G. CONDITIONS OF CABLE SYSTEM

INTRODUCTION

Part of a comprehensive understanding of the needs of the cable system is a review of the physical plant, franchise fee accounting and complaints about the current cable system. This section describes the activities and research done to assess the needs related to each of these categories and attempts to summarize the potential responses to problems identified during the review. A summary of the issues and problems indicated by a review of the condition of the cable system and review of the performance of the current provider appears in Chart G1 on the page that follows.

This section is divided into five primary areas:

- Condition of the Physical Plant
- Collection of Cable Franchise Fees
- Current Customer Service
- Technical System Elements
- Summary and Recommendations

In each section, a summary of the data collection methods utilized is presented, along with primary findings and suggested responses to address problems in the physical plant, accounting and customer services components of the cable system.

Condition of the Physical Plant

Methods:

At the direction of the City of Davis, Kramer.Firm, Inc. ("KF") conducted a citywide inspection of the cable television physical plant owned and operated by AT&T Broadband Comcast ("AT&T Comcast"). KF has over 24 years of outside plant cable engineering expertise, over 18 of which have been directly related to inspection of cable television systems on behalf of government agencies such as the City of Davis. These inspections have included those of other cable systems in California subject to National Electrical Safety Code, and the National Electrical Code and other AT&T systems within and without California. The final report from KF was presented to city staff and included inspection data and site photographs. KF conducted a preliminary review of AT&T Comcast's Davis system from documents and onsite on July 5, 2002, and completed a thorough inspection November 4-6, 2002. KF followed established inspection criteria, and compiled, reviewed, annotated and approved the final report.

The purpose of this inspection was to permit analysis of whether AT&T Comcast's outside plant system complies with national, state and local electrical codes, as required by the existing franchise agreement. To collect the data reported here and to permit KF to offer opinions regarding the overall system, KF staff conducted the system inspection of AT&T

Chart G1: Issues and Problems

Issues	Problems
Access	Limited access to communication technologies
	Unequal access to modern technology among Davis residents
Adaptable	Current system does not take advantage of new delivery technology
Availability	Cable services not available in all areas
Broadband	Economic future depends on ability of the residents and businesses to interact with Broadband
	System is inadequate to meet diverse internet goals
Channel block	Channel blocking doesn't both audio and video
Channels	Poor selection of channels
Economic development	Lack of modern technology impedes economic development
	Downtown area struggles to maintain competition without adequate cable/telecom services
Environment	Traffic and air quality are significant regional problems
Emergency response	Cable system is not currently designed minimize the impact of a power outage
	Davis does not have adequate broad-based tools to get the word out to residents in emergencies
	Public safety response is weakened by poor communications system
Insufficient services	Cable company offers insufficient services does not provide additional services
	Limited access to high speed broadband services
Interconnection	Poor links between government, schools and university
Past performance	The cable company failed in adequate maintenance of the system.
	There is no interconnectivity in the system though it is required in the ordinance.
Past performance and customer service	Insufficient monthly reports; response goals not always met
Poor communication	Cable provider is perceived as a poor communicator to customers
Poor customer service	Cable company has poor reputation for customer service
Slow	Connections in current broadband system are too slow
	Students can learn properly with adequate internet connections
Special needs	Telecom and PEG services are difficult to access for special needs populations
University and Davis issues	Lack of interconnection between the university and the residents.
	So-called "town and gown" issues.
User friendly	Cable equipment is not user friendly

Comcast' Davis system in the major operating areas of this franchise area. The code authorities for the inspections were:

1. National Electrical Code.
2. California PUC General Order 95
3. California PUC General Order 128

During this inspection, KF drove approximately 100 street miles in the Davis system. The route was recorded by using the automated tracking function of a Global Positioning System (GPS) satellite receiver connected to a computer. A map of the inspected areas was then generated.

A "Proof of Performance" report analysis was also completed by KF.

Findings:

For reasons listed in the final inspection report, Kramer.Firm concluded that AT&T Comcast's overhead and underground plant systems, exclusive of the subscriber drops, are in potentially dangerous and substandard condition. KF discovered numerous infractions of California PUC General Orders as they pertain to the proper construction and maintenance of overhead and underground cable facilities. Many of these infractions impact the safety and reliability of the system. A significant portion of the total subscriber drops exhibit one or more of the code violations discussed in this report. By correcting these and other cable violations that exist in the city of Davis, AT&T Comcast's outside plant can be brought into compliance with National Electrical Code, CPUC Orders, and City Municipal Code safety requirements.

KF offered the following conclusions and recommendations based on the system observations listed in the KF report:

1. The physical plant of the cable system includes both underground and aerial components—the aerial components connect wire to homes, businesses and other structures and carry those wires along street poles. The inspection found that the aerial system at and between poles, and the underground system at and between vaults and pedestals (the mainline portions of the cable system) are in degraded to seriously degraded condition.
2. Many pedestals are not set to proper depth or properly supported. Further, many pedestals require replacement or repair for reasons such as cracked lids, bodies, etc.
3. An unacceptably high number of subscriber drops are not grounded to all of the NEC Section 820-40 et seq. requirements, likely equaling or exceeding 5,000 locations.
4. The Proof of Performance report shows substantial non compliance issues.

Recommendations:

According to the KF report, it is estimated that the current cable provider (internally, and by use of its contractors) can identify and resolve the code violations within twelve months after receipt of notice from the City of Davis.

The cable provider should evaluate its present quality control program to make a greater effort to locate and correct code violations in its system. The provider should submit a written report to the City discussing specific changes, if any, to its quality control program so that future code violations are prevented, and to the extent they are not, that they are promptly detected and corrected.

Re-inspection of the system should be done after 12 months to determine if the observed code violations have been corrected, and to determine whether AT&T Comcast's procedures and policies are in compliance with the requirements of the NEC and CPUC requirements. Interim inspections may be warranted.

Collection of Cable Franchise Fees

Methods:

City staff regularly receives reports from the current cable provider to support the fee payments required under the current franchise. The report, entitled "Franchise Fee Template-Revenue," contains summaries of revenues grouped as Cable Services, Other Revenues and Advertising. Per a recent ruling about Internet fees, the cable provider does not report revenues for Broadband or cable modem service (nor are these services currently provided in Davis). Staff regularly reviews these reports and has attempted to contrast these revenues with the number of cable subscribers. No formal audit has been completed of the methods and accounting practices inherent in the financial reports.

Findings:

On face value, the total franchise fee collected from the 12 full months in the last fiscal year appears to correspond roughly with the estimated 12,000 subscribers in Davis.

The current cable provider did not supply subscriber numbers for this period. Thus, the City of Davis is forced to work with estimates that may be inaccurate.

The current provider has made timely payment of the franchise fees and of the agreed pass-through funds to Davis Community Television.

Recommendations:

It is hoped that administration of the cable franchise can be done without a great deal of bureaucratic detail. However, in order to provide due diligence to the residents of Davis, the following actions are recommended:

Audit: a biennial audit of the cable revenues reported to the City of Davis should to be completed. This audit should determine whether:

- Franchise fee payments to the jurisdictions within the Davis Franchise Area were based on properly recognized city/county addresses,
- Franchise fees for the City of Davis were calculated properly and all appropriate revenues were included in the fee calculation, and
- Identify changes the City of Davis and AT&T Comcast can make to monitor revenues and process franchise fees more efficiently and effectively.

Reporting: Regular financial reports to the City of Davis should contain additional information, including:

- The relevant reporting period of the summary.
- The number of subscribers (or equivalent number used) for calculation of cable revenues for the period in question.
- The number of subscribers should be regularly reported to the City whether the subscriber number is used for calculation of revenues or not.

Current Customer Service

Methods:

The current cable franchise defines customer service standards, which the current cable provider must meet. These standards include local offices for billing and customer service, local or toll free calls for customer service, reasonable availability of customer service representatives, and timely response to inquiries, billing questions and complaints, and service appointments. The existing customer service standards will be attached to the final version of this report.

Under the current franchise, the cable provider is required to submit regular reports to the City of Davis entitled "AT&T Broadband—Customer Service Reports." These reports contain quantitative data about:

Calls Abandoned:
the total calls abandoned from an agent queue divided by the total calls offered. This is an indicator that the customer is not willing to wait the necessary time for an agent to answer in person and abandons the call ("hangs up").

Trunks Busy:
the percentage of calls receiving a busy signal rather than starting the voice response process.

Average Speed of Answer:
The length of time the customer waits from choosing a customer service option in voice mail until a customer service representative answers.

These reports are collected by city staff who compare the results to goals enumerated in the customer service standards. There are liquidated damage penalties for non compliance with customer service standards.

Complaints about customer service are received by the cable provider, but are not reported to the City. Complaints are also received by the City of Davis. These complaints are reviewed and city staff responds by phone or by e-mail, as appropriate. Some of the complaints are referred to the cable provider for action.

Findings:

Reports

The current customer service standards, adopted on June 12, 2002, state that monthly reports should be sent to the City of Davis. For the period of July 1, 2002 through January 31, 2003, staff could only confirm receipt of two monthly reports.

The reports received by the City indicate that the current cable provider has failed to meet customer service indicators in the number of calls abandoned and the average speed of answer. Since the reports were not received in concurrent months, it is impossible to know whether the current cable provider attained "compliance in the month immediately following the failed reporting period" as required in the customer service standards.

Complaints

No data about customer service complaints received by the current cable provider were reported to the City.

However, the City of Davis has received significant complaints about the current cable provider. According to records in files and by reports received by a survey of city customer service staff, the City receives an average of two complaints per week: by phone, by e-mail, by letter and by residents complaining in person at city offices.

These complaints center on several fundamental issues:

- **Programming:** Customers will request city action in requesting particular programs and channels on the cable system and on the basic tier. Some of the most often mentioned channels are the Food Network, the Science Fiction Channel and the UCTV channel. Generally, city staff explain that the City of Davis does not regulate cable content and refers the resident to the cable provider.
- **Lack of capacity and deceptive advertising**: The City often hears complaints about the lack of high-speed cable modem service in Davis. The residents of Davis are sophisticated users of the Internet and are often mystified by the lack of high-speed service. Moreover, many residents have reported intense frustration with the mailings, newspapers, television commercials and promotional materials touting high-speed broadband

services available locally. When residents call for the service, they are told it is unavailable in Davis. One resident recently complained:

"I feel as though the company is taunting me. Davisites would be such good cable modem customers! We have money and we have education. It's torture to know that [the cable company] can provide the service here and just won't do it."

- **Calling the cable company:** The most common complaint heard by city staff is the lack of availability and responsiveness of cable company staff. Hold times vary. Some people, after the first response by customer service agents, have described total time on the phone attempting to resolve problems ranging from 30 minutes to over 2 hours. Many have described situations wherein the customer service staff have given inaccurate and misleading answers, have failed to correctly execute transactions, and have been unable to successfully resolve problems, even after seeking the assistance of the on-duty supervisor and manager. One comment describes a common type of complaint:

"Yesterday we had cable service outage…I called several times and got a different story from your people. I assure you, these people do not know much about what the nature of the problem is, or when it will be repaired. During my latest call, which was after 5 PM, the lady who responded told me that it was an "auto outage." I asked her what an auto outage is, and she responded that it is an outage cased by an automobile accident. She told me that the "auto outage" occurred today at 5:21 PM. Well, as you know, this particular outage seems to have occurred yesterday. Because of my earlier experience with your technical assistance people, I no longer feel that I can believe everything they say, and I concluded that she simply hadn't got her facts straight."

- **System and Equipment:** Another common complaint is that the equipment and connections in Davis neighborhoods and homes are of poor quality and are poorly maintained. Once resident reported that in January and February 2002, she personally went to the local cable customer service counter to report vandalized and unsafe exposed wires near her home. She was told repeatedly that the problem would be inspected and repaired. She was told that there was no other number to call and no other higher-level staff to whom she could report the problem. She finally asked the City of Davis to send a code compliance officer to inspect the equipment and cite the cable company, if necessary. City staff called the Vice President of Governmental Relations in the cable company and finally received confirmation of the repair on March 8, 2003. This type of delay and avoidance of customer complaints is clearly unacceptable. The problems with local equipment noted earlier in Section G, such as unsafe and poorly installed connections, are also the basis of many resident complaints.

- **PEG Customer Service:** All of the PEG system providers have complaints about customer service and responsiveness in the case of transmission, replay and technical problems when airing local programming. The primary issues appear to be the lack of

adequate staffing or clear lines of communication between the PEG staff and the cable provider. When attrition of local AT&T staff happened in 2001, no new staff were hired to serve as liaisons to PEG staff in Davis. As discussed in Section E, local live programming, especially of City Council and School Board meetings, is very popular in Davis. When the live feed is disrupted, the public is hugely disappointed and demands rapid restoration of the signal. Without direct real-time access to cable staff, this restoration of service is too often delayed and the quality of local programming suffers.

It is noteworthy that out of the eleven voting and ex-officio members of the Telecommunications Task Force, four reported significant problems with the customer service provided by AT&T Comcast. Other customer service comments were previously noted in Section B, but are included here for reference. Residents expressed concerns about the services they receive. Some displayed resentment toward the cable providers' technical support services. Many of the respondents feel that there is poor communication and that customer technical support is not welcoming:

"The recent decision by AT&T Broadband to require us to replace set-top boxes (converters) was poorly explained in their letters to the customers. The letter made it sound like switching the converter would allow for digital cable."

"AT&T requires you to bring a photo ID to the local office to change the billing name on your cable account. This is because this can be only handled at the local office and the local office does not take telephone calls."

"Since AT&T took over TCI, the level of service has declined and the monthly charge has increased. I cannot call the local office. There is no telephone service to the local office."

Recommendations:

A fundamental change in the approach to customer service and communication with local staff is necessary under the existing and any future cable franchise. The primary recommendations identified as part of the preliminary report on community needs are:

- Monthly customer service reports submitted on a timely basis and via certified mail to designated staff at the City of Davis.
- Maintenance of penalties that include liquidated damages for consistent failure to meet customer service standards.
- A local customer service office with staff that are trained appropriately to answer billing, service, and system repair problems. The staff should have the authority to resolve customer service problems, including but not limited to billing discrepancies, changing service, changing the method of payment, and

ordering inspection and repair of connections and neighborhood cable equipment, as needed.

- A PEG liaison should be identified and should maintain consistent and effective communication with the local PEG channels. Direct dial phone numbers should be made available to the PEG providers to contact technical staff in the case of broadcast problems. Technical staff should be available in a reasonable amount of time, 24 hours per day.
- City staff should have contact numbers, addresses and e-mail addresses for customer service staff who can be directly contacted to resolve significant customer service complaints.
- The cable provider should limit local advertisement of services to those currently offered to the local community.

Technical System Components

The current cable franchise has certain components, some of which are required and all of which are essential elements of meeting community needs.

Channel Blocking Capability:

The theme of individual choice appears throughout the information and opinions gathered by the City of Davis as part of this ascertainment process. This is particularly evident in the area of parental choice over programming viewed by children.

The Davis community has repeatedly advocated adequate signal blocking capabilities. In particular, Davis residents have expressed an interest in preventing cable operators from selling or delivering inappropriate material to minors. Likewise, parents have expressed a need to control the content of programming offered to their children. There are a number of facilities and equipment systems that allow customers to block signal transmission. However, in some cases, parental control devices block only the video and not the audio portion of a signal. Incomplete blockage is ineffective. It is also important for parents to be able to control the manner in which pay-per-view programming is ordered. Therefore, Davis needs cable systems that let parents lock out both the audio and video on any channel they consider to contain inappropriate programming, including preview channels. Furthermore, any system for ordering movies should, through lock-out or PIN code functions, reasonably prevent children from ordering programming without parental consent.

Davis Cable Ordinance 8B.05.260 Parental Control Option

(a) Without limiting an Operators obligations under Federal law, an Operator shall provide parental control devices at no charge to all Subscribers who request them that enable the Subscriber to block the video and audio portion of any Channel or Channels of programming. An Operator shall notify all Subscribers in writing of the availability of these devices at the time of initial connection, and at least annually thereafter.

(b) To the extent required by federal law, if a grantee plans to provide a premium channel without charge to a Subscriber who does not subscribe to such premium channel, the Operator shall provide at least 30 days prior written notice thereof to said Subscriber, and upon the Subscriber request, shall block entirely the Subscriber reception of said channel. For purposes of this section, a channel shall mean any pay service offered on a per channel or per program basis, which offers movies rated by the Motion Picture Association as X, NC-17, or R.

Future Developments in Technology

Communications technology is changing at an ever-increasing rate. Nobody can say what cable TV technology will look like 5 or 10 years from now, except that it will be very different from what it is today. That is equally true of the structure of local, state and federal regulation of cable TV and other communications media. Davis residents have expressed strong interest in staying abreast of future advances in cable technology, such as high definition television (HDTV) or advanced television (ATV) signals when available, and are interested in promoting the availability of cable-based telephony (telephone service). The need that emerges from these observations is the one that began this report: The city needs robust systems that will stand the test of time without expensive upgrades.

Services to Special Populations

Local franchising authorities have a particular obligation to help citizens with special needs gain and retain access to communications services. There is strong interest in the community concerning access to information by the hearing impaired. Captioning systems in the cable system need to be accessible and effective. As a result, regular carriage of the signal on cable TV systems in Davis would constitute a tremendous advantage for the many visually impaired residents of Davis.

In addition, Davis residents have spoken of the needs of a variety of other special populations. For example, alternate language and second audio services should be available. In addition, cable TV equipment needs to include voice recognition features that allow customers to navigate on-screen menus and other options without use of their hands and to facilitate menu use by the visually impaired.

Services for special populations (such as closed-captioning) are often carried as part of other broadcast or cablecast video signals. For this reason, it is important that all channels on the cable system, including PEG access channels, be carried by the operator with all original components of the signal intact.

Customer-Friendly Equipment

Cable television technology and equipment is useless if it is so complicated as to stymie or frustrate the typical cable customer. Generally accepted business principles include customer friendly equipment and overall “reliability” of the product, with reliability being the most important factor in a customer’s determination of acceptable service.

Davis needs a system that is responsive to local needs and conditions and that is customer-friendly. Davis cable customers have often complained that converter boxes are unfriendly, costly and overly complicated. Customers have frequently cited problems with converter box equipment failure, difficulty in using converter boxes with customer equipment, converter box charges, billing errors, and misleading advertising with regard to the need for a converter box.

While converter boxes may be unavoidable for the reception of pay-per-view and digital programming, Davis customers have complained that they should not be necessary for simple functions such as allowing or disallowing reception of premium services into the home.

Requiring customers to rent or buy converters creates problems. Unless a converter includes "bypass circuitry," or the customer rents two converters instead of one, it may be difficult to tape one channel using a VCR while watching another on the television, as is now routine. Using a converter may effectively disable features on new television sets, such as "picture in picture" features.

Davis residents have expressed interest in having a cable system with standardized cable equipment that is compatible with customer home electronic equipment and that minimizes the need for converter boxes which will disable consumer customer use options such as "picture-in-picture" and taping one channel while watching another. Davis residents have expressed a need for a system which will allow customers with cable-ready television sets to receive all programming services -- other than digital or pay-per-view services -- without a converter. In particular, customers have objected to the inconvenience and added cost of requiring converters for every TV in the house (as opposed to one "master converter" located where the cable signal enters the home).

Competitive and Adaptable System

A concern repeatedly voiced in the ascertainment process was that any future agreement with AT&T Comcast should be structured so as to keep the agreement up-to-date and competitive with current cable technology and service offerings. In addition, the community preliminary report on community needs shows strong citizen concern that Davis's cable system remains adaptable to future technological developments such as high definition television (HDTV) advanced television (ATV), two-way interactive television, and high-speed broadband Internet service.

Davis needs a cable system that provides the highest service and facilities and equipment standards throughout the franchise term. Depending on the length of the permit agreement, "review points" during the franchise term are needed to assess changes in the permit that may be needed because of advances in delivery technology, customer service, or programming.

System Interconnection

Interconnection with adjacent cable service areas is important to provide information of public interest on a region-wide basis. The ability to interconnect with other communities in the Sacramento metropolitan region and adjacent service areas greatly enhances the ability of Davis public, educational and governmental access groups to reach constituencies outside the

franchise area with community programming of interest and importance to the Davis community.

It is particularly important that unincorporated areas adjacent to Davis but not formally part of the franchise area receive comparable service. Although not annexed to the city, several thousand customers contiguous to Davis are, in fact, part of Davis's political and economic life and are included in its comprehensive planning area. Towards this end it is important that all PEG channels originating within the franchise area be interconnected and carried "on-channel" in unincorporated areas adjacent to the franchise area.

In addition, system interconnection is essential to community-wide distribution of Davis Joint Unified School District meetings and for distance learning and the flow of information to and from the University and the University campus. A lack of interconnection will be especially problematic, when an elementary school operated by the DJUSD opens on the UC Davis campus within 3 to 5 years.

Power Outages and the Davis Cable System

Lessons learned from the California energy crisis indicate there is little doubt that a major power outage could put the AT&T Comcast cable television system in Davis in jeopardy. Davis needs cable systems specifically designed to minimize the impact of power outages in the core of the city. This should include building redundant routes and engineering power supplies and back-up power sources to minimize the impact of both short-term and extended power outages in Davis.

Extension of Service / Availability of Service

There is a need and interest in having cable service available throughout the community to businesses (including non-profit organizations) and to residences. Service should be provided to any location requesting service on a timely basis, without the potential customer being forced to pay to extend the system to provide their service. To that end, incumbent operators should be required to extend their systems upon request for service, without requiring potential customers to pay for that extension. New providers should be required to follow a buildout schedule to phase in the same requirement. Free drops and the necessary reception equipment (e.g., converter boxes) and services should be provided to schools, libraries and public buildings. All areas of Davis should be included, none should be excluded because they may not have a substantial number of residences or due to difficult construction conditions.

System Facility and Equipment Capabilities

Above all else, the cable TV system serving Davis at the beginning of the 21st Century must be flexible and adaptive to future community needs and technology developments in general. If one thing is certain, it is that the cable system that the city needs now is not the system Davis will need in 2010.

In addition, the system should reflect the highest current standards in its facilities and equipment design, layout, and construction in the community. In the past, Davis cable

customers have experienced numerous frustrations directly or indirectly related to the way the system was built and its operation by AT&T Comcast.

Television and satellite signals are received and processed through a headend complex located in central Davis. PEG programming signals are sent upstream to the headend, where they are added to the downstream signal. The signal is then distributed to Davis residents through a 450 MHz coaxial cable network.

Davis currently receives a variety of cable services, including 56 standard analog TV channels, 112 digital channels, 22 pay-per-view channels, and 37 DMX channels. These channel offerings are divided into the following tiers or packages: basic cable service, expanded basic service, premium service, pay-per-view service, and digital service.

To meet the needs of Davis residents at the beginning of the twenty-first century, the city should have an up to date and flexible cable system, including: (1) A rebuilt distribution system to increase capacity, (2) adequate headend design and rebuild, (3) a system that is capable of delivering advanced services, and (4) a system that is flexible and adaptable to changing technological advances and community needs. These issues will be dealt with in the following four sections.

Increased Distribution System Capacity and Availability

Increasing complaints were received related to channel capacity, including inadequate programming choices. During the informal ascertainment process, significant public comment was received directly related to issues driven by insufficient channel capacity on the current system. The national trend has certainly been toward increased systems capacities, and Davis' demographics support development of cable systems with advanced features and high capacity.

The slowness of AT&T Comcast in responding to past capacity/rebuild issues raises concerns regarding AT&T Comcast responsiveness to future capacity concerns and rebuilding needs. Based on past customer interests, it is reasonable to expect that the system will have to be upgraded again in the future to continue to provide adequate service to customers.

Widespread demand for broadband Internet access, discussed below, clearly requires channel capacity far beyond the existing 450 MHz system.

Cable service needs to be available to all residents of the community. The City of Davis has received several complaints from potential customers in the downtown and older established neighborhood areas like old East Davis and Olive Drive which cannot receive cable service. In a compact city like Davis, such concerns should not exist, at least to the extent that the technology permits the expansion. All cable systems in Davis should be configured to facilitate extension of service into all areas within and adjacent to the city as well as any areas annexed by the City of Davis during the franchise period.

Adequate Headend Design and Rebuild

The heart of a cable system is its central distribution point, or "headend," including both regional and local origination and distribution facilities. AT&T Comcast maintains a headend in Davis.

In order to provide adequate service to the Davis community, AT&T Comcast headend equipment in Davis and headends of other cable operators serving Davis must include the capacity to handle future advanced cable television services and to receive and cablecast signals in substantially the form received. This includes transmitting video signals in color that are received in color and audio signals in stereo that are received in stereo as well as re-transmitting any second audio program signals, and all closed captioning signals. As indicated in another section of this document, since services for special populations (such as closed captioning) are often carried as part of other broadcast or cablecast video signals, it is important that all channels on the cable system, including PEG access channels, be carried by the operator with all original components of the signal intact. Ultimately, cable operators must be capable of advanced television (ATV) and high definition television (HDTV) signals, as well as accommodating any future technologies.

The headend must also implement the Emergency Alert System, with the ability to locally activate the EAS.

System Capable of Delivering Advanced Services

This ascertainment process documents the community need for a cable system that is capable of delivering advanced services including:

(1) high-speed broadband Internet access

(2) institutional network (I-net) capability

(3) channel-blocking capability

(4) an advanced emergency notification system

(5) high definition television and advanced television services (these services are described in more detail below)

Broadband Internet Access

According to the "Davis Citizen Survey" conducted by Godbe & Associates in 2000, Davis has among the nation's highest penetration rates for personal computers and Internet access – 88% of residents and 79% of businesses indicated that they had access to a computer at home, work or school, with access to the Internet at one or more of these locations.

The economic future of the community is directly related to its ability to interact through the Internet with individuals and entities all over the world. Davis' business community has requested that Davis receive "universal, wide bandwidth service" to all Davis neighborhoods. Some citizens have gone so far as to request symmetric bandwidth in "down-channel" and "up-channel" transmissions so that every recipient can be a "producer" as well as a

"consumer" of information. Davis residents also expressed a desire to have easy access to the Davis Community Network (DCN), (a community Internet site serving numerous local governments and an array of for-profit and not-for-profit businesses and services), and open access to broadband Internet services.

In addition to individual Internet information needs, Davis needs Internet capabilities which will foster commercial activity both within Davis and between the city and other regions of the county, country and the world. High-speed connections will allow the fast exchange of large quantities of commercial data. An "open" system is essential to avoid a tying of cable system facilities to Internet access. Cable-based Internet service needs to facilitate connections with the institutional network and any potential Internet service providers (ISPs) beyond the AT&T Comcast network.

Davis needs a system in which true two-way communications are possible for every user of the system. This includes home users who may use the system for entertainment and shopping purposes and commercial users who may use the system for marketing and selling goods and services.

In addition, the system will need to support greatly increased telecommuting by area workers so that the impacts of motor vehicle transportation can be minimized in an increasingly congested region. The reality is that, "the lack of high-speed Internet access limits what sort of work employees can do from their homes, consequently limiting both an employer's and employee's motivation to telecommute."

The ascertainment process has identified the following specific facilities and equipment needs related to Internet service:

1) Bandwidth should be symmetrical or at least provide for a minimum downstream and upstream capacity of 384kbs.

2) Users should be guaranteed basic "throughput" levels, including the ability to monitor and audit that they are receiving the throughput speeds they bargained for.

3) "Secure multicast" service should be provided.

4) Outbound multicast service should be provided.

5) Quality of service concerns should be resolved by allowing users to reserve large bandwidth as needed and minimizing "latency" issues involved with very long transmission paths and distant data exchange or transfer points.

6) Appropriate encryption capabilities should be provided to protect privacy in an open service environment.

7) Ability to implement appropriate security protocols to enable telecommuting, such as virtual private networks.

Internet Open Access

There is a substantial basis for concluding that without "open access," Internet innovation and consumer choice will be harmed, and competition in this important new cable service will be reduced. At the very least, however, one can conclude that there should be "open access." Even opponents of government access mandates are increasingly admitting that "open access" is a good idea. And, based on the risks to the Internet economy presented by the "closed model," and the nature of the Davis economy, it is also easy to conclude that there is a substantial need for, and interest in, "open access" in this community. The cable system should be designed so that the customers can receive advanced PEG services under any circumstance.

Ultimately, because of the risk to the Davis economy, some form of "open access" requirement seems to be needed. Most local "open access" ordinances have simply required that an operator provide nondiscriminatory access to its cable modem platform. However, several organizations and individuals have identified key components of open access.

Time Warner and AOL recently released a "Memorandum of Understanding" that identified key "open access" principles. According to AOL and Time Warner, "open access" has the following characteristics:

1) The consumer has a choice among multiple ISPs. Customers are not being required to purchase service from an ISP that is affiliated with the cable operator.

2) There is no fixed limit on the number of ISPs with which the cable operator will enter into commercial arrangements to provide broadband service to customers. Instead, customers are given a broad choice among ISPs, consistent with providing a quality consumer experience and any technological limitations in providing multiple ISPs on its broadband cable systems.

3) The terms of the commercial agreements between the cable operator and ISPs wishing to provide broadband service do not discriminate on the basis of whether the ISP is affiliated. Thus, while the economic arrangements reached under which open access is provided may vary depending on a number of factors (such as the speed, marketing commitments, and nature and tier of the service desired to be offered), the cable operator may not discriminate in those economic arrangements based upon whether or not the ISP is affiliated.

4) The cable operator will operate its broadband cable systems in a manner that does not discriminate among ISP traffic based on affiliation.

5) Video streaming is allowed.

6) An ISP may connect to the cable operator's broadband cable systems without purchasing broadband Internet backbone transport from the operator or its affiliates.

7) Consistent with technological capability, the cable operator will provide access to ISPs on a national, regional or local basis, in order to facilitate the ability of consumers to choose among ISPs of different size and scope.

8) The cable operator and the ISP should have the opportunity to have a direct relationship with the customer. Accordingly, both the cable operator and the ISP would be allowed to market and sell broadband service directly to customers.

The FCC is currently processing a notice of inquiry related to "open access." Past FCC Chairman Kennard has indicated that "open access" should have the following elements (although, as noted above, he believes that "open access" requirements should grow out of the marketplace, and not be imposed by government):

"It seems to me that if we are to talk about openness, we need to talk about open protocols, open boundaries, and open pricing."

"By open protocols, I mean that the interface standards that applications developers and equipment designers use are arrived at in an open, transparent process, and then made accessible to everyone – just like the IP protocol."

"By open boundaries, I mean that interconnection is encouraged, and bottlenecks and content control are eliminated. The borders are porous, not closed or walled-off, and outside programming and services are allowed to enter the network and interact freely with consumers."

"By open prices, I mean that prices for access to the network are determined by a competitive market, not unilaterally by a rate-setter, whether public or private. And the customer can reach the service provider of their [sic] choice without having to pay twice."

As part of the work on the Davis preliminary report on community needs, research was done on the actions and viewpoints of other communities on the issue of "open access." An expert panel in King County, Colorado defined significant elements of "open access."

"AT&T Comcast should not block or limit access to information at any site on the Internet, including the sites of competitors to AT&T Comcast."

"AT&T Comcast should not make it more difficult or more cumbersome to transmit information efficiently to or from sites that are not affiliated with AT&T Comcast."

"AT&T Comcast should provide fast access to local sources of information via "local peering" -- that is, direct connections between AT&T Comcast's local cable network and local sources that avoid the congestion of unnecessarily sending information through distant regional or national facilities."

"Any consumer should be able to easily connect to any Internet service or online content of his or her choice without viewing any AT&T Comcast sponsored information by "clicking" on an "icon" – that is, the symbol which represents the consumer's preferred service – which appears on his or her computer desktop."

> "In order to achieve non-discriminatory treatment of Internet traffic and provide open, unbiased and usable choice of, and access to and/or from any Internet-based resources and/or services," the panel concluded that AT&T Comcast must now and for the life of the franchise agreement both:
>
> "Sustain high-quality and minimal-packet-loss, minimal-latency, high-speed, high-performance, and extremely reliable local peering and traffic exchange facilities as specified below, and"
>
> "Establish and sustain an effective mechanism to locally peer and exchange traffic locally, without settlements, with all qualified institutions and/or qualified Internet Service Providers (ISP's) and/or qualified Online Service Providers (OSP's) and/or other qualified Internet content or service providers who seek and are willing to meet, peer and exchange traffic locally with AT&T Comcast in and via the agreed-upon local exchange point or points (to which the institutions/providers furnish their own connectivity, and at which the institutions/providers provide their own compatible interface)."

Further, the panel concluded, among other things that:

> "Internet packets and/or intranet or Internet traffic to and/or from subscribers to non-AT&T Comcast partners must be provided with performance and priority within and into and out of the local AT&T Comcast Internet-over-cable system which is no worse than equivalent to that provided throughout the local AT&T Comcast system to AT&T Comcast and/or AT&T Comcast partners."
>
> "At least one local High Performance Peering and Local Exchange Point (HPPLEP) must be established and sustained at a logical regional network exchange point where Internet service provides and others normally exchange traffic for a section of the country, to enable institutions, ISP's, OSP's, employers, schools and others who wish to provide content or other services to consumers within the AT&T Comcast cable system and who are willing and qualified to peer and exchange traffic with AT&T Comcast locally, to be able to do so with the minimal packet loss or flow delays, and with packet loss and packet delay no greater than AT&T Comcast provides to itself or to its partners for similar types of traffic. An attachment point for this facility for AT&T Comcast and for those wishing to peer with AT&T Comcast must be at the major regional carrier-hotel location at which the largest number of local ISP's and institutional commodity Internet backbone connections exist."
>
> "AT&T Comcast must implement and sustain a connection between its Internet-over-cable facilities and the High Performance Peering and Local Exchange Point (HPPLEP). AT&T Comcast must take whatever steps are necessary so that the link performs at a level consistent with the total performance of the AT&T Comcast Internet-over-cable system."
>
> "AT&T Comcast must prevent router and link configurations from becoming bottlenecks."

> "AT&T Comcast and its partners and vendors must upon a subscriber's request enable subscribers to have up to four DHCP-assigned Internet addresses."
>
> "AT&T Comcast may not implement any Acceptable Use Policy ("AUP") on non-AT&T Comcast or AT&T Comcast partner traffic, or on individual subscribers that varies from the least-restrictive AUP policy that applies to AT&T Comcast or AT&T Comcast's partners or vendors, and in no case shall AT&T Comcast apply any restrictions based on content or supplier except as required by law or as a temporary response to ongoing Denial of Service attacks or similar events that seriously compromise network operations. AT&T Comcast may not implement any content filtering on non-AT&T Comcast or non-AT&T Comcast partner or on subscriber traffic except as required by law or as a temporary response to ongoing Denial of Service attacks or similar events which seriously compromise network operations."

Based on a review of the above, this preliminary report on community needs concludes that "open access" should include the following elements. The elements are broader than some of the elements specified above, in order to provide operators with some flexibility in implementing "open access." But, for example, if a local "peering point" were not established, an operator would be expected to provide the functionality that might be provided through a "peering point."

1) If the cable operator provides a cable modem platform for commercial use:
    a. Subscribers should have a choice of affiliated and unaffiliated ISPs.
    b. Unaffiliated ISP interconnection to the cable modem platform should be provided on terms and conditions that do not discriminate in favor of an affiliated ISP, and that do not tie access to the purchase of Internet backbone transport service from a cable operator or its affiliate. If the operator chooses to do so, it could provide different levels of access to the cable modem platform, so long as each level is provided on non-discriminatory terms and conditions, access to any level should not be conditioned on granting an ownership interest in the ISP to the cable operator.
    c. The cable modem platform may be used for voice, video or data and to this end should be designed so that packet loss and latency issues are minimized. Any restrictions based on the nature of the use should be applied uniformly, in a manner consistent with necessary and neutral network management.
2) Whether or not the cable operator provides a cable modem platform for commercial use:
    a. It should provide a cable modem platform, or local access to the cable modem platform for PEG use, and sufficient upstream and downstream capacity (whether on a dedicated or shared basis) so that advanced PEG cable services can be delivered at speeds and with a quality comparable to the speed and quality with which commercial cable services are provided via cable modem platforms.

b. The upstream capacity of the network should be available so that subscribers can act as sources of non-commercial information, subject to reasonable limitations consistent with necessary and neutral network management. The system should be designed so that upstream capacity can be expanded over time to meet customer demand.

Summary of Recommendations

The City of Davis seeks to have cable services that are varied, based on a strong and safe infrastructure, able to be used to meet local needs and accountable to the residents of Davis. Accordingly, this portion of the preliminary report on community needs indicates that there are a variety of needs that should be addressed in the next cable franchise.

The following is a summary of the problems discussed in this Section and the needs indicated by each of the issues and problems:

(See Chart G2 on the following page.)

Chart G2: Issues, Problems and Needs

Issues	Problems	Needs
Access	Limited access to communication technologies	PEG access capacity to be located on the lowest cost tier of cable service. Davis residents rely on live and rebroadcast local meetings and other community programming in the lowest tier of service. If PEG channels are offered only as a premium service, it limits local participation in government and community affairs.
	Unequal access to modern technology among Davis residents	High-speed internet and PEG channels throughout Davis.
		There is a need to ensure that public access television services are available to all.
		Interconnection between all cable operators serving the community; adjacent cable systems; open video systems. This facilitates program sharing and cooperative use of resources.
		Need easy access to DCN and open access to broadband Internet services. Substantial need for, and interest in, "open access" in this community.
		An interconnected bulletin board system used by all PEG entities to streamline the process of producing, maintaining and coordinating community outreach and information dissemination.
		There is need for an I-Net to provide access to the Internet and city systems from public facilities and other local community service locations for those who may not have access to these emerging technologies.
Adaptable	Current system does not take advantage of new delivery technology	Any new franchise needs to require the agreement and the cable technology and service offerings to remain current and competitive. Need for system to adapt to future technologies. Including need to keep an I-Net current.
		Must be flexible and adaptive to future community needs. Davis demographics support development of systems with advanced features and high capacity.
Availability	Cable services not available in all areas	Needs to be updated. Needs to be available citywide. Need cable service available throughout the community to businesses and to residences. Need service to be provided to any location requesting it on a timely basis, without the customer being charged for costs to extend the system to provide them service.
Broadband	Economic future depends on ability of the residents and businesses to interact with Broadband	Business community needs universal, wide bandwidth service to all Davis neighborhoods.
	System is inadequate to meet diverse internet goals	Need for ability of every recipient to be a "producer" as well as a "consumer" of information.
Channel block	Channel blocking doesn't both audio and video	Need for adequate signal blocking capabilities, especially from selling or delivering inappropriate material to minors. Parents desire to control programming offered to their children.
Channels	Poor selection of channels	Widespread demand for broadband Internet access.

		Channel selections and bundling adequate to meet customer needs for service.
Economic development	Lack of modern technology impedes economic development	Revenue from sales tax needs to increase through economic development.
	Downtown area struggles to maintain competition without adequate cable/telecom services	Residents need to be able to find local business websites and information on-line, and local businesses need to be able to post sufficient information on their websites.
		Businesses need email, high speed internet access in order to be competitive, to sell/buy services on-line, for on-line employee training, for marketing, to provide information to/for customers.
		Davis needs Internet capabilities that will foster commercial activity within Davis and between the city and other regions, and the world.
Environment	Traffic and air quality are significant regional problems	System needs to support increased telecommuting by area workers to reduce traffic an air quality impacts.
Emergency response	Cable system is not currently designed minimize the impact of a power outage	Davis needs a cable system specifically designed to minimize the impact of power outages in the core of the city.
	Davis does not have adequate broad-based tools to get the word out to residents in emergencies	Bandwidth for higher speed applications
	Public safety response is weakened by poor communications system	I-Net: A so-called Institutional Network which connects government, educational and government-related institutions via a broadband fiber connection, thus enables government and educational groups to communicate quickly and effectively and to move voice, data and audio to locations throughout the city.
		24-hour access to technical support service from the cable provider, through a method other than the public customer service system.
Insufficient services	Cable company offers insufficient services does not provide additional services	Strong interest in staying abreast of future technology advances, e.g., HDTV, ATV, and cable-based telephony. City needs robust systems that will stand the test of time without expensive upgrades. Need for system and equipment to be flexible and adaptive
	Limited access to high speed broadband services	Cable system with cable modem service adequate to meet student demands for speed reliability and upload download services.
Interconnection	Poor links between government, schools and university	Need ability to interconnect with other communities in the Sacto metro region and adjacent service areas to enhance ability of PEG to reach constituencies outside of franchise area. Particularly adjacent unincorporated areas. Need for all PEG channels originating within the franchise area to be interconnected and carried "on-channel" in unincorporated areas adjacent to franchise.
		Interconnection between all cable operators serving the community; adjacent cable systems; open video systems. This facilitates program sharing and cooperative use of resources.

		I-Net: A so-called Institutional Network which connects government, educational and government-related institutions via a broadband fiber connection, thus enables government and educational groups to communicate quickly and effectively and to move voice, data and audio to locations throughout the city.
		Need to receive and cablecast signals in same form received.
		Two-way activated, bi-directional link between all PEG facilities and headend.
Past performance	The cable company failed in adequate maintenance of the system.	There is a need for cable installations to comply with safety codes and where found not in compliance, to be rectified in reasonable time.
	There is no interconnectivity in the system though it is required in the ordinance.	Installation of an I-Net in Davis was an established need in the previous franchise negotiations and was included in the agreement.
		Based on past customer interests and needs, it is reasonable to expect that the system will have to be upgraded again in the future.
		City needs to be able to confirm that franchise fees reflect the number of subscribers.
		There is a need for interconnectivity to register on-line for classes, programs and appointments. There is a need to interconnect regionally to share local programming of regional interest and for distance learning.
Past performance and customer service	Insufficient monthly reports; response goals not always met	A strong and responsive customer service system for Davis residents meeting or exceeding the standards set by the Davis Telecommunications Ordinance.
		Staffing adequate to monitor customer service requirements.
Poor communication	Cable provider is perceived as a poor communicator to customers	A strong and responsive customer service system for Davis residents meeting or exceeding the standards set by the Davis Telecommunications Ordinance.
		Staffing adequate to monitor customer service requirements.
		Advertising in Davis limited to services offered in Davis.
Poor customer service	Cable company has poor reputation for customer service	A strong and responsive customer service system for Davis residents meeting or exceeding the standards set by the Davis Telecommunications Ordinance.
		Staffing adequate to monitor customer service requirements.
		Advertising in Davis limited to services offered in Davis.
Slow	Connections in current broadband system are too slow	Telecom Infrastructure adequate to meet community needs
	Students can learn properly with adequate internet connections	I-Net: A so-called Institutional Network which connects government, educational and government-related institutions via a broadband fiber connection, thus enables government and educational groups to communicate quickly and effectively and to move voice, data and audio to locations throughout the city.
Special needs	Telecom and PEG services are difficult to access for special needs populations	Special needs citizens need to gain and retain access to communications services. Need access for the hearing impaired. Need a variety of signal transmission options.

		Need all channels on the cable system (including PEG) to be aired by the operator with all original components of the signal intact (e.g., close-captioning).
University and Davis issues	Lack of interconnection between the university and the residents.	Interconnection between all cable operators serving the community; adjacent cable systems; open video systems. This facilitates program sharing and cooperative use of resources. Need for seamless interconnection for cable and I-Net between cable provider and city, between on and off campus.
	So-called "town and gown" issues.	PEG access capacity to be located on the lowest cost tier of cable service. Davis residents rely on live and rebroadcast local meetings and other community programming in the lowest tier of service. If PEG channels are offered only as a premium service, it limits local participation in government and community affairs.
User friendly	Cable equipment is not user friendly	Customers need user-friendly equipment and overall reliability of the product. System needs to be responsive. Need for standardized cable equipment that minimizes need for converter boxes that disable customer TV features and allow watching one channel while taping another. Need cable system that allows cable-ready TVs to receive all programming services (except digital or PPV) without a converter box. Need ability to view cable on all TVs within household without extra equipment and additional costs.