were a parent, this would be something to which he would like to have access.

Student # 2: She thinks that parents should have direct communication with their children about their schools activities rather than "going behind their back" to find out what their child is doing at school. She also sees this type of access as crossing boundaries. A child starts developing "boundaries" where he or she has the opportunity to begin to define what is important for his or her parent to know and to exercise responsibility in his or her own world. If parents need to know, they will ask you. Accessing homework assignments is o.k. "because they could probably help me with them" but otherwise "it defeats the purpose of communication." Parents' priority should be communicating with their children directly. Parents cannot just rely on information provided by teachers as teachers do not really know what the student is thinking or doing.

Student # 1: He says that he agrees with student # 2. He thinks electronic access would help parents assist their children with homework assignments or remind them when assignments are due.

Question: Have you experienced any problems with the cable system's signal quality?

Student # 1: This student lives in the Northwest quadrant and there "is a big line down the screen" on channel 4 or 5. There are no problems with regular cable programming. The line is there "most of the time." District Cablevision fixed the signal problem but then it returned. "We don't call them anymore" because the problem always seems to return.

Question: What would you change or improve in the service provided by the cable operator?

Student # 1: "I would have them carry every single sporting event. If you're living in San Francisco and you're from Washington, there is no way you can get [a Washington sports event]. Have every station on the basic service or the capability to access any sports game you want to watch."

Student # 2: The current rating system for TV programs does not work properly because "it is just a little box on the screen and you just ignore it." She knows of friends who watch R-rated programs when their parents are not home. Most kids are home by themselves a lot so there is no stopping viewing of this sort. At first she thought the idea of a parental control device was a good idea but one of her friends was able to obtain the access code. He is smart about electronics and found the code. Now he simply takes the code off when his parents are not at home and restores it when they return. He shows his friends the movies that his parents have blocked out. The equipment should be more "kid proof." There should be more television shows for children that are educational. The Teletubbies show is "stupid" and lacks purpose.

Student # 1: He states that Teletubbies show actually promotes homosexuality because one of the male teletubbies carries a purse.

Student # 2: She questions the idea that a purse on one of the character's arms promotes homosexuality. The programs are trying to open up the minds of children.

Question: Would you like to have more access to a network for distribution of the programming that you develop? For example, would you like to have access to a network in your school where you could play a PSA or a sports commentary during the day that you developed?

Student # 1: "That would be nice." We could include cuts of football games in a daily news program. The problem now is that the shows that are aired are not aired for three weeks. "Most of the stuff is old." A program which carried current news would be very valuable.

Student # 2: The students pay more attention to television than to the audio schedule they receive every day so if the school day's event were broadcast in video form students would pay more attention. It would be much better. The sports news would register more with the students and would encourage them to participate more in the school activities. "The school band would be better." Currently there are programs students do not know about. For instance, her school has a jazz club and no one knows about it. She is in a poetry class and no one knows about it. The school students, even the neighborhood, would become more involved and likely more involved in school activities.

Student # 1: He would like to see school children involved in video programming at a much earlier age. He used the example of sports. For him, getting involved in sports at an early age led to a love of sports and full involvement later in his adolescent years. He supported the idea of getting children involved early in video production by having them produce their own news show, which will lead to a whole new exciting world for them.

Student #2: Teaching kids video "would get people off the street." A lot of people she knows "who are on the corner dealing [drugs] are really smart. They know a lot about certain things but then they don't really know how to apply themselves in that field. If they would had been taught younger than they wouldn't be out there doing what they're doing now trying to get that little bit of money. [Instead,] they'd be out there getting that money from a big time job starting their own business."

If she had started out in elementary school working with computers and videos and being exposed to all those experiences, she would have a much better sense of what she wants to do with her life and for her career. If she is exposed to these experiences at a later stage in life, she might conclude that it is too late for her to do these things.

The students have to provide their own transportation in order to use DC28's resources.

SUMMARY OF FOCUS GROUP: STUDENTS (GROUP # 2)

July 8, 1999

BACKGROUND

Participants

Student # 1: Student # 1 is 15 and has lived in Washington, D.C., his entire life. His home is equipped with three computers. His school (School without Walls) offers video production classes.

Student # 2: Student # 2 is 15. She has her own computer, and both her parents have computers. All three computers are equipped with modems. Her school (Parkmont School) offered a video production class in first half of the first semester but only two students were interested in the class. Parkmont is a school for emotionally disturbed students.

Student # 3: Student # 3 lives in Southeast D.C. Her family does not subscribe to cable although she wishes that it did subscribe. The family has a computer at home but she does not use the computer at home. She attends Duke Ellington High School. Her school used to offer video production classes but the teacher would not let the students touch the equipment. So the students were taught the fundamentals without really touching the equipment. She learned actual video production skills at DCTV.

[All three participants have produced videos using the Public Access Corporation's facilities.]

CURRENT SERVICES

Computers in School

Student # 1 attends School without Walls, which has two computer labs. Most of the school's equipment is donated. The school recently received donated equipment from USIA of a satisfactory quality. Last year, the school received a grant from a real estate firm and acquired four basic computers and a server. Student # 1's school has about one or two computers per classroom but no Internet access. Teachers expect papers to be typed but expect the student to take responsibility for obtaining access to computers and printers. He would like to see more computers in his school. He would like to see state-of-the-art computers but this is unlikely because companies generally do not donate state-of-the-art computers.

Student # 2 attends Parkmont school, a private school in the District. The school has a small computer lab but the "computers aren't too good." They are "fairly new" (not Macintosh) but "don't work well." The "Internet is always down." There are not enough computers for the students' needs. Students cannot obtain access to computers when they need to write papers. The software includes Microsoft Word. She is able to start papers at school and complete them at home. If her school had state-of-the-art computers, it would be great. Her school simply does not have enough computers, and it adds stress to the school day.

Student # 3 is studying literary media at Duke Ellington School. Her classroom is basically a computer lab. There are computers in almost all classrooms. There are not enough computers or Internet connections (there are only two phones lines in the classroom to connect to the Internet). There is a constant struggle to obtain access to computers in her school. The dance department wants to use the same computers and, because it is a bigger department than the literary media department, often has priority. Students in her department need to use computers to write long scripts. The struggle for access to computers adds unnecessary stress to the students' school day.

FUTURE SERVICES

Question: **Would you be interested in being able to send video electronically from your home directly to a VCR in another home at the push of a button?**

Student # 1: He does not think that this is a good idea as presented. Without a direct connection, like DSL, the user would have to keep dialing a number to establish a connection.

Student # 2: It would save time when she wants to send friends copies of her videos but she is not certain that she would use such a service.

Question: **Would you be interested in being able to dial a number, order any movie, and have it sent in cinema quality to your home and stored so you could watch it any time you wanted to?**

Student # 1: He questions whether people could afford the cost of a "good" cinema set-up that would allow people to view these films.

Student # 2: She is interested in this service option, stating that the service would be "neat," but also does not know whether this equipment really would exist. She is skeptical that this technology would ever really exist.

Question: Would you be interested in having the ability to plug into the network from any place in the city and transmit a video to any place in the city?

Student # 1: "That's cool with me" but he doubts that he would have any reason to use this service.

Student # 2: She would not feel comfortable putting her videos over the Internet. She would not want just anybody to be able to see her film. She would probably be interested in this service option if she had an ability to control who saw it.

Student # 3: She is interested in this service. "It's all about time now, nobody has time to do anything." The less time it takes to send out a video, the better.

Question: Would you be interested in having the ability to order and pay for only those programs you watch?

Student # 1: This option probably would not be worthwhile because companies probably would charge more for service on an individualized basis. He thought that this service should already be possible because "you can do this in a hotel."

Student # 2: She thinks the company would charge more for this service but "it would be good" because even though she would not get as many channel choices, there are channels she simply does not watch and some she knows she wants to watch. It would limit clutter and the nuisance of keeping track of the many channels she is not interested in.

Question: Would you be interested in having access to digital equipment for your video productions?

Student # 3: She thought it would be good for her program because her class is always trying to do better than everybody else. This technology would be good for video classes. The technology now available limits their ability to experiment.

Student # 2: She is "anti-digital." She thinks that many people buy digital service so they can "brag" that they could afford digital service.

Student # 1: He would use digital technology but some people might abuse digital technology to create a false reality. They can create an image where a person appears to be in the White House when actually he is some where else. Students with access to digital equipment will have "the edge" professionally because broadcasters use digital technology. He has had some exposure to digital technology through the Macintosh but has not used Avid editors.

Student # 3: She has observed digital technology in action but was not permitted to handle the technology herself. She would like to be able to learn digital because editing is so much quicker. With analog technology, editing is done by hand but will digital technology and computers, it can be done by pushing buttons.

Question: Would you like to see high-speed Internet access in the schools?

Student # 1: His school already has high-speed access to the Internet because students have access to Gelman Library at George Washington University, which is connected to the Internet via a T1 line. He says that high-speed access would be an advantage for any school that does not already have it.

Student # 2: She says that it would help by reducing delays in accessing the Internet.

Question: Do you think it would be valuable to have more resources available at the public access studios for the public to use?

Student # 1: He learned "everything" from his training at PAC and described PAC as "a good thing." He suggests that the problem is that "some people don't know about [public access]" and others do not care about it. The shows carried on the public access channels are produced by members of the public. Viewers sometimes view public access programming as "a joke."

Student # 2: She did a full year's internship at DCTV. She produced a documentary on Georgetown University's orchestra. It took nine months to make the video. She had a screening party. Her supervisor told her that documentaries typically take a longer time to produce than regular movies because of the amount of research required. It will be shown on DCTV twice a week for three weeks but she has not been told when the show will be aired.

Student # 3: She waited one month for her video to be aired on the public access channels. She did not know when it was going to be aired. She said that she was frustrated that she had to wait for it to be aired so long after she completed work on the show. She only knew it aired because her friends told her they saw it on the system. She saw it "by accident." Her sister was surprised by the quality of the production and was impressed.

Question: Is there interest in your school in video production?

Student # 1: The students do a video yearbook each year.

Student # 3: Everyone wants to be in front of or behind a camera.

Question: Do you wish you would have learned your video skills at a younger age?

Student # 1: "Yes, because it would be more profitable to me now." If he had had experience with video earlier, he would have planned to shorten his academic career so that he could go to work doing video full time an early age.

Student # 2: Yes. It would have allowed me to be more experienced, to know what is a good cut, a good edit, an understanding that only comes with time.

Student # 3: She would have like to have learned video at an earlier age. It takes time to learn editing. You learn from your experience, and save time the more you know. It also lets you have more editorial control over your product.

Question: If your parents have the ability to obtain electronic access to information about your school activities on a regular basis would you be concerned?

Student # 1: "I wouldn't worry about it."

Student # 3: She does not want her parents any more involved in her school activities than they already are.

Question: Would you have a problem if your parents could check on particular home work assignments or particular grades on a test?

Student # 3: She did not have a problem with her mother knowing about her homework assignments but did not want her mother to know her grades. This would prevent her from resolving the problem before her mother knew. She thought it would be helpful to have enough information to be able to remind her which projects are due.

Student # 1: He would not have a problem with this service because he already tells his parents about his grades. He does not need his parents help in keeping track of his homework assignments as he already does that himself.

Student # 2: She would have a problem with her parents having access of this sort. She thought that her mother would bother her about completing her homework assignments. She was not concerned about her mother having access to her grades because her grades are acceptable.

Question: **If there were changes or improvements you could make in the cable system, what would you recommend?**

Student # 1: "I'd make sure it cost less." "I would go to fiber optic lines because you can go over a longer distance and the quality is better." "I'd make everything digital." He was not convinced that competition would make any difference in price.

Student # 3: She would have more video classes and video teachers at school. She would lower the prices for cable. She noted that most people want cable but cannot afford to keep it with everything else being so expensive. She would make "some things" digital but not everything because "some of the ideas that come from it . . . where you can tap into anything" and "create new realities . . . cross over the line."

Student # 2: The price should be lowered and people should be provided with more choice for the money. She would to see the History channel offered because of her father's interests. She is not interested in competition and does not think that competition will lead to more choice.

Question: **Would you subscribe to telephone service from your cable operator?**

Student # 1: "It wouldn't matter as long as the quality is the same."

Student # 3: Fine.

Student # 2: Yes.

APPENDIX D: SUMMARY OF THE VERIZON/DC-COMCAST/DC RELATIONSHIP

SUMMARY OF THE
VERIZON/DC-COMCAST/DC RELATIONSHIP

Under the terms of an agreement between Verizon/DC and Comcast/DC,[1] the cable system's distribution facilities are the property of Verizon/DC.[2] This agreement expired on March 14, 2000,[3] apparently resulting in termination of some (but not all) of Comcast/DC's contractual rights. There is no evidence that this agreement has been extended or amended.[4] Thus, it appears that Comcast/DC's rights consist primarily of the right to "use" the system for its remaining "technological useful life"[5] and any rights established by applicable tariffs[6] or by other agreements with Verizon/DC.[7]

Comcast/DC's has acknowledged that Verizon/DC is the record owner of the system's distribution facilities and has implicitly acknowledged that Comcast/DC has no right to update these facilities without entering into a new agreement with Verizon/DC.[8] However, Comcast/DC is

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1. This agreement– "Agreement for the Provision of Broadband Transport Facilities"–was entered into by Verizon/DC and Comcast/DC on November 5, 1984, and amended on August 30, 1985, to reflect the modifications to the Comcast/DC franchise agreement approved by the District in September of 1985. This agreement (as amended) is referred to in this report as the Verizon/DC-Comcast/DC Agreement.

2. Verizon/DC-Comcast/DC Agreement § 11.4.

3. Verizon/DC-Comcast/DC Agreement § 13.1 (15 years following the effective date of the Comcast/DC franchise, which was March 14, 1985).

4. The franchise agreement requires Comcast/DC to file "any amendment, addition, renewal, or recission of any such agreement [with Verizon/DC] . . . with [OCTT] within thirty (30) days of the change in status [of the agreement]." CFA §13.3.04. *See also* Letter of July 13, 2001, of Darryl Anderson (OCTT executive director) to Curt Pendleton (Comcast/DC's area vice president) (requesting a report on the status of the Verizon/DC-Comcast/DC arrangement) and Letter of August 23, 2001, of Jennifer Heller (assistant deputy general counsel for Comcast) to Mr. Anderson (reporting that the 1984 agreement and the 1985 amendment to that agreement have not been amended).

5. Verizon/DC-Comcast/DC Agreement § 11.1. This provision permits Comcast/DC to "use" the cable system for the provision of cable service after the expiration date of the agreement but does not grant Comcast/DC any express right after this expiration date other than the right to deliver cable service over the system.

6. The relationship between Verizon/DC and Comcast/DC is governed by Verizon Tariff F.C.C. No. 9 and will continue to be governed by that tariff (or a modified version of it) until such time as it is rescinded. This tariff is referred to in this Appendix as Tariff F.C.C. No. 9.

7. By its terms, the Verizon/DC-Comcast/DC Agreement may be modified or amended only by a written agreement or a written change order which has been signed by both parties. Verizon/DC-Comcast/DC Agreement § 17.10. This means that the parties may not modify or amend the agreement orally or by implication.

8. "Comcast also has always had the right to request that Verizon perform rebuilds and additions to the facilities, *upon agreement on adjustments to the economic terms*. (See Paragraph 17.8 of the Amendment.) We would anticipate using this process to effect arrangements with Verizon required for our planned rebuild." Letter of August 23, 2001, from Ms. Heller to Mr. Anderson (emphasis supplied). Based upon the fact that the Verizon/DC-Comcast/DC Agreement has

involved in activities which may not be authorized by either the Verizon/DC-Comcast/DC Agreement or Verizon/DC's FCC tariff. Specifically, Comcast/DC has upgraded some of the system's distribution facilities[9] although it does not own these facilities and does not appear to have the right to alter them without Verizon/DC's consent or to do anything other than deliver cable service over them or engage in activities authorized by Verizon/DC's tariff.

Verizon/DC designed and constructed the distribution network for the Comcast/DC system and also maintained it for a number of years. The prices paid to Verizon/DC by Comcast/DC for construction and maintenance of the system were fixed prices established by Verizon/DC's FCC tariff. The effective date of the most recent FCC tariff was January 24, 2001.[10] The prices specified in this tariff were established by negotiations between Verizon/DC and Comcast/DC. In all likelihood, these prices probably also reflect the relative weakness of Comcast/DC's bargaining position *vis-a-vis* Verizon/DC's.[11] The provisions of the tariff superseded the Verizon/DC-Comcast/DC Agreement in any area where the tariff and the agreement were inconsistent.[12] Verizon/DC's tariff is the primary source of rules governing Comcast/DC's use of the system now that the Verizon/DC-Comcast/DC Agreement has expired. Neither the Verizon/DC-Comcast/DC agreement nor the tariff establishes procedures or standards for amending the tariff after expiration of the agreement. Thus, Verizon/DC could, for example, assert that it has the right to unilaterally amend the existing tariff and impose new fees on Comcast/DC for use of the system.[13] The tariff was apparently modified from time to time in minor ways while the agreement was in effect, most notably to add provisions governing deployment of two fiber optic lines, but otherwise has changed very little since it was first established in the 1980s.

The original agreement allowed Verizon/DC to assign is rights to any subsidiary or affiliate

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expired, it is doubtful that Comcast/DC has any right to invoke the process cited in Ms. Heller's letter since it was established by a contract which has expired.

9. *See, e.g.*, Christopher Stern, "Model Operation: Comcast Says D.C. Cable Project Will Show AT&T How It's Done," Washington Post, July 25, 2001, E1 (Comcast/DC plans to spend $58 million to add 300 miles of fiber optic lines in the District in 2001).

10. Tariff F.C.C. No. 9.

11. As an operator of a business which does not own facilities that are essential to that business and which has no right to upgrade those facilities, Comcast/DC is essentially at Verizon/DC's mercy. Conversely, Verizon/DC has very little at risk in this relationship: it assumed no real risk in constructing the cable system as it was fully compensated for all construction costs at the time those costs were incurred. Moreover, Verizon/DC is in a position where it could, in theory, pull the plug on the business of a potential competitor and prevent Comcast/DC from providing service to District residents until it built its own system or secured alternative distribution facilities. In fact, Verizon/DC has the right to shut down some or all of the Comcast/DC system for failure to make payments required by the tariff following 30 days' written notice via certified mail. Tariff F.C.C. No. 9 § 2.2.8.

12. Verizon/DC-Comcast/DC Agreement § 2.1.

13. The Verizon/DC-Comcast/DC Agreement permitted these prices to be modified only with the express consent of both parties but did not establish any understandings or requirements with respect to modification of the prices specified in the tariff after expiration of the agreement. Verizon/DC-Comcast/DC Agreement § 2.1.

or to its parent company without Comcast/DC's prior consent.[14] The tariff (and the agreement when it was in effect) allows Comcast/DC to assign its rights but requires it do obtain Verizon/DC's written "acknowledgment" before doing so.[15] This presumably occurred in connection with AT&T's acquisition of TCI (and thereby the cable franchise) in 1999 and Comcast's acquisition of the cable franchise from AT&T in early 2001. In connection with any assignment of rights of this sort, the tariff also requires the transferee to assume all outstanding indebtedness for broadband transport services.[16]

DISTRIBUTION FACILITIES

Under the agreement, Verizon/DC owns all broadband transport facilities for the Comcast/DC system.[17] These facilities include all facilities interconnecting the system's input and output points (*i.e.*, from the headend's distribution facilities, through the network, and all the way to the system's tap-off points).[18] Under this arrangement, Verizon/DC was responsible for both designing and constructing the system's broadband transport facilities. Comcast/DC had the right to specify its preferences in terms of routing and to give final approval to the design selected by Verizon/DC but did not actually have final authority to establish design specifications.[19]

The agreement included proposed design and technical specifications for the system, including the equipment to be deployed by Verizon/DC.[20] However, final specifications were established through a request for proposals issued by Verizon/DC, with Verizon/DC and Comcast/DC required to jointly agree to a substituted list of equipment and corresponding technical and physical and design parameters.[21] This final list was to be the "technical equivalent" of the original list of equipment specified in Exhibit G of the agreement and the original design and technical parameters specified in Exhibit F of the agreement. Once these final design decisions were made, Verizon/DC was not allowed to deviate from this final list of equipment and design and technical parameters without Comcast/DC's consent.[22] The agreement is, in many respects, a straitjacket, which denied Comcast/DC the flexibility to respond to developments in technology and

14. Verizon/DC-Comcast/DC Agreement § 17.1.

15. Tariff F.C.C. No. 9 § 2.2.3. *See also* Verizon/DC-Comcast/DC Agreement § 17.1.

16. Tariff F.C.C. No. 9 § 2.2.3.

17. Verizon/DC-Comcast/DC Agreement § 11.4.

18. Verizon/DC-Comcast/DC Agreement § 1.1(d). *See also* Tariff F.C.C. No. 9 § 2.10.

19. Tariff F.C.C. No. 9 § 2.3.7.

20. Verizon/DC-Comcast/DC Agreement, Exhibits F and G.

21. Verizon/DC-Comcast/DC Agreement § 3.1.

22. Verizon/DC-Comcast/DC Agreement § 3.1.

to changes in market conditions following completion of initial construction of the system.

The basic design requirements for the system were for a simple 450 MHz system that could be upgraded to a 550 MHz two-way system[23]:

> The broadband transport facilities shall be suitable for the simultaneous transmission of a maximum of 60 standard National Television Systems Committee (NTSC) television and FM radio signals for delivery to subscriber output points at frequencies between 54 MHz and 450 MHz and four (4) signals for return transmission from the output points to the head-end location at frequencies between 5 MHz and 30 MHz. These facilities are upgradable to carry 550 MHz two-way transmission at rates to be determined by [Verizon/DC] and filed in this tariff. The broadband transport facilities may utilize fiber optic trunks which are guaranteed to provide simultaneous one-way analog transmission of 60 standard [NTSC] television and FM radio signals in the AM-VSB spectrum between the range of 54 MHz and 450 MHz.[24]

Perhaps most important, connection of facilities provided by Comcast/DC or any entity other than Verizon/DC "with facilities furnished under this tariff may be made only at the [system's] input and output points."[25] As a result of this limitation, Comcast/DC has no right under either the original agreement or the tariff to connect or attach any facilities or equipment to the system except at the headend and at the tap-off points. On its face, this restriction appears to prohibit Comcast/DC from upgrading the system unless it negotiates a new agreement or tariff with Verizon/DC which establishes more flexible terms and conditions for attachment of facilities to the existing network or unless Comcast/DC builds its own distribution facilities. The tariff underscores the severe nature of the limits on Comcast/DC's ability to upgrade or otherwise change the system, stating that Comcast/DC "may not rearrange, disconnect, remove, or otherwise tamper with, or permit others to rearrange, disconnect, remove, or tamper with broadband transport facilities, except with [Verizon/DC's] written consent."[26]

Verizon/DC's responsibilities included installing tap terminators and weather boots in connection with initial installation of taps. However, once initial installation was complete, the agreement assigned responsibility to Comcast/DC to maintain these terminators and weather boots.[27] Thus, Verizon/DC installed the distribution network and related taps and was responsible for equipping the system's taps to prevent weather damage and signal ingress. Following completion of initial construction, Comcast/DC assumed responsibility for maintaining the terminators and

23. Verizon/DC-Comcast/DC Agreement, Exhibit F.

24. Tariff F.C.C. No. 9 § 2.2.2.

25. Tariff F.C.C. No. 9 § 2.10.

26. Tariff F.C.C. No. 9 § 2.2.1.

27. Verizon/DC-Comcast/DC Agreement, Exhibit I § 1.13.

weather boots associated with the system's taps and for installing drop lines and making final connections to subscriber locations. These tap-off points are a significant source of signal quality problems yet, under the Verizon/DC-Comcast/DC Agreement, responsibility was divided in a way that made it difficult to determine which party was actually responsible for service quality problems associated with improperly sealed taps (*e.g.*, whether the problem was due to faulty initial installation by Verizon/DC or to faulty maintenance by Comcast/DC).

The agreement also blocked any improvements to the system, including state-of-the-art enhancements, unless Comcast/DC agreed to pay whatever price Verizon/DC demanded. Nothing in the agreement required Verizon/DC to upgrade the system after initial construction to maintain state-of-the-art technology. Moreover, the agreement did not give Comcast/DC the unilateral right to require an upgrade or make other "change orders," providing only that Comcast/DC may, "within the general scope of the agreement," require Verizon/DC to perform extra work but only if the parties agreed to the necessary adjustments in payment terms.[28] The requirement for an agreement constituted, of course, a major barrier to any real improvements in system technology given Verizon/DC's *de facto* veto power (both parties must agree to the price for any change but Comcast/DC's leverage is limited as it has no alternative to Verizon/DC) via the pricing mechanism and its interest in preventing Comcast/DC from competing in such markets as the telecommunications and high-speed Internet service markets.

The tariff governing the relationship between Verizon/DC and Comcast/DC appears to have been slightly modified in the 1989 to 1991 period. These modifications included limited requirements for deployment of fiber optic trunks, primarily for the purpose of eliminating secondary hubs on the Comcast/DC system. The tariff does not include general provisions with respect to deployment of fiber optics or enhancement of the system's transmission capacity to 750 or 860 MHz or pricing provisions for any other technical enhancement normally associated with system upgrades.

Fiber Optic Links:

Under modifications to the tariff in about 1989, Verizon/DC agreed to provide one fiber trunk to establish a connection between Comcast/DC's headend on Florida Avenue, N.W., and 120 7th Street, N.E., for a one-time payment of $213,517.[29] This fiber optic link was activated in late 1989 or early 1990, and the tariff assumes a useful life for this fiber line of about 10 years. The tariff also requires Verizon/DC to provide duplicate "hot standby" backup lasers and fibers.[30] Comcast/DC had the right to opt out of this 10-year obligation but could recover only a portion of its $213,517 payment to Verizon/DC if it elected to opt out. The amount of this $213,517 payment which Comcast/DC could recover pursuant to an opt-out election was $126,612 in 1990 and gradually declined to zero by 1999. The tariff also allowed Comcast/DC to extend its right to use this line for another 10 years (until about 2009) at a monthly rate based on Verizon/DC's operating expenses,

28. Verizon/DC-Comcast/DC Agreement § 17.8. *See also* Tariff F.C.C. No. 9 § 2.2.6 (the charges and regulations applicable to "special construction" for Comcast/DC are to be negotiated by Comcast/DC and Verizon/DC).

29. Tariff F.C.C. No. 9 § 3.6(B).

30. Tariff F.C.C. No. 9 § 2.5.

duct rates, and capital costs.[31] Under this arrangement, Comcast/DC has effectively paid for all costs associated with deployment of this line but does not actually own it.

A year or two after deployment of the first fiber trunk, Verizon/DC deployed a second fiber trunk to establish a connection between Comcast/DC's headend on Florida Avenue, N.W., and interface points at Shannon and W Streets, S.E., and at 27th Street and Pennsylvania Avenue, S.E. This line was apparently activated in late 1990 or early 1991. For this fiber line, payment terms were $6,100 per month (for a possible total of $732,000 over a 10-year period). Comcast/DC was also subject to penalties in the form of a "termination charge" if it decided to discontinue leasing the line from Verizon/DC prior to expiration of the 10-year period. This one-time charge was set at $142,5000 in 1992 and gradually declined each year, eventually falling to zero in 2001.

Maps and Drawings:

Verizon/DC's only obligation under the agreement to provide maps and drawings to Comcast/DC consisted of an obligation to "make available" strand maps and "underground walkout maps" to Comcast/DC as they were "prepared."[32] In order to obtain a current version of strand maps for the system, the agreement required Comcast/DC to pay $337,870 to Verizon/DC.[33]

Maintenance:

Verizon/DC was initially responsible for system maintenance under the agreement.[34] Rules for maintenance by Verizon/DC were established by Exhibit I of the agreement. These rules did not require an immediate response by Verizon/DC in many cases, perhaps contributing to service quality problems in the early years of system operations and delays in restoration of service following system outages.

31. Tariff F.C.C. No. 9 § 2.13.

32. Verizon/DC-Comcast/DC Agreement § 3.2.

33. Tariff F.C.C. No. 9 §§ 2.2.7 and 3.5.

34. Verizon/DC-Comcast/DC Agreement § 7.1.

Payment for maintenance of the system was governed by a schedule of payments specified in Exhibit K of the agreement and in the tariff.[35] The tariff permitted Comcast/DC to assume responsibility for of system maintenance by exercising the option to do so on or after January 1, 1991.[36] Comcast/DC exercised this option although the precise date on which Comcast/DC took over system maintenance is not clear.[37] The agreement required Comcast/DC to follow Verizon/DC's practices in entering its underground conduit if it assumed responsibility for system maintenance.[38] Comcast/DC's ability to assume control of system maintenance was, however, significantly restricted with respect to underground plant as Verizon/DC retained responsibility for maintaining any facilities that had been integrated in the same conduit with Verizon/DC facilities (unless Comcast/DC paid to have those facilities disaggregated).[39]

CONTROL AND USE OF THE SYSTEM

Comcast/DC has the "exclusive right" to use the system's broadband transport facilities for their "entire technological useful life" and may use the system for provision of unidirectional and bidirectional cable television service during that period.[40] Comcast/DC's right to use the system survived the expiration of the Verizon/DC-Comcast/DC Agreement[41] and is now apparently governed primarily by Verizon/DC's FCC tariff. Cable television service is defined as the provision of "television signals and other services" by means of Verizon/DC's broadband facilities.[42] Neither the agreement nor the tariff provides any guidance as to what services are encompassed by the term "other services," raising questions with regard to whether Comcast/DC has the right to deliver high-speed Internet service, telephone service, and other advanced services over the system. Similarly, the agreement does not define "technological useful life," making it difficult to determine when Comcast/DC's right to use the system expires or whether that right has already expired.

Under the agreement, Verizon/DC reserved the right to oppose provision of any service by

35. Verizon/DC-Comcast/DC Agreement § 8.5 and Tariff F.C.C. No. 9 § 3.3.

36. Tariff F.C.C. No. 9 § 3.2.

37. Technical and Operations Review–Comcast/DC System (Appendix A), A-3 (Comcast/DC personnel state that they assumed responsibility for maintenance in 1988). This recollection is probably erroneous as Comcast/DC did not have the right to assume responsibility for system maintenance until 1991.

38. Verizon/DC-Comcast/DC Agreement § 8.9.

39. Verizon/DC-Comcast/DC Agreement § 8.9.

40. Verizon/DC-Comcast/DC Agreement § 11.1.

41. Verizon/DC-Comcast/DC Agreement § 11.1 ("Notwithstanding that under Section 13.1 the term of this Agreement is 15 years from the Effective Date of (sic) Franchise for other purposes, [Comcast/DC] shall have the exclusive right to use the [cable system's] Broadband Transport Facilities for the entire technological useful life of said facilities for the provision of unidirectional and bidirectional Cable Television Service").

42. Verizon/DC-Comcast/DC Agreement § 1.1(f) and Tariff F.C.C. No. 9 § 2.1.

Comcast/DC which, in Verizon/DC's view, Comcast/DC was not entitled by law to provide.[43] This right apparently applied to any service which fell outside the agreement's definition of cable service although what services would be affected by this provision is not clear since neither the agreement nor the associated franchise agreement expressly adopts the Cable Act's narrow definition of cable service.[44]

The agreement precluded Verizon/DC from unilaterally discontinuing provision of facilities or services simply because it concluded that Comcast/DC was providing services which it was not entitled by law to provide.[45] In view of the expiration of the agreement, Verizon/DC is apparently no longer constrained by these specific requirements. The tariff, however, includes a generally similar provision.[46] Specifically, the tariff allows Verizon/DC to discontinue providing a service or facility without incurring any liability to Comcast/DC if it has been ordered to do so by a court or other governmental authority[47] or if a receiver has been appointed to take possession of Comcast/DC's assets, Comcast/DC has made a general assignment for the benefit of its creditors, or bankruptcy proceedings have been initiated *vis-a-vis* Comcast/DC.[48] The tariff does not expressly authorize Verizon/DC to stop providing service to Comcast/DC in any other circumstance although it also does not expressly preclude it from doing so.

According to the agreement, Verizon/DC may not control Comcast/DC's use of the system's broadband transport facilities.[49] The tariff includes a similar provision.[50] According to the agreement, Verizon/DC is the "record owner and retain[s] legal title" to the system's distribution facilities while Comcast/DC is the "beneficial owner" of the system's distribution facilities.[51] Beneficial ownership of the system is a broad term, extending somewhat beyond the rights of a conventional

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43. Verizon/DC-Comcast/DC Agreement § 11.7.

44. The agreement defines cable television service as "the provision of television signals and *other services*" by means of the system. Verizon/DC-Comcast/DC Agreement § 1.1(f) (emphasis supplied). The agreement neither defines nor expressly restricts the term "other services," which it therefore may be argued include telephone service and high-speed Internet service.

45. These provisions allowed Verizon/DC to prevent Comcast/DC from providing a particular service or category of services only pursuant to an order of "an appropriate governmental authority." Verizon/DC-Comcast/DC Agreement § 11.7. In addition, Verizon/DC also has the right under the current tariff to discontinue the provision of facilities or services if Comcast/DC fails to pay for the affected facilities or services by the due date for the payment and if Verizon/DC provides 30 days advance written notice by certified mail. Tariff F.C.C. No. 9 § 2.2.8.

46. Tariff F.C.C. No. 9 § 2.4.2.

47. Tariff F.C.C. No. 9 § 2.4.2(A).

48. Tariff F.C.C. No. 9 § 2.4.2(B).

49. Verizon/DC-Comcast/DC Agreement § 11.2.

50. Tariff F.C.C. No. 9 § 1.

51. Verizon/DC-Comcast/DC Agreement § 11.4.

lessee, and encompasses " the risks of technological, market, and physical destruction, obsolescence, and deterioration, and the economic benefits of ownership, including without limitation the exclusive use" of the system's distribution facilities for their "useful technical life"[52] and the right to claim tax benefits, including depreciation write-offs and investment tax credits.[53] Since the agreement has expired, it is unclear whether Comcast/DC has the right to exercise any of the incidents of "beneficial ownership" other than the right to deliver cable services over the system for any "technological useful life" of the system which may remain.

The agreement expressly states that the parties agree that Comcast/DC could have built its own distribution facilities and obtained "available space" on Verizon/DC's poles and in its conduits without being subject to restrictions with regard to their use.[54] In other words, Comcast/DC acknowledged in the agreement that it knowingly and voluntarily entered into an agreement under which it relinquished both ownership of the system and full control of system operations and expansion.

USE OF THE RIGHT-OF-WAY

The agreement is not entirely consistent or logical with respect to the parties' expectations concerning use of Verizon/DC's conduit and other facilities. The agreement required Verizon/DC to use existing poles and conduit in building Comcast/DC's cable system but did not require co-location in Verizon/DC's conduit. Similarly, it required that Verizon/DC comply with District law but also sanctioned aerial installations in many instances. However, regardless of these apparent inconsistencies, the agreement unambiguously required Verizon/DC to secure all necessary right-of-way permits and to comply with all District law and regulations governing use of the public right-of-way. Despite these requirements, Verizon/DC apparently failed to secure permits for aerial installations in the fire zone and failed to comply with District rules requiring underground construction in these areas of the District.

The agreement clearly required Verizon/DC to obtain all necessary licenses, permits, and authorizations to construct and complete the system, presumably including right-of-way permits.[55] The only exceptions to this requirement were cable television relay service (CARS) licenses, which

52. Verizon/DC-Comcast/DC Agreement § 11.4.

53. Verizon/DC-Comcast/DC Agreement § 11.5.

54. Verizon/DC-Comcast/DC Agreement § 17.6.

55. Verizon/DC-Comcast/DC Agreement § 5.1-.2.

Comcast/DC was required to obtain.[56] Verizon/DC was specifically responsible for "obtaining public and private rights-of-way necessary for any placement" of system facilities.[57] Comcast/DC, in contrast, was responsible only "for obtaining any and all private rights-of-way or private rights-of-entry" that were necessary in connection with placement of system facilities in "residential or commercial multi-tenant buildings."[58]

Verizon/DC was expressly not relieved of the obligation to secure permits which would normally apply in other contexts, including the requirement to secure permits for aerial installations in the fire zone. Verizon/DC apparently did not comply with basic requirements of the District code, installing poles and lines at above-ground locations throughout the fire zone in violation of the District's prohibition on aerial installations in these areas.[59] Specifically, the agreement made clear that Verizon/DC's obligations to comply with the District's permitting requirements were unqualified, providing that "[n]othing in this agreement shall be deemed to relieve [Verizon/DC] of the obligation to obtain permits, licenses, authorizations, and approvals, or to meet any condition or requirement of any law, rules, or regulation of general applicability in respect to the use, installation, construction, repair, removal, or maintenance of the broadband transport facilities in, on, under, or above the public ways within the District."[60]

The agreement also required Verizon/DC to use existing poles and conduits to the extent possible and specifically required it to obtain the District's written approval before installing any new poles or conduits:

> "[*Verizon/DC*] shall utilize existing poles, conduits, and other facilities for the use of the broadband transport facilities whenever practicable, and *shall not construct or install any new, different, or additional poles, conduits, or other facilities on public property without the written approval of the District*."[61]

There is no evidence that Verizon/DC obtained the District's prior written consent for installation of the hundreds of new poles it installed throughout the fire zone.

On its face, the agreement favored co-location of cable lines in existing Verizon/DC conduits which already contained telephone lines. In fact, the agreement permitted overhead installation of cable lines only in situations where there was not enough room in existing conduit for telephone lines to accommodate cable lines:

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56. Verizon/DC-Comcast/DC Agreement § 5.1.

57. Verizon/DC-Comcast/DC Agreement § 5.15.

58. Verizon/DC-Comcast/DC Agreement § 5.15.

59. 12A DCMR §§ 2709-10.

60. Verizon/DC-Comcast/DC Agreement § 5.8.

61. Verizon/DC-Comcast/DC Agreement § 5.9 (emphasis supplied).

> Where both electrical and telephone utility wiring are located underground within separate conduits, either at the time of initial construction or subsequent thereto, and there is adequate capacity in the existing telephone utility conduits for the broadband transport facilities, the cable shall be located within the existing telephone utility conduits. If there is not capacity in the existing underground telephone utility conduits, the broadband transport facilities shall, to the extent possible, be located overhead. *Nothing in this Section shall be construed to supercede (sic) any provision of existing laws or regulations with respect to the prohibition of the installation of overhead wiring in certain areas of the District*.[62]

The last sentence of this paragraph appears to be a reference to, among other things, the District's prohibition on aerial installations in fire zone areas and to make clear that Verizon/DC was subject to these restrictions even if space was not available in Verizon/DC's existing conduit.

In spite of the foregoing policies which favored limiting new installations of poles and/or conduits and required co-location of cable lines in existing Verizon/DC conduit, the agreement is, in some respects, internally inconsistent. For example, it also included provisions which assumed that most construction would be aerial, stating "[w]herever possible and economically desirable, the [system] will be constructed aerially."[63]

Rates under the tariff vary by very large amounts depending upon whether construction is aerial or underground and, as a practical matter, discouraged underground construction (thereby encouraging violation of the District's fire zone rules). In fact, the lowest rates per route mile during the 1986 to 1991 period of initial construction were rates for aerial construction in the fire zone ($3,600 to $4,361 for make-ready work and $17,792 to $22,410 for construction for totals of $21,392 to $26,771 per route mile).[64] (Rates per route mile for aerial construction in the "non fire zone" were $3,600 to $4,361 for make-ready work and $20,267 to $26,379 for construction or totals of $23,867 to $30,740 per route mile.[65]) In contrast, per route mile rates for underground installation in existing conduit in the same time period were $215,975 to $261,733 for make-ready work plus additional actual construction charges of $23,517 to $29,428 for totals of $239,492 to $291,161 per route mile[66] or more than ten times the cost of aerial installation. Per route mile rates for underground installation in new conduit were even higher at $472,675 to $572,790 for make-ready work plus additional actual construction charges of $43,017 to $52,985 for totals of $515,692 to $625,775 per route mile[67] or almost 25 times the cost of aerial installation. In addition to these construction-

62. Verizon/DC-Comcast/DC Agreement § 5.10 (emphasis supplied).

63. Verizon/DC-Comcast/DC Agreement § 3.3. The tariff includes identical language. Tariff F.C.C. No. 9 § 2.2.5.

64. Tariff F.C.C. No. 9 § 3.1.

65. Tariff F.C.C. No. 9 § 3.1.

66. Tariff F.C.C. No. 9 § 3.1.

67. Tariff F.C.C. No. 9 § 3.1.

related charges, Comcast/DC was also required to pay annual fees to Verizon/DC for pole attachments and rental of conduit space, with much higher fees for conduit rental,[68] further increasing costs for underground installations.[69]

Finally, another provision of the tariff also favored aerial construction whenever conduit sharing was not possible:

> Distribution routes and type of facility shall be determined by [Verizon/DC] in accordance with [Comcast/DC's] design specifications. Wherever possible and economically desirable, the broadband transport facilities will be constructed aerially. Underground cable, wherever possible, will be located within existing [Verizon/DC] conduit unless berm or direct buried construction is utilized.[70]

This provision of the tariff, however, did not supersede or nullify provisions of District law which required underground construction in the fire zone. In sum, while the agreement favored and encouraged aerial construction in many ways, neither it nor any provision of District law relieved Verizon/DC or Comcast/DC of the obligation to comply with the District's fire zone rules and their strict limitations on aerial construction in many areas of the District.

68. Verizon/DC-Comcast/DC Agreement § 5.3-.4.

69. Annual fees for conduit rental are set by PSC regulation and are currently $0.30 per foot or $1,584 per route mile. Tariff F.C.C. No. 9 § 3.1.Assuming that all 335 miles of underground lines that are a part of the Comcast/DC system have been installed in Verizon/DC conduit, Comcast/DC would be required to pay Verizon/DC $530,640 per year for conduit rental. Monthly pole attachment fees, in contrast, are only $4 per pole or about $48 per year.

70. Tariff F.C.C. No. 9 § 2.2.5.

APPENDIX E:
DESIGN CRITERIA AND OUTLINE SPECIFICATION FOR MUNICIPAL AREA NETWORK (MAN)

DESIGN CRITERIA AND OUTLINE SPECIFICATION FOR MUNICIPAL AREA NETWORK (MAN)

1. Summary:

1.1 DC-NET:

1.1.1 The Government of the District of Columbia (hereinafter "District") has initiated a project called "DC-NET." This project shall result in a multifunction all-digital network interconnecting all feasibly connectable District offices and other facilities. The DC-NET project encompasses a District-wide view of broadband telecommunications, including voice, LAN, WAN, and MAN services. To initiate the "DC-NET" project architecture, the District shall obtain a "Municipal Area Network" (hereinafter "MAN") network[1] backbone and other items described herein, from the District's cable system franchisees.

1.1.2 As of August, 2000, the existing network infrastructure consisted of SMDS, ISDN, point-to-point connections, and SDLC links for SNA. There are different administration domains (clouds), including main domain managed by OCTO, MPD, DPW, DC Schools, DC Libraries, and Hospitals. Data network is separated from telephone network. The primary routing protocol is Enhanced Interior Gateway Protocol ("EIGRP"). There is multihoming to Internet Service Providers.

1.2 Scope of this Specification:

1.2.1 This specification requires cable system franchisee(s) (hereinafter "CSF") to furnish a MAN system, including:

1.2.1.1 full engineering services for design of the entire MAN system, as described herein. CSF shall pay for and manage the services of an engineering firm with specific experience in the type of project described in this document. Propose subject engineering firm for approval by District. District will approve proposed firm, if its qualifications properly align with the requirements of this document.

1.2.1.2 "dark" fiber network (and related components) to the limits described herein.

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1. The terms "Municipal Area Network" ("MAN") and Institutional Network ("I-Net") may be used interchangeably for the purpose of this document.

1.2.1.3 pre-construction, construction and post-construction services and support described herein and as required to ensure 99.999% system availability and reliability.

1.2.1.4 payment for customer premises equipment, as described herein.

1.3 Design Criteria and Outline Specification (DCOS):

1.3.1 This design criteria and outline specification (hereinafter "DCOS") provides the general requirements for MAN backbone(s) to be provided by CSF under cable system contract(s) between the Government of the District of Columbia and subject franchisee(s).

1.3.2 The objective of this specification is a MAN system that recognizes that the city-wide communications system of the Government of the District of Columbia is an important asset and resource, and that the need for and use of this city-wide system will continue to grow.

1.3.3 The MAN, in general, is an inter-building backbone cabling system providing connectivity between District buildings across the city. The MAN's voice, data, and video networks shall be supported by outside plant single-mode optical fiber cable. The CSF shall provide a nominally "dark" system, but shall provide the engineering and coordination necessary to allow the District to put the system into operation.

1.4 Detailed Engineering Design:

1.4.1 Provide full engineering services for design (including design criteria, drawings, specifications, procurement document development and procurement support, installation supervision, review of technical submittals, development of testing program and overview/verification of testing activities, construction inspection, commissioning/cut-over coordination/verification and other activities required to ensure full completion of the work described in this document) of the entire MAN system, including design of all related system elements (including equipment in customer premises equipment rooms) that are outside of the physical components provided by CSF.

1.4.2 This document shall be the foundation document for the detailed engineering design. The CSF shall provide subject fully detailed engineering design for

review by the District staff and consultants. Submit[2] the design in incremental form, corresponding to the following general submission list (each item in this list requires a separate and sequential approval by the District):

1.4.2.1 design criteria and performance criteria.

1.4.2.2 outline specification, system topology and physical layout.

1.4.2.3 design components organization (including proposed document list), phasing and milestone submission schedule.

1.4.2.4 engineering drawings and detailed specifications spanning all disciplines, including civil, electrical and telecommunications.

1.4.2.5 manufacturers' technical documentation and submittals, covering all elements of the system, including conduit and raceway (including street, manhole and ductbanks) systems. CSF's proposed engineering firm shall review all technical submittals for compliance with the approved design and procurement documents, and shall make a recommendation thereon for approval or disapproval.

1.4.2.6 detailed quality control program, covering all subjects pertinent to creation of a highly reliable and high throughput/low attenuation system, including in-plant inspections and testing, material handling and storage requirements, field installation procedures, standard assembly details and instructions for cable and raceway systems, end-to-end field testing and sign-off and incremental system commissioning. Comply with all elements of the approved quality control plan and integrate its elements into the construction and installation schedule.

1.4.2.7 construction, installation and commissioning phasing and schedule.

1.5 Compliance of Design with DCOS:

1.5.1 Ensure that proposed detailed engineering design fully complies with this DCOS, unless the District provides express written direction amending the DCOS. In the event the CSF wishes to propose such DCOS amendment, it shall expressly set out its proposed amendments, the reasons therefor, the engineering implications

2. For the sake of brevity, this document utilizes the imperative voice when the subject is the contractor (under this document, the "CSF"). When a sentence is in the imperative voice, it shall be construed to be preceded by the words "The CSF shall".

(pro and con) of the proposed change, and the before-and-after form of the affected DCOS section(s). CSF shall not proceed to implement such change until it obtains the District's express approval thereon. If District elects to disapprove CSF's proposed amendment, CSF shall immediately proceed to implement the system design and installation as directed by District, and CSF.

2. Standards

2.1 General

2.1.1 In addition to codes, regulations, ordinances, and any other pertinent legal requirements, Provide[3] the MAN system described in the DCOS in accordance with the following industry and other standards. In event of conflict between the DCOS and these standards, such conflict shall be first be resolved in favor of the District, resulting in a higher quality and/or higher quantity and/or higher capacity of system design and/or system components. Provide MAN in accordance with the latest edition of all standards and requirements.

2.2 Industry Standards: CSF shall cause its engineering firm to prepare the design in full compliance with the following standards unless this document requires greater quantity or higher quality in any element.

2.2.1 All applicable ANSI/IEEE 802 series specifications. This includes:

2.2.1.1 Gigabit Ethernet over plant cable up to 5 km per standard IEEE 802.3z CLAUSE 38.

2.2.1.2 ANSI/IEEE 802.3 through ANSI/IEEE 802.12, governing "Standards for Local and Metropolitan Area Networks . . .".

2.2.2 Underwriters Laboratories: OFNR Nonconductive optical fiber riser cable, OFNG Nonconductive optical fiber general-purpose cable, and OFN Nonconductive optical fiber general-purpose cable.

3. The term "Provide" includes the work of planning, designing, engineering, procuring, installing, testing, documenting, commissioning and any related labor, material, equipment, work or activities necessary to result in a complete and working MAN system meeting the approval of the District.

2.2.3 ITU-I: International Telecommunications Union - Telephony "H" and "G" standards, including:

2.2.3.1 H320 series (with emphasis on H323)

2.2.3.2 G711, G720, G723, G729, G729a.

2.2.4 ISO System Management Standards (proactive and reactive). Design for compliance with 99.999% reliability.

2.2.5 NEBS redundancy and compliance standards.

2.2.6 EIA/TIA cable marking and system numbering and documentation standards.

2.2.7 OSI System Documentation Standards.

2.2.8 Manufacturer's Installation Instruction approved by District through submittals process.

2.2.9 "Commissioning" procedures and general documentation per ASHRAE Guideline 1 (latest edition).

2.3 District Standards

2.3.1 Department of Public Works rules and ordinances for installation of services in the public right-of-way.

2.4 Codes

2.4.1 National Electrical Code (NEC)

3. Ownership:

3.1 MAN System:

3.1.1 The District will be the exclusive user of the MAN system hereunder. But such exclusivity shall not restrict the District's discretion in allowing other entities of the District's choice to connect to and use the network as the District sees fit.

3.1.2 The ownership of the MAN system provided to District by CSF shall be absolutely and indefeasibly vested in the District, with no conditions affecting the District's full and clear title to the MAN system.

3.1.3 This ownership shall include rights of access to any point in the MAN system, even if the physical infrastructure (conduit or raceway systems, or manholes, handholes, vaults, panels and similar infrastructures or assemblies) is shared with CSF's systems or infrastructure.

3.1.4 The system, once designed, approved, installed, and operational to the District's satisfaction, shall be documented by CSF ("system map and inventory"). Prepare, submit and obtain the District's approval for a formal document of title to the MAN, with supporting documentation including the system map and inventory attached, and execute, file, and take other legal actions requested by the District to formalize the transfer of ownership of the MAN system from CSF to District.

3.1.5 Interconnection: As part of its right of ownership, the District may interconnect the MAN system provided by CSF with MAN system elements provided by any entity, including the District itself, other CSF franchisees, private businesses and organizations and other government entities. CSF shall assist the District in ensuring than the MAN system under this document shall be compatible with the bridge and gateway equipment and configurations selected by District for such interconnection.

3.1.6 Manhole Access: As part of its right of ownership, the District may enter any vault, manhole, handhole, or conduit, as necessary to gain access to its network components.

4. Flexibility

4.1 Technology/Requirements Changing:

4.1.1 As of the development of this document, and because of advancing, changing, and converging technology and standards for telecommunications, it is impractical for the District to provide specific requirements for the MAN system, delineating specific optical fibers for specific network types, applications, transmission types, and routing options. Therefore, CSF shall provide a system that will allow the District to take best advantage of the specific technologies that will be available as of the time of system implementation. The following paragraphs set out flexibility requirements:

4.1.1.1 Network Types:

4.1.1.1.1 After detailed inquiry into the District's system requirements, through extensive interviews of District staff and other per-

sonnel designated by District, CSF's engineering firm shall make a proposal that considers the following options' applicability to the District's needs and the requirements of this document. With the understanding that some of the following network types may be "virtual" rather than "physical," and taking into account the District's default preference for a "ring" topology, provide a MAN network that is simultaneously capable of all of the following network types. CSF shall provide additional fiber pairs beyond the minimum fiber pair count set out herein, in order to satisfy this list of network types. Provide a system with reconfigurable architectures and protocols (layered and unlayered), cable of structured, unstructured, and other applications. Miscellaneous applications may include paging, mobile data terminals, interface with 900 MHz and 450 MHz radio systems, etc.

4.1.1.1.2 Ring (default configuration).

4.1.1.1.3 Multiple rings (backbone rings, distribution rings, access rings).

4.1.1.1.4 Star.

4.1.1.1.5 SONET access level, Gigabit Ethernet, Packet over SONET point-to-point links.

4.1.1.1.6 Hierarchical.

4.1.1.1.7 Core, distribution, access.

4.1.1.1.8 Mesh, partial mesh.

4.1.1.1.9 Bus.

4.1.1.1.10 Hybrid.

4.1.1.1.11 Point-to-point.

4.1.1.2 Transmission Types:

4.1.1.2.1 Asynchronous Transfer Mode (ATM), with PNNI routing – the default type, unless expressly allowed otherwise by District. ATM with PNNI routing shall be used for the sites with ATM infrastructure in place.

4.1.1.2.2 Packet over SONET (POS) shall be used for the replacement of current SMDS services on the sites.

4.1.1.2.3 Gigabit Ethernet shall be used for the switched campus environments with the distance less than 5 km.

4.1.1.2.4 Gigabit Ethernet. Gigabit Ethernet shall be used for the site campus environment with the distance less than 5 km to provide switched Ethernet services for the site's VLANs.

4.1.1.2.5 Analog voice and video streaming.

4.1.1.2.6 CEM circuit emulation for the analog and video applications in ATM environments.

4.1.1.2.7 TDM circuits provided by SONET.

4.1.1.2.8 Voice and video over IP with codec capabilities.

4.1.1.2.9 Packet Data Network (including possibility of converged system services).

4.1.1.2.10 TDM (Time Division Multiplexing).

4.1.1.3 Routing Options:

4.1.1.3.1 Distributed (the default configuration).

4.1.1.3.2 Centralized.

4.1.1.3.3 Broadcast.

4.1.1.3.4 Distance vector/path routing protocols.

4.1.1.3.5 Link state routing protocols.

4.1.1.3.6 Multicast routing protocols.

4.1.1.3.7 Analyze District's traffic requirements and make well documented engineering recommendations, selecting optimum routing, considering link states and RIP/RIP-2 distance vectoring.

4.1.1.3.8 Analyze District's traffic requirements and make well documented engineering recommendations for the selection of the Layer 3 routing protocols such as OSPF, EIGRP, ISIS, BGP.

4.1.1.3.9 Private Network-Network Interface (PNNI) shall be used for ATM environments as a default trunking protocol supporting SVC/Soft PVC topology discovery.

4.1.1.3.10 Link state protocols OSPF version 2 shall be considered as a Layer 3 Interior Routing Protocol. Open standard, defined in RFC 2178.

4.1.1.3.11 The DC Cable Net shall support MPLS for the following services:

4.1.1.3.11.1 IP QoS.

4.1.1.3.11.2 IP traffic engineering.

4.1.1.3.11.3 IP VPN.

4.1.1.3.11.4 IP any-to-any.

4.1.1.3.11.5 IP multicast.

4.1.1.3.11.6 IP security.

4.1.1.3.11.7 Provide tunneling for non IP traffic.

4.1.1.3.11.8 Provide optical links between the District's mainframe data centers for SNA APPN networks.

4.1.1.4 Application Samples (District is not limited by this list):

4.1.1.4.1 Voice services (including legacy POTS systems and H.323 applications with H.323 compliant call manager).

4.1.1.4.2 Business data transmission.

4.1.1.4.3 Video and voice teleconferencing.

4.1.1.4.4 FAX transmission (including IP fax gateways).

4.1.1.4.5 Synchronous device polling.

4.1.1.4.6 Traffic lights and traffic management systems.

4.1.1.4.7 Network management systems.

4.1.1.4.8 Building management systems, including BACnet protocol systems.

4.1.1.4.9 Reporting of power management status to the building management system, for all power management elements supporting the network.

4.1.1.4.10 Education subnetwork and interconnection.

4.1.1.5 Additional Conduit: Provide two additional empty conduit running from manhole to manhole (or other similar assembly including vaults, handholes, *etc.*). Each empty conduit end shall be free and clear of obstructions, screw-plugged and tagged as "Spare District Communications Conduit." Each such empty conduit shall:

4.1.1.5.1 be 1.5 inches minimum diameter,

4.1.1.5.2 be mandrelled (with sign-off by District representative),

4.1.1.5.3 contain a continuous "Greenlee" tape,

4.1.1.5.4 be of material and assembly components approved by District, and be constructed in a water-tight manner with pre-manufactured sweep turns.

5. District CPE Locations/Termination Points:

5.1 District Service Locations: Provide a multi-drop system, with full duplex communication at each drop. The District shall provide CSF a list of 31 St.,addresses that constitute the District's primary network service locations. In addition, the CSF shall provide drops at all schools and libraries listed in an address list provided by the District. Terminate the minimum count of full duplex optical fibers (loop) inside of the building at each of these addresses. The termination point for the MAN system shall be in the customer premises equipment (CPE) room designated by District within each of these addresses. Provide the same network connection to:

5.1.1. Any and all District buildings or facilities (whether owned or non-owned by District) within 200 feet of the street curb where the MAN network passes. If there is no curb, measure from road centerline. If there is no road, measure from centerline of ductbank or conduit.

5.1.2 12 additional addresses designated by the District. For these 12 locations, the drop length to the exterior face of the building shall be no longer than 500 feet.

5.2 Standard Manhole Loop: At each of the designated District locations, loop the District's minimum fiber count out of manhole(s) (or other approved point of origination) through District CPE location/termination point and back to manhole with no interruption in continuity of fiber, leaving a minimum 36 foot coiled loop (i.e., 72 feet of cable) in each District CPE location.

5.3 Raceway System: Provide system with all elements concealed from view, utilizing buried raceway system and below-grade entry to all District facilities. Provide intra-building raceway system, routing and assembly details in accordance with design submittal approved by District before commencement of any field work. The routing and other features of the within the building shall be configured to allow ease of access to

5.4 Additional Conduit: At each of the District service delivery addresses, provide a minimum of two empty conduit from the manhole (or other applicable origination point) to the inside of the building or facility. Each such empty conduit end shall be free and clear of obstructions, screw-plugged and tagged as "Spare District Communications Conduit." Each such empty conduit shall:

5.4.1 be 1.5 inches minimum diameter,

5.4.2 be mandrelled (with sign-off by District representative),

5.4.3 contain a continuous "Greenlee" tape,

5.4.4 be of material and assembly components approved by District, and

5.4.5 be constructed in a water-tight manner with pre-manufactured sweep turns.

6. Equipment Costs

6.1 Provide engineering and procurement support, as described herein, for CPE equipment to be procured and installed by District.

6.2 Provide $5,000,000 to be applied by District as it sees fit for systems and equipment supporting the MAN system. The District, without any limitation, may apply this sum to supply and installation of power filtering, climatization equipment, air filtration, uninterruptible power systems, network CPE equipment and support equipment including network operations equipment, ports, hubs, routers, bridges, gateways, switches, tuning equipment, analysis equipment, configuration control equipment, performance management equipment and help desk coordination equipment and devices. The District may also procure supplies such as premises cabling, and related "downstream" network components and hardware.

6.3 The District will designate a bank account into which CSF shall deposit the above funds. CSF shall deposit the full amount upon the District's declaration that it is ready to procure the first item of equipment within the above described list.

7. Miscellaneous Technical Requirements

7.1 Provide complete engineering design, including:

7.1.1 detailed requirements definition, including consideration of geography, traffic analysis, system availability requirements, response time, reliability, growth, flexibility;

7.1.2 network analysis, including:

7.1.2.1 network optimization through internetworking analysis,

7.1.2.2 network simulation, and

7.1.2.3 queuing analysis;

7.1.3 network design;

7.1.4 study of system design alternatives;

7.1.5 selection and documentation of engineering solutions;

7.1.6 selection of vendors and equipment (minimum three equivalent brand names/models, unless District expressly approves otherwise);

7.1.7. documentation of design plan and schedule;

7.1.8 detailed drawings, specifications, and procurement documents;

7.1.9 documentation of implementation plan;

7.1.10 pre-procurement cost estimates for each of equipment, operations and life cycle;

7.1.11 installation support, including pre-installation planning, installation review, submittal review, development and review of training plans, system testing, cut-over and hand-off;

7.1.12 as-built and record documentation, in hard copy and electronic form;

7.1.13 CSF shall cause the ownership of the engineering design, including all supporting documentation (including calculations) to become the exclusive property of the District. This shall include copyright and patent rights; and

7.1.14 development and implementation of maintenance program, including warranty support and system support for a minimum of six months after system cut-over to operations.

7.2 District may elect to perform a peer review of the design elements proposed by CSF and CSF's design engineering firm. This review shall be made to verify and validate the compliance with this document and other design elements approved by District. CSF shall cause the design and construction of the system to be revised to fully comply with reviewer comments. The District may employ any combination of its own staff and non-District entities in the peer review process.

7.3 Reliability, Maintainability and Survivability: CSF shall propose, via submittals process, a reliability and maintainability approach to ensure that the system is failure tolerant and remains at a high level of availability at all times.

7.4 Optical Fiber Cable: Provide minimum synchronous optical network (SONET), per ITU-T standards, OC-48 or better speeds (greater than or equal to 2.5 Gbps).

7.4.1 Maximum Line Loss: Design system to minimize line attenuation per kilometer, per individual fiber. Loss per kilometer (dB/km) is not more than 0.40 dB/km @ 1310 nm and 0.25 dB/km @ 1550 nm. No averaging shall be applied across fibers to meet this requirement. Each fiber shall pass or fail on its own. Loss due to absorption by impurities shall not be more than 1400 nm peak due to hydroxyl (OH) ion absorption. Connector loss shall not be more than 0.75 dB. Splice loss shall not be more than 0.1 dB. Ensure that these performance levels are maintained for one year after acceptance of the system by the District. If the system does not so perform on any individual fiber, provide a replacement fiber to the District within 10 days of District's notice to CSF of unacceptable attenuation in any fiber.

7.4.2 SONET/SDH:

7.4.2.1 SONET/SDH shall be used when there is a requirement for TDM transmission (for applications such as voice and video), pre-emptive fault and performance monitoring and rapid restoration. SONET/SDH restoration shall not require more than 50 msecs.

7.4.2.2 Four fiber Bi-directional Ring (4F-BLSR) shall be installed to interconnect ADM's (Add/Drop Multiplexers).

7.4.2.3 SONET protection shall require APS/MSP (Automatic Protection System/Multiplexing Protection System).

7.4.2.4 The SONET topology installed shall provide different physical paths to different CSF facilities.

7.4.3 Splicing Specification: Specify the use of fusion splicing only, strictly following the recommendations of Corning and utilizing only personnel certified by Corning (or other supplier expressly approved by District) for performance of such splicing work.

7.5 Repeaters: Provide repeaters as required to ensure that no point-to-point signal is attenuated below industry-standard level for rated bandwidth for optical fiber utilized in the MAN.

7.6 Minimum Fiber Count: Provide a minimum of 24 pair of single-mode optical fibers in the outside plant portion of the MAN. Provide sufficient fiber count at each drop to ensure full duplex communication at each such drop.

7.7 The MAN shall include telephone trunk functionality for potential District private telephone network or enhanced private switched communication service.

7.8 Security:

7.8.1 Physical: MAN system components (particularly in the raceway system, including manholes, vaults, and any element exposed to public view) shall include attributes designed to prevent unauthorized entry to the MAN system. This shall include heavy duty galvanized plate and stainless steel doorways. District manhole (or vaults or similar components) splices shall be contained in weatherproof steel purpose-made panel boxes, with sufficient space in from of panel to open side-hinged door and work within panel box. These panel boxes shall be District-owned. Other non-spliced District-owned fibers and cable shall run through subject panel boxes with sufficient slack to allow splices to be made in subject fibers. Provide sufficient space in the panel area to splice all District owned fiber. Only District-owned fibers may be run through or be spliced in District-owned panel boxes.

7.8.2 Electronic: Provide an electronic alarm system that will report event and location of intrusion.

7.8.3 Anti-Tap: Provide automatic means for detection of potential system tapping.

7.9 Racks:

7.9.1 Propose rack systems for use within raceway system and within customer premises equipment rooms. Include criteria, data sheets, cut sheets and design.

7.9.2 Provide 100% extra capacity in rack surface area.

7.10 Vaults, Manholes, Handholes and Other Access Points:

7.10.1 Design to allow minimum of 75% clear plan view standing area, after attachment of equipment and devices to wall surfaces, unless additional space is required for code, system functionality or other reason.

7.10.2 Propose vaults, manholes, handholes and other access points systems for use within raceway system. Include criteria, data sheets, cut sheets and design.

7.10.3 Satisfy OSHA requirements.

7.11 Conduit and Ductbanks:

7.11.1 Propose conduit and ductbank systems for use within raceway system. Include system for routing and distribution of cabling within buildings as described herein. Include criteria, data sheets, cut sheets and design.

7.11.2 Provide conduit ductbanks crossing public thoroughfares with buried warning tape at 2 feet from grade.

7.11.3 Provide conduit ductbanks crossing non-public thoroughfares with buried warning tape at 2 feet from grade and full concrete encasement, surrounding ductbank with a minimum coverage of 4 inches.

7.12 Automatic Signal Rerouting:

7.13 Manual Signal Rerouting:

7.14 Cable Marking:

7.14.1 EIA/ITA standards.

7.15 System Documentation:

7.15.1 OSI.

7.16 Training:

7.16.1 Plan, document and supervise training in operations and maintenance of system.

7.17 Commissioning Plan:

7.17.1 CSF shall propose a transition and implementation plan, showing readiness date for each site.

7.17.2 Minimize service disruption.

7.17.3 Pre-installation procedures, including site visits, site evaluations (including checklists), cut-over checklists, system requirements checklists.

7.17.4 Incremental sign-off by District:

7.17.5 Testing and records

7.18 Maintenance Plan

7.18.1 Submit recommended post-activation maintenance plan for review and approval,

7.18.2 Service level requirements,

7.18.3 Catastrophic downtime plan,

7.18.4 Catastrophic failure restoration plan,

7.18.5 Non-catastrophic failure plans and restoration,

7.18.6 System downtime reporting, and

7.18.7 Management procedures, including trouble tickets, periodic reports, training, system documentation, etc.

7.19 As-Builts and Record Documents:

7.19.1 Cable Routing: Plant and intra-building components.

7.19.2 Detailed customer premises equipment room documentation, including floor plans, all wall elevations, isometrics, cable tray layout and power distribution and management systems.

7.19.3 Manufacturer's Technical Information.

7.20 FDDI-II: Per ANSI Committee X3-T9. Provide system meeting this specification as the default technology solution.

7.20.1 Conforming to open system interconnect (OSI) model of functional layering.

7.20.2 Capable of interconnecting LANs using other protocols.

7.20.3 Capable of adding circuit-switched service to the network so that voice signals can also be handled.

7.20.4 Capable of connecting to Synchronous Optical Network (SONET) and other broadband ISDN.

7.20.5 Capable of throughput up to 100Mbps per token.

8. Submittals List (not comprehensive)

8.1 [will extract the submittals to be made to District from the above text and list them here].

APPENDIX F:
KEY FACILITIES AND OFFICES TO BE CONNECTED TO THE PROPOSED MUNICIPAL AREA NETWORK (MAN)

KEY FACILITIES AND OFFICES TO BE CONNECTED TO THE PROPOSED MUNICIPAL AREA NETWORK (MAN)

OCTO'S WORKING LIST OF KEY MAN SITES[1]

DISTRICT GOVERNMENT: ADMINISTRATIVE AND SUPPORT SITES	
address	**agency/office**
441 4th St., NW	Office of the Chief Technology Officer Board of Real Property Assessment & Appeal Office of Campaign Finance Board of Elections & Ethics Council of the District of Columbia Department of Human Rights & Local Business Development Office of Communication Office of the Secretary of the District of Columbia Office of Child Support Child & Family Services Budget & Planning Finance & Treasury Corporation Counsel Chief Management Officer Fire Prevention Division & Community Relations Office of Property Management Office of Contracts & Procurement Office on Aging
222 Mass. Ave., NW	Share Computer Center
2000 14th St., NW (Reeves Center)	DC Energy Office Executive Office of the Mayor Office of Emergency Preparedness

1. This OCTO list contains many important government facilities but omits fire and police stations and facilities for the parks and recreation department. In assembling this list, OCTO noted, "The District may add further addresses for emergency and public safety facilities, including hospitals, clinics, police stations and substations, fire halls, *etc*." The network should be designed so that all District facilities, including police and fire stations and facilities for the parks and recreation department and any facility after compilation of this list in 2000, can ultimately be connected to the network and take full advantage of the network's capabilities.

DISTRICT GOVERNMENT: ADMINISTRATIVE AND SUPPORT SITES	
address	**agency/office**
	Office on Latino Affairs Audit & Compliance Reeves Center/PHSA Department of Public Works Office of Personnel
1923 Vermont Ave., NW (Grimke)	Department of Corrections FEMA Headquarters
3919 Benning Rd., SE	DHS Office of Information Systems (OIS)
St. Elizabeths Campus, 2700 MLK Ave., SE	DHS Commission on Mental Health Services Office of Personnel
300 Indiana Ave., NW	MPD Headquarters DHS Laboratory
717 14th St., NW	DHS OIS Inspector General Contract Appeals Board Office of Banking & Financial Institutions Office of Employee Appeals Agency of HIV/AIDS Lead Poison Board of Appeals & Review Grants Management & Development
825 N. Capitol St., NE	Dept. of Health Office of Maternal and Child Health Office of Emergency Health and Medical Services Preventive Health Service Administration Bureau Of Cancer Control State Center for Health Statistics Department of Health State Health Planning Development Administration Office of Administration Management
5000 Overlook Dr., SW	DC Water & Sewer Authority
2217 14th St., NW	Office of Cable Television and Telecommunications
1133 15th St., NW	Office of the People's Counsel
500 C St., NW	Department of Employment Services

DISTRICT GOVERNMENT: ADMINISTRATIVE AND SUPPORT SITES	
address	**agency/office**
1900 Mass Ave., SE	Public Benefit Corporation (DC General Hospital)
941 N. Capitol St., NW	Tax & Revenue Department of Consumer and Regulatory Affairs
2626 Naylor Rd., SE	Department of Employment Services
800 N. Capitol St., NE	Department of Employment Services
1350 Pennsylvania Ave., NW (Wilson Bldg) (future)	Office of the Chief Technology Officer Board of Real Property Assessment & Appeal Office of Campaign Finance Board of Elections & Ethics Council of the District of Columbia Department of Human Rights & Local Business Development Office of Communication Office of the Secretary of the District of Columbia Office of Child Support Child & Family Services Budget & Planning Finance & Treasury Corporation Counsel Chief Management Officer Fire Prevention Division & Community Relations Office of Property Management Office of Contracts & Procurement Office on Aging
3917 Minnesota Ave., SE	Department of Human Services
410 8th St., NW	Arts & Humanities & Motion Pictures
410 E St., NW	Department of Public Works Financial Information System Office of the Chief Financial Officer
429 O St., NW	Bundy School (MRDDA, DHS)
1300 1st St., NE	Addiction Prevention and Recovery Administration
2041 MLK Ave., SE	DC Taxi Cab Commission Department of Public Works

DISTRICT GOVERNMENT: ADMINISTRATIVE AND SUPPORT SITES	
address	**agency/office**
4001 S. Capitol St., SE	Congress Heights, DHS
508 Kennedy St., NW	NW Service Center, DHS
3201 Oak Hill Dr. Laurel, MD	YSA Oak Hill
25 M St., SW	YSA - BCCS Headquarters, DHS Sexual Assault Unit, DOPH
19th & Mass Ave., SE	Medical Examiner Office Department of Public Works Detox CTR/APRA TB Clinic/PHSA Women Service CTR/APRA Pediatrics STD Clinic/PHSA
2100 MLK Ave., SE	Women, Infant and Children Commodity Supplemental Food Program Environment Regulation Administration Commission of Health Care Finance Anacostia Service Center/Office of Post-Secondary Education
810 First St., NE	Financial Operations & System
810 N. Capitol St., NE	Office of Insurance & Securities Regulation Office of Planning
901 Newton St., NE	Public Access Corporation (PAC)

DISTRICT OF COLUMBIA PUBLIC SCHOOLS	
address	**school**
2020 19th H St., NW	Adams
533 48th Pl., NE	Alton
401 Eye St., SW	Amidon
1601 16th St., SE	Anacostia
5171 South Dakota Ave., NE	Backus
3401 4th St., SE	Ballou
1755 Newton St., NW	Bancroft
800 Euclid St., NW	Banneker
430 Decatur St., NW	Barnard
3600 Alabama Ave., SE	Beers
3145 Hiatt Pl., NW	Bell Multicultural
100 41st St., NE	Benning
2501 MLK Ave., SE	Birney
101 M St., SW	Bowen
330 3rd St., SE	Brent
1300 Nicholson St., NW	Brightwood
1150 Michigan Ave., NE	Brookland
850 26th St., NE	Browne
3012 Georgia Ave., NW	Bruce-Monroe
1401 Michigan Ave., NE	Bunker-Hill
1820 Monroe St., NE	Burroughs
801 Division Ave., NE	Burrville
1300 Clifton St., NW	Cardozo
4501 7th St., NW	Clark
1825 8th St., NW	Cleveland
30 P St., NW	Cook, JF
2525 17th St., NW	Cooke, HD
6315 5th St., NW	Coolidge
1001 Monroe St., SE	DC Street Academy
4430 H St., SE	Davis
3815 Fort Dr., NW	Deal
908 Wahler Pl., SE	Draper
5600 Eads St., NE	Drew
1301 New Jersey Ave., NW	Dunbar
1700 E. Capitol St., NE	Eastern
3301 Lowell St., NW	Eaton
1830 Constitution Ave., NE	Eliot
1698 35th St., NW	Ellington School of Art

DISTRICT OF COLUMBIA PUBLIC SCHOOLS	
address	**school**
1712 1st St., NW	Emery
5600 E. Capitol St., NE	Evans
3999 8th St., SE	Ferebee-Hope
4650 Benning Rd., SE	Fletcher-Johnson
3100 Fort Lincoln Dr., NE	Fort Lincoln/T. Marshall
2409 N St., NW	Francis
2025 3rd St., NW	Gage-Eckington
2435 Alabama Ave., SE	Garfield
2001 10th St., NW	Garnett-Patterson
1200 S St., NW	Garrison
500 19th St., NE	Gibbs
1500 Mississippi Ave., SE	Green
1819 35th St., NW	Hardy
301 53rd St., SE	Harris, CW
4600 Livingston Rd., SE	Harris, Patricia R
601 Mississippi Ave., SE	Hart
3950 37th St., NW	Hearst
425 Chesapeake St., SE	Hendley
335 8th St., SE	Hine
1100 50th Pl., NE	Houston
3219 O St., NW	Hyde
4130 Albermarle St., NW	Janney
801 7th St., SW	Jefferson
1400 Bruce Pl., SE	Johnson
1300 44th St., NE	Kenilworth
1919 15th St., SE	Ketcham
5001 Dana Pl., NW	Key
3375 Minnesota Ave., SE	Kimball
600 Alabama Ave., SE	King
1700 Q St., SE	Kramer
5701 Broad Branch Rd., NW	Lafayette
1900 Evarts St., NE	Langdon
501 Riggs Rd., NE	LaSalle
4200 MLK Ave., SW	Leckie
100 Gallatin St., NE	Lee, Mamie D
3101 16th St., NW	Lincoln
659 G St., NE	Ludlow-Taylor
4400 Iowa Ave., NW	MacFarland

DISTRICT OF COLUMBIA PUBLIC SCHOOLS	
address	**school**
1351 Alabama Ave., SE	Malcolm X
4430 Newark St., NW	Mann
1250 Constitution Ave., NE	Maury
3400 Wheeler Rd., SE	McGogney
5002 Hayes St., NE	Merritt
2501 11th St., NW	Meyer
601 15th St., NE	Miner
421 P St., NW	Montgomery
1565 Morris Rd., SE	Moten
4810 36th St., NW	Murch
219 50th St., SE	Nalle
2725 10th St., NE	Noyes
2200 Minnesota Ave., SE	Orr
2801 Calvert St., NW	Oyster
3560 Warder St., NW	Parkview
4300 S Capitol St., SW	Patterson
5800 8th St., NW	Paul
305 15th St., SE	Payne
425 C St., NE	Peabody
704 26th St., NE	Phelps
4601 Texas Ave., SE	Plummer
1350 Upshur St., NW	Powell
920 F St., NE (Goding)	Prospect LC
1650 30th St., SE	Randle Highlands
915 Spring Rd., NW	Raymond
2200 Champlain St., NW	Reed LC
420 34th St., NE	River Terrace
4301 13th St., NW	Roosevelt
4800 Meade St., NE	Roper
1730 R St., NW	Ross
5200 2nd St., NW	Rudolph
2400 Shannon Pl., SE	Savoy
2122 G St., NW	School Without Walls
1503 E Capitol St., SE	Seaton
5601 E Capitol St., SE	Shadd
301 Douglas St., NE	Shaed
4300 13th St., NW	Sharpe Health School
925 Rhode Island Ave., NW	Shaw

DISTRICT OF COLUMBIA PUBLIC SCHOOLS	
address	**school**
7800 14th St., NW	Shepherd
401 Mississippi Ave., SE	Simon
1404 Jackson St., NE	Slowe
4400 Brooks St., NE	Smother
3650 Ely Pl., SE	Sousa
2500 Benning Rd., NE	Spingarn
2701 Naylor Rd., SE	Stanton
1050 21st St., NW	Stevens
4001 Calvert St., NW	Stoddert
410 E St., NE	Stuart-Hobson
7010 Piney Branch Rd., NW	Takoma
1000 1st St., NW	Terrell Junior High
3301 Wheeler Rd., SE	Terrell, MC
650 Anacostia Ave., NE	Thomas
1200 L St., NW	Thomson
800 Ingraham St., NW	Truesdell
3101 13th St., NW	Tubman
3264 Stanton Rd., SE	Turner
1001 G St., SE	Tyler
1150 5th St., SE	Van Ness
100 L St., NW	Walker-Jones
27 O St., NW	Washington, MM
420 12th St., SE	Watkins
1375 Mt. Olivet Rd., NE	Webb
1338 Farragut St., NW	West
1299 Neal St., NE	Wheatley
6201 5th St., NW	Whittier
2330 Pomeroy Rd., SE	Wilkinson
660 K St., NE	Wilson, JO
3950 Chesapeake St., NW	Wilson, W
3100 Erie St., SE	Winston
5500 Eads St., NE	Woodson, HD
820 26th St., NE	Young

DISTRICT OF PUBLIC LIBRARIES	
address	**library**
901 G St., NW	Martin Luther King Jr. Memorial Library
5625 Connecticut Ave., NW	Chevy Chase
3660 Alabama Ave., SE	Francis A. Gregory
3260 R St., NW	Georgetown
1801 Hamlin St., NE	Woodridge
1800 Good Hope Rd., SE	Anacostia
3935 Benning Rd., NE	Benning
5001 Central Ave., SE	Capitol View
3310 Connecticut Ave., NW	Cleveland Park
7420 George Ave., NW	Juanita E. Thornton
5401 South Dakota Ave., NE	Lamond Riggs
3160 16th St., NW	Mt. Pleasant
330 7th St., NE	Northeast
4901 V St., NW	Palisades
4200 Kansas Ave., NW	Petworth
403 7th St., SE	Southeast
900 Wesley Pl., SW	Southwest
416 Cedar St., NW	Takoma Park
4450 Wisconsin Ave., NW	Tenley Friendship
115 Atlantic St., SE	Washington Highlands
1701 8th St., NW	Watha T Daniel
1101 24th St., NW	West End
2600 Benning Rd., NE	Langston
1600 Alabama Ave., SE	Parklands Turner
1300 H St., NE	RL Christian
135 New York Ave., NW	Sursum Corda

APPENDIX G: RECOMMENDATIONS

RECOMMENDATIONS

- **GUIDING PRINCIPLES**

1.1 PROMOTING COMPETITION

1.1.01 Facilities-based Competition

RECOMMENDATION # 1:

Every effort should be made to promote head-to-head competition among system providers and to provide District residents with access to a truly competitive market. To advance this goal, the District's regulatory policies should ensure that every resident of the District has the option of obtaining service from two or more providers of cable and/or comparable systems,[1] each of which has installed plant throughout the District and can connect any potential service location in the District to its system upon request.

1.1.02 Consistent Rules for all System Providers

RECOMMENDATION # 2:

Ground rules should apply on a consistent and equitable basis to all system providers and be designed to promote fair competition. Among other things, the same regulatory requirements should apply to all providers to the extent possible, while taking into account clear differences among providers (*e.g.*, relative size of operations in the District, the need to correct a particular provider's performance problems) and making every effort not to establish barriers to entry by possible competitors.

1.1.03 Equal Access to Competition throughout the District

RECOMMENDATION # 3:

Ground rules should ensure universal access to a competitive market throughout all of the District's eight wards. Among other things, Comcast/DC and Starpower (and all other system providers who enter the market in the future) should make service available to all District residents.

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1. An example of a comparable system is the OVS system currently provided by Starpower. The term "system" is used in this report to refer to cable and OVS systems and similar systems which may emerge in the future to deliver video programming and other services to customers via wire-based connections and which are subject to the District's jurisdiction.

1.1.04 Independent Public Service Operations

RECOMMENDATION # 4:

Institutional network and public service operations should not be controlled by any individual system provider or in any way commingled with the operations of any individual provider to ensure independent public service operations and public control of public resources. Each provider should provide financial and other support for the institutional network and other public services on the basis of a formula which approximates its market share and power and does not alter the balance of competition by imposing disproportionate obligations on new market entrants.

1.2 ENSURING ACCESS TO ADVANCED SERVICES AND TECHNOLOGIES

1.2.01 Initial Requirement for a State-of-the-art System

RECOMMENDATION # 5:

Every system, whether provided by Comcast, Starpower, or any other provider, should be a state-of-the-art system. In addition, Comcast/DC should, as soon as practicable, end its ties with Verizon/DC and provide a system which is not directly or indirectly controlled by Verizon/DC or by any other party with adverse interests. Comcast/DC may establish this state-of-the-art system by acquiring distribution facilities currently owned by Verizon/DC and rebuilding them, by building a new system from scratch, or by acquiring or assembling a new system by other means.

1.2.02 Maintenance of a State-of-the-art System

RECOMMENDATION # 6:

All systems should be periodically enhanced during the term of the franchise to state-of-the-art standards, with strict standards and procedures to ensure regular enhancements and maintenance of state-of-the-art standards.

1.2.03 Equal Access to System Capabilities and Service

RECOMMENDATION # 7:

All District residents should have access to the same system capabilities and services regardless of neighborhood or street address. Further, Comcast/DC, Starpower, and any other provider should deploy new services on an equitable and consistent basis throughout the District, should offer all new services to residents of all areas of the District, and should charge uniform

prices for the same service throughout the District.[2]

1.3 IMPROVING COMCAST'S PERFORMANCE AND SERVICE

RECOMMENDATION # 8:

Comcast/DC's system should be completely rebuilt to state-of-the-art standards in order to provide District residents with immediate access to service improvements and access to new services and technical capabilities.

2. SYSTEM DESIGN AND OPTICAL CAPABILITIES

2.1 BASIC SYSTEM DESIGN

RECOMMENDATION # 9:

All systems should be designed to state-of-the-art specifications, should provide full two-way service and transmission capacity of at least 860 MHz (or its equivalent), and should bring fiber optic connections within close range of all service locations. Among other things, all systems should be scalable and adaptable and designed for later addition of new technical capabilities and/or reconfiguration without having to implement a rebuild of the system or to incur extraordinary expenses.

To meet these standards, the Comcast/DC system should be rebuilt to provide at least 860 MHz (expandable to 1 GHz) and two-way service. Starpower's completion of installation of its system in the Adams-Morgan, Capitol Hill, and Georgetown areas and any other unwired areas of the District should be subject to similar minimum specifications.

Comcast/DC, Starpower, and any other provider should each develop a system design which is based on these objectives and a plan and schedule for system construction and activation and present them to the District for review and modification prior to the District's grant of the franchise. Construction schedules for both Comcast/DC, Starpower, and any other provider should include an overall schedule for construction throughout the District and detailed schedules for construction in each of the District's eight wards, with both periodic milestones and final deadlines.

2. Federal law does not allow franchising authorities to require uniform rates in all instances. For example, federal law permits cable operators to charge nonuniform rates pursuant to bulk service contracts or in franchise areas where there is "effective competition." 47 C.F.R. § 76.984(c).

2.2 OPTICAL CAPABILITIES

2.2.01 Optical Connections

RECOMMENDATION # 10:

The backbone for the Comcast/DC system (and any other system) should consist entirely of fiber optic lines and should provide dual fiber connections (with redundant routing and automatic "self healing") to system hubs and other main distribution sites. The optical serving areas (*e.g.*, optical nodes) on all systems should be as small as possible in terms of number of service locations passed. With smaller optical serving areas, bandwidth sharing is limited and the number of electronic devices between service locations and optical conversion equipment is limited. Each optical serving area should also be served by a sizable reserve of unused fiber strands (equipped for easy splicing) so that optical serving areas can be reconfigured, resized, or subdivided to respond to changes in demand for bandwidth and other capabilities.

Each provider's construction specifications should ensure installation of fiber optic lines and optical nodes on an equitable basis throughout the District's eight wards and equal access to optical capabilities throughout the District. These specifications should specify the routes for all fiber optic lines and locations for all hubs and optical nodes. These specifications should be presented by each provider to the District for review and modification prior to the District's grant of a franchise.

2.2.02 Optical Serving Areas

(a) Size of Optical Serving Areas

RECOMMENDATION # 11:

Each of the system's optical serving areas should contain no more than 150 residential units or similar service locations. This standard should apply throughout the District and each of the District's eight wards. Further, each optical serving area should be designed to be subdivided, resized, and reconfigured as needed to provide smaller optical serving areas and enhanced technical capabilities. Each system provider should develop a plan and schedule for construction of optical serving areas, consistent with these objectives, and should present them to the District for review and modification prior to the District's grant of a franchise.

(b) Optical Conversion Equipment

RECOMMENDATION # 12:

Each of the system's optical serving areas should be equipped with optical conversion equipment which supports full two-way service and subdividing, resizing, and/or reconfiguring of the optical serving area to provide more direct access to optical connections and/or enhanced technical capabilities and other network improvements.

(c) Access to System Optical Capabilities for Public Institutions

RECOMMENDATION # 13:

The design (and associated plan and schedule) for deployment of optical capabilities should ensure direct access to optical connections for institutional services at locations specified by the District.

2.3 TRANSMISSION CAPACITY AND SPECTRUM ALLOCATION

RECOMMENDATION # 14:

Each system should provide a transmission capacity of at least 860 MHz (or its technical equivalent). To meet this standard, the capacity of the Comcast/DC system should be increased from 450 MHz to at least 860 MHz, and Starpower should build and operate all new plant to at least 860 MHz specifications (or its technical equivalent).

2.3.01 Analog Capacity

RECOMMENDATION # 15:

Bandwidth on both the Comcast/DC and Starpower systems should be reserved for carriage of about 90 analog video channels. To the extent permitted by law, allocations of bandwidth between analog and digital service should be periodically reviewed and adjusted, taking into account such matters as the number of analog and digital subscribers, commercial availability of compatible digital converters and other receiving equipment from third-party sources, and the system provider's need for additional digital capacity to respond to market demand.

2.3.02 Digital Capacity

RECOMMENDATION # 16:

Bandwidth of 150-250 MHz should be reserved for digital transmissions.

2.3.03 Upstream Capacity

RECOMMENDATION # 17:

All systems should be fully equipped for upstream communications. Upstream pathways should be fully accessible by public institutions and equipped to handle video transmissions by public institutions without loss of signal quality. Standards and procedures should be established and the system equipped to provide for adjustments in allocations of bandwidth or transmission capacity to upstream communications as warranted by changes in need and demand.

3. HEADENDS AND HUBS, ADVANCED TECHNICAL CAPABILITIES, AND INTERCONNECTIONS

3.1 HEADENDS AND HUBS

RECOMMENDATION # 18:

The headend(s) for each system should be equipped and operated to ensure high levels of signal quality and reliability[3] and to provide a state-of-the-art platform for deployment of advanced services and technologies. Comcast/DC, Starpower, and all other providers should submit headend specifications to the District which meet these standards for review and modification prior to the District's grant of a franchise.

3.2 ADVANCED TECHNICAL CAPABILITIES

RECOMMENDATION # 19:

Each system provider should develop a plan and schedule for deployment of advanced capabilities, taking into account such factors as costs, market questions, technical considerations, and the needs and interests of District residents. This plan and schedule should identify the provider's plans with respect to such advanced capabilities as Internet, advanced digital, video server, and switching and routing capabilities, detailing the underlying cost, market, and technical assumptions associated with each capability. This plan and schedule should be presented to the District for review prior to the District's grant of a franchise.

3. The Comcast/DC, Starpower, and any other system should each be fully equipped with state-of-the-art equipment and facilities for testing, monitoring, and measuring system performance, signal quality, and all other matters pertaining to service quality.

3.3 INTERCONNECTIONS

RECOMMENDATION # 20:

Interconnections should be established between a provider's system and facilities in the District designated by the District. Examples of facilities which may be designated by the District for interconnection include the District's wide area network, access interconnect facilities, and institutional network facilities. Interconnections should also be established between each system and all other systems in the region which are commonly owned or controlled by a provider (*i.e.,* all Comcast systems and all Starpower systems in the region should be interconnected). Finally, interconnections should be established between each system and other systems or facilities in the District or region if necessary to interconnect access channels and other public facilities. All interconnection facilities should provide optical or connections of a similar quality and capability. System providers should present a plan and schedule to the District for existing and future interconnection facilities for review and modification prior to the District's grant of a franchise.

4. DISTRIBUTION LINES AND EQUIPMENT

4.1 DISTRIBUTION LINES

4.1.01 Feeder Lines

(a) Scope of Rebuild of the Comcast/DC System and Initial Build of the Starpower and Other Systems

RECOMMENDATION # 21:

All feeder lines should be equipped for operation at a minimum of 860 MHz and for subsequent enhancement to 1 GHz. The feeder lines on the Comcast/DC system should be updated and/or replaced as necessary to provide 860 MHz service and comply with other proposed specifications for feeder lines. All lines installed by Starpower as it extends its plant into areas of the District which it does not currently serve should meet similar standards. All providers should present plans and schedules to the District for review and modification prior to the District's grant of a franchise.

(b) Length of Feeder Lines and Amplifier Cascades

RECOMMENDATION # 22:

All feeder line runs should be limited to no more than 1,500 feet, with no more than two amplifiers in a cascade, in order to minimize bandwidth sharing for upstream communications and maintain high-quality signals.

(c) Technical Specifications for Feeder Lines

RECOMMENDATION # 23:

All feeder lines should support 1 GHz service, minimize signal attenuation, loss, ingress, and egress, be tightly sealed, and be protected from weather and rodent damage. Comcast/DC, Starpower, and all other providers should present technical specifications which are consistent with these standards to the District for review and modification prior to the District's grant of a franchise.

4.1.02 Drop Lines

RECOMMENDATION # 24:

Drop lines should limit signal attenuation, loss, ingress, and egress. In addition, drop lines should be designed and configured to take into account different characteristics of service locations, including the special needs of District facilities and other facilities with multiple outlets and long runs of inside wires. Comcast/DC should develop a plan and schedule for inspecting and updating the system's drop lines, which ensure that drop lines are updated on an equitable and consistent basis throughout the District's eight wards. Comcast/DC should present a plan and schedule to the District for inspecting and updating existing drop lines while Comcast/DC, Starpower, and any other new provider should present specifications to the District for new drop lines, with review and modification of these specifications prior to the District's grant of a franchise.

4.1.03 Inside Wires

(a) Signal Quality and Reliability

RECOMMENDATION # 25:

Inside wires for all providers should ensure signal quality and reliability for all services, including two-way and other advanced services, at all outlets at each service location. Specifications for inside wires should take into account the lay out and use of wiring in large buildings and other facilities. These specifications should be presented by the provider to the District for review and modification prior to the District's grant of a franchise.

(b) Ownership

RECOMMENDATION # 26:

Each system provider should establish simple procedures which ensure transfer of ownership of inside wires to property owners at the time of installation.

4.2 DISTRIBUTION EQUIPMENT

4.2.01 Power Supply System

RECOMMENDATION # 27:

Power supply systems for Comcast/DC, Starpower, and any other provider should be state-of-the-art systems, which are safe, reliable, scalable, and adaptable, can supply 90 volts of power as needed, and can support future expansion of service offerings. The provider's plan for deployment of a power supply system should include maps which specify the site for each power supply unit and should minimize adverse environmental and aesthetic impacts. Plans and schedules for deployment of the power supply system and associated technical specifications for power supply units and systems should be presented to the District for review and modification (with advance notice to affected property owners and neighborhood groups or organizations and opportunity for participation in the decision-making process for such property owners, groups, and organizations in any case involving large power supply units or units with gas generators) prior to the District's grant of a franchise.

4.2.02 Amplifiers

RECOMMENDATION # 28:

All amplifiers on the Comcast/DC system, the Starpower system, or any other system should be state-of-the-art amplifiers. Specifically, amplifiers should, at a minimum, support active 860 MHz and two-way operations throughout the District's eight wards, be linked together in cascades or runs of no more than two amplifiers (with a preference for one or no amplifiers), and minimize signal distortion. In addition, on-premises amplifiers in facilities of the District government and other large buildings should ensure minimal loss of signal at all service locations in the facility or building. A plan and schedule for deployment of amplifiers and associated technical specifications for amplifiers and amplifier configurations should be presented to the District by the provider for review and modification prior to the District's grant of a franchise.

4.2.03 Passive Devices

RECOMMENDATION # 29:

All passive devices should be state-of-the-art equipment. Specifically, passive devices should minimize signal attenuation, loss, ingress, and egress and be fully compatible with 1 GHz and two-way operations and adaptable to support future services. A plan and schedule and associated technical specifications for passive devices should be presented by the provider to the District for review and modification prior to the District's grant of a franchise.

4.2.04 Status Monitoring Equipment

RECOMMENDATION # 30:

All systems should include state-of-the-art status monitoring systems which are adaptable and equipped to monitor active electronic devices and system performance. A plan and schedule for the status monitoring system and associated technical specifications should be presented by the provider to the District for review and modification prior to the District's grant of a franchise.

4.2.05 Signal Security System

RECOMMENDATION # 31:

All systems should include state-of-the-art signal security systems. Among other things, the signal security system should, to the extent possible, maximize customer service options, minimize home visits for service changes, minimize interference with customer use of consumer electronics equipment, and limit unauthorized reception of service. A plan and schedule for a signal security system and associated technical specifications should be presented by the provider to the District for review and modification prior to the District's grant of a franchise.

5. CUSTOMER EQUIPMENT

5.1 STANDARD EQUIPMENT

5.1.01 Plain Converters (Analog)

RECOMMENDATION # 32:

Converters made available by system providers for viewing and using analog services should maximize the customer's ability to control service selection and use and to use all features of his or her consumer electronics equipment and should comply with all FCC rules concerning interoperability and compatibility.

5.1.02 Digital Set Top Boxes

RECOMMENDATION # 33:

Digital set top boxes should be state-of-the-art equipment which maximizes the customer's ability to control service selection and to use all features of his or her consumer electronics equipment and provides access to advanced services (*e.g.*, video-on-demand) while also complying with all FCC rules concerning interoperability and compatibility.

5.2 ADVANCED CUSTOMER EQUIPMENT

5.2.01 High-speed Modems

RECOMMENDATION # 34:

High-speed modems provided by all system providers should be offered on a consistent and equitable basis throughout all of the District's eight wards. This requirement should apply whether Internet service is provided over the system by the system provider or by some other entity.

5.2.02 Telephone Equipment

RECOMMENDATION # 35:

Telephone or similar equipment provided by all system providers should be offered on a consistent and equitable basis throughout all of the District's eight wards. This requirement should apply whether telephone service is provided over the system by the system provider or by some other entity.

5.2.03 New Equipment

RECOMMENDATION # 36:

All system providers should submit an annual report to the District which specifies all existing equipment in service and supplied directly and indirectly by the provider by make and model, including the numbers of each item of equipment in service, and which details any plans for updating equipment and deploying new equipment.

6. COMMUNICATIONS SERVICES

6.1 CABLE AND INFORMATION SERVICES

6.1.01 Video Services

(a) Categories of Programming

RECOMMENDATION # 37:

Each system provider should, prior to the District's grant of a franchise, submit to the District a list which specifies each service it plans to provide at the commencement of the new franchise and the category of each service. The provider's proposal should respond to the interests of District residents in educational, children's, sports, current movie, foreign and international (*e.g.*, European, South American, Middle Eastern), foreign language (*e.g.*, Spanish), and African Ameri-

can programming as well as television stations based in New York City and Baltimore and include other service offerings responsive to other programming interests of District residents.

(b) Presentation-related Requirements

(i) Transmission Form

RECOMMENDATION # 38:

Each system provider should provide a full complement of about 90 analog signals until such time as it converts to all-digital operations. If a mixture of analog and digital service is provided on a system, all access channels should be transmitted in both analog and digital form if 30% or more of subscribers subscribe to digital service.

(ii) Closed Captioning

RECOMMENDATION # 39:

Closed captioning should be provided for all government access channels and for all other public service and local origination channels to the extent technically feasible and affordable. Further, all system providers should comply with all federal closed captioning rules, including all applicable deadlines, and retransmit all closed captioning provided in connection with access channels whether or not required to do so by federal rules.

(iii) V-Chip

RECOMMENDATION # 40:

All system providers should comply with all federal V-chip requirements, including requirements for clear on-screen display of rating information, and should provide periodic notice (*e.g.*, at least once per year) to customers with respect to rating guidelines and availability of V-chip-equipped receiving equipment.

(iv) Channel Blocking and Scrambling

RECOMMENDATION # 41:

All system providers should fully scramble signals of audio and video services to which the customer does not subscribe. They should also provide notice in writing to all subscribers at least once a year and upon installation of the subscriber's right to obtain a lock-out or similar device or service upon request which will block access to the signal of any channel designated by the subscriber as long as the subscriber does not subscribe to the service in question.

6.1.02 Audio Services

RECOMMENDATION # 42:

The audio services provided over all systems should include local information and programming.

6.1.03 Internet, Interactive, and Transactional Services

RECOMMENDATION # 43:

All systems should include the technical capabilities necessary for Internet, interactive, and transactional services, including such possible service offerings as personal control of program selection and payment options, true video-on-demand, Internet, interactive home learning and training, and on-line transactional services.

6.2 TELECOMMUNICATIONS SERVICES

RECOMMENDATION # 44:

Each system provider should disclose on a quarterly basis any telecommunications services provided over its system, whether by the system provider, an affiliate, a lessee, or another person. Further, if a system provider provides any telecommunications services or facilities, it should obtain all authorizations required for telecommunications companies, comply with all laws and rules applicable to telecommunications companies, and compensate the District for occupation of the public right-of-way by telecommunications facilities to the same extent as other telecommunications companies are required to compensate the District for use of the right-of-way.

7. PUBLIC SERVICES

7.1 ELIGIBLE PUBLIC INSTITUTIONS

RECOMMENDATION # 45:

District entities and PAC should be eligible to provide services over access channels on all systems which provide service in the District. Eligible District entities should include District agencies and departments and nonprofit and similar entities created by the District to perform particular responsibilities. Examples of eligible District entities include the District of Columbia Public Schools, University of the District of Columbia, and District of Columbia Public Libraries. In addition, the District, through OCTT and the City Council, should retain broad authority to designate other entities as eligible public institutions and to determine the extent to which any such designated institution is eligible to use access channels and other public resources.

7.2 FINANCIAL SUPPORT FOR PUBLIC AND COMMUNITY SERVICES

7.2.01 Periodic Payments

RECOMMENDATION # 46:

All system providers should pay both franchise and public service fees on a quarterly basis throughout the term of the franchise to compensate the District for the franchise and to assist in establishing a communications infrastructure for the District government and other public entities. These fees should include: (1) a 5% franchise fee (with all proceeds dedicated to financing OCTT's activities); (2) a public access fee equal to 1% of gross revenues; and (3) a public service fee equal to $1.40 per subscriber per month. Requirements to pay franchise and public service fees should apply on an equitable and consistent basis to all system providers.

(a) 5% Franchise Fee for OCTT

RECOMMENDATION # 47:

A 5% franchise fee should be imposed on all system providers, and all proceeds from this fee should be earmarked for OCTT.

(b) 1% Public Access Fee for PAC

RECOMMENDATION # 48:

The 1% public access fee for PAC should be maintained and paid by all system providers. This fee should be directly paid to PAC on a quarterly basis and should be subject to the same requirements as apply to franchise fee payments (*e.g.*, audits, interest payments).

(c) Per Subscriber Public Service Fees

RECOMMENDATION # 49:

Public service fees totaling $1.40 per subscriber per month should be imposed on all system providers, with proceeds to be expressly earmarked to provide basic financial support for key District institutions as follows:

- 50 cents per subscriber per month (a total of about $700,000 per year initially) for the Office of the Chief Technology Officer (to assist with costs associated with building and equipping an institutional network for the District);
- 50 cents per subscriber per month (a total of about $700,000 per year initially) for PAC (to assist with costs associated with establishing

and equipping a community-wide studio and production facility);

- 25 cents per subscriber per month (a total of about $350,000 per year initially) for DCPS (to assist with costs associated with establishing and equipping studio and production facilities and providing equipment and facilities for broadband connections for school facilities); and
- 15 cents per subscriber per month (a total of about $210,000 per year initially) for UDC (to assist with costs associated with establishing and equipping studio and production facilities and providing equipment and facilities for broadband connections for UDC facilities).

These public service fees should be automatically adjusted each year to reflect any change in the consumer price index or a similar inflation indicator for the previous year. The provider should pay these fees directly to the designated entity on a quarterly basis in accordance with the same schedule and requirements applicable to payments of the franchise fee.

7.2.02 One-Time Start-Up Payments by Providers

RECOMMENDATION # 50:

Comcast/DC and Starpower should make one-time payments totaling $8.25 million in start-up funds, with Comcast/DC paying $7.425 million and Starpower $825,000. These start-up funds should be allocated directly to each of the designated entities and used to improve public services as follows:

ALLOCATION OF START-UP PUBLIC SERVICE PAYMENTS (in millions)

entity	amount (millions)	possible uses
OCTT	$0.50	state-of-the-art video and production equipment for coverage of city council meetings[4];other equipment needs
OCTO	$3.00	facilities and equipment for a fiber optic institutional network for the District
DCPS	$1.75	$1 million for facilities and equipment related to use of the institutional network and provision of connectivity to the classroom; $750,000 for state-of-the-art video and production equipment for channel 28 and for the new McKinley Technical High School
UDC	$0.75	state-of-the-art video and production equipment; facilities and equipment for broadband and similar connections for UDC facilities
PAC	$2.25	renovation of the Brooks Mansion; establishment of a community-wide media and production center; state-of-the-art video and production equipment, including field equipment and a mobile van; facilities and equipment for broadband and similar connections for PAC facilities
total	**$8.25**	

4. *See, e.g.,* Summaries of Interviews (Appendix B), B-9 (councilmember: problems with operation of channel 13).

7.3 ACCESS CHANNEL CAPACITY

7.3.01 Total System Capacity for Access Channels

RECOMMENDATION # 51:

A total of 14 channel slots of downstream analog bandwidth (84 MHz or 6 MHz per slot) and 2 channel slots of analog upstream bandwidth (12 MHz) should be reserved for access use for area public institutions on any system which delivers any video services to customers in analog form. In addition, an equivalent amount of digital bandwidth should be reserved for access use for area public institutions on any system which provides any digital service, including a system which provides a mixture of analog and digital service. Procedures and standards should also be established to provide public institutions with access to advanced technologies and capabilities as they are deployed.

7.3.02 Assignment of Access Channels to Public Institutions

RECOMMENDATION # 52:

The eight additional analog access channels and an equivalent amount of digital bandwidth reserved for access use should be made available to the extent possible to public institutions which have established access channels and a need for additional access channel capacity. The six existing analog access channels, along with the eight new analog access channels and the new digital access channel capacity, should be assigned to the following uses:

- OCTT: 3 analog downstream channels and an equivalent amount of digital bandwidth; 2 upstream channels slots (12 MHz) (to be managed by OCTT for the benefit and use of all eligible public institutions);
- PAC: 3 analog downstream channels and an equivalent amount of digital bandwidth;
- DCPS: 2 analog downstream channels and an equivalent amount of digital bandwidth;
- UDC: 2 analog downstream channels and an equivalent amount of digital bandwidth; and
- District reserve: 4 analog downstream channels and an equivalent amount of digital bandwidth (reserved channels to be assigned by the District to other access uses).

7.3.03 Conversion of Access Channels to Digital Form

RECOMMENDATION # 53:

If a system carries a mixture of analog and digital service, access channels should be delivered simultaneously in both analog and digital form if 30% or more of customers subscribe to digital service. The provider should be permitted to cease providing access channels in analog form and convert all access channels to digital form only if it is providing all other services in digital form.

7.3.04 Channel Positions

RECOMMENDATION # 54:

System providers should carry each access channel on the channel number specified by OCTT. The channel number specified by OCTT should be the same on all systems to the extent possible and should be the channel number previously assigned to the public institution or another number which is acceptable to the institution. Before implementing any change an access channel's channel number, the provider should provide advance notice to the affected entity and OCTT and directly and immediately pay a substantial fee to the affected entity as compensation for loss of the fixed identity associated with a channel number. In addition, the system provider should provide at least 30 days' advance written notice of the planned change to each subscriber by various means, including by inserts in subscriber bills and notices in newspapers of general circulation, and provide notice to the public of the planned change on all channels equipped for local insertion of advertisements by means of a public service announcement which is repeated several times a day over an extended time period both prior to and after implementation of the change.

7.3.05 Fallow Time Rules

RECOMMENDATION # 55:

Each entity assigned an access channel(s) should develop fallow time rules for that channel(s). These rules should be finalized within six months of the grant of a franchise and should be reviewed and, if necessary, modified by the District for the limited purpose of ensuring compliance with requirements of federal law pertaining to fallow time.

7.3.06 Carriage of Access Channels on Other Cable Systems

RECOMMENDATION # 56:

All system providers should carry all access channels. Further, all providers should cooperate with each other and the District to the extent necessary in providing access to access channels. The District should be responsible for establishing any carriage arrangements with system providers and

other entities which may be necessary to ensure carriage of all access channels and compliance with any standards which may be necessary to ensure maintenance of signal quality.

7.4 SERVICES FOR PUBLIC INSTITUTIONS

7.4.01 Free Services, Equipment, and Installations

RECOMMENDATION # 57:

All system providers should provide a standard package of services, including associated equipment, installations, and internal wiring, to District and PAC facilities at no cost. These services should be provided to all facilities currently receiving free service. In addition, the District, DCPL, DCPS, UDC, and PAC should be authorized to designate additional facilities to receive this package of services, subject to the numerical and other limits specified below. This package of services should include all cable services (except for premium and pay-per-view) and Internet services offered to residential subscribers and should include digital as well as analog services. In addition, free modems, outlets, and digital converters[5] should be provided as follows:

(a) General rules for District facilities (all District facilities except for DCPS, DCPL, and UDC):

- the equivalent of one cable modem for every floor of every District building (with additional cable modems to be provided to the District on request at locations designated by the District but not to exceed a District-wide total of one modem for every 100 full-time employees[6] (or their equivalent));
- the equivalent of one outlet for cable service for every floor of every District building (with additional outlets to be provided to the District on request at locations specified by the District but not to exceed a District-wide total of one outlet for every 50 full-time employees (or their equivalent)); and
- the equivalent of one digital converter (with maximum capabilities and performance characteristics) for every floor of every District building (with additional converters to be provided to the District on request but not to exceed a District-wide total of one converter for every 50 full-time employees (or their equivalent)).

5. Fully compatible remote control devices should also be supplied with all free digital converters provided to the District and PAC.

6. For purposes of this recommendation, the term District "employee" does not include UDC, DCPS, or DCPL employees.

(b) Special rules for particular District facilities:

(i) District of Columbia Public Libraries:

- Martin Luther King Jr. Memorial Library: 20 cable modems, 20 cable service outlets, and 20 digital converters (with maximum capabilities and performance characteristics);
- Each of the four regional libraries: six cable modems, six cable service outlets, and six digital converters (with maximum capabilities and performance characteristics); and
- Each of the 17 branch and the 4 community libraries: two cable modems, three cable service outlets, and three digital converters (with maximum capabilities and performance characteristics).

(ii) District of Columbia Public Schools:

- One cable modem for every school plus one cable modem for every 300 enrolled students; and
- One cable service outlet and one digital converter (with maximum capabilities and performance characteristics) for every school plus one service outlet and one digital converter (with maximum capabilities and performance characteristics) for every 300 enrolled students.

(iii) University of the District of Columbia:

- 30 cable modems, 30 cable service outlets, and 30 digital converters (with maximum capabilities and performance characteristics).

(c) PAC:

- 10 cable modems, 10 cable service outlets, and 10 digital converters (with maximum capabilities and performance characteristics).

7.4.02 Ground Rules

RECOMMENDATION # 58:

All service outlets, modems, converters, and related equipment should be state-of-the-art equipment and should be periodically upgraded, with converters, modems, and other equipment replaced at least every four years to ensure maintenance of state-of-the-art standards. All cable

modems should operate initially at speeds of at least 1.5 megabits per second[7] and be designed to provide simultaneous service to networked computers and devices at that speed. System providers should be responsible for maintaining all relevant equipment and for repairing or replacing nonfunctioning or malfunctioning equipment within 24 hours of a request for service.

Each provider should install these outlets, modems, converters, and other equipment at sites designated by the District, DCPL, DCPS, UDC, or PAC, but subject to the numerical limits specified for each institution in Recommendation # 57. In addition, any of these entities may install their own devices (*e.g.*, signal splitters, amplifiers, connecting devices, modems, converters, cable lines) and distribute service to other outlets, modems, and equipment without paying a fee or obtaining the provider's consent.

7.5 INSTITUTIONAL NETWORK

RECOMMENDATION # 59:

A state-of-the-art institutional network should be constructed to link together all District facilities, PAC facilities, and other facilities designated by the District via single-mode fiber optic connections. The design of this broadband network should be based on specifications and minimum technical and performance requirements established by OCTO (including minimum fiber counts)[8] and construction should be overseen and managed by OCTO. The institutional network should be designed to meet current and future needs and be expandable and adaptable. It should be equipped to provide direct, automatic, and instantaneous connections for transmissions in video, audio, voice, and data form, including live, interactive, closed circuit, and narrowcast transmissions, between and among sites connected directly to the network or indirectly to the network via cable system or other connections.

The network should provide fiber optic connections to all District facilities, including all DCPL,[9] DCPS,[10] UDC, and neighborhood health clinic facilities, and all PAC facilities.

The institutional network should be controlled and managed by the District. Ownership of the institutional network should be absolutely and indefeasibly vested in the District, with no conditions or limits on the District's right to use the network.

Financial responsibility for assisting with designing, building, and equipping the institutional network should be divided between Comcast/DC and Starpower, with responsibility apportioned in accordance with relative market share and years of operation in the District and falling primarily on Comcast/DC (90%). In addition, both Comcast/DC and Starpower (and any other provider entering

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7. As previously noted, this standard should be adjusted at least every four years and modems replaced to reflect state-of-the-art standards.

8. *See* Design Criteria and Outline Specification for Municipal Area Network (MAN) (Appendix E) for details.

9. Martin Luther King Jr. Memorial Library, 4 regional libraries, 17 branch libraries, 4 community libraries, and 1 kiosk.

10. All school buildings and administrative and support facilities.

the local market) should be required to assist in constructing this network regardless of market share by installing fiber optic lines and/or conduit along routes or to sites as requested by OCTO.

7.6 ACCESS CHANNEL INTERCONNECT FACILITIES

RECOMMENDATION # 60:

Each system provider should connect all production and origination sites designated by the District to its system and to the institutional network via bidirectional fiber optic connections. Each provider should install and maintain the on-premises, network, and headend facilities and equipment needed to provide state-of-the-art interconnections (*e.g.*, laser transmitters, modulators, processors, passive devices). These access channel interconnect facilities should directly, automatically, and instantaneously transmit signals provided by public institutions over access channels, to and from designated public institutions, and to and from the institutional network. These facilities should transmit these signals without altering or degrading them and without altering or removing any ancillary data or coding information.

Each provider should develop a design for access channel interconnect facilities which are based on the foregoing objectives and a plan and schedule for construction and activation of these facilities and present them to the District for review and modification prior to the District's grant of a franchise.

7.7 EMERGENCY ALERT SERVICE

RECOMMENDATION # 61:

Each system provider should provide a state-of-the-art emergency alert system (EAS) which complies with specifications established by OCTO. The system's EAS should provide audio and video override on all audio and video channels for emergency information provided by the District and should conform to performance and other standards established by OCTO. Each system provider should maintain the system and periodically upgrade it to remain current with state-of-the-art standards. Each system's EAS should be equipped for remote activation from locations or via connections of the District's choosing, for operation by the District during emergencies, and for carriage of a live audio or video feed supplied by the District.

7.8 PROMOTIONAL SPOTS

RECOMMENDATION # 62:

Two 60-second time slots should be made available every day during the hours of heavy viewership (*e.g.*, between 7:00 a.m. and 12:00 p.m.), including at least one during "prime time," for spots provided by the District, PAC, and other PEG entities designated by the District on each channel which is equipped for local insertion of advertisements.

7.9 PROGRAM GUIDES

RECOMMENDATION # 63:

System providers should include complete information regarding scheduled access channel programming in all its program guides and in all submissions to other providers of program guides, including newspapers, on-screen, and Internet-based guides, to the maximum extent possible.

8. FRANCHISE ADMINISTRATION AND REGULATION

8.1 RATES

RECOMMENDATION # 64:

The District should reserve authority to regulate rates to the maximum extent permitted by law.

8.2 REPORTS

RECOMMENDATION # 65:

System providers should file monthly reports which, at a minimum, provide information for the previous month on: rates and other charges; sales and subscriptions; subscribers; installations; equipment rentals and sales; consumer complaints; telephone calls and response times; service interruptions; construction; expenses and revenues; local origination; employees; and subcontractors. System providers should submit results of technical and other performance tests to OCTT within a week of completion of such tests. System providers should file annual reports which cover all of the preceding items and other matters that may be required by OCTT and which include current as-built maps. Further, system providers should file audited financial statements each year for the system which include: the balance statement; the income statement (showing subscriber revenue for each service category, other revenue by source, operating expenses by line item, depreciation expense, interest expense, and taxes paid); capital expenditures; depreciation and amortization schedules and amounts; and debt payments and obligations.

8.3 CONSTRUCTION

RECOMMENDATION # 66:

Construction schedules (including both interim milestones and final deadlines), with strict enforcement procedures (*e.g.*, liquidated damages), should be established to ensure orderly deployment of new system plant and facilities, including institutional network facilities, and access to advanced services and technology on a consistent and equitable basis in all of the District's eight wards.

OCTT should establish strict construction and installation standards with regard to all facilities and equipment installed in the public right-of-way as necessary to supplement standards which are normally implemented by DDOT through the permitting process. These standards should not only ensure high-quality service but should also protect District interests with regard to safety and aesthetics and be designed to ensure consistency among competitors to the extent possible and practical. As appropriate, these standards should require replacement and/or relocation of facilities and equipment currently being used by Comcast/DC, including those currently installed at aerial locations in District neighborhoods where the District requires underground installations.

The District should reserve broad authority to inspect, monitor, and regulate construction and restoration work. Strict requirements should also be established to ensure that all property, including both publicly and privately owned property, is fully restored upon completion of any construction or installation work on the property in question.

8.4 USE OF THE PUBLIC RIGHT-OF-WAY

RECOMMENDATION # 67:

All system providers should completely and promptly restore any public right-of-way used or disturbed in any way in connection with any construction or installation of system plant or facilities. System providers should comply with all applicable permitting and inspection fees and other requirements and comply with all rules established by DDOT with respect to use of the public right-of-way, including any requirement to submit plans and maps in AutoCad or other electronic form, and to comply with requirements for underground installations and any other DDOT policies designed to mitigate damage to the environment or to protect public safety. All system providers should relocate plant to accommodate any changes made to streets, the public right-of-way, and other public structures.

All system providers should comply with all pertinent provisions of the District's code and rules and DDOT directives which directly or indirectly require underground installation or which regulate construction or installation practices, including all provisions or actions which require underground installations or which regulate aerial installations. In particular, Comcast/DC should be required to comply with policies developed by OCTT and/or DDOT with regard to aerial installations in Adams-Morgan, Capitol Hill, Georgetown, or any other fire zone neighborhood or location where underground installations are required either directly or indirectly by the District.

The District should retain broad authority to apply to all system providers any new policies established with regard to use of the public right-of-way. Possible new policies include (but are not limited to) strict standards for restoration of the surface of roadways, requirements for common or cooperative trenching or installations, requirements for use of particular trenching technology (*e.g.*, "trenchless" technology), submission of all pertinent system data in Geographic Information System (GIS) format, and payment of telecommunications and right-of-way fees.

8.5 TECHNICAL AND PERFORMANCE TESTS

RECOMMENDATION # 68:

The District should reserve broad authority to establish technical standards and conduct technical tests to the maximum extent permitted by law, including tests of subscriber and institutional networks, and to require compliance with all federal technical standards, whether or not formally adopted by the District. Further, all system providers should provide the District with full access to all mobile testing equipment necessary for the District to conduct its own technical tests. Finally, OCTT should be provided with advance notice of all required technical tests so that it can observe any such technical test to ensure that they are properly implemented.

8.6 INSPECTION RIGHTS

RECOMMENDATION # 69:

The District should be authorized to inspect all system facilities and books and records of system providers on 24 hours' advance notice or immediately in any emergency situation, to inspect any facility installed in the public right-of-way without any advance notice, and to charge any applicable fee.

8.7 ENFORCEMENT MEASURES

RECOMMENDATION # 70:

The franchise should specify enforcement measures which may be invoked in situations where a system provider does not comply with the franchise. The franchise should specify the amount of liquidated damages to be collected for each violation of the franchise so there is no dispute as to the damages associated with each breach (*e.g.*, $1 per day per each affected household for failure to comply with a construction schedule). The franchise should also specify franchise violations considered to be material which may provide the basis for termination or shortening of the franchise or imposition of other major penalties. The franchise should require the provider to post a sizable performance bond or other financial guarantee, payable to the District in the case of failure to perform, which secures the provider's construction, operation, and removal of the system. Finally, a security fund of a sizable amount should be established to which the District may easily and quickly obtain access to recover liquidated damages and collect financial penalties, underpayments of franchise fees, public service fees, and other amounts owed to the District.

8.8 PERFORMANCE AND STATE-OF-THE-ART REVIEWS

RECOMMENDATION # 71:

The District should conduct performance reviews every year and state-of-the-art reviews at least once every two years and more frequently if warranted. Strict requirements in this area are essential in view of Verizon/DC's and Comcast/DC's failure to upgrade the system during the more than 16 years in which the franchise has been in effect.

Performance reviews should, among other things, include an assessment of the provider's performance and compliance with the franchise and an assessment of appropriate enforcement action (*e.g.*, imposition of liquidated damages).

State-of-the-art reviews should include assessments of the current capabilities of the system and those of state-of-the-art systems and networks. Among other things, state-of-the-art capabilities should include the latest developments in technology that have been proven to be operationally workable. The system provider should produce all pertinent information concerning the system's capabilities, the provider's deployment of advanced services and technologies in other communities, and state-of-the-art developments in the cable and other industries. The District may also consider any information pertaining to state-of-the-art developments which it collects on its own.

Following consideration of all pertinent information, including any cost estimates and technical information provided by the system provider, the District should issue an order requiring the provider to enhance the system to the extent necessary to ensure that the system conforms to current state-of-the-art standards. In connection with this order, the District should extend the franchise to the extent warranted by new financial obligations to be incurred by the provider in implementing a state-of-the-art order. Similarly, the District may shorten the franchise or impose liquidated damages and penalties if the provider fails to implement an enhancement order or comply with a construction schedule specified in an enhancement order.

8.9 FRANCHISE TERM

RECOMMENDATION # 72:

The term of the franchise granted to a system provider should be the time period necessary to recover the provider's new investment in the system and in public services and a reasonable profit on those investments.

In connection with this determination, the system provider should submit an itemized list of all investment in new facilities and equipment which it plans to place in service under the new franchise or which it placed in service in the three-year period prior to the effective date of the new franchise. This list should not include the costs of any facilities and equipment to be used solely for telecommunications services and other services not subject to the cable franchise fee. Any costs associated with dual purpose facilities and equipment should be fully disclosed, with a breakdown of the allocation of these facilities and equipment between services subject to the cable franchise fee and services not subject to the cable franchise fee. The provider should also provide an itemized list of revenues expected to be received from services subject to the cable franchise fee.

Periodic performance reviews should include a comparison of projected and actual revenues and of projected and actual investment costs. Remedies for significant misrepresentations (whether intentional or unintentional) with regard to projected revenues and investment (as measured by the difference between projected and actual revenues and between projected and actual investment) should be specified in the franchise.

8.10 FRANCHISE EXTENSIONS

RECOMMENDATION # 73:

Extensions should generally not be granted unless the system provider agrees to make significant new investments in the system or significant improvements in service in exchange for an extension, a short-term extension is deemed necessary be the District to complete a renewal proceeding or comply with other legal requirements, or there are exigent circumstances.

8.11 PURCHASE OR TAKE OVER OF THE SYSTEM BY THE DISTRICT OR A THIRD PARTY

RECOMMENDATION # 74:

The District should reserve the right to purchase the system (or effect the transfer of the system to a third party) at an equitable price (excluding the value of the franchise and taking into account any damage to the District and its residents) if the franchise is terminated for cause. It should also be entitled to acquire the system at fair market value (excluding the value of the franchise) if the franchise expires and is not renewed. In either case, the price to be paid should be established by an appraiser selected by the District. Further, if the provider abandons the system, the District should be entitled to take over the system or effect its transfer to a third party at no cost.

9. FRANCHISE FEES AND OTHER COMPENSATION

9.1 FRANCHISE FEES

9.1.01 Cable Operators and Comparable Providers

RECOMMENDATION # 75:

System providers should pay the District a 5% franchise fee as compensation for use of the public right-of-way. This fee should apply to all revenues derived from operation of a cable system (or OVS system) and associated activities and services to the maximum extent permitted by federal law, including any such revenues received by affiliated entities. Further, in view of the legal uncertainty with regard to whether Internet service is a cable service, the District should reserve authority to impose a fee or other assessment on any person for use of the system or provision of services which are not or may not be subject to the cable franchise fee (*e.g.,* telecommunications

services, information services) but could be subject to a telecommunications fee or some other fee which is not limited or regulated by the Cable Act.

9.1.02 Third-party Service Providers

RECOMMENDATION # 76:

A 5% fee should apply to all revenues received by any third party in connection with direct sale or other provision of service over a cable system (*e.g.*, video-on-demand service, Internet service) or associated activities and services that would be subject to the franchise fee if provided by a system provider.

9.2 PUBLIC SERVICE FEES

RECOMMENDATION # 77:

Public service fees–the proposed $1.40 per subscriber per month fee and the proposed 1% public access fee–should apply to third-party service providers as well as all system providers. Public service fees should be treated the same as franchise fees for purposes of enforcement and collection.

9.3 COSTS OF FRANCHISE RENEWALS, EXTENSIONS, TRANSFERS, AND MODIFICATIONS

RECOMMENDATION # 78:

System providers should reimburse the District for all costs incurred by the District in connection with franchise renewals, extensions, transfers, and modifications for outside assistance, including the costs of attorneys, consultants, and engineers.

9.4 REMITTANCE

RECOMMENDATION # 79:

Payments of franchise and public service fees should be made on a quarterly basis and within 30 days of the close of a quarter. These remittance requirements should apply to both system providers and third-party service providers.

9.5 ENFORCEMENT

RECOMMENDATION # 80:

Strict enforcement procedures, including liquidated damages and financial audits, should be established to ensure full and timely compliance with all franchise fee and public service fee requirements. These enforcement procedures should apply to all system providers and, where possible, to third-party service providers. System providers should disclose all relationships with third-party service providers and include provisions in contracts with third-party service providers which require full compliance with all franchise fee and public service fee requirements. To ensure compliance with these obligations, each system provider should be jointly and severally liable for franchise fees and public service fees owed by third-party service providers.

10. CUSTOMER SERVICE

10.1 LOCAL FACILITIES

10.1.01 Customer Service Facilities

RECOMMENDATION # 81:

Each system provider should provide at least four customer service facilities in the District (one in ward 7 or 8; one in ward 5 or 6 (west of the Anacostia River); one in ward 2 or 3, and one in ward 1 or 4), with a goal of possible co-location of customer service facilities in the one-stop customer service centers the District plans to establish for each ward. District residents should be able to drop off and pick up subscriber equipment, pay bills, and resolve billing disputes at these customer service facilities. These facilities should provide regular weekday, evening, and weekend hours. If a “virtual” office outside of the District is used to provide any aspect of customer service, the system provider should provide full access to customer service representatives and dispatch service technicians for emergency repairs on a 24-hour-a-day basis every day of the week, including holidays.

10.1.02 Other Facilities

RECOMMENDATION # 82:

Each system provider should maintain a full complement of the service technicians and installers required to maintain and service the system and customers on an ongoing basis, with on-site access to all necessary vehicles and equipment, at facilities in the District.

10.2 NOTICE REQUIREMENTS

10.2.01 Notice of Rates and Services

RECOMMENDATION # 83:

All system providers should provide written notice to all subscribers and the District once every 12 months and at the time of installation or service connection which details the channel line-up, all services and service packages, and all charges for all services and equipment. A system provider should provide at least 30 days' advance notice to all subscribers in writing (or some other form which ensures direct and actual notice to all subscribers) and to the District in writing of any change in rates, services, or channel numbers.

10.2.02 Other Subscriber Notices

RECOMMENDATION # 84:

All system providers should, at the time of installation or service connection and at least once every 12 months, notify subscribers in writing of all subscriber equipment provided by the provider and the subscriber's right to use equipment provided by third parties. Further, these subscriber notices should provide complete information on installations, including availability of customized installations, the customer's right to install inside wires and attach equipment to the provider's equipment, the customer's right to receive service at any number of outlets, and availability (if any) of maintenance plans for inside wires. Finally, subscriber notices should detail customer service standards, describe procedures for filing consumer complaints with the provider and OCTT, and provide notice of all privacy rights. All subscriber notices should be submitted to the District for review and approval at least 10 days prior to distribution to subscribers.

10.3 TELEPHONE SERVICE

10.3.01 Telephone Availability

RECOMMENDATION # 85:

District residents should, at a minimum, have full access to customer service representatives via telephone between the hours of 6:00 a.m. and midnight every day of the week, with access to emergency service for outages and service interruptions on a 24-hour-a-day basis. If a provider uses a "virtual" facility outside the District to provide any customer service, District residents should have access via telephone to customer service representatives on a 24-hour-a-day basis every day of the week.

10.3.02 Telephone Responsiveness

RECOMMENDATION # 86:

System providers should take no more than 30 seconds to answer a call in person and no more than 30 seconds to transfer a call to the appropriate representative for action or response during all time periods in which customer service is made available to the public. Compliance with this standard should be measured on a monthly (or shorter time period) basis. This standard should be met for at least 95% of calls every month. In determining compliance with this 95% standard, the total number of telephone calls made to the provider should include calls which receive a busy signal or which could not be completed because of the provider's limited circuit capacity as well as those which reach the provider.

All system providers should install TDD equipment on at least one customer service telephone line and provide a customer service representative trained in the use of such equipment at all times during which customer service is offered via telephone to the public. These standards should be enforced through liquidated damages and strict financial penalties and monthly reports which provide detailed records of all customer-related telephone activity.

10.4 BILLING

10.4.01 Payment of Refunds and Credits

RECOMMENDATION # 87:

Refunds should be paid and credits issued within five days of a determination that a refund or credit is due.

10.4.02 Billing Disputes

RECOMMENDATION # 88:

System providers should resolve all subscriber complaints regarding bills and billing disputes within five days.

10.4.03 Subscriber Termination or Discontinuation of Service

RECOMMENDATION # 89:

System providers should not bill a customer for a service provided after the date specified by the customer for termination or discontinuation of service and should establish clear-cut procedures for closing out accounts and sending a final bill for payment of any outstanding balances.

10.4.04 Termination of Service for Nonpayment

RECOMMENDATION # 90:

No system provider should be permitted to terminate service for nonpayment until at least 45 days after the first day of the service cycle for which payment is due and at least 10 days after provision of notice in writing of its intention to cut off service.

10.4.05 Late Payment Fees

RECOMMENDATION # 91:

System providers should not impose late payment fees until 45 days after the first day of the service cycle for which payment is due. To ensure timely receipt of bills, system providers should mail bills to subscribers at least five days prior to commencement of the service cycle covered by the bill. Further, late payment fees should not exceed 2% of the customer's outstanding balance (not including taxes and fees) per month.

10.5 INSTALLATIONS AND DISCONNECTIONS

10.5.01 Drop Line Installations and Burials

RECOMMENDATION # 92:

Standard installations should include drop lines of at least 150 feet in length. Underground drop lines on private property should be buried at least 12 inches below the surface, and private property should be fully restored to its prior condition within three days of completion of installation or line burial.

10.5.02 Deadlines for Completion of Installations

RECOMMENDATION # 93:

Any installation for a single family home in an area served by a system provider should be completed within three days of a request for service. Any installation for a housing unit in a multidwelling unit property should be completed within three days of a request for service if the property is already connected to the system and within 40 days of a request if the property has not been connected to the system but is located in an area served by the system.

10.5.03 Deadlines for Completion of Disconnections

RECOMMENDATION # 94:

Any request by a customer for disconnection or discontinuation of any or all services or retrieval of equipment should be fulfilled within 24 hours of the customer's request.

10.5.04 Access to Multidwelling Unit Properties

RECOMMENDATION # 95:

All tenants and other legal occupants of property should have a right of access to service provided by all system providers. Similarly, all system providers should have a right of access to property for the purpose of providing service to legal occupants of the property. These complementary rights of access should be implemented by requiring the system provider and the property owner to enter into an access agreement (subject to the property owner's interest in preventing damage to the property) within 20 days of a request by either an occupant of the property or the system provider. These rights should be enforced by all available means, including mandatory sharing of conduit, restrictions on revenue sharing, prohibitions on exclusive and other preclusive arrangements, arbitration for resolution of disputes between the system provider and a property owner, and imposition of financial penalties on the system provider and/or the property owner for failure to finalize an access agreement within 20 days of a request.

10.6 APPOINTMENT WINDOWS

RECOMMENDATION # 96:

Appointment windows for service calls and installations should not exceed three hours. System providers should provide free repair or installation service if a service technician fails to begin work during a scheduled appointment window or to complete installation or repair during the first visit to the customer location.

10.7 SIGNAL OUTAGES AND INTERRUPTIONS

10.7.01 Interruptions for Testing and Maintenance

RECOMMENDATION # 97:

Service interruptions for testing and maintenance should be minimized and should eventually be eliminated to prevent any disruption of service, especially as digital television, Internet, and other advanced services are delivered via cable and comparable systems.

10.7.02 Credits for Interruptions and Outages

RECOMMENDATION # 98:

A credit in the amount of one-thirtieth of the customer's monthly bill should be automatically issued for each day affected by a service interruption for any such interruption of 60 minutes or more. System providers should install the technical capabilities necessary to identify each subscriber location affected by a signal outage or interruption and to automatically pay credits to all affected subscribers.

10.8 RESPONSE TO SERVICE PROBLEMS OR INTERRUPTIONS

RECOMMENDATION # 99:

System providers should begin work on service interruptions or problems which affect two or more customers within 60 minutes of notification and on service interruptions or problems which affect a single customer on the same day if the provider is notified before noon and within 24 hours if notified after noon.

11. EMPLOYMENT, TRAINING, AND CONTRACTING

11.1 LOCAL WORK FORCE

RECOMMENDATION # 100:

All system providers should maintain a work force that is based at facilities in the District. To ensure responsiveness to changes in market position, the minimum requirement for a provider's District-based work force should be based on its total number of customers in the District, with this minimum requirement rising or falling in tandem with the total number of customers. The ratio between District-based employees and customers should be 333 customers per employee, for an initial minimum requirement of about 300 District-based employees for Comcast/DC and 50 for Starpower (the number of each provider's customers multiplied by 0.003). The minimum requirement for District-based employees for a provider should be adjusted once every three years to reflect changes in a provider's customer base in the District. This local work force requirement should be enforced through such measures as reporting requirements and liquidated damages.

11.2 LOCAL WORK FORCE COMPOSITION

RECOMMENDATION # 101:

The requirement that the local work force consists of at least 51% District residents should be retained and applied to both Comcast/DC and Starpower and to any other new provider. In addition, all providers should be required to use "best efforts" to ensure that, within a reasonable

time period, at least 50% of management level employees for the local work force are District residents.

11.3 APPRENTICESHIP AND TRAINING

RECOMMENDATION # 102:

To ensure training and job opportunities for District residents, each system provider should establish and continuously maintain an apprenticeship program which provides training and job opportunities, including training for jobs associated with advanced technology and services, and which is targeted at unskilled and semiskilled District residents who are economically disadvantaged. This requirement should be enforced through such measures as strict program certification and reporting requirements.

11.4 CONTRACTING REQUIREMENTS

RECOMMENDATION # 103:

To enhance economic opportunities for District-based businesses, all system providers should, at a minimum, comply with contracting standards equivalent to those established by the District's Equal Opportunity for Local, Small, and Disadvantaged Enterprises Act of 1998 (or any successor law) and applicable to contracts awarded by the District. This requirement should be enforced through reporting requirements and liquidated damages.