

06/10/99
I-Net motion
Clerk 06/14/99

Introduced By:

Jane Hague

Proposed No.:

1999-0330

MOTION NO. 10723

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A MOTION approving the I-Net implementation plan
provided for in the 1999 adopted budget.

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WHEREAS, King County previously granted franchise numbers 11680 and 12132

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for the provision of cable television service, and

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WHEREAS, those franchises contemplated the construction of an institutional

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network (I-Net) for the use of county schools, libraries and other government agencies, and

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WHEREAS, the county adopted Ordinance 11995 to create the cable

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communications capital fund to pay for I-Net construction, and

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WHEREAS, the 1998 and 1999 adopted budgets provided that the I-Net project

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limit its spending until such time as the council has reviewed and approved certain

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planning information for the I-Net project, and

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WHEREAS, the I-Net project has submitted its implementation plan to the council

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and the council has reviewed the plan;


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NOW, THEREFORE, BE IT MOVED by the Council of King County:

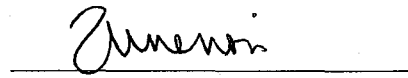
After due council review and consideration, the I-Net implementation plan is hereby approved as submitted, and the spending limitations imposed in the 1998 and 1999 budget provisos are removed.

PASSED by a vote of 10 to 0 this 19th day of July, 1999.

KING COUNTY COUNCIL
KING COUNTY, WASHINGTON


Chair

ATTEST:


Clerk of the Council

Attachments: Implementation Plan for King County Institutional Network (I-Net)

10723

IMPLEMENTATION PLAN
for
KING COUNTY INSTITUTIONAL
NETWORK (I-NET)

August 31, 1998
Revised May 26, 1999

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Project Description

The King County Institutional Network (I-Net) will provide fiber optic connectivity to over 300 public facilities in King County. The network has been made possible due to a unique franchise agreement between King County and its cable provider, TCI. This agreement provides for the low-cost installation of fiber for King County as part of the re-build of the cable system. This fiber optic network will provide for high speed transmission of data, video and voice.

I-net will support applications that benefit education and government, such as distance learning, video conferencing for meetings and assemblies, voice transmission and transmission of data. When completed, it will allow schools to share classes and meetings among buildings, and will enable schools to develop education-on-demand services. In addition, the network will replace a large number of currently leased T1 lines for King County public facilities. This will provide cost savings for WAN and PBX connectivity, along with increased capacity for current and future applications.

Background Information

In the early 1990's various reports and studies indicated the need for a broadband institutional network to support the data, video, and voice communications requirements of government agencies within King County. Fiber optic technology provides superior signal capacity, signal quality, system security, cost saving operating efficiencies, and versatility of applications. Because upgrades to the cable system in King County could be designed and implemented to include excess fiber optic capacity to meet this purpose, subsequent franchise negotiations with cable service providers included provisions for an institutional network (I-Net).¹

Early potential uses for I-Net were identified as:

- Supplementing or replacing leased telephone lines;
- Remote arraignment of prisoners by video hookup;
- Emergency communications;
- Record sharing among jail, courthouse and RJC;
- Staff training;
- Video conferencing for meetings with staff at remote locations;
- Connecting council chambers and libraries for remote testimony at meetings and hearings;
- In-service training for college instructors;
- Conducting classes with students at multiple sites; and
- Operating a Wide Area Network (it is now anticipated that I-Net will enhance King County's WAN by offering high bandwidth, high performance fiber optics to replace leased T1 lines currently used for WAN routing).

¹ See "King County Institutional Network Report," December, 1993, by Columbia Telecommunications Corporation.

Project Scope

Customer Base/Number of Sites

The customer base for I-Net will initially include over 80 different clients representing approximately 300 I-Net sites in King County. Key client agencies include the following:

School Districts: I-Net will link schools in unincorporated King County, and schools in newly incorporated areas that will be "grandfathered" due to inclusion in original franchise agreement. Schools are interested in the high bandwidth capabilities that I-Net will bring, and are expected to be users of the two-way video application for distance learning and other creative applications. Schools will look to King County agencies, libraries, and institutions of arts and sciences as content providers. Several districts have technology bonds in place and plan to integrate I-Net into plans for video equipment.

King County Libraries: I-Net will link King County Libraries throughout King County. Libraries will benefit from I-Net high bandwidth capacity for data, voice and video communications, as well as the direct link to schools and King County government agencies.

King County Superior & District Courts: I-Net will link King County Superior and District Courts. Courts are expected to utilize I-Net for remote arraignment of prisoners (to lower transport costs).

King County Public Defenders: King County Public Defender offices will be linked to I-Net for participation in video arraignment.

Community/Technical Colleges: Community and Technical Colleges will participate in I-Net for the purposes of developing distance education programs and to contain telecommunications costs for data and voice communications.

University of Washington: I-Net will connect a number of University of Washington sites, including a connection point for K-20.

Police Agencies: I-Net will connect King County Police Precincts and will offer a connection to one facility in each city for the purpose of sharing regional criminal justice information. In many cases, this connection is expected to replace leased T1s.

Institutions of Arts and Science: I-Net will connect to art and science institutions to act as content providers for schools on the I-Net. Examples include the Seattle Art Museum, Museum of Flight, and Benaroya Hall. It is anticipated that educational programs from content providers such as these will be used to supplement arts, music and science programs in the schools.

King County Transit, Natural Resources, Parks and other government agencies: I-Net will link King County agencies for the purpose of cost containment for telecommunications services.

Other organizations may be added during and/or after project implementation as funding allows. See section titled "I-Net Sites".

Note: It is assumed at this time that, for organizations that do not participate initially, but that do intend to participate later, sites will be provisioned with fiber that is not activated (splice points/dark fiber). This is due to the unique opportunity to install fiber at a low cost and the likelihood that as business practices change over time, those sites will find value in high-speed network connectivity. The window of opportunity will close six months from TCI completion of construction of I-Net and system upgrade. by the terms of the current TCI franchise that would mean that any sites developed after September 1, 2001 would be responsible for the entire costs of installation to a new site. Designated splice points will be extended to sites until September 1, 2001 under the current TCI franchise terms. Any splice points and fiber not used by King County by September 1, 1999 become available for TCI use.

Services

The I-Net will be a general-purpose communications network. It will be used to carry video, voice and data among multiple sites. Services to I-Net sites will initially include the following, with additional services possible after completion of the initial scope:

T1 Circuits: I-Net will replace existing leased T1 circuits for client agencies. These point-to-point circuits will link Wide Area Networks (WANs) and Private Branch Exchanges (PBXs). They will support data, video, and voice interfaces at a speed of 1.5 Mbs. Emulation of T1 circuits will allow TI users to use much of their existing routing equipment upon conversion to I-Net.

ATM Interface: I-Net will support high speed/high capacity interfaces for data, video, and voice communications, using ATM technology. This technology will be capable of providing speeds up to 155 Mbs to client applications, and capacity comparable to roughly 100 T1s. This new technology will bring better picture & voice quality for users moving from an older technology environment. It will support WANs, PBXs and high quality two-way video.

Two-way Video: I-Net will provide transport capability for scheduled two-way video to support distance learning, collaborative classrooms, video conferencing, video arraignment, security monitoring, video town meetings, and other one and two-way video applications. The hardware and software necessary for customer applications will be the responsibility of the customers. Grant funding in partnership with customers may augment network equipment to facilitate unique applications.

Interface with K-20 Statewide Network

The K-20 network is a statewide network that will link higher education, libraries and administrative facilities of K-12 schools via leased telecommunications lines. Within King County, some of the I-Net and King County sites are redundant, raising questions about coordination to avoid redundancy. K-20 implementation will be complete well ahead of I-Net activation. Both projects will proceed independently, with joint communications regarding future interoperability. This will ensure that each project is able to proceed without delay, while laying the foundation for elimination of redundancy in the future.

The current plan provides an opportunity for I-Net to provide transport for K-12 in King County. This will be possible because I-Net will link the UW (a hub for K-12) to each of the school administration buildings. The provision of K-12 transport will likely involve replacement of leased lines in favor of I-Net's high speed and high bandwidth transport and some level of reconfiguration/modification of electronic equipment at impacted sites/hubs. I-Net has obtained an e-rate spin # to qualify our transport for K-20 funding and is in the process of becoming an e-rate consortium this Summer. This will facilitate schools using I-Net for special K-20 applications.

Ongoing communications with K-20 project management during I-Net implementation will cover technology issues, timing, method, implementation costs, roles and responsibilities, ongoing costs, decision-making and client communications. Coordinated communications with clients will take place during implementation of both projects to cover client questions related to dual implementation.

Project Deliverables

Primary project deliverables include a fiber optic ATM network for 300 sites and a high performance two-way interactive video system for selected sites. Secondary deliverables are outlined below and are discussed in more detail under "Project Approach":

- Project management;
- Design and installation of the physical layer of the network;
- Design and installation of the transport layer of the network;
- Design and installation of the two-way video network application;
- Development of plan for interface with K-20 statewide network;
- Implementation of plan to interface with K-20 statewide network;
- Client support and training; and
- Development of maintenance and operations plan.

Customers will be expected to fund the cost of all internal wiring; user computer and camera equipment; and ongoing operating costs.

Change Control

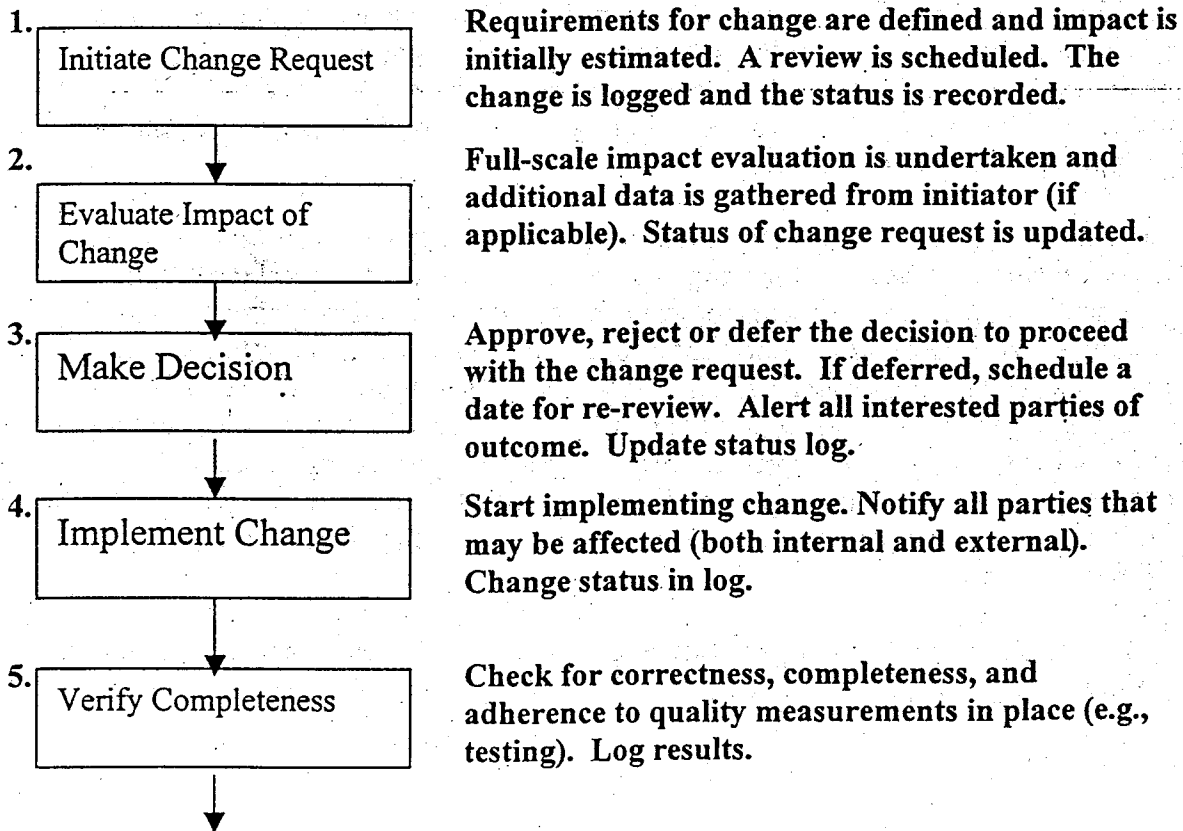
The I-Net project will follow a standard process for managing changes to all I-Net project deliverables. This will provide a systematic way of tracking and determining what is to be delivered, at what cost, and in what timeframe.

Anyone involved in the I-Net project – a team member, a customer, or an external party – can initiate a request for change. An effective change control process ensures:

- Scope, schedule, and cost control monitoring
- Visibility of scope and cost changes
- Effective team communication
- Clear roles and responsibilities with regard to managing changes
- Consistent decision-making regarding the implementation of changes throughout the project
- Efficient interface with change control processes of the customer and/or any external parties

Change Control Process Model

A generic model depicting the change control process is diagrammed and explained below:



6.

Close change request. Log status.

Close Change Request

See "Change Management" Section for Change Control Criteria and Forms

Project Approach

Overview of Project Approach

Much of the work involved in I-Net implementation will be performed in-house. This includes project management and a large number of the engineering tasks.

Project management will include development of the project definition, scope, deliverables, business plan, funding plan, implementation plan and schedule. It will also include project team development, logistical planning and administrative support for staff operations, monitoring of project implementation, and change management. In addition, it will include contract development for clients and vendors. It will also include project communications.

In-house engineering will include conceptual design and specifications for the physical and transport layers of the network; development of requirements for two-way video application; development of RFPs for transport and video; site preparation; installation monitoring; review of fiber test results; spot testing and acceptance of fiber; testing and acceptance of network electronics; user training and support; documentation; and development of operations plan.

A consulting engineer will be used provide review and feedback on design documents and specifications. The consulting engineer will provide input for development of implementation plan, requirements for switched network and video application, development of RFPs, and development of operations plan. In addition, the consultant will review RFP responses and assist in interviews and selection as needed. The consulting engineer will also train in-house staff for review of test documents and spot testing and will be prepared to provide direct review and spot testing as needed. Concurrently, the consulting engineer will provide monitoring and testing services for the rebuild of the subscriber system to ensure compliance with franchise agreements and FCC regulations.

Implementation of the I-Net project will be governed by arrangements that have been set forth in existing franchise agreements with TCI. These arrangements include the following:

- TCI will provide approximately \$16 million to King County in the form of one-time payments, quarterly payments and construction credits;
- This funding will be used to pay TCI for the installation of fiber optic strands in conjunction with TCI's installation of fiber optic cable for the rebuild of its cable network in King County ;
- King County will pay only the cost of the fiber strands for those runs in which fiber is co-located (primary ring and secondary network). King County will pay full costs for runs that only include fiber for King County (node to site).
- TCI will provide space for King County racks and electronic equipment at all hub sites, and will provide sufficient power, AC, ventilation, and backup capacity to cover King County equipment.
- TCI will terminate fiber at sites in accordance with King County specifications.
- The schedule for building the I-Net will be determined by the schedule for TCI's rebuild. See appendix for matrix of performance milestones.
- TCI will maintain co-located fiber at no cost and will have the option to maintain fiber that is not co-located at a reasonable price.
- TCI will maintain ownership of all fiber installed for King County for the King County I-Net, and will dedicate that fiber for King County's use for the life of the current franchise and beyond as negotiated in future franchises.

Design

Design of Physical Layer (Fiber)

The design for the physical layer will be developed in conjunction with TCI. Specific system level design and specification documents provide the foundation for the procedure and are required prior to beginning step one of the procedure. All build areas will be designed and constructed in a manner that is consistent with the system level design and specification documents. These documents include the following:

- TCI Design for Primary Fiber
- TCI Design for Secondary Fiber
- I-Net Conceptual Design for Physical Layer
- I-Net Physical Specifications

A master schedule for design and construction will be provided by TCI initially and updated by TCI on a regular basis throughout the design process. This schedule will include a rough description of all fiber service areas and a projected sequence and rough schedule for design and construction of all build areas, including the schedule for building any part of the primary and secondary fiber that falls outside of the schedule for

the build areas. It will also include detailed timing information for build areas for at least the coming three-month period. This detail will include timing by week for fiber service areas that are to enter the design, build and completion phases.

TCI will update the master schedule, including detailed task and timing information, on a monthly basis and provide the updated schedule to King County. TCI is currently providing weekly updates of progress on I-Net Sites. Only monthly updates on Fiber Rings and Hubs (received only one from IBI).

TCI and King County have agreed to modify administrative procedures related to I-Net design, acceptance and payment so that TCI may complete cable system construction milestones ahead of schedule, while still allowing for effective oversight and cost control for design and construction of the I-Net. This process is identified as Design Approval Process in the Franchise Agreement.

Under this procedure, King County provides TCI with a master site list of 400 I-Net sites. Each site will be identified by street address. Where the street address is not available, the site will be identified by street corners or by GPS coordinates.

For all sites on the Master I-Net Site List, TCI will construct optical fibers from the nearest primary/secondary hub to the node, and from the node to the exterior point of demarcation (generally a splice case at a pole, manhole or conduit) on TCI's Hybrid Fiber Coax distribution plant that is closest to the designated I-Net site.

The King County I-Net Project will issue work orders for construction of fiber from the exterior point of demarcation to the interior point of demarcation at I-Net sites. Typically a fiber termination cabinet is mounted inside or outside the premises or in some cases a pretermination shelf is installed in an existing rack. In all cases, the interior point of demarcation will be specified by the County as part of the work order.

Because the modified procedure limits King County's ability to review TCI design in advance for the purpose of cost control, King County will pay fixed costs for fiber installation as follows:

- King County will pay \$847,827 to TCI upon final acceptance of construction of all I-Net primary ring fiber and primary hub facilities. This payment will be payment in full for all I-Net fiber on primary ring.
- King County will pay \$876,602 to TCI upon final acceptance of all I-Net secondary fiber and secondary hub facilities. This payment will be full for all I-Net fiber on the secondary network.
- King County will pay \$11,727 to TCI upon final acceptance of work for each of the I-Net sites. This payment will cover all direct and indirect costs associated with designing and constructing fiber from the primary/secondary hub to the interior point of demarcation within the I-Net facility.

- TCI will notify the County whenever an I-Net site has a total construction budget estimated to exceed \$25,000. TCI will review the estimated construction budget for each such site with the County. (Note: The construction costs for such sites will include the cost of fiber only from the hub to the node; and design, materials (excluding electronics) and labor for construction from the exterior point of demarcation to the interior point of demarcation.)
 1. TCI will agree to construct a maximum of 40 I-Net sites for \$11,727 for which the total cost of each site is estimated to be in excess of \$25,000 but not in excess of \$50,000. For sites with estimated construction costs in excess of \$50,000, the County may:
 - a. elect not to issue a work order for that site;
 - b. elect to pay TCI for actual costs in excess of \$50,000 for that site, with actual costs calculated in accordance with above Note.
 2. Should the County elect to issue more than 40 work orders for sites with costs estimated to be in excess of \$25,000 but not in excess of \$50,000, the County will pay TCI for actual costs in excess of \$25,000 for each site.
 3. The County may elect not to issue a Work Order for any of the sites on the Master I-Net Site List.
- Construction for all I-Net sites on the Master I-Net Site List will be completed, tested and accepted by the milestone deadline established for the completion of its respective build area. Costs for I-Net sites not on the Master I-Net Site List that are designated by the County prior to March 1, 2000 will be \$11,727. The completion date for these sites will be no later than six months after the work order is issued irrespective of the Milestone deadlines.
- Costs for additional I-Net sites that are identified by the County outside of the design approval procedure outlined below, or after March 1, 2000, will be based on the actual costs for design, materials, construction and labor for these sites.
- The County will pay only for fiber to those sites the County designates for I-Net construction. Should TCI construct optical fiber to exterior points of demarcation per the Master I-Net Site List that the County chooses not to designate for construction by March 1, 2001, TCI shall be able to use this fiber for its own purposes.

Design Approval Procedure:

1. King County provides Master I-Net Site List to TCI.
2. At least eight (8) weeks before TCI delivers initial drawings and cost estimates for site construction from the exterior point of demarcation to the interior point of demarcation (i.e. at least six weeks before step 5 below), TCI will provide the following information in writing to the County's I-Net staff:
 - A. A map showing build area boundaries (or a reference to a map that has already been provided) for sites entering the design process.
 - B. A list of all I-Net sites within the build area (from the Master I-Net Site List).
 - C. Notice of the ten (10) sites within the build area(s) proposed for design.
 - D. Any design/construction issues which TCI thinks may be associated with I-Net sites in these build areas.
3. If design activity is required within the build area(s), King County will respond to TCI within four (4) weeks of receipt of notification with the following information:
 - A. Designation of I-Net sites for this round of design (quantity may change).
 - B. Site contact names for each designated I-Net site in the build area.
 - C. Appointment times for survey of each designated site in the build area.
 - D. Any issues which are associated with this build.
 - E. Optionally, I-Net staff may inform TCI that King County has no further interest in this build area.
4. If, after Step 3, there are any outstanding issues, TCI and King County will meet within two (2) weeks of King County's response and attempt to resolve them.
5. TCI will deliver the initial designs for internal construction of I-Net sites to the County. This will include the following:
 - A. A CAD drawing (hard and soft copy) of the proposed design for in-building construction in accordance with I-Net inside plant design requirements.
 - B. A corresponding list of costs.

- C. A listing and explanation of any exceptional circumstances or possible alternatives shown in the initial design.
- 6. If after step 5 there are any outstanding issues, TCI and King County will meet within two weeks to attempt to resolve such issues.
- 7. Within two (2) weeks after either item 5 or 6 above, King County will either create a work order for the build or begin problem resolution due to outstanding issues in accordance with Section 16.4 of the Lease Agreement. The work order will contain signed hard copies of the deliverables for item 4, part B and C to include:
 - A. A CAD drawing of the design for in-building construction in accordance with I-Net inside plant design requirements.
 - B. A corresponding list of authorized costs.
- 8. All TCI invoices shall reference King County work orders by number. King County will make payment upon acceptance of work and receipt of completed hard and soft copy as-built CAD drawings for I-Net sites and related build areas. The build area drawings will show:
 - A. The coaxial plant
 - B. The TCI fiber plant
 - C. The King County I-Net fiber plant
 - D. A table showing homes passed at each node in design

Switching Design

Development of the requirements for the I-Net switching fabric will largely take place in-house, resulting in a request for proposal for design and installation of the switched network. The RFP will include a request for a design proposal and pricing for equipment; network management hardware/software; equipment installation & configuration; and maintenance and operations. The RFP will also require information about corporate background, technical background and relevant projects implemented by responder. Input and review for RFP development will be obtained from the I-Net consulting engineer, ITS Network Services, and select experts in the field who have managed the implementation of similar networks.

The vendors who are selected to provide the switched network and two-way video application will provide design and configuration services; equipment installation; testing results; monitoring/management software; support; and training. Vendors will also

supply some level of ongoing maintenance services, depending upon cost and performance criteria.

Design of Two-Way Video Network Application

Design for the two-way video application will first include identification of video requirements. Requirements for the two-way video application will involve a survey of available technology, and will be developed on the basis of user needs, available technology, available resources, and the capabilities defined by the physical and switching layers. Client participation will be an important aspect of this task, and will be critical to the development of requirements that meet customer needs and expectations. These requirements will be used to develop an RFP for design and installation of the video electronics. In addition to network video equipment, the RFP will require specifications and prices for customer electronics; support and training; and a maintenance proposal.

Installation

Installation of Physical Layer (Fiber)

Prior to fiber installation, King County staff will coordinate with client to prepare client from both a business and facility perspective. The business perspective will involve establishing an understanding of I-Net capabilities and services, ascertaining client interest and willingness to participate, and establishing expectations about client support, training and costs. Facility preparation at sites will include identification of appropriate space within the facility, identification of facility, electrical and HVAC modifications as needed, and installation of cabinets to house the fiber termination and connect equipment. Fiber will be installed and terminated by TCI on the basis of work orders generated by King County as part of the build approval process.

TCI will prepare all hub facilities, including racks, fiber distribution units, power, ventilation, and back up in accordance with physical specifications². TCI will also provide copies of all fiber acceptance tests to King County. King County will perform test verification on a spot check basis prior to acceptance.³

Installation of Switching

Installation of electronic equipment will be performed by in-house staff, who will also perform site preparation and inspection. A large portion of the site preparation will have taken place by King County staff as part of the preparation for fiber installation. Added preparation activities may include follow-up related to planned facility modifications that were not complete at the time of fiber installation. Inspection will involve tests and physical inspections.

² See Technical Document entitled "I-Net Physical Specifications"

³ See Technical Document entitled "I-Net Fiber Testing Requirements"

GTE and Fore, our integration partners, will augment I-Net staff during Pilot Program activation. They will also assist I-Net staff in the final design and provisioning of electronic switching equipment. In addition, they will develop and deliver the Network Management system.

Installation/Configuration of Two-Way Video Network Application

Video electronics will be configured by the vendor in conjunction with in-house staff. Installation will either be performed by the vendor or by in-house staff. Site preparation will be performed by in-house staff, and will involve installation of racks and power modification if needed depending upon equipment selection. Inspection will involve review and verification of vendor tests and physical inspections to verify performance. Installation of two-way video equipment will initially involve limited deployment to a select user group to demonstrate proof of concept.

I-Net staff will facilitate customer efforts to become multicast enabled to accept I-Net transport into work group ethernet switching.

Quality Assurance

The I-Net Team will prepare and utilize a testing program to validate and demonstrate conformance to performance standards. This will involve physical construction as well as the electronics of the network. We will work closely with all contractors to assure high quality network delivered for use by King County and participating I-Net organizations. We will align I-Net's best methods with those mature processes that GTE utilizes to operate a robust and resilient high speed, high bandwidth transport network that feels like a CLEC to our customer organizations.

Communications

Communications is particularly important to the success of this project because of the number and variety of constituents. With 300 sites and over 80 separate governmental client agencies, it is critical that communications be efficient and precise. Expectations must be managed from the beginning for the success of the project to be understood and appreciated.

The cooperative nature of this project, with its dependencies on the TCI build schedule, make the project's ability to collect information *from* client agencies in a timely manner just as critical as the ability to disseminate information *to* them. In addition, the relationship with TCI requires steady attention to both engineering and business communications.

This summary communications plan is presented in two parts. One section describes the communications tools and structures which will be used and the other section describes the communication flows which must be maintained during the project.

Project Communications Tools

Direct Contacts

Each agency participating in I-Net will provide a named contact for business issues and a named contact for technical issues. In some cases, this may be the same person. In addition, each agency will provide a contact to coordinate facility issues at each of the I-Net sites for that agency. This site contact will coordinate site specific facility issues.

The project staff will use these contacts when providing I-Net service and project status information; collecting information from clients; developing user agreements; and coordinating site construction schedules, network configuration, equipment installation and other issues specific to agencies and sites.

As agencies begin planning for I-Net, the agency business and technical contacts should generally expect to spend 8 to 16 hours a month on I-Net and related application development, and potentially more during the initial configuration and site activation. Site contacts will be expected to communicate their site's readiness prior to implementation activities.

Site contacts' involvement will be principally during the installations of fiber and of equipment at the site. The level of effort required of site contacts will vary widely, depending on the layout and the situation of their site.

Constituent Groups

These groups are a vehicle for disseminating general project information, for gathering client agency needs and perceptions and for coordination with other information infrastructure efforts.

The I-Net Project will work with existing constituent groups wherever this is feasible and will meet with groups on an as-needed basis. Presentations and forums will be scheduled on "as needed" basis. The user communities/groups currently identified are:

- Unincorporated Area Schools – Schools Technology Committee
- King County Government Agencies – King County ORBIT
- Regional Criminal Justice – King County LSJ Business Area Committee, and Regional Law Safety and Justice Committee
- Suburban Cities
- Content Providers – Science and Culture
- Libraries

Steering Committee

This group will receive regular status updates and project issue briefings. They are a guiding and decision-making body for issues relating to client services deployment decisions. The Steering Committee will handle the following types of issues:

- Review and Approval of Scope Changes:
 - ◆ It is anticipated that the Steering Committee will approve a change management process for site changes, and that this change management process will be administered by the Project Team.
 - ◆ It is anticipated that the Steering Committee will approve additions or deletions to the I-Net service package.
- Review and Approval of Operations Plan
- Review and Approval of I-Net Rates
- Monitoring of I-Net Implementation Progress/Milestones via Regular Reports

This committee will initially be made up the King County Executive, the Chair of the School Technology Committee, the Director of the King County Library System, the Director of the Department of Information and Administrative Services, and the King County Chief Information Officer. Additional representatives may be added at the discretion of the Steering Committee.

The Steering Committee will meet on a quarterly basis or more frequently if needed.

Monthly Reports

Status reports and financial reports will communicate project progress on a monthly basis. Regular reports will help to ensure that stakeholders are informed.

The Project will produce a one page monthly status report for management and tracking. The report will summarize:

- progress to schedule;
- budget to plan (year and lifetime);
- issues which have arisen or been resolved in the current month; and
- deviations from the plan (site adds, deletes, modifications)

This report will be provided to the Steering Committee and key ITS staff on a monthly basis. It will also be posted to the I-Net Web Site on a monthly basis for customers and other stakeholders.

See Appendix for April Progress Report posted to the I-Net Website

A printed, quarterly newsletter, *Netlink*, is being produced as a tool for sending information to customers that are not part of the Website monthly update. The contents will be focused on future aspects of I-Net and how customers can be prepared to use the service. See Appendix for example – Volume #1, April, 1999.

We are also exploring a monthly broadcast via e-mail to push information to customers in another format.

Master Schedule and Current Status Report

The I-Net project will maintain a master schedule of I-Net tasks. This will be updated at least monthly to show completion percentages and variances from plan. TCI will also maintain a master build schedule which will be updated at least once a month to show completion and variance.

I-Net and TCI will share master schedules and all updates to them on a monthly basis, or sooner as needed. The I-Net schedule (in summary form) will also be updated and posted to the I-Net Web Site on a monthly basis.

The I-Net team is implementing Project Office software which will enable TCI or GTE scheduled to be updated and downloaded into our Master Schedule each month. This new system will be operational by July, 1999.

I-Net and TCI will share master schedules and all updates to them on a monthly basis, or sooner as needed. The I-Net schedule (in summary form) will also be updated and posted to the I-Net Website on a monthly basis.

Current Site List

The Project will update the I-Net site list as work orders are issued and as changes occur. The list will be updated on the I-Net Web Site on a monthly basis.

WWW

The Project will create a Web page that is available to stakeholders. This will contain both general and specific project information. Our Web page has several interest areas or topic pages. It also has several hot links to other Web sites.

Procedures

The I-Net project team will develop procedures as necessary to support project communication flows.

Project Communication Flows

This section outlines specific information flows that must be maintained by the I-Net project.

To Client Agencies:

- Benefits and Costs
- Schedule & Project Information
- Site Requirements
- Site or Agency Specific Issues
- Readiness and Application Consulting
- Installation Dates

From Client Agencies:

- Technical and Business Contacts
- Site Location and Status
- Expected Usage and configuration information
- Application Requirements
- Issues and exceptions

Between Project and TCI:

- Design and Approvals
- Schedule and Progress Information
- Issues and exception
- Work Orders, Billing and Payment

Between Project and Executive/Council:

- Project Schedule and Status
- Budget tracking information
- Operations Plan
- Issues as they arise

Concept of Operations

The maintenance and operations plan for the King County Institutional Network (I-Net) will be developed after technology and equipment are selected and service levels are determined. This section documents preliminary concepts for the operation of the I-Net, including elements of the plan, description of service support, and requirements for I-Net operations support.

Service and support for the I-Net will require two different levels of service and skill-sets. The switched network is expected to require 7X24 support, largely because clients will rely on the network for voice communications. The video application is not expected to require 7X24 support, although some functions, such as video arraignment or video town meetings, may require periodic support during extended business hours. Development of Service Level Agreements and Operation Plans are being developed with August, 1999 as the planned completion date.

Switched Network and Fiber Plant

The switched network service will require expertise in physical layer and transport layer network protocols. It will further require the ability to document, troubleshoot and monitor large complex systems. Typical tasks will include:

- Configuration management, including initial creation and indexing of as-built drawings and reports, and update of as-built drawings and documentation for adds, changes and deletions.
- Processing of adds, changes and deletions for customer service. This will require use of change process and coordination with client, TCI, switch vendor, video vendor, and client support.
- Network monitoring, including monitoring of switch equipment via network monitoring system, update of physical changes to network, and maintenance of software and hardware for network monitoring system.
- Monitoring of maintenance of fiber plant, including read-only access of TCI fiber monitoring system, notification of TCI regarding fiber problems, and follow-up with TCI regarding problem resolution.
- Response to equipment problems and failures detected via monitoring system, client notification or field visits. This includes diagnosis and corrective action to replace or repair defective components. It also includes detection and repair of failures in redundant systems. This function could be integrated into ITS or outsourced.
- Software and hardware upgrades. This includes work that must be done during off peak hours and coordinated with network clients and TCI. Coordination, scheduling and good client communications will be required for this task. This function could be integrated into ITS or outsourced.
- Contract administration for maintenance and repair work that is contracted to vendor. This could include only depot and high tech service. Depending upon cost, quality of service and responsiveness, it could also include on-site maintenance by local authorized shop.

- Maintenance of parts and equipment inventory, maintenance management system and work order system for all work that is not performed under contract.
- Client Support and education will involve technical and business staff rather than end-users. Support will involve some level of planning and development support, either by in-house staff or consultant. Support will also include training, rapid response to problems, and response to questions. Level of service will be determined both by customer demand and resource constraints.

Video Application

The video application will require expertise in the specific video hardware and software deployed on the I-Net, and the ability to provide training for the video application. It will also require the ability to support clients with skills ranging from expert to novice. Effective user support will be critical to the success of the application. Typical tasks will include:

- Configuration management; network monitoring; maintenance and repair, software and hardware upgrades; contract administration; maintenance of parts and inventory for video system. These tasks will be similar to the tasks for switched equipment, but the equipment will be substantially different and will require different skills.
- Client training. Introductory and advanced training will need to be offered at regular intervals for the near future. During the first year of operations, however, the emphasis will be on introductory training as the initial users learn how to work in this new medium. (Training may be an area where out-sourcing to either public or private training institutions will prove cost effective. This is particularly attractive for advanced training and in the education fields where CE credits could apply.)
- Help desk support. It is essential that clients have a single number to call for help with the video application. While it is anticipated that end-users will contact their own technical staff for problem-solving, I-Net support staff must be available to support client technical staff when problems occur. This function could be integrated into ITS or outsourced.
- Stand-by support. Although video applications are used only occasionally by any given site, they are likely to be used by many people simultaneously and in real time. While it is merely irritating if e-mail is delayed, it is unacceptable to delay a college lecture class, an arraignment or a town meeting because the video hookup is down. This function could be integrated into ITS or outsourced.
- Application development. This may involve help in evaluating equipment or software for use in a new location or it might involve the development of a specific business application using in-house video. The evaluation of equipment or software for use in a new location would likely be provided in-house. Development of new business applications could be outsourced.

Elements of Maintenance and Operations Plan

The maintenance and operations plan will be developed by I-Net staff in conjunction with user groups, clients and the Network Services Section of King County Department of Information and Technology Services. The plan will be reviewed and approved by the Steering Committee. It will include:

- Description of Services
- Performance Standards
- Description of Roles and Responsibilities for Operations and Maintenance
- Client Contract Templates/SLAs
- Change Control Process
- Problem Resolution Process
- Description of Security Measures
- Equipment Specifications
- Procedures for:
 - Software upgrades
 - Hardware upgrades
 - Fiber installation, failures, changes
 - Client moves
 - New/additional services
 - Disaster recovery
- Description of financial plan for ongoing operations, including identification of funding mechanisms and rate structure

Business Plan

Key Business Needs:

Cost containment for voice and data communications services for public agencies in King County

High speed/high capacity information sharing among public agencies in King County, to support:

- Instructional resource sharing among schools, community colleges, arts institutions, and libraries.

- Criminal Justice information sharing among law enforcement agencies in King county
- Geographic information sharing among cities, counties, libraries, schools, and other interested parties
- Public information sharing for use of schools and libraries to connect communities to public services, public meetings, and other public resources

Affordable high quality video communications services for client applications, such as:

- Distance education – to optimize educational resources and broaden student exposure to educational/training opportunities
- Video court proceedings – to reduce prisoner transport costs
- Remote training/certification – to increase access to community colleges resources and hospital/clinic training resources (eg: observation of operations and health procedures; teacher certification; and police and fire certification).

Vision Statement

The Institutional Network will support communications needs for schools, libraries, courts, health facilities and government institutions across King County. Two-way interactive video will be a standard instructional tool for schools; it will support changes in public sector business practices that increase efficiency and/or productivity; it will be used to reduce transport costs for court arraignments; and it will be used regularly for meetings of public officials that would otherwise require travel. User costs will be significantly less than market for comparable service levels.

Mission Statement

To build a network that will provide affordable high-speed/high-capacity transmission of data, video and voice; and to provide high quality two-way interactive video that will become an important new business tool for schools, libraries, courts and other public institutions in King County.

Project Goals

- System will be delivered on time & on budget;
- System will improve ability to share information and resources among public & educational institutions;
- System will be expandable and upgradable to support future requirements;
- System will be extremely reliable, with little down time;
- System will meet current customer business needs;
- System will be significantly less expensive than market comparables;

- System functionality will be maintained over time without need for major capital funding initiatives to replace electronic equipment;
- Video application will support indirect cost savings via reduced travel;
- Video application will become standard instructional tool for educators; and
- Video application will enhance participation in public and business meetings.

Risks/Challenges

Risk Issue	Magnitude of Risk	Recommended Response Planning
<p>The fiber installation schedule for I-Net will be constrained by TCI's schedule. This means that the demand on staff resources will not be within project control and the project will likely see peaks & valleys in the need for staffing resources.</p>	<p>Potentially significant impact on costs and or scope. <u><i>1Q99 this risk mitigated by partnering & planning with TCI to level resource demands</i></u></p>	<ul style="list-style-type: none"> • Obtain detailed task & timing schedule from TCI 3 mos. in advance. • Develop gate-keeping mechanism for workflow (done). • Perform client & site preparation activities as far in advance as possible to lesson peak demand. • Prioritize scope and limit as needed to meet budget constraints
<p>Some I-Net sites are in areas that have been already upgraded that do not require rebuild. While costs will be protected via the franchise modifications, these sites are not now on TCI's schedule.</p>	<p>Potentially significant impact on customers. <u><i>1Q99 working with TCI to plan total build & minimize costs</i></u></p>	<ul style="list-style-type: none"> • Early identification of I-Net sites in already upgraded areas. • Work with TCI early to add completion of last mile fiber in already upgraded areas to TCI's schedule to ensure completion by approved end date.
<p>Working with many separate government entities will pose challenge for customer coord. & contract management.</p>	<p>Moderate risk w/good opportunities to mitigate. <u><i>1Q99 Education/Tech Forums strategy mitigating risk</i></u></p>	<ul style="list-style-type: none"> • Good customer information sources will be developed (Web, newsletter, user groups). • Client Coordinator dedicated to communicating and working with users
<p>Great diversity in mix of needs, preparedness, resources, expectations.</p>	<p>Significant concern for communications & ability to ensure that clients will use network <u><i>1Q99 Outreach Education/Tech Forums strategy mitigating risk+</i></u></p>	<ul style="list-style-type: none"> • Good communications to control expectations. • For schools, find ways to utilize technical expertise/readiness of some users to establish pilot applications that can be used by others. • Direct agencies toward grant or other funding sources for technology.

Risk Issue	Magnitude of Risk	Recommended Response Planning
Costs may be too high for some targeted client agencies – important to avoid making technology only available to the “haves”.	Significant equity concern	<ul style="list-style-type: none"> • Good migration path for use of legacy equipment • Explore ability to fund user equipment in specific cases • Explore ability to fund ongoing costs in specific cases • Direct agencies toward grant or other funding sources for technology
Users may not understand capabilities & benefits sufficiently to plan & invest in I-Net applications.	Significant concern <u>1Q99 establishing and promoting educational training to build understanding of how to use I-Net for maximum value</u>	<ul style="list-style-type: none"> • Good communications • User groups to compare notes re: capabilities/benefits • Encourage clients with good applications/uses to serve as models/resources for other users.
Project resources are impacted by annexations & incorporations	Moderate concern	<ul style="list-style-type: none"> • Conservative projections used for finance plan
Electronics have short life-cycle	Significant funding concern to ensure upkeep of network without degradation over time. <u>1Q99 identified cost reduction trends in network devices & replacement fund built into Operations Plan</u>	<ul style="list-style-type: none"> • Develop equipment replacement plan • Begin to collect equipment replacement funds at start of operations

Performance Measures

Specific performance measures for operations will be developed in conjunction with ITS Network operations and vendors. In general, they include:

- Ability to meet implementation milestones in master plan
- Ability to achieve key goals within budget
- Number of customers initially signed up for service
- System up time at 99.999%

- Response time to address system problems/customer service calls
- Ability to identify & address trends in customer service
- Customer rates significantly less than market for comparable service
- Availability of funding for planned equipment replacement.

I-Net represents a substantial investment in communications network technology for King County. Over the next few years, it will bring ongoing cost savings (elimination of leased T1 lines) as well as added ongoing costs (operation and support of network). Although net savings are possible, it is also possible that any direct savings in telecommunications costs will be needed for support of the network and the new video application.

Funding Plan

The total estimated cost of the I-Net Project is approximately \$20 million dollars. This cost is comprised of the following categories:

• Fiber Installation	\$ 7,109,564
• Network/Video Electronics	7,843,098
• In-house Staff/PM Engineering	2,735,395
• Consultant Engineering	188,181
• Application Development	514,076
• Operating/Repair/Maintenance	840,761
Total	\$19,231,075

A financial analysis for the ten-year franchise period demonstrates the need for long-term financing for a portion of project costs, and the need for a short-term loan to cover cash flow fluctuations within the franchise period. Please see cash flow analysis in the attached *Appendix*. Key issues include:

- Total revenues for the period are projected at \$29,387,024 for the franchise period. This is comprised of franchise revenues of \$16,203,954, interest projected at \$1,387,650 and user fees estimated at \$11,795,420 for full recovery of operating costs. Because franchise and interest revenues within the period are not sufficient to cover total projected capital costs of \$20,431,075 (I-Net and CTV) during the franchise period, financial plan assumptions include long-term financing. In addition, a short-term loan will be needed to cover cash flow fluctuations and grant funding will be needed for implementation of two-way video.
- Financial plan assumptions for a long-term general obligation bond to cover the cost of the fiber, and a short-term loan to provide for cash flow fluctuations within the 10 year period are as follows:

Assumptions for general obligation bond:

Amount: \$8,284,742

The ten-year cash flow projection includes specific cost allocation assumptions for project implementation and operations:

For project implementation, the I-Net Project will cover:

- Fiber lines to and from the facility
- Central network equipment
- Site-based network equipment
- Avenue for purchasing, installing and maintaining application equipment
- Training
- Staff contact for information and questions
- Some coordination support for development of I-Net applications

For project implementation, clients will be responsible for:

- Space (data closet)
- Power, HVAC, security
- Internal building wiring
- Site application equipment (cameras, TVs, LANs, routers, PCs, PBXs, telephones)
- Staff time (contact personnel, information, internal training, internal support)

For ongoing operations:

The ten-year financial plan assumes that operating costs will be fully recovered through user fees. While rate development will occur later in project implementation, a very rough estimate is provided as part of the financial plan. This estimate has been developed by dividing the total amount of the projected operating costs by the number of projected I-Net sites (300). This type of calculation would result in a flat rate per site, starting at approximately \$622 per month in 2001.

Market Comparables for I-Net Services

In the current communications marketplace, digital transport bandwidth (the carrying capacity of a line used to connect computers and networks) is purchased in standard increments. These are:

- A T1 (or DS1) line can carry 1.54 Mbs
- A T3 (or DS3) has the capacity of 28 DS1s, which is equal to 45 Mbs
- An OC3 line has the capacity of 84 DS1s, which is equal to 155 Mbs

The advantages of a T1 connection over conventional leased line circuits are significant cost versus performance benefits over leased lines, tighter network control, ease of diagnosing line problems, more effective redundancy measures and consistently higher quality signals.

The advantages of a T3 connection are similar, with much higher speed and capacity.

The advantages of an OC connection are similar, with yet more speed and capacity. This level of service is not available in every location.

See chart below for cost estimates of market comparables. These estimates are based on sampled vendors for an average distance of eighteen miles between I-Net sites. Actual costs will vary depending on vendor, negotiated terms & conditions, and distances.

Line Speed	Point-to-Point Cost	Mileage Charge ⁴	Total
T1	\$135 each end	\$ 259	\$ 529
T3	\$1350 each end	\$ 773	\$3,473
OC3	\$1800 each end	\$1,100	\$4,700
T1/PRI (ISDN) ⁵	\$1,592	N/A	\$1,592

Current estimates indicate that I-Net will be able to offer the same value added service as OC3 for approximately \$600 to \$800 per month, with no added fees for mileage, additional or unanticipated use of bandwidth, or routine technical support.

Schedule

It is anticipated that design for installation of fiber at I-Net sites will begin in August, 1998, and design/implementation will continue through the second quarter of the year 2000. Responses to the switching RFP were received in mid September, 1998. A second round RFP was pursued and a finalist vendor selected in April, 1999. Network activation will begin with a pilot in late 1999, with video following in early to mid 1000. Project implementation is scheduled for completion in mid 1001. See separate document entitled "I-Net Schedule."

⁴ Fixed mileage of 18 miles was used in calculations. Various I-Net sites were chosen in Arcview and distance calculated then multiplied by a factor of 1.6 to adjust for communication lines not actually being in a straight line. Actual costs will vary depending on vendor, negotiated terms & conditions, and actual distances.

⁵ Long distance is an additional cost that is not reflected here.

Current estimates indicate that I-Net will be able to offer the same value added service as OC3 for approximately \$600 to \$800 per month with no added fees for mileage, additional or unanticipated use of bandwidth, or routine technical support.

APPENDIX

**Project Scope
Guidelines for Changes
Revision Control Log**

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APPENDIX

Project Scope – Site Build List

Change Guidelines

Revision Log

Franchise Construction Performance Milestones

Cash flow

Steering Committee Report

Monthly Progress Report

05/11/99

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Quality Control of I-Net Project Scope

This document describes the scope of the I-Net project originating with the list of 300 sites approved by King County Council, incorporating changes made with Ron Sims' policy decision on October 1997, which are reflected in the list of 400 submitted to TCI. In addition, those changes that have been made to the list since that time have been listed so that an accurate list of "Build" sites can be maintained.

300	Original list of 300 approved by King County Council.
<u>100</u>	Adds/Changes/Deletes made to Council adopted list via Ron Sim's policy decision 10/97
400	Original list of 400* submitted to TCI - contains 308 Builds/Build Pays (281/27 respectively. 92 splices/holds)
400	Sites submitted to TCI
308	Sites designated as "Build" in the list of 400 submitted to TCI
<u>+12</u>	Sites added after list of 400 generated** some awaiting approval by Steering Committee
320	Total Build Sites
<u>-26</u>	Sites deleted or changed to Splice status after list of 400 generated***
294	Build sites per Project Plan and Database
119	TCI Splice Sites
<u>294</u>	TCI Build Sites
413	Total number of TCI sites
413	Total number of TCI sites
<u>+14</u>	Potential sites with non-TCI fiber (included on the list of 300)
427	Total number of sites

* List of 400 includes negotiated sites with TCI for options to build to 100 additional sites in future as funding is available to King County. Option runs out 3/1/01.

** List of current adds or changes from Splice to Build.

Sites listed in the tables below are included in figures above.

5000	Covington, City of	Added per steering committee 9-2-98
5003	911 Media Arts Center	Added as a Build Pay per Leslie Collins 10/14/98
5004	Valley Communications Center	Added as a Build Pay per Leslie Collins 11/14/98
5007	Woodmont Library	Added with other Library sites. Site was missed on original list.
5008	Seattle Schools Administration	Site added since new site was more than 3,000 ft. from old site location.
5009	Beverly Park Elementary (OLD)	Site added. Original site is being demolished.
5010	Maple Valley Library	Site added since new site was more than 3,000 ft. from old site location.
5011	Fred Hutchinson Center/Met Park	Added as a Build Pay per Leslie Collins and Steering Committee decision to add teaching hospitals. 11/16/98
5013	SAM-Volunteer Park (Asian Art Museum)	Awaiting Steering Committee decision. Client request.
5014	Kentlake High School	Site added. Site was missed in the list of schools in unincorporated King County
0003	KC Administration Bldg	Add site. Site was on original list approved by Council but not on the list submitted to TCI.
2029	Seattle Police/Public Safety Bldg	Add site. Site was on original list approved by Council but not on the list submitted to TCI.

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*** Sites deleted or changed to Splice status

11	Cedar Hills Landfill	Site is undergoing major construction and Eclipse cannot provide design. Change from Build to Splice 2/22/99
13	KC DYS – Auburn Youth Services	Site is closing change from Build to Splice 3/1/99
23	Canal Place	Unable to resolve ROE issues. Change from Build to Splice 10/28/98
35	PHS South Auburn	Site is moving. Change from Build to Splice 9/21/98
1159	Rock Creek Elementary	Change from Build to Splice. Site is located on same campus as their Admin Building. 3/9/99
1211	Harborview Cascade Medical Clinic	Site does not meet criteria. Change from Build to Splice 12/7/98
1231	U of W Magnuson Health Sci Complex	Client requests not to be added to I-Net. Change from Build to Splice. 11/16/98
1252	Airlift Northwest	Site is moving. Change from Build to Splice. 12/28/98
1253	White Center Heights Elementary	Site is being demolished. Change from Build to Splice. 10/9/98
1326	UW Telecommunications Hub	Client requests not to be added to I-Net. Change from Build to Splice. 11/16/98
2025	City of Pacific	Client requests not to be added to I-Net. Change from Build to Splice. 1/6/99
2034	Woodinville City Hall	Site is moving. Change from Build to Splice. 1/28/99
2067	Museum of History and Industry	Site is moving. Change from Build to Splice. 11/16/98
2035	Yarrow Point City Hall	Change from Build to Splice. 3/24/99
2070	Pacific Science Center	Client requests not to be added to I-Net. Change site from Build to Splice. 11/16/98
2077	Burke Museum	Client requests not to be added to I-Net. Change from Build to Splice. 11/16/98
2105	Grand Ridge Elementary	Schools is within the city limits and therefore not eligible to be on I-Net. Change from Build to Splice. 12/10/98
4109	KC Library System	Site is under construction and will not be completed in time. Change to Splice.
4114	RTA Sound Transit	Client requests not to be added to I-Net. Change from Build to Splice 11/16/98

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4116	RTA Tacoma Office	Client requests not to be added to I-Net. Change from Build to Splice 11/16/98
4117	RTA South Seattle Office	Client requests not to be added to I-Net. Change from Build to Splice 11/16/98
4118	RTA Everett	Client requests not to be added to I-Net. Change from Build to Splice 11/16/98
4119	RTA East Side	Client requests not to be added to I-Net. Change from Build to Splice 11/16/98
4123	Intiman Theater	Client requests not to be added to I-Net. Change from Build to Splice 11/16/98
4140	UW Roosevelt Clinic	Client requests not to be added to I-Net. Change from Build to Splice 11/16/98
5001	Kenmore City Hall	Site is moving. Change form Build to Splice. 2/22/99
5010	Maple Valley Library	This is a new site that is being added as a Splice because the building will not be completed in time. The old site is more than 3,000 ft. from this new site.

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Reconciliation of TCI's project plan and King County's Project Plan and database.

411	Number of sites in TCI's project plan
+ 2	Sites not submitted to TCI pending Steering Committee approval
413	Total

Change Control Procedure

This document outlines a standard process for managing changes to all I-Net project deliverables. Without such a process, there would be no systematic way of tracking and determining what is to be delivered, at what cost, and in what timeframe. The document covers who can initiate a change, what the change process ensures, and how the change is tracked from initial submission through closure. In addition, sample forms are included that will be used to monitor the status of the change request.

Anyone involved in the I-Net project – a team member, a customer, or an external party – can initiate a request for change. An effective change control process ensures:

- Scope, schedule, and cost control monitoring
- Visibility of scope and cost changes
- Effective team communication
- Clear roles and responsibilities with regard to managing changes
- Consistent decision making regarding the implementation of changes throughout the project
- Efficient interface with change control processes of the customer and/or any external parties

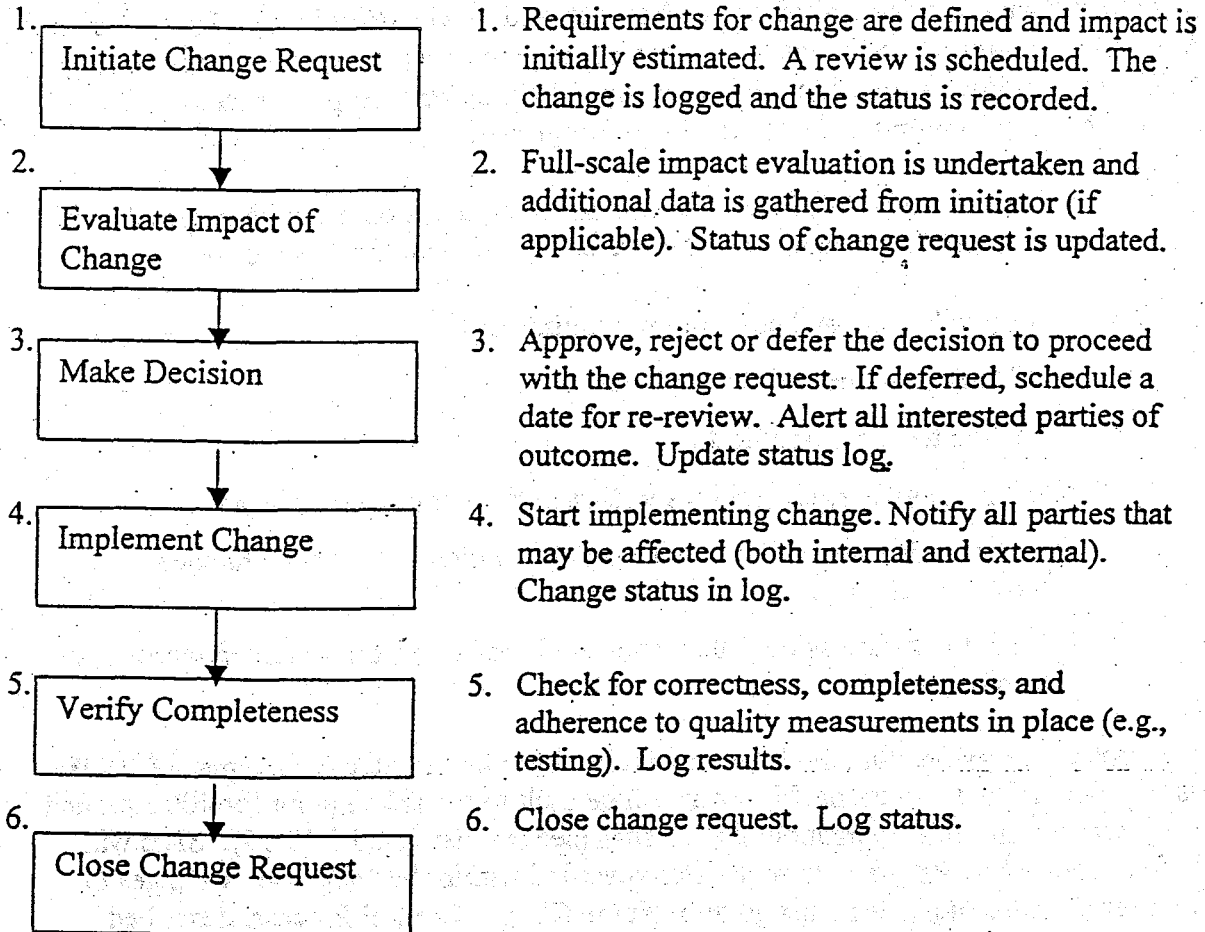
For purposes of clarification, the I-Net project has been baselined as of August 13, 1998. This means that the Institutional Network will be built to the splice point for 400 sites and to the internal point of demarcation for 307 sites (see site list dated 8/13/98). Sites will be built in accordance with the milestone dates specified within the franchise. Changes to these sites or milestone dates must go through the Change Control Process, described herein. In addition, technical changes, that are not specific to adding, changing or deleting a site, but that affect the project overall will also use this Change Control Process.

A change request is defined as follows:

“A change request is a statement describing a proposed change to a key project item that has already been negotiated and agreed to that deviates from the specified functionality of that key project item.”

Change Control Process Model

A generic model depicting the change control process is diagrammed and explained below:



The change request is submitted to Project Control to be reviewed for an initial estimate of what the impact might be and launch a full impact analysis be completed with an estimated due date for completing the analysis.

Evaluating the impact of the change should examine the cost, schedule, quality, resources, and customer satisfaction factors. The impact of not implementing the change should also be evaluated as well as how the change may affect the Franchise Agreement.

The change control team (involving the Steering Committee when appropriate) should participate in the review and approval process. A meeting should then be scheduled with affected representatives to describe how the decision was arrived and what the follow-on activity might be.

Implementing the change request must be planned and scheduled with all persons involved in performing readiness activities or implementation activities. I-Net team members who are not directly involved with implementing the change should perform verification and validation tasks.

Closure of the change request should be communicated to I-Net team and other interested parties. All documentation required for the change request should be identified and completed.

If a full detailed impact analysis is done, the following information should be captured:

- Who performed the analysis
- Specific aspects investigated
- Impact of change on:
 - contractual obligations
 - project team
 - 3rd parties
 - quality
 - customer satisfaction
 - relationship with customers
- Impact on budget
- Impact on schedule
- Impact on resources
- Whether there are any alternatives to the proposed change
- What is the impact of not implementing the change
- Impact on product functionality, features, and future

Change Management Criteria for Inclusion/Exclusion of sites

Purpose: The following criteria will be used to assist the I-Net Project Team and the I-Net Steering Committee in evaluating sites for potential inclusion or exclusion in the I-Net installation plan.

Objective: To provide the I-Net Project Team with objective criteria for evaluating agencies and their sites, and to assist the Steering Committee in making decisions about agencies other than their own in the fairest way possible.

Methodology: Use any of the first five criteria (1 – 5) to automatically include the requesting site in the installation plan, if the requesting site also meets the next six criteria (A-F).

The following criteria will be used to include a requesting site in the I-Net:

1. Wide-Area Network application requiring bandwidth of DS1 or higher: Site has an application in place, or in the project state (project is funded).
2. Video application: Site either has or requires video to perform its functions, or to communicate with other agencies or functions. Only applications of DS1, or greater, will be entertained.
3. Bandwidth cost savings: Site already has 2 T1's or more. Cost savings by adding fiber and replacing leased DS1 lines are immediate.
4. King County facility in use for access by public a minimum of 5 days a week, or critical to the community for a public access site.
5. Central administrative location for King County agency with staff in remote locations.

If the site also meets the following criteria:

- A. Site is within identified I-Net User Group
- B. Site is owned or on a long-term (over five year) lease
- C. Site is within TCI rebuild area
- D. Site cost is within 50% of average
- E. Space, power and ventilation requirements will be met
- F. Sufficient funds available

Note: Sites that don't fit into these criteria will only be added upon case-by-case analysis and approval by the I-Net Steering Committee.

Site Preparation Visit Procedure

1. Schedule the site visit with the Technical Contact so either they or a site contact can meet and provide escort on the site. Confirm that the site contact will be available. Write down the site contact name and number in the site survey form to have the most current information. Ask if the-site contact can provide a hard or soft copy of the floor plan to give you when you get on site.
2. Present sample site prep docs (see attached examples)
 - 2.1. Rack layouts
 - 2.2. Fiber Termination Shelf layouts
 - 2.3. Sample building entrance layouts
 - 2.4. Sequence plan and procedures used during installation. (i.e. traffic control, prior notification of cable installers or agents)
3. Ask the following questions during the site survey
 - 3.1. Is the site contact going to remain the same?
 - 3.2. Are there plans for any other construction in the building in the foreseeable future?
 - 3.3. Are there any particular regulations to be followed when working in the building?
 - 3.4. Are there any particular regulations pertaining to construction materials specific to this particular building or campus?
 - 3.5. What kind of power is available at the site? (i.e. conditioned, single or three phase)
4. Tour facility, measure and examine cable path from pole to interior termination point. Record wall, ceiling, and floor constructions, vertical and horizontal distances, and core placements in the proposed cable path.
5. Draw sketches of the path and termination location. Obtain building diagram or layout.
6. Come to agreement with the site contact and technical contact in regarding building entrance method, route, exact placement of components, cabling, backboards, racking, any trenching, aerial wire.
7. Come to agreement with the site contact and technical contact on what work the customers agree to do, including any of the following:
 - Installation
 - Room Construction
 - Floor/Ceiling Installation
 - Electrical Installation
 - HVAC
 - Fire Safety Installation
 - Lock/Security Installation
8. Close the site visit with estimate of date that established points and drawings will be finalized and a copy sent to customer.
9. Verify conformance to city, county, institutional approved regulations or guidelines.
10. At the office, document the site visit with a brief descriptive paragraph and drawings. Send copy with thank you letter to technical and site contacts to confirm agreement and expectations.
11. File copies on shared drive.

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MEMO OF UNDERSTANDING

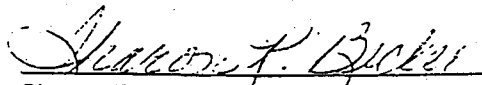
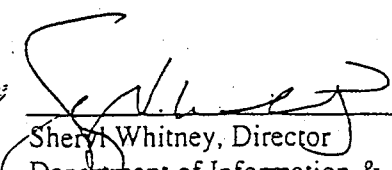
King County and TCI have completed a joint review of the "Construction Milestones for TCI Rebuild" listed in Attachment II to Franchise Agreements 11680 and 12312, as amended. The purpose of the review has been to determine whether a number of factors, including updated I-Net requirements, final design requirements and lessons learned from several months of construction experience, result in a need for modification of milestones to more accurately track critical compliance issues.

The findings of this review are as follows:

- a) Milestone requirements are based on completion of hub facilities first and then completion of expanded programming for the area served by hub. In many cases, a hub is due to be complete many months prior to the area it serves.
- b) In cases where land acquisition or other pre-construction activities will prevent completion of a hub in time to deliver expanded programming by due date, TCI is planning to meet build area due date by routing service temporarily through an alternate hub.
- c) TCI has not completed five hubs in accordance with original schedule; however, this delay will not impact subscribers in unincorporated King County until 30 days before build area is due. Until that time, it is not determined to be a milestone compliance issue. [The first build area due is Sea Tac on 3/1/99; where TCI plans to deliver expanded programming to unincorporated area subscribers via an alternate hub.]
- d) TCI is making excellent progress on I-Net as demonstrated by the following:
 - Completion of upgrades to eight hubs as of 2/25/99
 - Site preparation and build-outs on network edge progressing as planned.
 - Completion of 145 Site designs (37% of I-Net customer sites) as of 2/25/99
 - Build-out of 40 sites for fiber installation as of 2/25/99

Franchise Agreements 11680 and 12132 provide for modification of milestone due dates in accordance with Note 4 of Attachment II. Note 4 allows TCI to change the order of completion for build areas, subject to the prior written approval of the DIAS Director, provided the change causes no delay in degree of completion of the rebuild project, or hardship to King County. In accordance with this provision and in light of the results of the joint review of milestone requirements, it is recommended that all hub due dates be modified so that hubs are due to be complete 30 days prior to build area activation (with exception of hubs already complete, and with exception of build areas that will be temporarily serviced via an alternate hub, in which case hub due date will be established in accordance with I-Net requirements), per attached schedule.

The advantages of this modification include: 1) all milestone due dates are aligned with activation requirements; 2) the change causes no delay in the completion of any build area nor hardship to King County; 3) the change holds TCI accountable for meeting timeline at time of real impact on subscribers - rather than months in advance.

 3/15/99  3-29-99
 Sharon Becker, President Date Sheryl Whitney, Director Date
 NW Division Department of Information & Admin. Svcs.
 TCI Northwest, Inc. King County

107234

Construction Milestones for TCI Rebuild
March 1, 1999

Area/Notes	Description of Task	Proposed Milestones ⁴
Burien		
	¹ Complete Burien Temporary Headend Facility	6/8/98
	¹ Complete Burien Master Headend Facility (112th St)	3/1/00
	² Complete Burien Build Areas	12/1/99
Federal Way		
	¹ Complete Federal Way Secondary Hub	9/22/98
	² Complete Federal Way Build Areas	6/1/99
Sea-Tac		
	¹ Complete Sea-Tac Secondary Hub	8/1/99
	² Complete Sea-Tac Build Areas	3/1/99
Kent/Vista		
	¹ Complete Kent/Vista Secondary Hub	6/1/99
	² Complete Kent/Vista Build Areas	7/1/99
Enumclaw		
	¹ Complete Enumclaw Secondary Hub	11/1/99
	² Complete Enumclaw Build Areas	12/1/99
Cedar Downs		
	¹ Complete Cedar Downs Secondary Hub	8/1/99
	² Complete Cedar Downs Build Areas	9/1/99
Vashon		
	¹ Complete Vashon Secondary Hub	3/1/00
	² Complete Vashon Build Areas	1/12/00
Bellevue		
	¹ Complete Bellevue Primary Hub	12/1/98
	² Complete Bellevue Build Areas	12/2/99
North Bend		
	¹ Complete North Bend Secondary Hub	8/1/99
	² Complete North Bend Build Areas	9/1/99
King County East/Issaquah		
	¹ Complete KC East/Issaquah Secondary Hub	6/9/99
	² Complete KC East/Issaquah Build Areas	7/9/99
Mercer Island		
	¹ Install Mercer Island Secondary Hub	8/21/99
	² Complete Mercer Island Build Areas	9/21/99
Kirkland		
	¹ Complete Kirkland Secondary Hub	7/13/99
	² Complete Kirkland Build Areas	8/13/99
Woodinville		
	¹ Complete Woodinville Secondary Hub	7/24/99
	² Complete Woodinville Build Areas	8/24/99
Avondale		
	¹ Complete Avondale Secondary Hub	7/18/99
	² Complete Avondale Build Areas	8/18/99

Area/Notes	Description of Task	Proposed Milestones ⁴
Redmond		
	¹ Complete Redmond Secondary Hub	9/19/99
	² Complete Redmond Build Areas	10/19/99
Pine Lake		
	¹ Complete Pine Lake Secondary Hub	9/14/99
	² Complete Pine Lake Build Areas	10/14/99
Eastgate		
	¹ Complete Eastgate Secondary Hub	11/21/99
	² Complete Eastgate Build Areas	12/21/99
City of Seattle I-Net Construction (a)		
	² Complete 89th & Roosevelt Hub	10/16/98
	² Complete Greenlake Hub	9/11/98
	² Complete Queen Anne Hub	10/2/98
	² Complete Madison Park Hub	11/4/98
	² Complete South Seattle Hub	11/6/98
City of Seattle I-Net Construction (b)		
	⁵ Westin Building	6/15/99
	⁵ King County Court House	6/15/99
	⁵ Key Tower	6/15/99
	⁵ Melbourne Tower	6/15/99
	⁵ King Street Center	6/15/99
City of Seattle I-Net Construction (c)		
	⁵ Complete all remaining Seattle sites	3/1/00
Primary & Secondary Fiber Construction		
	³ Complete Construction of All Primary Fiber	12/10/99
	³ Complete Construction of All Secondary Fiber	1/10/00
Other Hubs		
	² University West	3/1/00
	² University East	3/1/00
	² Lake City East	3/1/00
	² Lake City West	3/1/00
Complete System Rebuild & I-Net		3/1/00

¹ Includes but is not limited to upgrade, installation or construction of facility & installation of all racks, FDU's, power, HVAC and ventilation equipment for rebuild and I-Net.

² Includes but is not limited to fiber to all nodes in unincorporated areas, fiber to I-Net sites, activation of all nodes in unincorporated areas, testing & acceptance of fiber & electronics, submittal of test documentation to King County, and activation & programming of channels as provided in franchise agreements, including PEG channels.

³ Includes but is not limited to installation, splicing, testing & acceptance of fiber & submittal of test documentation to King County.

⁴ Subject to the written approval of DIAS Director, TCI may change the order of completion for build areas, provided the change causes no delay in degree of completion of project, or hardship to King County.

⁵ Includes but is not limited to fiber installation, testing, submittal of test documentation to King County and acceptance.

I-NET PROJECT -
CABLE CIP FUND CASH FLOW ANALYSIS

	1985	1986	1987	1988	1989	2000	2001	2002	2003
Beginning Fund Balance		\$804,113	\$2,562,537	\$4,285,658	\$4,905,831	\$9,904,616	\$1,147,695	\$612,564	\$718,490
Revenue									
VIACOM ANNUAL (Cash)(February 18 due	\$804,113			\$825,813	\$2,477,438	\$0	\$0	\$2,707,164	\$0
VIACOM ANNUAL (Construction Credit)		\$800,000	\$801,760						
VIACOM SETTLEMENT		\$1,695,101							
TCI ANNUAL (bgn Aug., 1996)(Quarterly)		\$316,558	\$728,014	\$633,348	\$623,748	\$614,148	\$604,548	\$594,948	\$585,348
TCI DESIGN PAYMENT		\$50,000	\$50,000	\$50,000	\$50,000	\$50,000			
INTEREST			\$171,683	\$214,623	\$437,585	\$376,990	\$63,118	\$33,691	\$39,517
Revenue Totals	\$804,113	\$2,861,659	\$1,751,457	\$1,723,784	\$3,588,771	\$1,041,138	\$667,666	\$3,335,803	\$624,865
Financing/Savings/Grants/Repayment									
16 Year Bond Financing					\$8,284,742				
Short Term Loan (& Repay)							\$2,300,000	(\$2,438,000)	
Future Matching Grants							\$2,300,000	(\$2,438,000)	\$0
Financing Totals	\$0	\$0	\$0	\$0	\$8,284,742	\$0	\$2,300,000	(\$2,438,000)	\$0
Expenditures									
	\$0								
King County Government Channel	\$0	\$1,103,235	\$28,336	\$68,429					
I-Net Project:									
I-Net Fiber Construction Costs					\$3,011,236	\$3,029,986			
I-Net Electronics Cost					\$1,832,500	\$3,665,000	\$1,832,500		\$0
I-Net Project Staff Costs				\$667,699	\$1,085,202	\$1,065,699	\$767,776	\$0	\$0
I-Net Project Overhead Costs				\$367,483	\$273,398	\$214,650	\$110,545		
Consultant costs					\$92,700	\$85,481			
Ongoing Staff Costs					\$46,556	\$392,199			
Ongoing Overhead Costs					\$40,176	\$68,969			
Applications development					\$91,000	\$187,460			
Electronics Repair/Maintenance						\$274,756			
Fiber Repair/Maintenance					\$6,022	\$12,082			
Total I-Net Project	\$0	\$0	\$0	\$1,035,182	\$6,478,791	\$9,006,282	\$2,710,820	\$0	\$0
Bond Repayment (repay continued next)	\$0	\$0	\$0	\$0	\$395,938	\$791,877	\$791,877	\$791,877	\$791,877
Expenditure Totals	\$0	\$1,103,235	\$28,336	\$1,103,611	\$6,874,729	\$9,798,458	\$3,502,697	\$791,877	\$791,877
Fund Balance	\$804,113	\$2,562,537	\$4,285,658	\$4,905,831	\$9,904,616	\$1,147,695	\$612,564	\$718,490	\$551,478

King County I-Net

Steering Committee

Meeting Agenda

April 20, 1999

- Project Progress ■ Recommendations
- Project Scope ■ Decisions
- Project Budget ■ Directives
- Project Schedule ■ Quarterly
- Project Initiatives ■ Expectations

PROJECT PROGRESS

Highlights at the end 1st Quarter '99

- Fiber Construction - On Schedule
- Design of Physical Layer 68% Complete
- Network Equipment Vendors Selected
- Negotiating Procurement Contract
- Organizing & Planning Pilot Program
- Accomplished City I-Nets Group
- Developing Forums for Schools/Community
- Launched Bi-Monthly NETLINK Reports

Construction Fiber Netwo

- 210 Sites Designed
- 172 Work Orders issued by King
- 57 Site Improvements Complete
- 30% of Network Rings Complete
- Meeting Schedule Performance
- Starting Fiber Testing (Sites to H

PROJECT SCOPE

- Report on Scope Revision Log
- Rules for Adds/Deletes/Changes
- Review Special Site Conditions

PROJECT BUDGET

■ Project Expense

■ Project Revenue

Actual vs Budget

10%

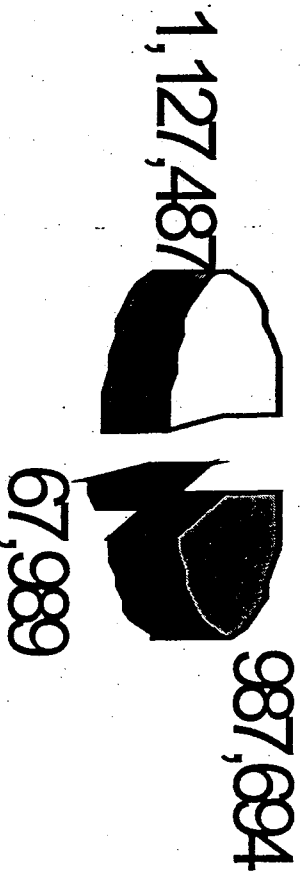


90%

■ Actual Costs ■ Budget Costs

Project Expenses

Actual Costs



- Construction Costs
- Electronics Costs
- Other Project Costs

102234

PROJECT SCHEDULE

	Quarterly Timeline									
	2099	3Q99	4Q99	1Q00	2Q00	3Q00	4Q00	1Q01	2Q01	
ns				Y2K						
ion	[Redacted]									
struction	[Redacted]									
Primary Rings & Hubs		[Redacted]	[Redacted]	[Redacted]	[Redacted]					
Edge Sites										
1				[Redacted]						
ork Operations						[Redacted]	[Redacted]	[Redacted]	[Redacted]	[Redacted]
Operations									[Redacted]	[Redacted]

102234

PROJECT INITIATIVES

- Development of Special Education Forums to promote understanding utilization of I-Net
- Coordination & support of NEVA through our Pilot Program Planning
- Planning Application Demonstration

RECOMMENDATIONS

- Restrict adding sites or scope to
- Promote strategies to reduce cost of construction and electronics

DECISIONS & DIRECTIONS

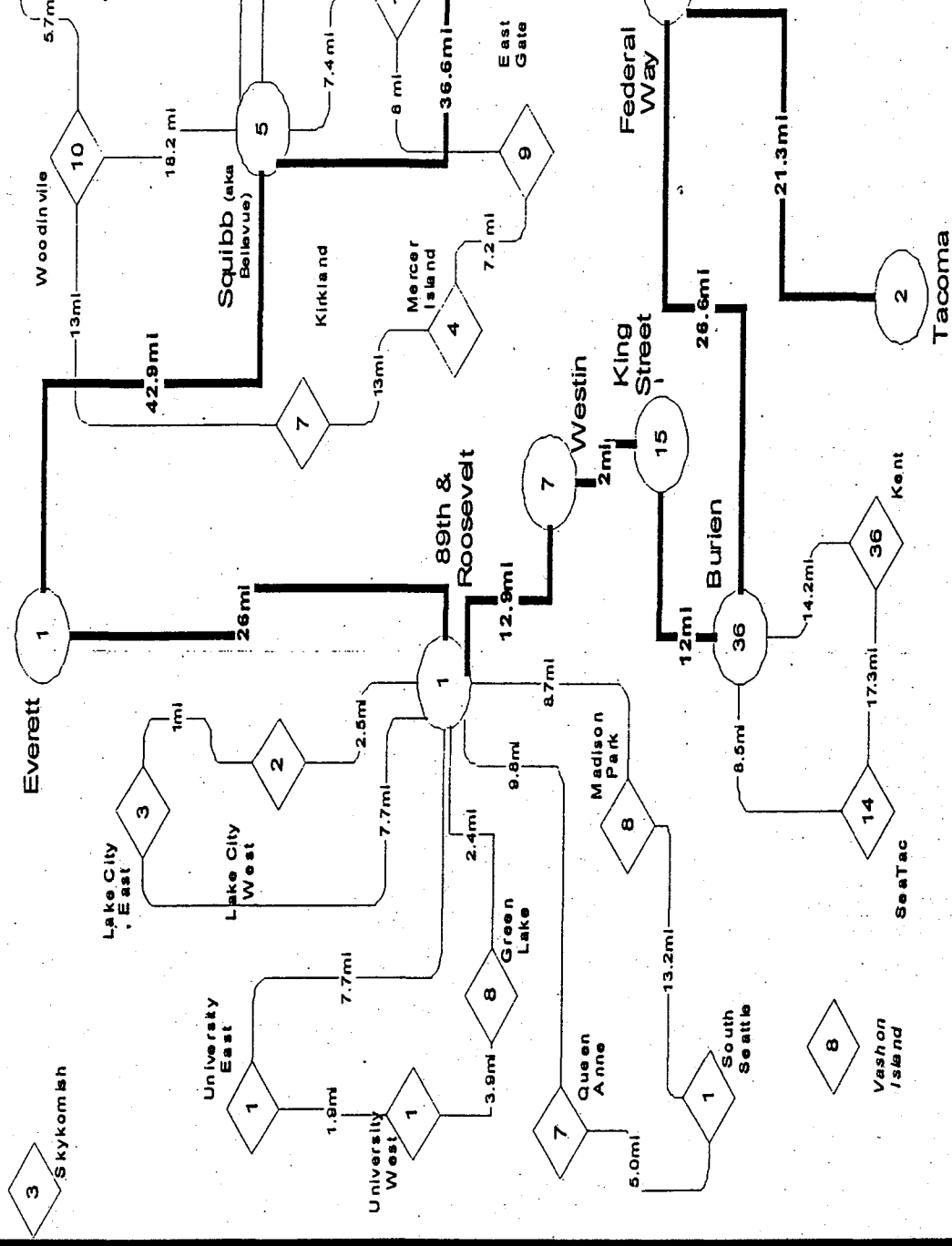
- Study Special Remote Sites Optimization
- Complete Network O&M Plan in 1997
- Develop cost & revenue models reflecting ranges of network size & utilization

EXPECTATIONS

2Q99 & 3Q99

- Major Progress toward completion of Fiber Build
- Resolution of Network Operation Model
- Buy Primary Electronic Equipment
- Build NMS & Pilot Program w/ G
- Plan early I-Net demonstrations

NETWORK TOPOLOGY



Everett 1

Woodinville 10

13mi

42.9mi

5.7mi

16.2mi

5

Squibb (aka Bellevue)

7.4mi

8mi

36.6mi

East Gate 9

7

13mi

7.2mi

4

Mercer Island

89th & Roosevelt 1

26mi

7

Westin

2mi

15

King Street

26.6mi

21.3mi

2

Tacoma

12mi

36

Burien

14.2mi

36

Kent

17.3mi

14

SeaTac

8.5mi

8

Vashon Island

8

1

South Seattle

5.0mi

7

Queen Anne

8.7mi

8

Madison Park

9.8mi

2.4mi

8

Green Lake

7.7mi

2.5mi

1mi

3

Lake City East

2

Lake City West

1

University East

1.9mi

1

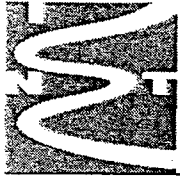
University West

3.9mi

7.7mi

3

Skykomish



**King County
ITS INET Project Team**

Progress Report

April 30, 1999

Trends and Analysis

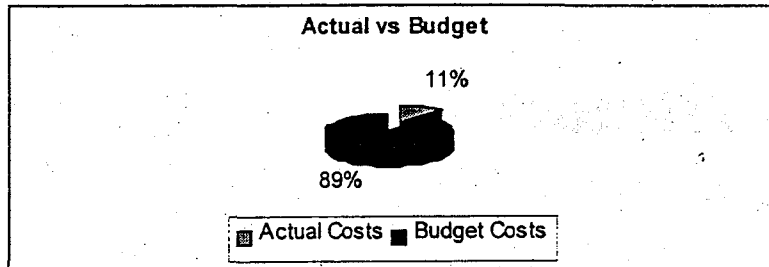
TCI and their design/construction partners continue to making steady production progress on the construction of the physical layer for the fiber optic network. Last month twenty eight Site Designs were completed. This brings the current total of completed Site Designs to two hundred twenty three. Seventy five of these sites have internal construction complete. Twenty two site builds were completed last month. Work on hubs and network primary/secondary rings is also showing steady progress. Eight connections have been completed between primary & secondary hubs. There are twelve other core sections under construction at this time. Permit acquisition delays are challenging the scheduled completion of Redmond, Issaquah & Kent hubs. TCI building back-up plans to temp feed these hubs if necessary and assure that performance milestones are met for King County. Three major hubs (Eastgate, Enumclaw and Cedar Downs) have completed two months ahead of schedule. I-Net Team is working with TCI to evaluate current construction sequences and production trends. From this effort, a determination will be made in regard to steps that will optimize production and minimize costs.

Progress is on track with Project master schedule.

The first end-to-end optical tests were rescheduled into early May so TCI could accomplish their own Quality Assurance efforts prior to starting the Testing Program.

Budget

EXPENSE REPORT - The project costs during last period totaled \$102,096.



Total Project investment currently represents 11% of the total budget expense to produce and equipment the Institutional Network.

REVENUE REPORT – TCI cable fees and interest accrued for March as planned. I-Net accomplished revenue reconciliation to account for and capture unused credits as specified in franchise requirements.

Scope

There are currently 294 sites to be built by TCI and there are fourteen additional sites under review for build-out by others. All these edge sites will be connected to hubs on the primary and /or secondary rings of the network.

There have been small changes to Scope during first quarter of 1999. Most have been database revisions to correct addresses or adjustments in timing due to customer construction schedules.

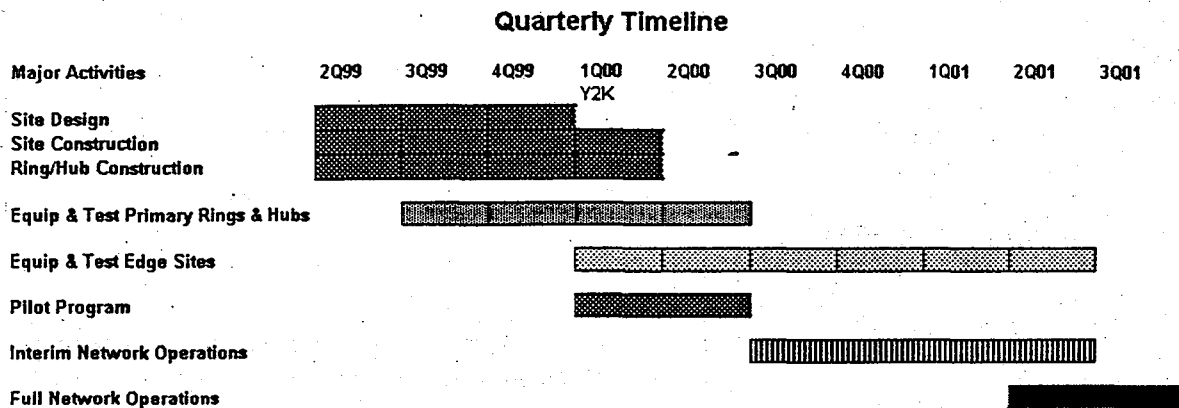
Good progress being made on negotiation of major product and services agreement with GTE and Fore who will furnish network electronics for I-Net. These negotiations will extend through May with anticipated contract in June.

Final switching design and configuration will follow contract award.

Schedule

Highlight in this regard that throughout the first quarter of 1999, TCI has been producing and performing in accordance with Project Plan. Trends in productivity are improving as subcontractor teams get past learning curve. By the end of June, the Design Phase will complete as planned for the edge sites and physical layer of the project. The network electronics design phase is just beginning and will extend over the next months.

The following quarterly timeline will provide an overview of the Project Phasing:



Project team in a process of integrating TCI schedule into a master I-Net schedule. This process will be duplicated with GTE to bring comprehensive electronics schedule into I-Net master schedule. The master schedule will also reflect testing and pilot activities as these get underway.

TCI & I-Net Team review progress weekly on design, site construction, testing, hubs and rings.

TCI updates schedule weekly and reports progress against completion milestones. We review variance reports and build response plans together in order to promote the best performance achievable by both partners.

Production of backbone and edge sites is on track to meet contract requirements for delivery of I-Net.

Equipment & Electronics

SWITCHING EQUIPMENT: GTE and Fore are engaged in weekly meetings to finalize matrix of hub and edge site network electronics. Our contract is being negotiated and developed to cover a wide range of products and services from the network management system to pilot program activation to operation/maintenance of network as operating enterprise.

Our expectation from last month has been modified. The extent of required definitions terms, conditions and legal reviews will put contract signing into June. This should produce first equipment deliveries in August or September of this year. This timing will work fine to support first transport proof of concept validation program in fourth third quarter of this year.

Applications

This is the aspect of the project where the technology must be fitted to provide the maximum benefit to the community through the connections with schools, libraries, & agencies.

The project team is building bridges to those who will use I-Net. We are exploring ways for schools, libraries & agencies to share their goals and best practices with us. In this way we will be able to work a "best - fit" offering of applications that support the users needs. At the same time, we are working with special focus groups like the Education Initiative to identify what features can maximize the value of this investment to the residents of King County.

I-Net team holding bi-weekly meetings to explore and facilitate customer agency application development. You are invited to bring your concepts and meet with us or submit electronically for assessment.. The best way to be technologically aligned at the customer interface is to be "multicast enabled through a workgroup ethernet switch".

We welcome your suggestions and input regarding the capabilities that you expect to use I-Net to transport or what services that you expect this network to deliver.

If you have program content or an application that we should consider for a Pilot, please use our website www.metrokc.gov/i-net to leave us e-mail message.

Pilot Program & Phased Activation

Pilot site activation will be phased. Phase 1 will demonstrate transport capabilities only. The initial planning is indicating the earliest activation can occur in October 1999, after switching electronics are installed and tested. Sites are being evaluated to determine which are the best sites to activate in this early test & demonstration phase. Phase 2 (1st Qtr 2000) will demonstrate video on demand and Phase 3 pilot (2nd Qtr 2000) will demonstrate two-way interactive video.

Quality Assurance & Communication

The project team has completed more than 75% of Site Surveys and about 20% of the initial site developments. Initial testing of completed fiber sections was rescheduled by TCI to allow for corrections that their own Quality Management processes had identified prior to I-Net starting our verification testing. Quality of completed work remains high on I-Net sites. TCI showing examples of commitment to quality production standards. Working closely with I-Net team on testing procedures & training.

Communication

The project team continued our efforts to organize information exchanges with special interest groups that will interface or connect with I-Net. The second Technology Forum was held to share information between content providers (libraries, community colleges and science /culture facilities) . The next Forum currently in planning for June is for law, safety and justice agencies. A School Forum is planned to occur in September or sooner. A special presentation and workshops by Chris Dede on video applications (Emerging Media for Distributed Learning: Facilitating Knowledge Creation, Sharing Mastery) is being planned for June 30th. There are also planning efforts moving ahead with GTE for training in September that will illustrate how to use video applications for distance learning.

The first edition of our printed information tool NETLINK was distributed in April. This deliverable will be distributed every other month and is also available as a hot link from this site. Project team is also developing mechanism for pushing information to special interest groups and customers via Email broadcasts. For comments or questions about this report or the I-Net Project, please contact Don Baker 206-296-3876

Don.Baker@metrokc.gov / I-Net



NETLINK

Your Connection to the I-Net Project

See our web site at: <http://www.metrokc.gov/I-Net>

Volume I

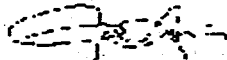
Welcome to the first edition of King County I-Net's Netlink

I want to thank everyone who has been working so hard to bring our I-Net fiber-optic cable closer to reality. This technology, which has become a national model setting an example for other areas; will open new on-ramps to the information superhighway. I am personally looking forward to the day when we can provide direct communications to cities, schools, and libraries, and save money in data transmittal and related services.

I hope you enjoy this Netlink newsletter, which will:

- Bring project updates to the I-Net client community and allow clients to pass on project information to their customers.
- Provide quarterly updates about project timelines and milestones (Fast Facts) and cover a variety of topics and issues. Ongoing issues such as site preparedness (Customer Readiness) and engineering (Technology) will have space in every newsletter.

We welcome your thoughts and suggestions because we want to make our Netlink useful to you. Please contact Margaret Coppock at (206) 684-1046 or margaret.coppock@metrokc.gov. For additional details, please see our Web site.



Ron Sims, King County Executive

Project Overview

The King County I-Net is the result of a franchise agreement between TCI and King County, with TCI agreeing to bring fiber optic cable to 300 sites in King County by mid year 2000.

Sites to be included are:

- Suburban cities
- City of Seattle
- King County Library system
- Certain King County agencies
- Schools in unincorporated King County
- K-12 administration buildings
- Higher Education
- Seattle Center complex
- Content Providers such as the Seattle Art Museum, 911 Media Arts, Woodland Park Zoo, WSDOT, and the Experience Music Project

After the fiber is installed, the I-Net Team (from King County ITS) will install high speed high bandwidth switching equipment. A Request for Proposal for this equipment is in the final phase and will be awarded in April. The fiber and switching equipment will enable I-Net to provide clients with the initial service offerings of T1 circuit emulation and high speed data transmission between I-Net sites.

FAST FACTS

THE I-NET LOOP

- The I-Net loop goes around Lake Washington from Everett to Federal Way with a spur into Tacoma.
- The core of the network is made up of 1 Primary Loop with 8 hubs, and 7 Secondary Loops with 21 hubs.
- The I-Net Loop, including primary and secondary spurs, runs for approximately 4000 strand miles.
- The longest span between Everett and Bellevue is 42.9 miles.

SITE INFORMATION

As of February 10, 1999

- ⇒ 284 Sites submitted for design
- ⇒ 128 sites remaining to submit for design
- ⇒ 157 site surveys conducted
- ⇒ 145 site designs provided to King Co.
- ⇒ 40 sites internal conduit construction completed

FIBER INSTALLED

As of February 10, 1999

- Hazelwood Elementary-Auburn
- Green River Community College
- Rainier Middle School
- Lea Hill Elementary

SITE PREPARERS

- Have driven all 300 plus sites.
- Have made site visits to approx. 1/2 of all sites.

SITES VISITED

As of February 10, 1999

Includes: Every school district, college, content provider, and 80% of the suburban cities in King County

ACA & SCRAP-Sexual Assault Center
Algona Pacific Library
Algona Police/Algona City Hall

A pilot deployment of switching technology, involving approximately 20 sites on I-Net is planned to begin by late summer of this year. Switching and initial applications will be available to I-Net clients across most of the network in late 2000.

I-Net is intended to bring fiber optic cable and switching services to the Main Distribution Frame (MDF) in each designated site. Any in-house wiring or desktop hardware is the responsibility of the client agency.

WHERE THE PROJECT IS NOW – PARTNERING FOR THE FUTURE

In February the King County I-Net team collaborated with TCI to produce a working partnering agreement, which includes a mission statement and service quality goals. This agreement will be a focal point upon which to build a common identity and purpose while producing the Fiber Optic Net.

INSTITUTIONAL NETWORK PROJECT TEAM MISSION and PARTNERING AGREEMENT

We the undersigned production partners and members of the King County INET Project Team are committing to support the mission of building a world class Institutional Network that will serve the needs of our customers and community.

We will do this by performing all our work in an atmosphere that promotes open communication and adheres to the principles of honesty, trust and mutual respect.

We will work together to:

- Construct the fiber optic network to meet or exceed design expectations with respect to Quality
- Meet schedule milestones and production goals by promoting timely responses and quick resolution of problems
- Consider and work toward achieving the financial objectives of all team members
- Create and maintain a positive relationship with the community and our customers
- Encourage and reward open, honest and timely communications between all parties
- Promote problem solving and dispute resolution by the Project Team
- Attain a project safety record which exceeds industry standards

We will strive to accomplish these goals in a manner that provides a sense of pride and accomplishment for us as individuals and for our organizations. We expect to enjoy creating this award winning project achievement.

After the switching electronics have been deployed, RFPs will be developed for higher level I-Net applications. These may include one and two-way video, voice technology, and ISP type services such as connections to the Internet and e-mail.

Technology Forum, Suburban Cities

The first I-Net Technology Forum was held February 24 at the Renton City Council Chambers. Technology Managers of several suburban cities described their I-Net projects, and reviewed scope/schedule, topology, planned uses, and issues. A number of ongoing issues was identified and will be topics for future forums. Technology Forums are planned for affinity groups such as Higher Education, K-12 and K-20 coordination, and Law, Safety, and Justice. Margaret Coppock will coordinate these meetings, which will be held quarterly, or as issues surface.

FAST FACTS continued

Sites Visited (continued):

- Auburn Admin. Offices
- Auburn Police Dept./Jail
- Auburn School District
- Bagley Wright Theatre (Site Rep Theatre)
- Bellevue School District
- Benaroya Symphony Hall
- Bothell Library
- Burien City Hall
- Burien Library
- Canal Place Environmental Lab
- Cedar Hills Treatment Facility
- Columbia Health Center
- Des Moines Library
- Des Moines Police Dept.
- Downtown District Health Center
- OYS-Auburn Youth Services
- OYS-Department of Youth Services
- Enumclaw School District
- Experience Music Project
- Fairwood Library
- Federal Way Branch Library
- Federal Way District Court
- Federal Way Regional Library
- Federal Way School District
- Foster Library
- Fred Hutchinson Cancer Research/Medical Center
- Green River Community College
- Harborview Medical Center
- Harborview-Cascade Medical Clinic
- Harborview-Injury Prevention
- Harborview-Pioneer Square Clinic
- Highline C.C.
- Highline School District
- Issaquah District Court
- Issaquah Police Dept.
- Issaquah School District
- KC Courthouse
- KC Police No Precinct #2-Bothell/Kenmore
- KC Police SW Precinct #4
- Kenmore Library
- Kent Regional Library
- Kent School District
- Key Tower (Gateway Tower)
- King St Bldg
- Kingsgate Library
- Lake Washington School District
- Manhattan Learning Center
- Maple Valley Schools
- Metro Atlantic/Central Base, Bldg 2
- Metro Ryerson Base
- Metro South Base
- Muckleshoot Library
- Museum of Flight
- NDA-Northwest Defenders' Association, Suite 200
- Normandy Park Police/City Hall
- Northshore School District
- OPD-NW Defenders Office/Walthev Bldg, 4th Floor
- PHS - Federal Way
- PHS Northshore - Bothell
- Port of Seattle Headquarters, Pier 69
- PS Educ. Svc. Dist.
- Renton Schools
- Renton District Court
- Renton Police/City Hall/Jail
- Renton School District
- Renton Technical Col.
- Renton Water Treatment Plant
- Riverview School District
- SCAN Comm. Cntr. (Melbourne), Suite 600
- SCRAP-Sexual Assault Center, Suite 200
- SeaTac City Hall
- Seattle Aquarium
- Seattle Art Museum
- Snoqualmie Valley School District
- South Manhole for WorldCom Fiber
- TDA-The Defender's Association, Central Bldg
- Tahoma School District
- Tukwila Library
- Tukwila Police Dept.
- Valley View Library
- Vashon School District
- WA State Criminal Justice Training Center
- Wells Fargo Bank Tower-PHS
- West Point Offsite Maintenance
- West Point Water Treatment Plant
- Westin Building
- White Center Library
- Woodinville Library