CITY OF PALO ALTO
MEMORANDUM

TO: HONORABLE CITY COUNCIL

DATE: July 7, 2008

SUBJECT: Request for Council Direction Concerning Citywide Ultra-High-Speed Broadband System Negotiations

The attached Broadband CMR is being distributed in this packet for early review prior to the July 14, 2008 City Council meeting.

LALO PEREZ
Director, Administrative Services

STEVE EMSLIE and KELLY MORARIU
Deputy City Managers
TO:                      HONORABLE CITY COUNCIL
FROM:                   CITY MANAGER                    DEPARTMENT: ADMINISTRATIVE SERVICES
DATE:                   JULY 14, 2008                       CMR: 304:08
SUBJECT:                REQUEST FOR COUNCIL DIRECTION CONCERNING CITYWIDE ULTRA-HIGH-SPEED BROADBAND SYSTEM NEGOTIATIONS

RECOMMENDATION

Staff is requesting direction from the City Council concerning the Citywide Ultra-High-Speed Broadband System negotiations to:

1) Confirm the City’s commitment to proceed with negotiations based upon one of the two options below:

   a) Direct staff to develop a final Business Plan with the 180 Connect Network Services, Inc./PacketFront Inc./Axia NetMedia Corporation consortium that would be approved by Council. Following the completion of the Business Plan, negotiations on specific agreements between the parties would occur; or

   b) Direct staff to expedite the process by entering into a Letter of Intent with the 180 Connect Network Services, Inc./PacketFront Inc./Axia NetMedia Corporation consortium that would include the key elements of the required agreements. Following Council approval of the Letter of Intent, the parties would negotiate final agreements.

2) Provide staff with direction regarding the nature and value of the proposed City contributions, as follows:

   a) The City would provide 36 dark fibers at the existing public agency discount rate of approximately 20 percent or at a new bulk fiber discount rate established by Council action; and

   b) The City would use commercially reasonable efforts (not best efforts, as requested) to purchase broadband services from retail service providers on the Broadband System, provided that the purchase is effected strictly in
compliance with the competitive bidding requirements of the Palo Alto Municipal Code; and

c) The operator of the Broadband System would provide management services for the City’s dark fiber commercial license program and receive a management fee from the City for the services rendered, after covering all Dark Fiber Optic Fund fixed costs; and

d) The City would contribute existing, but currently unused, FTTH trial assets; and

e) The City would provide access to spare conduit, denying the Consortium’s request for a waiver of Electric Utility Fund conduit usage and General Fund street cut fees.

BACKGROUND

At the Council’s direction, a Citywide Ultra-High-Speed Broadband System Request for Proposals (RFP) was issued on September 27, 2006. The RFP identified several goals of the last-mile broadband network (“Network”) deployment: 1) an “open system” that would promote competition among multiple service providers; 2) the capability of providing each customer with a minimum bandwidth of 100 megabits per second (“100 Mbps”) symmetrical service; 3) the provision of “triple-play”, namely, data transmission, video services and telephony services; 4) the construction and operation of a citywide network at minimal financial investment and risk to the City; and 5) eventual City ownership of the network. On January 9, 2007, two firms submitted proposals. On March 5, 2007, the Council directed staff to enter into negotiations with 180 Connect Network Services, Inc. (“180 Connect”). At that time, then Mayor Kishimoto designated a two-member citizens’ committee to participate in this process in an advisory capacity. On May 5, 2008, Mayor Klein appointed a third member to the citizens’ committee.

The initial proposal of 180 Connect consisted of a consortium of firms that would partner with the City to develop the Network. The consortium (“180 Consortium”) included: 180 Connect, which would be responsible for Network design, engineering and construction; PacketFront, Inc. (“PacketFront”), which would provide Network hardware, software and operations; and Royal Bank of Canada Capital Markets, which expressed interest in financing the Network’s construction.

In March 2007, staff initiated pre-contract negotiations with the 180 Consortium. As a first step, the 180 Consortium indicated that it must prepare a Business Plan to determine and otherwise assess the Network’s economic feasibility and requested $30,000 from the City to cover a portion of its Business Plan preparation costs. On July 9, 2007, the Council invited 180 Connect to undertake the development of a Business Plan at its own expense. The Council directed staff to support the 180 Consortium’s efforts and invited staff to consider leveraging those City assets that could be integrated with the Network without making any General Fund cash contributions, pledges or guarantees.
Over the past nine months, staff has conducted 36 in-person meetings and/or teleconferences with the 180 Consortium to develop a Business Plan. Staff has provided the 180 Consortium with extensive information about the City's assets, including fiber optic infrastructure, facilities and services, which could be made available to an entity that would deploy the Network, provided mutually acceptable terms and conditions could be developed. The parties have evaluated several options for leveraging City assets and reviewed a number of business relationships and associated agreements that could be established. The 180 Consortium has conducted field surveys and basic market research, and has completed a constructability review to define probable construction costs and establish a roll-out plan for the network. It has also prepared a financial forecast for the project.

In furtherance of the City's broadband service goals, staff recommended that the City's dark fiber optics program be set up as a separate Fiber Optics Utility Fund in the 2008-09 Enterprise Fund Budget. This is in recognition of the different purposes and characteristics of the electric and broadband telecommunications businesses. Integral to the separation is the condition that the Fiber Optics Utility Fund repays the loan (of $1.9 million) and all indirect cost advances that the Electric Utility Fund made to the dark fiber optics program in order that it could commence business. In 2008-09, this new Utility is expected to have adequate resources to meet its reserve requirements (emergency plant replacement and rate stabilization reserves) and revenues that will cover operating and capital expenses.

The 180 Consortium anticipated it would take six months to complete a Business Plan, which could be presented to the Council in the fall of 2007. The delay in presenting a Business Plan to the Council can be attributed to several important organizational changes involving the 180 Consortium. These organizational changes include team member departures and additions, changes in project leadership, a merger involving 180 Connect with Ad.Venture Partners, Inc. and the acquisition of DynamicCity, the other responder to the City's RFP, by PacketFront, as addressed in CMR:464:07 (Attachment A).

Most recently, on April 18, 2008, 180 Connect signed a merger agreement with DIRECTV Inc. that would result in 180 Connect becoming a wholly-owned subsidiary of DIRECTV. 180 Connect's stockholders will vote to approve the merger agreement on July 8, 2008. 180 Connect has informed staff that this merger constitutes a positive direction for the company and will provide a strong financial basis for the company's continued success. As DIRECTV plans to operate 180 Connect as a stand-alone business, this merger should not adversely impact 180 Connect's commitment to the Network and implementation of the Plan. While staff believes all of these changes have enhanced the 180 Consortium's bottom line, they also serve to highlight the fluid and ever changing nature of the telecommunications industry. This dynamic represents a potential pitfall that awaits local government agencies that would risk venturing into, the highly competitive, evolving telecommunications market.
DISCUSSION

On March 7, 2008, the 180 Consortium presented staff with its conceptual Business Plan (the “Plan”). Based on its business model, the 180 Consortium concluded that there is a sound business case for building a Network in Palo Alto. On June 16, 2008, after a series of meetings and teleconferences with staff to refine the key elements of the Plan, the 180 Consortium provided staff with a modified Plan (Attachment B), attached hereto as a document entitled “Overview.”

The Plan, if successfully executed, would enable the City to achieve its goal of securing a Ultra-High-Speed Broadband System offering advanced communications service to Palo Alto’s residents, businesses, schools, and government facilities. The proposed Network would provide a platform for innovative broadband applications and further enhance the City’s status as the premier center for leading-edge technology companies. New and substantial economic growth and social and political benefits could be realized if this technology is brought to Palo Alto.

This report provides the Council with a high-level summary of, among other aspects, the proposed governance structure and the desired City contributions that are proposed in the Plan. In light of this information, staff seeks the Council’s affirmation of its intention that staff continue to assist the 180 Consortium with its refinement of the Plan in order to facilitate contract negotiations. Staff also requests further direction of the Council regarding the development of a final and detailed Plan, on which contracts between the City and the operator of the Network and the members of the Consortium would be ultimately formulated.

Governance Structure

The Consortium has proposed the formation of a privately-held special purpose entity (the “SPE”) as the vehicle for achieving the City’s goal of deploying an open-access Network in the community. The SPE would be responsible for implementing the Plan and would bear much of the substantial risks of the venture. This entity would finance, build, own, operate and maintain the Network. The SPE would grant the City a right of first refusal to acquire the Network following the SPE’s successful long-term operation, estimated to occur on or about 25 years after the City and the SPE execute a contract. Should the City elect to take title to the Network in year 25, the SPE would be offered the opportunity to continue to operate the Network (under a ten-year renewable contract). The Consortium believes this model offers the best approach to insulate the City from financial and regulatory risks.

The SPE would be formed and funded by a new Consortium member, Axia NetMedia Corporation (“Axia”). The SPE likely would be a wholly-owned subsidiary of Axia. Axia was introduced to staff on April 22, 2008, and confirmed its interest in joining the Consortium on May 12, 2008. Axia is an open-access, fiber-optic network operator, headquartered in Canada and listed on the Toronto Stock Exchange. Axia has recently entered into a strategic teaming agreement with PacketFront to jointly pursue high speed broadband market opportunities. Under the proposed business model, Axia would be
responsible for providing 70 percent, or at least $30 million, of the initial project funding requirements. Axia has indicated that it is able to finance this project using current cash resources along with funds to be provided from future operations. At the present time, Axia has cash reserves in excess of $48 million and no long-term debt. It has also generated $11 million of cash flow from operations for the nine months ending March 31, 2008. As of June 30, 2007, Axia had $97 million in total assets on its balance sheet. Of these assets, $52 million was held in cash and short-term investments. The Consortium is confident that Axia provides the additional financial, technical, and managerial expertise necessary to successfully execute the final Plan. Axia has been active in bringing broadband to areas of Canada and France, particularly to commercial customers, and has recently submitted a broadband proposal in Singapore in partnership with other firms.

The SPE would operate the Network on an open access wholesale basis, making the physical Network infrastructure available to qualified service providers under competitively neutral terms and conditions. The SPE itself would not provide any retail services on the Network. Instead, it would secure the services of several broadband retail service providers. These service providers would ultimately determine the rates and service offerings provided on the Network.

After the SPE is established by Axia, the SPE would enter into at least five agreements with the City (e.g., Dark Fiber License Agreement; Pole Attachment Agreement; Conduit Occupancy License Agreement; Management Services Agreement; and Facilities Use Agreement) to facilitate the establishment of the Network and its interconnection with the City’s fiber backbone and other City assets. As part of the agreements, the Network requirements (e.g., open system platform, 100 Mbps service) would be ascertained. The SPE would then secure the services of several voice, video and/or data transmission service providers. The SPE would also enter into separate contracts with 180 Connect (for Network design and construction), PacketFront (for Network hardware and software), and potentially with Axia (for funding and Network operator center services). Apart from undertaking obligations under their contracts with the SPE and funding the Plan, neither 180 Connect nor PacketFront would have any financial investment or ownership interest in the Network.

**Proposed City Asset Contributions**

Under the Plan, the City would provide as consideration the remaining 30 percent of the Network’s initial funding requirements, or $13 million, in the form of asset contributions. The 180 Consortium has confirmed that the 30 percent is needed in order for Axia to be willing to financially commit and contribute funds to the SPE in order to develop the Network. The Consortium has indicated that it must gain an understanding of the City’s commitment to this level of contribution as a crucial prerequisite to moving the project forward.

The Consortium’s proposed request of six separate contributions from the City is described below. Although the Plan indicates that the value of these six contributions
must total $13.0 million, the final value of each of the six separate contributions will not be determined until negotiations are complete.

1) Long-Term Use of 36 Dark Fibers

**Consortium Proposal:** The Consortium has requested the use of 36 of the City’s 144- to 288- dark fibers on the backbone. Its members have proposed that the City enter into a 25-year agreement with the SPE for the “right to use” the fibers. The nature of the agreement and the rights and obligations of the parties have not yet been broached. The Consortium has preliminarily valued the City’s consideration or contribution of the 36 fibers at $4.4 million, based upon a replacement cost estimate of the fibers. The Consortium does not wish to pay for the use of any of the 36 fibers.

**Staff Response:** This arrangement, which would require the City to permit use of dark fibers without charge, is legally infeasible under the Charter and the Palo Alto Municipal Code. The City could not accede to the Consortium’s request, because this is, effectively, a request to waive the collection of Enterprise Fund utility rates and charges for these fibers.

Staff’s perspective is that it would be appropriate for the City to grant the SPE a discounted rate for the 36 fibers, based on sound economic and public policy grounds. To promote the greater utilization of dark fiber not now licensed to third parties and/or to advance sound public policy, that all Palo Alto residents and businesses should enjoy access to state-of-the-art broadband communications in order to foster economic growth and new community services, the City could by adoption of a new utility rate resolution, authorize a bulk dark fiber rate, which would be set at a discount to the current rate. The new discount rate would be made available to any party that desired to acquire bulk dark fiber for the purpose of providing open access network services to the general public.

By comparison, the General Fund, which currently serves the entire Palo Alto community, pays for its use of dark fiber for the City’s IT network services at the “public agency” rate. The “public agency” rate is approximately 20 percent lower than commercial customer dark fiber rates. A similar bulk fiber discount could be established by the Council by the adoption of a utility rate schedule resolution, as required by the Palo Alto Municipal Code. The SPE would be eligible to take the 36 fibers under the new utility rate schedule.

Based on existing rates, the annual cost for the use of 36 fibers system-wide would total approximately $2.9 million. At the “public agency” discount rate of 20 percent, the annual cost for the use of 36 fibers system-wide would total $2.3 million annually, a yearly savings of $0.6 million.

2) City Use of Broadband Network Services
**Consortium Proposal:** The 180 Consortium has requested that the City “use its best efforts” to purchase broadband services from one or more retail service providers signed on to the Network following a competitive price quote process. The Plan characterizes this as a “RFQ process.” The estimated scope and value of this request has not been defined and will require further research by the City and the 180 Consortium.

**Staff Response:** Staff supports the goal of having one common Network for City and community use. In the 2008-09 Budget, the General Fund will pay the Fiber Optics Utility Fund approximately $0.8 million for dark fiber services. In addition, the General Fund pays approximately $0.5 million annually for telephone services. These funds, totaling approximately $1.3 million, could be used to procure data and/or voice service on the Network, provided the City first complies with its purchasing ordinance, rules and regulations in the procurement of these services and a Network retail service provider is determined to be the successful bidder.

3) **Management of Existing Commercial Dark Fiber License Agreements**

**Consortium Proposal:** The 180 Consortium has requested that the SPE be permitted to take over operation of the City’s existing (approximately 45) and any future dark fiber optic commercial customer license agreements. The SPE would assume full or partial responsibility for the day-to-day activities, operations and maintenance of the City’s dark fiber license agreement program, and possibly engage in sales, perform connections, and/or prepare billing statements and collect revenues, from commercial customers. A determination of the details and the fee for this arrangement has not yet been established. Although the 180 Consortium has not valued this portion of the City’s consideration, based upon discussions with the 180 Consortium, staff believes the value may fall somewhere between $5 and $7 million.

**Staff Response:** The City’s commercial dark fiber customers generated revenue of $1.5 million in fiscal year 2006-07, and are expected to generate $1.7 million in revenue in fiscal year 2007-08 and $1.8 million in fiscal year 2008-09. In fiscal year 2008-09, commercial customers are budgeted to contribute net income of approximately $0.7 million to the Fiber Optics Utility Fund.

Prior to “contracting out” administration of the City’s commercial dark fiber program, staff would need to evaluate the impact of this arrangement on the Fiber Optics Utility Fund. This would require identification of the various types of cost reductions that could be implemented before the management of these customers would be transferred to the Consortium. Also, as part of this evaluation, staff would need to ensure all fixed costs that would remain in the Fiber Optics Utility Fund (e.g., Electric Fund pole attachment and conduit usage fees, capital improvement costs of the backbone, etc.) are covered.
Staff would also develop a transition plan for the Utilities Department staff that currently supports the infrastructure and business systems for the delivery of service to these customers. Because the proposed management services (or sub-operations) contract is expected to impact the job descriptions and work requirements of several SEIU unit employees, the “meet and confer” process will likely be triggered. Staff would work with the union to address any staffing implications prompted by the Plan and to comply with all associated SEIU Memorandum of Agreement requirements.

The fiber optic backbone supports critical utility and public safety systems such as the Utilities Department’s SCADA system and the connectivity of the City’s fire stations. For system integrity and security reasons, it is critical that Utilities Department staff work with the 180 Consortium to develop and implement a plan to safeguard these vital functions before the City would permit the SPE to assume Network operations that directly affect the City’s backbone operations. All fibers used for essential City functions will remain in the City’s control.

4) Use of Previous FTTH Trial Assets

**Consortium Proposal:** In 2005, the City of Palo Alto Utilities completed a trial program that tested the delivery of fiber optic services to approximately 66 households, when the Council suspended the program. The cables serving the FTTH trial project are still located in the public rights-of-way. The 180 Consortium has requested the use of idle fibers that remains from the FTTH Trial. The Consortium has preliminarily valued this asset at $100,000.

**Staff Response:** In order to permit the SPE to use these assets, the City may be required to develop a new utility rate schedule for these cables pursuant to the adoption of a rate resolution.

5) Waiver of Electric Conduit Usage Fees

**Consortium Proposal:** The 180 Consortium has requested access to spare conduit, owned by the City’s Electric Utility Fund, for the placement of fiber optic cable. It has also requested that the City waive its standard conduit usage fees. The estimated value of this request has not been defined and will require further research by the staff and the 180 Consortium.

**Staff Response:** The Charter and the Palo Alto Municipal Code do not permit the waiver of Enterprise Fund utility rates and charges. If the City granted a waiver of the conduit usage fees, the Electric Utility Fund must be compensated by the Fiber Optics Utility Fund, which compensation could substantially reduce reserves, or the General Fund. The Council’s direction to staff was to leverage the City’s assets without making any cash contributions from the General Fund. As this request likely could constitute, in effect, a cash contribution by the General Fund, staff has preliminarily declined to support this request.
6) Waiver of General Fund Street Cut Fees

**Consortium Proposal:** The 180 Consortium has requested a waiver of the Public Works Department’s street cut fees. The estimated value of this request has not been defined and will require further research by the staff and the 180 Consortium.

**Staff Response:** There is precedent for the waiver of General Fund fees in the public/private context. However, the City/SPE relationship is not equivalent to the public/private partnerships the City has negotiated with non-profit groups. Hence the application of this waiver policy to the SPE, a for-profit business entity, could be challenged by anyone seeking to perform construction in the public rights-of-way.

Staff would note that the 180 Consortium did not request a waiver of: 1) Utilities Department’s pole attachment fees and charges; 2) Planning Department’s architectural review fees; or 3) Public Works Department’s street work permit and encroachment permit fees.

**Staff Recommendation**

Overall, the 180 Consortium’s conceptual approach to the Network meets many of the goals identified in the City’s Broadband System RFP. This approach, however, has evolved significantly since it was first presented to staff in early March 2008 and many critical elements lack sufficient detail and require further analysis, definition and refinement.

Staff’s preferred and traditional approach to a conceptual plan is to finalize it as a detailed plan and present it to the Council for review and approval prior to commencing contract negotiations. This would give the Council and the community an opportunity to review and comment on an in-depth business plan before substantial time, effort and resources are expended to draft the agreements that would be presented in final form for award of contract. It would also provide the parties with a detailed blueprint upon which to negotiate agreements, thereby expeditiously facilitating the contract negotiation process. In addition, it would give staff the ability to complete its due diligence by focusing on a document that would contain substantially greater detail than the Consortium’s conceptual Plan now provides. Since the City does not have the requisite telecommunications expertise in-house, staff would utilize legal and telecommunications consultants to support this effort.

Staff recommends that the work to finalize the Plan include incorporating any direction provided by the Council along with the following:

- Identifying and specifying the agreements that would be required between and among the affected parties and the key components of those agreements.
• Defining the details of the proposed City asset contributions. Staff would analyze the values assigned by the 180 Consortium to these contributions and identify the impacts on the City’s General Fund and the Fiber Optics Utility Fund. Staff would work with the 180 Consortium to develop a plan to address any financial, operational, and/or staffing impacts that are identified.

• Incorporating a discussion of the impacts on neighborhoods (e.g., street closures, street cuts, and above-ground equipment, etc.). Provide information on the utility cabinets (i.e., number, size, and planned locations) that will be in plain view. Ensure the utility cabinets and their placement complies with the City’s existing architectural and land use planning requirements.

• Staff would conduct a comprehensive review of the Plan’s financial forecast, including revenue estimates, capital and operating cost projections. Ensure there is sufficient service provider interest to support the Plan’s revenue assumptions. Perform and include a sensitivity analysis on the project’s financial model.

• Evaluate the potential impact of price competition on the project’s financial projections.

• Develop a plan to safeguard City fiber that would be located in the same conduit as the SPE fiber and ready the City’s dark fiber backbone for SPE use. Staff would analyze the 180 Consortium’s construction cost estimates to ensure these costs are included.

• Define responsibility for maintenance, repair, and capital replacement for the dark fiber components of the City’s fiber optic backbone.

• Evaluate the inclusion of a fourth phase for low-density areas of the City, at an estimated additional cost of around $2.0 million.

• Incorporate lessons learned from other municipal broadband projects such as the UTOPIA and the Alameda projects. A status report on the Seattle, Washington, the UTOPIA, Utah and the Alameda, California projects is attached as a reference (Attachment C).

• Incorporate the basis for all key assumptions in the final Plan. Staff would validate the residential and commercial take-rate and revenue share assumptions.

• Staff would complete a comprehensive analysis of Axia’s financial position, experience and qualifications.

Instead of expending the time and effort to add this level of detail to the final Plan, the 180 Consortium wishes to accelerate the process. It has requested that the City consider approving its conceptual Plan as the model for achieving the City’s goals identified in its RFP and move directly into contract negotiations. Its desire is for staff to return to the Council in September 2008 for final contracts approval, thereby allowing it to connect the first residential and business customers to the Network before the end of calendar year 2008.

Although the Consortium views this approach as more expeditious, staff is concerned this may not be optimal. Because the Plan is not fully developed, the contract negotiations process may prove to be lengthy and complex. Also, in light of the short timeframe within which to negotiate multiple contracts between the City and the SPE, staff would
be forced to forgo some of the due diligence it planned to perform on the Plan, as discussed above. These due diligence efforts are directly related to the quantum changes that the Plan has experienced over the past three months. It also limits the amount of Council and community involvement that would go into shaping the final Plan.

To address the Consortium’s request, staff proposes an alternative recommendation for Council consideration. As an alternative, the City would enter into a Letter of Intent with the SPE and the three members of the Consortium identifying the key terms and conditions of the required contracts, including the rights and obligations of each of the five parties. This approach would ensure the parties quickly agree to the most essential terms and conditions and in any event would serve as the foundation of the contracts to be negotiated.

Project Risks
As Council considers staff’s recommendation and the alternatives, it is important to disclose potential risks in moving ahead with the broadband project.

Third Party Challenges
The nature of this project provides a very real threat to incumbent providers. Based on experience in other cities planning to build broadband systems, the City of Palo Alto can expect vocal and perhaps legal challenges from incumbent providers. Strong opposition occurred in such jurisdictions as Seattle, Alameda, Lompoc, and Truckee-Donner from cable and telecommunication companies. Despite efforts to minimize risk, it is likely there will be resistance from third parties trying to protect their significant infrastructure investment. Any legal action could delay initiation and/or implementation of the project. Staff would look to the 180 Consortium to indemnify the City against third party legal action.

SPE Risks
The SPE faces a number of risks in undertaking this project including:

a) Cost Over-Runs: Even with the experience the 180 Consortium brings to the project, cost over-runs can occur. Moreover, there are often factors affecting costs that can’t be controlled such as fuel price increases, material shortages, and labor cost increases.

b) Ability to Attract Service Providers: The 180 Consortium believes the Network’s attributes and characteristics are far superior to any existing network in the City today. Despite this fact, service providers may be reluctant to augment their delivery platforms and invest the money needed to market services in Palo Alto. Seattle, for example, has approached service providers to determine their interest in an open network. The providers indicated reluctance unless the City either guaranteed exclusive use of the system (in other words a closed system) or a specific level of business.
c) **Competition:** To protect their investments incumbent providers are likely to reduce rates to undercut competition. If price competition deprives the SPE of potential customers, it could threaten the SPE’s ability to remain in business. In Alameda, Comcast quickly reduced their rates when the city introduced its coaxial system. This led to lower than expected market share in Alameda and is one of the factors causing the city’s recent effort to sell its unprofitable system.

d) **Regulatory Risks:** During the course of the project, changes in applicable law and/or regulations may impact the project’s financial model, economic feasibility, or legal ability to operate.

e) **Technology Change:** Fiber optic systems offering 100 Mbps currently are considered the best technology to accommodate broadband needs in the future. By having such a system, Palo Alto will join countries such as Japan, Korea, France and Sweden striving to build out robust data transmission systems. Although the FTTH industry is an evolving and seemingly robust industry, there is always the possibility, especially in the technology arena, that fiber optics and Internet Protocol will be supplanted by another technology rendering the Network obsolete. At this time, the 180 Consortium is not aware of any potential treats to the technology proposed.

**Demand on General Fund if SPE Fails**
Should the SPE’s enterprise fail and another investor/operator is not found there may be a public expectation that the City assume responsibility for operating the system. The City’s current staff does not have the background or expertise to take over operations of the SPE enterprise. New staff would have to be hired and significant agreements would have to be negotiated with service providers to transfer operations from the SPE. If such expectations materialize, the Council would have to make a difficult policy and prioritization decision as it weighs the numerous, competing needs on City resources. The City could be saddled with customer obligations which cannot be met.

**Business and Ownership Changes**
Since their initial response to the City’s RFP, there have been numerous changes in both 180 Consortium company personnel and ownership. 180 Connect, for example, has been absorbed by two different companies. Axia is a relatively new and small company and it could potentially be purchased by a new company. Since such transitions are commonplace in the fluid world of telecommunications, it is possible that the City will be dealing with new and different owners of the SPE over time presenting some operational risk.

**Lack of Municipal Success in Delivering Broadband Services**
From research, discussion with staff in other jurisdictions, and talks with the Consortium, it is apparent that establishing a municipal broadband system is very much a work in progress. There is no “cookie cutter” approach to financing a system and, more importantly, no notable United States municipal success story to cite. The lack of a viable municipal model highlights risks to the City and Consortium with this project.
RESOURCE IMPACT

The 180 Consortium initially requested that the City dedicate resources of about $15 million to the project, the equivalent of 30 to 40 percent of the project’s capital cost. The Plan now requests as consideration contributions from the City of $13 million, representing about 30 percent of the project’s initial capital cost. The staff recommendation proposes no direct General Fund contribution, pledge or guarantee.

Under the Plan, it is anticipated that the City would receive a 5 percent franchise fee from each video service provider which utilizes the Network provided the video services are subject to a franchise fee. Parenthetically, in calendar year 2007, the City received franchise fees from Comcast in excess of $600,000.

The preparation of the Plan has required the devotion of staff time valued at approximately $60,000 through June 30, 2008. In July 2007, the Council authorized the use of Council Contingency funds in the amount of $65,000 to support the City’s role in the development of the Plan. To date, staff has utilized $30,000 of this amount to pay for consultant costs, leaving $35,000 in available Council Contingency funding.

Completion of the Plan and negotiation of contracts will require the continued devotion of significant staff and consulting resources. Staff anticipates it will exhaust the remaining Council Contingency money during this process. Staff would plan to return to Council as needed with a Budget Amendment Ordinance to pay for ongoing consulting assistance, including professional services rendered in connection with the negotiation of final contracts.

POLICY IMPLICATIONS

This report is consistent with the Council’s policy and program direction provided to staff.

TIMELINE

If Council directs staff to develop a final Plan, staff anticipates returning to Council in September 2008 for approval. Prior to returning to Council, the 180 Consortium plans to conduct a series of public education meetings throughout the City to discuss the Plan, answer questions and gather suggestions from community members. Following the Council’s approval of the final Plan, staff would proceed to finalize contract negotiations with the operator of the Network. Staff would plan to return to the Council for approval of the agreements that would clearly delineate the rights and obligations of the City and the Consortium members, including the SPE, as soon as possible after the September 2008 meeting.
If Council directs staff to enter into a Letter of Intent, staff would commit to presenting a draft Letter of Intent to the 180 Consortium by the end of July 2008. Staff would make every effort to return to Council in the September 2008 timeframe for approval of a final Letter of Intent. Following Council approval of the Letter of Intent, the parties would negotiate final agreements.

ENVIRONMENTAL REVIEW

The actions requested in this report do not constitute a project for the purposes of the California Environmental Quality Act.

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ATTACHMENTS:

Attachment A:  CMR:464:07  
Attachment B:  180 Consortium's Conceptual Business Plan Overview  
Attachment C:  Comparison of Municipal Broadband Projects
TO: HONORABLE CITY COUNCIL

FROM: CITY MANAGER

DEPARTMENT: ADMINISTRATIVE SERVICES

DATE: DECEMBER 17, 2007

CMR: 464: 07

SUBJECT: STATUS REPORT ON THE ULTRA-HIGH-SPEED BROADBAND SYSTEM BUSINESS PLAN

This is an informational report and no Council action is required.

BACKGROUND

On July 9, 2007, the Council directed staff to proceed with the development of an Ultra-High-Speed Broadband System Business Plan with the 180 Connect Network Services, Inc. Consortium (180 Consortium). The purpose of this report is to provide the Council with information on the status of the Business Plan.

DISCUSSION

The first phase of the Business Plan involved the collection of data about the City. During this phase, staff gathered extensive information about City assets, infrastructure, and facilities. In addition, staff provided the 180 Consortium with existing business case studies, business plans and customer survey documentation. Staff also identified and started to estimate the value of City assets that could be contributed to the project. The data collection phase of the Business Plan, for which City staff is responsible, is complete.

The next phase involves market research and a constructability review to determine the most economical method of Broadband System construction. This phase was initiated in September 2007. Field surveys are underway, and site meetings will be held with Utilities and Public Works in the near future. A residential telephone survey will be conducted by the 180 Consortium in December 2007 to determine the level of interest in the Broadband System-based services.

The final phase of the Business Plan will focus on the economic feasibility of the project. Staff anticipates returning to Council during this phase to obtain direction on the level and type of contribution the City is willing to make to the project. It is expected that this phase will be initiated in early 2008.

The 180 Consortium originally anticipated it would take 6 months to complete the Business Plan. There have been several significant changes involving 180 Consortium members that have impacted progress on the Business Plan, as follows:
1) The original Consortium consisted of 180 Connect Network Services, Packet Front, and the Royal Bank of Canada (RBC). A new member, NorthStar Capital Partners (NorthStar), joined the Consortium as a representative of RBC, providing financial advisory services to the project. Jeffrey Mazer, a partner, represented NorthStar. In August 2007, Jeff Mazer was hired by Packet Front as its Head of Finance for the Americas. Mr. Mazer will continue his role of coordinating financing for the broadband project and NorthStar will no longer participate in the Consortium.

2) In August 2007, 180 Connect Network Services became a wholly-owned subsidiary of Ad. Venture Partners (AVP). AVP changed its name to 180 Connect Network Services. This merger provides the former 180 Connect Network Services with a cash infusion that gives it additional financial flexibility.

3) In July 2007, Packet Front acquired DynamicCity, the only other firm that had responded to the City’s Broadband Project Request for Proposals (RFP).

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Overview

June 16, 2008
Overview

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OVERVIEW

Background, Goals and Objectives

The City of Palo Alto, California ("Palo Alto" or "City") intends to facilitate the creation and development of an ultra-high-speed broadband network (referred to as a Fiber to the Premise network (FTTP) in this document) offering advanced communications services to the community’s residents, businesses, schools, and government facilities. This proposed "last-mile" citywide active Ethernet fiber optic network will provide a platform for innovative broadband applications, as well as serve as essential infrastructure for ensuring the City’s long-term educational growth; further enhance the City’s status as the country’s premier center for leading-edge technology companies, and provide a practical means to reduce the City’s carbon footprint while conserving resources.

As stated in its September, 2006 Request for Proposal (RFP), primary goals of the City’s broadband system:

1. Provide each customer with access to a minimum bandwidth of 100 megabits per second symmetrical service;
2. A network capable of delivering at least data, video, and telephony services; and
3. Eventual City ownership of the network

In addition to these primary goals, the City listed the following objectives:
- An open system (providing free market competition among multiple providers)
- Network neutrality, and
- Minimize financial risk to the City

This Overview outlines how all City goals will be achieved, and more.

The City, as the result of an RFP process, recognized 180 Connect and PacketFront as the most suitable entities ("Consortium" or "Consortium members" or "Consortium partners") for developing and implementing Fiber to the Premise for Palo Alto. Recently, Axia NetMedia joined the Consortium for the purpose of not only providing the necessary capital to build the network, but also to apply its technical and management expertise to operate the network, effectively replacing RBC Capital Markets, which had previously expressed an interest in possibly financing this initiative.

180 Connect and PacketFront, in addition to their success and expertise in developing FTTP networks around the world, are major proponents of the City-requested open access operating model, and will, subject to negotiating and entering into separate agreements with the as-yet to be formed Special Purpose Entity (SPE), build the network and deploy proven open access technologies.
Axia NetMedia Corporation (Axia) is a Calgary, Alberta, Canada, fiber optic network management company with a global vision. Axia stock is listed on the Toronto Stock Exchange and trades under the symbol AXX. The company primarily operates fiber optic networks exclusively at the wholesale level, and currently provides guaranteed connectivity to ninety-four service providers on the Real Broadband™ open access Alberta SuperNet. Axia also serves as the independent "operator of operators" exclusively at the wholesale level for a dozen open access fiber networks serving communities throughout France. Axia has reviewed in detail the Consortium's Overview and concurs with its assumptions and conclusions.

The Consortium respectfully submits this Overview for the purpose of requesting that the City Council:

(a) accept in principle the Consortium's overall conceptual model for achieving the City's goals and objectives, and

(b) authorize and direct City staff to commence negotiations necessary to develop the agreements that, once negotiated to City staff's and Consortium's mutual satisfaction, will allow for the completion and submission to the City Council seeking approval.

The Consortium's overall conceptual model consists of these essential elements:

- The formation by Axia NetMedia Corporation of a Special Purpose Entity (SPE) that will fund, own, build, and have sole management authority and responsibility for operating the proposed lit fiber optic network throughout the city of Palo Alto

- The SPE will operate the network on an open access, wholesale basis, which means any qualified service provider of broadband retail services will have competitively neutral, non-discriminatory access to the network for the purpose of selling its retail services to all residences and businesses

- The SPE will negotiate and enter into mutually satisfactory long-term agreements with the City relating to the SPE's use of, and access to, those certain existing City network facilities, including, for example, existing dark fiber assets

- Based on the City's commitment to negotiate and enter into such mutually satisfactory long-term agreements for use of the City's existing facilities with the SPE, Axia will commit to make the capital investment necessary to become the 100% owner of the proposed SPE

- The City will research various ways to use the new SPE network and will commit to seek bids from service providers on the SPE network, each time, following a Request for Quotation (RFQ) process, that seeks competitive bids for services that could be delivered on or off the SPE network

- The City will not be required to fund any portion of the network's deployment or operations, and will maintain a strictly commercial transactional relationship with the SPE
• The SPE will assume contractual responsibility and operational control over the City’s existing dark fiber customers

• The SPE will separately negotiate and enter into mutually satisfactory agreements with 180 Connect and PacketFront for the building of the network and purchase of hardware and software

• The City, subject to the terms and conditions of its various agreements with the SPE, will retain a reversionary interest in both its existing network facilities and any new facilities deployed and operated by the SPE

The goals earlier outlined by the Palo Alto City Council are completely in sync with the recent recommendations of the California Broadband Task Force (CBTF) contained in its final report released January 2008 (The State of Connectivity: Building Innovation Through Broadband). The CBTF made specific recommendations for more and greater access to bandwidth in order to allow its citizens to take greater advantage of the economic and educational opportunities that such access brings.

“Just as California has invested in other critical infrastructure such as roads, electricity, and water, the CBTF believes that the state must seize the opportunity to promote private-sector investment, leverage public/private partnerships, and lead the effort to increase broadband availability and adoption. But unlike roads, electricity, and water, California’s investment in broadband should not be limited to physical infrastructure, but instead should include policies to increase adoption of broadband technologies. Increasing both access to, and use of, broadband will build economic capital, strengthen public safety resources, improve living standards, expand educational and healthcare opportunities, and raise the levels of civic engagement and governmental transparency. In addition to growing consumer needs, business, research, government, education, library, healthcare, and community institutions require high-speed connectivity to:

• Share information
• Promote environmentally friendly technologies such as telecommuting, video conferencing, and high-quality video collaboration
• Provide distance-learning opportunities
• Enable remote analysis of medical information
• Foster a greater civic discourse”


The City, in cooperation with its selected Consortium members, proposes a network architecture and non-exclusive business model that eliminates high-cost barriers to entry for competitive service providers, as well as eliminates the existing incumbent operators’ bottle-neck control at the edge of the network where end users reside. The proposed active Ethernet fiber optic network will operate on an open access, non-discriminatory basis, meaning competitive service providers can easily obtain access to the network under competitively neutral terms and
conditions. As the operator of the lit network, the SPE (which would be a wholly owned subsidiary of Axia), will manage the network and work with retail service providers on a wholesale basis only; Axia itself will not provide any retail services. Retail service providers will consist of qualifying legal entities that offer voice, video, data, and/or other services such as distance learning, security, gaming, wireless communications, energy management, resource conservation, medical services, data backup and storage, hosted applications, and more to the businesses and residents of Palo Alto. The nearly unlimited capacity of the proposed active Ethernet fiber network can enable 100 Mbps dedicated, symmetrical (uplink and downlink speeds are the same) bandwidth services to those Palo Alto addresses who desire this service. Higher bandwidth services will also be available for residents and businesses which desire it.

One of the Consortium members, PacketFront, today has seventy-eight clients spread across more than twenty countries. Many of those leading municipalities are in the Scandinavian countries and are of a similar size and scale to Palo Alto with successfully deployed open access networks.

PacketFront recently secured a contract with the City of Vienna, Austria, to supply hardware and software technology to build one of the largest open access municipal networks in the world.

Like the City of Vienna, the City of Palo Alto has determined that a FTTP open access network operated with an Internet Protocol-centric ("IP-centric") platform will provide the attributes most important for sustaining innovation and long-term community growth. Fiber optic technology ranks highest for networking reliability, includes massive capacity, and offers nearly infinite upgradeable potential, all of which will provide the community with a resilient future-proof infrastructure to support current and future growth. In a nutshell, the symmetrical IP-centric transport architecture proposed for Palo Alto will be superior to existing networks, not only in the community but at minimum throughout Silicon Valley, thereby ensuring that the City will enjoy a competitive advantage in the marketplace.

The proposed network for Palo Alto will be deployed in phases and will be completed on a citywide basis within three years, allowing all citizens and businesses the ability to leverage the network and thereby maximize their educational, economic, and resource conservation opportunities. One of the phases under review (known as Phase 4) includes the area west of Interstate 280. Service to these homes and associated costs will be negotiated in the Agreement, assuming the City Council endorses this approach at its July 14, 2008 meeting.

As is explained in more detail below in the Financial Overview and Assumptions section, the capital necessary for the development, construction, and operation of the network will come from funds external to the City. Moreover, it is anticipated that any agreements the City negotiates with the SPE for use of existing facilities such as agreements for the use of existing dark fibers, a sub-operating agreement for elements of the dark fiber network, or certain usage agreements of the SPE network itself, the City, as part of the overall consideration for entering
into such agreements, will reserve reversionary interest rights in both its own existing facilities and any new facilities deployed by the SPE. Reversionary interest rights may be triggered, and may be immediately exercised by the City, at anytime during the life of the agreements should certain circumstances arise.

To ensure that the network design achieves the maximum usefulness for carrier, retail, government, utility, medical, and academic applications, the development and implementation process will include the creation of focus groups that reflect and address the overall community's needs and concerns.

Implementation of the proposed network will enable, among others, the following specific benefits:

- Offer residents in the city choice of economical ultra-high-speed Internet access, data transport, video, voice services, and much more
- Provide subscribers the freedom to choose from multiple service providers
- This “real” broadband network will truly enable work-from-home scenarios and the ability to effectively video conference, reducing or time-shifting commute traffic that has created congestion on some city streets
- Provide a clean, swift, robust network that can help meet the City’s goal to reduce its carbon footprint while conserving resources
- Provide ubiquitous lit fiber access throughout the city and a platform for future services and applications, including mobile services for Internet access, public safety, natural resource conservation, and other applications
- Service providers will operate on a level playing field with a low barrier of entry (they make no network infrastructure investment), enabling them to compete solely based on reliability, products, features, price, and customer service
- Enable more City departments to utilize the network and develop cost-effective and resource-saving applications for improving or implementing services such as advanced resource management, and real-time account information that will be of growing value to residents and businesses

For all residents and businesses, the standard of services and proposed pricing will be significant and beneficial. Our experiences have demonstrated that retail rates for various residential and business services on this network will not only be very competitive, but compelling by design. Ultimately, each retail service provider on the SPE managed infrastructure will set the rate for each service it offers. Some examples of these services are outlined in the Financial Overview and Assumptions section.

Finally, this proposed FTTP infrastructure asset will do much more than enable triple-play voice, video, and data services. It will function as a core asset and enabler for enhancing the City's quality of life, improving and increasing community-offered services, attracting and maintaining quality businesses and professionals, and building stronger neighborhoods and community. This open access network, featuring the availability of abundant bandwidth at affordable rates, will
contribute toward the City’s goal of community engagement whereby the City itself can offer services directly on the network. Communities of interest on any subject can easily be formed on the network, sharing information or video broadcasts neighbor to neighbor over extremely high-speed intranet connections that will not have to go on the Internet for transport. The open access operating philosophy will ensure a level playing field for all service providers, as well as the deployment of a non-exclusive network that will, among other things, strongly encourage creativity and innovation, the lifeblood of Palo Alto and all of Silicon Valley.
Roles of the Parties

The participants of this endeavor include the City of Palo Alto, 180 Connect, Inc., PacketFront Inc., and Axia NetMedia Corporation.

City of Palo Alto

The City has provided the overall vision for the project and will continue to play a critical role in many facets of its implementation—particularly with respect to what the Consortium views as an essential requirement: that the City commit to negotiate and enter into a number of mutually satisfactory agreements with the SPE for both the use of certain existing City facilities and network usage. That is, to facilitate the creation of the network, and in consideration of the SPE’s committing to the City’s objectives as outlined in its RFP, which includes the City’s ultimate ownership of the network, the City would provide the SPE with access to key existing infrastructure on a contractual basis. Additionally, the City would commit to seek bids from service providers on the SPE network and each time issue a Request for Quotation (RFQ) seeking competitive bids for services that could be performed on or off the SPE network.

180 Connect, Inc.

The project requires a design, engineering, construction, and project management resource. 180 Connect is well-suited to provide these services, and is viewed as an FTTP industry leader. Responsibilities that will likely be assigned to 180 Connect include:

- Initial network planning, field design, and permitting
- Construction, system equipment installation
- Customer installation and activation
- Maintenance, repair, and trouble calls

PacketFront Inc.

PacketFront provides industry leading open access technology systems and advanced open access know-how and experience. PacketFront will supply access hardware, home gateway devices and required software applications to the SPE. Additionally, PacketFront has worldwide experience with multiple municipalities and community networks in all facets required to launch a successful open access FTTP network.

Axia NetMedia Corporation

Axia NetMedia Corporation (Axia) brings two critical elements to the FTTP initiative: (1) capability and willingness to make the capital investment necessary to build and manage the proposed Palo Alto broadband network (which provides a level of validation to the business model); and, (2) extensive professional experience as an independent open access fiber optic network operator at the wholesale level. Axia has studied the market opportunity, operational methodology, project participants, and financial models for this initiative. Owing to the vision provided by the City and the experience of Consortium members, Axia has indicated a
willingness to 100% fund the SPE—provided the City commits to negotiate and enter into mutually satisfactory agreements with the SPE.

It is imperative that the Consortium members, including Axia, gain an understanding as soon as possible regarding the City’s commitment to negotiate “right to use” agreements with the SPE. These agreements, among other things, would provide the SPE with access to, and use of, the City’s existing network facilities, including the dark fiber sub-operations contract with commercial customers. From the Consortium’s perspective, such commitment is a crucial prerequisite to moving the project forward.

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<td>Service Providers (SPs)</td>
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| Customer Relationship    | Wholesale                   |                                |                |                          |                       |                     |                 |                            |
| Allocation of Revenues   | To the SPE                   |                                |                |                          |                       |                     |                 |                            |
| City involvement         | Minimal – contracts to the SPE for the rights to use already existing assets such as the requested dark fiber strands |                                |                |                          |                       |                     |                 |                            |
Structure and Governance – How is the City involved? What benefits might the City obtain?

The proposed structural and governance model is calculated, to the maximum extent practicable, to insulate the City from risks of loss that may arise in connection with funding, owning, building, or operating a FTTP network. To that end, it is proposed that the formation of a Special Purpose Entity (SPE) occur for the purpose of financing, building, owning, and operating the FTTP network on an open access wholesale basis. The City would simply enter into various contractual agreements with the SPE, including the rights to use some existing City assets that would benefit the SPE by offsetting some of the required total capital costs necessary to construct the network.

Additionally, the City may commit to use the Palo Alto network operated by the SPE among a specific number of City sites where IP services are needed. The actual rate the City would pay for this service would be determined by a Request for Quote (RFQ) process where multiple retailers on the SPE network provide service such as dedicated broadband service and voice over Internet Protocol (VoIP) services, and would compete for the City’s business.

Upon the City’s confirming its commitment to commence negotiating the various previously mentioned agreements with the SPE, Axia would then proceed to form and commit to privately fund the SPE, as well as commit to negotiating and entering into separate agreements with 180 Connect and PacketFront for the building and required solution purchase relating to the deployment of the FTTP network. The SPE would proceed to entering into these negotiated agreements with 180 Connect and PacketFront only in the event City Council subsequently approves the City’s entering into the various contractual agreements with the SPE. Upon obtaining City Council approval, the SPE would immediately execute its separate agreements with 180 Connect and PacketFront.

For its part, the City, through entering into negotiated agreements with the SPE, would, as part of its overall consideration for such agreements, achieve its underlying goals and objectives as stated in the original RFP, including ultimate ownership of the infrastructure at the end of twenty-five years. The estimated total construction costs are $44.2 million with the objective of the City providing value using the listed considerations below to arrive at approximately 30% of this total, or approximately $13 million in value. The exact value of the respective exchanges of consideration will be determined in the months ahead in conjunction with the specific agreements and proposed contracts between the City and SPE. The current considerations for the City include:

A. Granting the SPE a “right to use” agreement for at least 36 fibers with access to required facilities on the City’s existing dark fiber transport network. The estimated value to the SPE, to use these 36 fibers, at this time is approximately $4.4 million.

B. A commitment that the City will use its best efforts to use this network and take service from retailers on the SPE network, following a typical RFQ process. This will ensure the most competitive pricing for the City. This should initially include all Government/Administrative locations, and hopefully, would also include all facilities, such as libraries, with a specific data service requirement. Additionally, when the current
I-Net contracts with Comcast expire in 2010 that include school locations and the Media Center, these should be considered for service provision via a retailer on the open fiber network as well. Given that the proposed network will deliver advanced communications at affordable rates, we believe that the City, all schools in town, including Stanford University, and the Media Center, will view this network as a critical and competitive communications and data alternative. Some of the many benefits are listed below. The estimated value of City commitment to use the SPE network is currently unknown, and will require further research by both staff and Consortium members.

C. A sub-operations contract from the City to the SPE for the approximately forty-five commercial clients on the dark fiber network. Administration of dark fiber licenses, and the maintenance of those fibers underlying those licenses, could be performed by the SPE at a considerable cost saving to the City. Those commercial clients wishing to remain on dark fiber services would continue to be accommodated from an operational and pricing perspective by the SPE. The revenues that the City gains from the commercial clients of the dark fiber operations could be allocated to the SPE for performing the sub-operations contract. The estimated value to the SPE of this consideration cannot yet be determined and requires further research by staff and Consortium members.

D. The City grants the SPE a “right to use” agreement for the fiber that remains from the FTTH Trial that was discontinued in 2005. The estimated value to the SPE of this right to use at this time is approximately $100,000.

E. Provide access to electric conduit or secondary spare conduit where applicable to the SPE on a to-be-determined basis. Additionally, consideration could be given to the SPE regarding the fees associated with street cuts. These estimated values are unknown at this time and require further research by Staff and Consortium members.

F. Subject to the City providing value to the SPE, after twenty-five years, the entire network investment made by, or benefiting the SPE, within the city of Palo Alto may be acquired by the City by exercising its right of first refusal option for $1.

G. Provided the network operator has performed its role in an exemplary manner during its first twenty-five year agreement, it wishes to ensure it is extended the opportunity to continue to perform as the network operator under a ten-year renewable contract.

The Consortium members believe that if agreement can be arrived at on all, or most of the above points, including determining mutually agreed upon values, that contracts should be negotiated and prepared to reflect these considerations to the SPE. Again, the objective of these City considerations is to achieve the approximate 30% value (approximately $13 million) that the SPE seeks as a basic guarantee to provide its investment of more than $30 million into the fiber network infrastructure for the City of Palo Alto.

As noted earlier, we believe it is critical and beneficial that the City use this network to take advantage of the services it can offer, not only between its own City locations, but also in meeting some of the City’s stated goals of community involvement. By having one common fiber optic network to which all residents and businesses may connect, this provides the
opportunity to enjoy City services as if they were provided directly on the network. This could
erode a real sense of civic engagement. It could include video conferencing direct between a
school teacher and a parent at home, or it could include a direct conversation between a staff
person in a City department and a member of the Palo Alto community. Community events may
be broadcast by the Media Center real time on the network or directly by any network user.
Local health and educational facilities may provide direct services on the network to residences
or businesses. Healthcare applications may run on the network, video conferencing and basic
diagnostics is now a reality over networks like this and can occasionally eliminate the cost of
transporting those in need across town to healthcare facilities. Real time information can be
provided by the fire department, police and transport services, as well as future utility services,
such as automated meter reading.

The City itself would also enjoy ultra-high-speed connections provided by a choice of Internet
and voice over IP (VoIP) providers with no long term contracts required. Indeed, there is a
significant opportunity for savings on voice alone. When the City is connected to the SPE
network, telephone services and features should be significantly lower in cost than the City’s
current $500,000 annual telephone expense. This network would also provide the City with real
back-up and disaster recovery programs. Leveraging the network and ensuring security of all
essential City information would be quite simple. Finally, besides the broader economic benefits
of attracting and retaining residents and companies in Palo Alto, the network offers clean and
powerful tools enabling everyone to create and implement ways we may reduce our carbon
footprint.

Project Timeline Forecast

The entire citywide build-out is expected to take up to three years from the completion of
funding. The project will proceed in construction phases of deployment, preceded by pre-
construction planning and preparation phases. One of the phases (Phase 4) being considered
would make fiber network services available to the majority of Palo Alto properties west of
Interstate 280. This would add approximately $2 million to the SPE capital budget but nothing
to the timeline. Detailed engineering for this area will occur in the event the City Council
approves the overall Plan concept at its July 14 meeting, and how Phase 4 may be included will
be part of the negotiation process.

Assuming the City Council, during its July 2008 meeting, directs staff to negotiate definitive
agreements with the SPE formed by Axia, including specific language for proposed contracts as
outlined in this Plan, the first residences and businesses could be marketed and demonstration
locations connected to the fiber network before the end of the year. As is the case with all
infrastructure-intensive projects, construction progress may be accelerated or delayed by a wide
variety of known reasons and unforeseen factors.
Services on the Palo Alto Network

As an essential part of the design process, the parties identified network characteristics that are essential to providing today’s high quality services, as well as to positioning the network for future services and applications, and to make the network as “future proof” as possible. The design criteria require a network that is scalable to grow with demand, flexible enough to integrate multiple applications on the same data stream, and adaptable for “plug-and-play” future applications such as Wi-Fi/WiMax and automated meter reading services. The active Ethernet design offers qualities that are most complementary to those identified in the design process, and can be engineered to accommodate global standards that will provide a relatively easy interface for service providers. These qualities will accommodate services which can be identified today and provides an efficient and scalable transport layer for future applications.

The Palo Alto network, as designed, will accommodate:

- **Voice**
  - Local voice (POTS)
  - Long distance voice
  - Voice over Internet protocol (VoIP)

- **Internet and data services**
  - Ultra-high-speed Internet (up to 1 Gbps symmetrical, depending on the service provider)
  - Home automation
  - Automatic Meter Reading (AMR)
  - Security, residential and commercial
  - Gaming
  - Streaming audio
  - Data storage and web hosting
  - Remote personal computer backup
  - Tele-education
  - Tele-healthcare
  - Tele-medicine
  - and much more

- **Video**
  - Internet protocol television (IPTV)
  - Digital video
  - Video on demand (VOD)
  - High definition television (HDTV)
  - 3D high definition television (3D HD)

- **Wireless**
  - 2.4 MHz (Wi-Fi)
- 2.5 MHz (WiMax)
- 4.9 GHz (Public Safety)

Service providers (SPs) will provide retail services directly to residents and businesses over the FTTP network—regardless of their service or application. The service provider industry is represented by traditional telephone companies (or incumbent local exchange carriers (ILECs)), competitive local exchange carriers (CLECs), wireless service providers and cable television providers.

Axia and PacketFront plan to broaden the scope beyond the traditional service providers and actively recruit companies that are developing interactive gaming, distance learning, healthcare and medical applications, as well as other applications that drive the desire to be connected, which, in turn, will tend to increase network take rate and usage. With the symmetrical bandwidth proposed, and the open access approach, this proposed community fiber network becomes a “production” environment for local service innovation, telecommuting, and economic development, rather than the current “consumption” model enforced by the incumbent service providers today where their services are the only option. This opportunity can enable services to be local to Palo Alto, local to the economy and enable local creativity. Additionally, there are multiple service providers connecting through the Palo Alto Internet Exchange (PAIX) that we believe will be interested in offering service to the residents and businesses of Palo Alto.

Indeed, it is expected that the network will host many innovative applications, community-oriented and otherwise, that are developed and utilized first by other residents and businesses within the community. The network will be an ideal test bed for innovative new products and services. We expect this to be attractive to new companies and individuals that may want to consider Palo Alto their home, but we also believe this network, and the services it will support will become a key reason that many companies and friends remain in Palo Alto. That will help build a stronger community and better neighborhoods. The “open” network approach will enable many application companies to test or run new services and applications that could be customized for the community, or certain communities or businesses of Palo Alto. Any business or resident that is connected will have the option to subscribe to any service provider or service on the network should they desire.

A portal is an easy means by which residents and businesses can access their services and providers can host these community applications. Below is an example of this concept shown in the user portal for the City of Vasteras, Sweden. Users select their services and information by clicking on the various buildings.
Open Network Design and Functionality

The open network design is intended to remove traditional barriers to entry caused by infrastructure costs and incumbent local providers who operate closed networks where they are the only service provider option. The network design will provide common fiber interconnection points, such as the Palo Alto Internet Exchange (PAIX), for service providers to interconnect with the network. This will enable them to employ the FTTP network as a seamless extension of their own. The active Ethernet fiber design was selected due to its low operating cost, robust capacity, wide adoption as a preferred medium for transport, and the case with which any network element can be upgraded.

The operating support system designed by PacketFront will enable the operator (Axia) to remotely manage, maintain, and electronically provision access to the network in real time. Furthermore, the software can isolate and identify individual application data streams and program them into an interactive customer portal that will allow the individual end user to make changes to their selected services and/or service provider with the click of a mouse. Tailored services will be available for specific users or businesses and, indeed, services can be launched that will be available for certain communities of interest.
Financial Overview and Assumptions

This FTTP project will require significant capital resources for the development, construction, and operation of the network. The overall capital investment in the community over the next three years is expected to be at least $44.2 million. The business model assumes approximately 30% of this amount will be based on the value of access to certain existing facilities, operational contracts, and support contracts with the City of Palo Alto granted through various agreements.

The proposed Special Purpose Entity (SPE), which will be formed as a wholly owned subsidiary of Axia, will finance, build, own, manage and operate the FTTP network. Axia will fund the SPE through a private investment of at least $30 million—with the actual amount of this initial investment subject to final confirmation by Axia based upon confirmation of the City’s exact contractual commitments.

After carefully reviewing the capital expenses, operating expenses, expected take rates, the average revenue per user (ARPU), and in general, this conservative business model, Axia believes there is a strong business case for building a broadband network in Palo Alto. The economic fundamentals we have used as the baseline for this recommendation are expected take rates, revenue forecasts, cash flows, capital expenses, operating expenses, and financing structure. All of the results produced positive indicators to the strength of the business case.

A few highlights:

- Positive Operating Cash Flow in Year Two
- Positive Free Cash Flow in Year Four
- Estimated $44.2 million total cost to build
- Estimated minimum $30 million capital required from SPE, with ~$13 million value in various forms (facility use agreements, other sub-contracts, etc.) from the City
- Network Build-out within Three Years
- 45% Market Penetration in Year Five
- Annual Revenue of $13.8 million in Year Five

Given the results projected above, developed using reasonable market-based assumptions, we believe the business opportunity that this presents is highly attractive—to the point where Axia is willing to commit to fund the SPE 100% through its own private investment, subject to certain negotiated conditions being met by the City.

Customer Assumptions

The following data is a summary of the assumptions used for the first five years of network deployment in Palo Alto. All data was summarized based on the most current geographic information system (“GIS”) data available, which was provided by the City. This data provided the Consortium with a basis for determining a total premise count for the City covering residential and business parcels. In this Overview, we have used a very conservative estimate of one marketable subscriber per parcel or premise.
Palo Alto - Total Market

The total Palo Alto residential parcel count consists of 16,920 fiber connections serving approximately 23,000 residences. The total Palo Alto market for businesses consists of 3,959 fiber connections that can serve approximately 5,000 businesses. It is estimated that the total number of marketable Palo Alto subscribers could exceed 28,000. The Consortium is currently studying those areas in Palo Alto that are less densely populated, primarily west of Interstate 280, with the goal of creating a cost-effective program to serve those prospective customers, referred to as Phase 4.

Palo Alto - Premises Passed

When construction of the network modeled in this Plan is completed by the end of Year Three, this business plan assumes 20,879 premises will be passed by the network. As noted earlier, it is estimated that the total number of marketable subscribers could exceed 28,000.

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential Premises</td>
<td>7,614</td>
<td>12,182</td>
<td>16,920</td>
<td>16,920</td>
</tr>
<tr>
<td>Business Premises</td>
<td>1,782</td>
<td>2,850</td>
<td>3,959</td>
<td>3,959</td>
</tr>
<tr>
<td>Totals</td>
<td>9,396</td>
<td>15,033</td>
<td>20,879</td>
<td>20,879</td>
</tr>
<tr>
<td>% of total built</td>
<td>45%</td>
<td>72%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Anticipated Market Share

The anticipated residential market share is based on four primary factors: historical market research data in Palo Alto, 2007 FTTH market research data provided by RVA Market Research & Consulting, a competitive response from existing service providers, and PacketFront's experience on similar open access community networks. Compiling those various data points, the projected residential subscriber premise take rate on the Palo Alto FTTH network is expected to reach 45% over a span of five years. The residential premise take rate of 45% is not expected to fluctuate significantly over Years Six through Nine.

Additional market data was considered in building the business premise take rate assumptions, such as comparable bandwidth services from existing providers and current market pricing. As a general guideline, the Palo Alto FTTH network, operating with the open access business model, will be capable of offering approximately five times the amount of bandwidth when compared to the incumbent providers, at equal to or below market rates. Conversely, equivalent bandwidth options would be available at a fraction of current market pricing. With the capacity available and pricing advantages, the Palo Alto FTTH network would hold a strong advantage over existing providers. Therefore, the Consortium has projected a very conservative business premise take rate assumption, starting at 25% in Year One and ramping up to 45% by Year Five.

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>25%</td>
<td>30%</td>
<td>35%</td>
<td>40%</td>
</tr>
<tr>
<td>Business</td>
<td>25%</td>
<td>30%</td>
<td>35%</td>
<td>40%</td>
</tr>
</tbody>
</table>
Figure 1—Take rate forecast growing to 45% is reasonable compared to the performance of other networks. This graph examines the performance of other FTTP projects, including FiOS and Orem, Utah (part of UTOPIA). Municipalities also represent a range of experiences and, for the purposes of this analysis, we excluded those cities which operate the network and also provide retail services.

**FTTP Connections**

By taking the number of available parcels passed by the network and combining that data with anticipated take rates, we can estimate the number of FTTP connections that will be available each year. This number is not expected to fluctuate significantly over Years Six through Nine.

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential Premises</td>
<td>1,904</td>
<td>3,655</td>
<td>5,922</td>
<td>6,768</td>
</tr>
<tr>
<td>Business Premises</td>
<td>445</td>
<td>855</td>
<td>1,386</td>
<td>1,584</td>
</tr>
<tr>
<td>Total</td>
<td>2,349</td>
<td>4,510</td>
<td>7,308</td>
<td>8,352</td>
</tr>
</tbody>
</table>

**Services Assumptions**

**Residential Services**

It is assumed that the Palo Alto network will host the following services at a minimum:

- ISP (Data/Internet) services at various levels
- IP Telephony (Voice)
- IPTV (Video)
- Video on Demand
- Gaming
- Triple-Play (Voice, Video and Data)
This model assumes that all residential subscribers will take a data service at a minimum, because the data solution offered over the FTTP network will be our greatest differentiator against the incumbents. It also provides the highest financial return. Our current position today, depending on the service, the network owner’s (SPE) share of revenue will be based either upon a percentage of the retail rate or upon a fixed share of the revenue. All data services, if purchased separately, will bring a 50% revenue share to the network owner. The rest of the services will provide a flat rate revenue share for the network owner. (These projections can, and likely will change.)

Retail rates for various residential and business services on this network will be not only competitive, but compelling by design. Ultimately, each retail service provider on the SPE-managed infrastructure will set the rate for each service it offers.

**Current residential service and price assumptions**, based on the forecast for take rates, the number of subscribers, and market conditions, are:

<table>
<thead>
<tr>
<th>ISP Services</th>
<th>Monthly Retail Fee</th>
<th>Fixed Revenue Share</th>
<th>SPE % Revenue Share</th>
<th>% of Subscribers Taking Service</th>
<th>SPE Annual Revenue Per Subscriber</th>
</tr>
</thead>
<tbody>
<tr>
<td>- ISP Light – 1 Mbps</td>
<td>$9</td>
<td>0</td>
<td>50%</td>
<td>20%</td>
<td>$11</td>
</tr>
<tr>
<td>- ISP Base – 5 Mbps</td>
<td>$29</td>
<td>0</td>
<td>50%</td>
<td>60%</td>
<td>$104</td>
</tr>
<tr>
<td>- ISP Adv – 20 Mbps</td>
<td>$39</td>
<td>0</td>
<td>50%</td>
<td>15%</td>
<td>$35</td>
</tr>
<tr>
<td>- ISP Pro – 50 Mbps</td>
<td>$49</td>
<td>0</td>
<td>50%</td>
<td>5%</td>
<td>$15</td>
</tr>
<tr>
<td>Weighted Annual Revenue</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$165</td>
</tr>
<tr>
<td>IP-Telephony (Voice)</td>
<td>$25</td>
<td>5</td>
<td>0%</td>
<td></td>
<td>$60</td>
</tr>
<tr>
<td>IPTV</td>
<td>$45</td>
<td>6</td>
<td>0%</td>
<td></td>
<td>$72</td>
</tr>
<tr>
<td>VoD</td>
<td>$30</td>
<td>5</td>
<td>0%</td>
<td></td>
<td>$60</td>
</tr>
<tr>
<td>Gaming</td>
<td>$30</td>
<td>5</td>
<td>0%</td>
<td></td>
<td>$60</td>
</tr>
<tr>
<td>Bundle 1 - Voice, Video, Data</td>
<td>$100</td>
<td>35</td>
<td>0%</td>
<td></td>
<td>$420</td>
</tr>
</tbody>
</table>
Business Services

Business services are priced somewhat differently. Initial installation (activation or start-up) fees for business service activation and a free base-level local transport service are in the model. The free base-level local transport service will allow schools, businesses, non-profits, and government facilities (after a one time start-up fee) to transport data within the network using a 1 Mbps connection for no monthly charge, improving connectedness for the public sector all over Palo Alto.

<table>
<thead>
<tr>
<th>Service</th>
<th>Monthly Retail Fee</th>
<th>SPE % Revenue Share</th>
<th>% of Customers Taking Service</th>
<th>SPE Share of Start Fee</th>
<th>SPE Annual Revenue Per Customer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local Transport Access</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Mbps</td>
<td>$250</td>
<td>$0</td>
<td>100%</td>
<td>60%</td>
<td>$150</td>
</tr>
<tr>
<td>25 Mbps</td>
<td>$250</td>
<td>$300</td>
<td>100%</td>
<td>20%</td>
<td>$50</td>
</tr>
<tr>
<td>100 Mbps</td>
<td>$500</td>
<td>$1,000</td>
<td>100%</td>
<td>15%</td>
<td>$75</td>
</tr>
<tr>
<td>1 Gbps</td>
<td>$500</td>
<td>$2,000</td>
<td>100%</td>
<td>5%</td>
<td>$25</td>
</tr>
</tbody>
</table>

Weighted Annual Revenue—Local Transport

ISP Services

- ISP Light – 1 Mbps
  - Revenue: $200
  - Monthly Retail Fee: $110
  - SPE % Revenue Share: 50%
  - % of Customers Taking Service: 60%
  - SPE Share of Start Fee: $120
  - SPE Annual Revenue Per Customer: $396

- ISP Base – 5 Mbps
  - Revenue: $400
  - Monthly Retail Fee: $300
  - SPE % Revenue Share: 50%
  - % of Customers Taking Service: 20%
  - SPE Share of Start Fee: $80
  - SPE Annual Revenue Per Customer: $360

- ISP Adv – 25 Mbps
  - Revenue: $400
  - Monthly Retail Fee: $1,000
  - SPE % Revenue Share: 50%
  - % of Customers Taking Service: 15%
  - SPE Share of Start Fee: $60
  - SPE Annual Revenue Per Customer: $900

- ISP Pro – 50 Mbps
  - Revenue: $400
  - Monthly Retail Fee: $1,500
  - SPE % Revenue Share: 50%
  - % of Customers Taking Service: 5%
  - SPE Share of Start Fee: $20
  - SPE Annual Revenue Per Customer: $450

Weighted Annual Revenue—ISP Services

- Revenue: $280
- ISP Annual Revenue Per Customer: $2,106

IP-Telephony (Voice)

- Revenue: $200
- Monthly Retail Fee: $40
- SPE % Revenue Share: 25%
- % of Customers Taking Service: 4
- SPE Share of Start Fee: $800
- SPE Annual Revenue Per Customer: $480
Revenue Assumptions

With the projected take rates, service and price assumptions in mind, the annual revenue forecast approaches $14 million by Year Five. Furthermore, based on the higher unit pricing per service, the annual revenues generated from business sales are significantly greater than those generated from residential customers.

On an annual basis, business revenues are significantly higher than residential
Average Revenue Per User (ARPU)

The average revenue per user (ARPU) is expected to be considerably greater for business users than for residential users. Based on anticipated take rates for specific services described in the Service Assumptions section, as well as on the anticipated retail rates for those services and the SPE’s revenue share, the network is estimated to collect approximately $500 in monthly revenue per business and approximately $35 in monthly revenue from residential services, per household. These revenues increase slightly over time but remain fairly consistent.

![ARPU per Month](chart)

*On a per unit basis, business revenues are significantly higher than residential*

Capital Expenditure (CAPEX) Assumptions

The capital expenditures of the network are derived from the pre-engineered network designs by 180 Connect. These expenses include the cost of the fiber distribution ring, fiber-to-the-curb costs, and costs to connect each subscribing parcel or premise. These costs also include labor, electronics, and network software Operations Support Systems/Business Support Systems (OSS/BSS), network provisioning software, and customer portal. Detailed engineering has yet to occur, thus these estimates are likely to change. Again, the assumption used is a very conservative, one marketable subscriber per parcel or premise. (Due to rounding, the figures in the CAPEX table may not add exactly).
### Total Capital Expenditures

<table>
<thead>
<tr>
<th>Description</th>
<th>Capital Expenditures</th>
<th>CAPEX/Parcel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parcels Passed</td>
<td>$31,474,989</td>
<td>$20,879</td>
</tr>
<tr>
<td>Plant</td>
<td>$5,098,335</td>
<td>$1,507</td>
</tr>
<tr>
<td>Electronics</td>
<td>$761,000</td>
<td>$244</td>
</tr>
<tr>
<td>Facilities</td>
<td>$884,903</td>
<td>$37</td>
</tr>
<tr>
<td>Total Fixed Cost</td>
<td>$38,319,317</td>
<td>$1,835</td>
</tr>
<tr>
<td>Subscribers</td>
<td>9,396</td>
<td></td>
</tr>
<tr>
<td>(45% penetration by year 5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CPEs</td>
<td>3,262,311</td>
<td>$347</td>
</tr>
<tr>
<td>Drops</td>
<td>2,591,730</td>
<td>$275</td>
</tr>
<tr>
<td>Total Variable Cost</td>
<td>$5,854,041</td>
<td>$622</td>
</tr>
<tr>
<td>Total CAPEX</td>
<td>$44,173,358</td>
<td>$2,457</td>
</tr>
</tbody>
</table>

**Source:** PacketFront

*Total capital expenditures for the project are estimated at $44.2M (assuming one subscriber per parcel)*

There are approximately 16,920 residential premises, plus 3,959 business and government locations, totaling 20,879 potentially serviceable locations in Palo Alto. It is estimated that the total number of marketable subscribers could exceed 28,000.

Total capital expenditures required for this project based on our assumptions are estimated at $44.2 million, or approximately $2,457 per premise or parcel at 45% penetration. This includes $1,835 per premise passed (that is, the cost to get the fiber to the ‘curb’), plus $622 to connect each premise that subscribes to service on the network. The 45% estimated penetration rate equals approximately 9,396 subscriber parcels. A large percentage of the capital expense is in labor and materials for the outside plant which has been designed to cover the majority of City parcels. Phase 4, as it is being engineered, will take into consideration the low density areas west of 280.
The amount of aerial versus buried construction factors into the overall build plan of the new fiber optic network. Aerial construction is significantly less expensive than buried construction, and the fact that the Palo Alto fiber network is designed to be 40% aerial construction is significant.

- Palo Alto Network Construction:
  - 209.3 miles distribution plan
  - 125.6 miles underground
  - 83.7 miles aerial

(In order to estimate capital costs, 180 Connect modeled the running line routes past every premise in the city using GIS software).

Operational Expenditure (OPEX) Assumptions

The total network operations expenditure is anticipated to decrease significantly after the first three years of build-out, at which point nearly all of the engineering, implementation, and material procurement expenses have been covered. Then, a very gradual increase is projected over time, due to the increased number of subscribers, and the efficient use of third parties to
provide additional operational support services. This operational model allows for agency costs, including the basic, essential staff.

Assumed staff in this model include:

- 1 Manager starting at $120,000/year.
- 1 OSP Manager starting at $75,000/year
- 2 Network Engineers starting at $65,000/year
- 1 Admin starting at $30,000/year

In the complete financial model, the salaries are adjusted annually for a 3% cost of living increase over the span of nine years, plus a 30% premium is added to salaries to represent “fully-loaded” employee expenses.

Also included in this model is Axia’s Network Operations service. This operational support service is comprised of first line customer support at their Network Operations Center (NOC), billing, order management, IT support, and GIS data administration. For the purpose of this Overview, the cost has been modeled at $26 per subscriber annually, plus an annual flat fee of $150,000 to cover fixed expenses; both amounts adjust for 3% annual inflation.
Included in the “External” costs category in the figure below are the consultancy costs for engineering, implementation, and material procurement. As noted previously, these costs are very significant in the first three years, as the services are most heavily used during the initial build phases. Other “External” costs that have been planned and budgeted for are field technicians, service provider management, and wholesale product management.

Other items included are office facilities, consulting fees, marketing, hardware/software support fees, outside plant service (OSP), and maintenance.

The marketing fees are most significant during Years One through Three, when early success is critical to the network and the biggest push is made in grassroots efforts, marketing campaigns, and media plans designed to create awareness in the marketplace and to educate the public. Marketing costs still exist after Year Three, but on a reduced basis.

**Operational Costs**

Operational Costs in the first three years reflect heavy investments in marketing, engineering, implementation, and material procurement.
## Pro-Forma Statements (Estimated)

### Income Statement

<table>
<thead>
<tr>
<th></th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>Year 6</th>
<th>Year 7</th>
<th>Year 8</th>
<th>Year 9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct Costs</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Gross profit margin</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Operational expenses (OPEX)</td>
<td>-3,776,040</td>
<td>-3,187,374</td>
<td>-3,546,202</td>
<td>-2,230,752</td>
<td>-2,240,510</td>
<td>-2,244,055</td>
<td>-2,286,776</td>
<td>-2,335,986</td>
<td>-2,362,855</td>
</tr>
<tr>
<td>EBITD</td>
<td>-1,731,825</td>
<td>2,138,042</td>
<td>5,671,081</td>
<td>9,717,121</td>
<td>11,528,528</td>
<td>12,063,577</td>
<td>12,020,854</td>
<td>11,971,646</td>
<td>11,944,777</td>
</tr>
<tr>
<td>EBITD margin</td>
<td>-85%</td>
<td>40%</td>
<td>62%</td>
<td>81%</td>
<td>84%</td>
<td>84%</td>
<td>84%</td>
<td>84%</td>
<td>83%</td>
</tr>
<tr>
<td>EBIT</td>
<td>-2,844,404</td>
<td>418,024</td>
<td>3,279,905</td>
<td>7,202,865</td>
<td>8,891,192</td>
<td>9,893,531</td>
<td>10,160,914</td>
<td>10,441,036</td>
<td>10,527,647</td>
</tr>
<tr>
<td>EBIT margin</td>
<td>-12%</td>
<td>8%</td>
<td>36%</td>
<td>60%</td>
<td>65%</td>
<td>69%</td>
<td>71%</td>
<td>73%</td>
<td>74%</td>
</tr>
<tr>
<td>Financial net</td>
<td>-2,038,400</td>
<td>-1,161,344</td>
<td>-1,880,279</td>
<td>-2,036,508</td>
<td>-1,702,545</td>
<td>-1,263,060</td>
<td>-775,491</td>
<td>-256,551</td>
<td>275,763</td>
</tr>
<tr>
<td>Interest income</td>
<td>0</td>
<td>793,856</td>
<td>305,321</td>
<td>53,052</td>
<td>291,055</td>
<td>633,940</td>
<td>1,026,109</td>
<td>1,449,049</td>
<td>1,865,363</td>
</tr>
<tr>
<td>Interest expense</td>
<td>-2,038,400</td>
<td>-1,955,200</td>
<td>-2,185,600</td>
<td>-2,089,600</td>
<td>-1,993,600</td>
<td>-1,897,600</td>
<td>-1,801,600</td>
<td>-1,705,600</td>
<td>-1,509,600</td>
</tr>
<tr>
<td>EBT</td>
<td>-4,882,804</td>
<td>-743,320</td>
<td>1,399,626</td>
<td>5,166,357</td>
<td>7,188,648</td>
<td>8,629,871</td>
<td>9,385,423</td>
<td>10,184,484</td>
<td>10,803,410</td>
</tr>
<tr>
<td>Income Taxes</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Property Taxes</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Net Income</td>
<td>-4,882,804</td>
<td>-743,320</td>
<td>1,399,626</td>
<td>5,166,357</td>
<td>7,188,648</td>
<td>8,629,871</td>
<td>9,385,423</td>
<td>10,184,484</td>
<td>10,803,410</td>
</tr>
<tr>
<td>Program margin</td>
<td>-239%</td>
<td>-14%</td>
<td>15%</td>
<td>43%</td>
<td>52%</td>
<td>60%</td>
<td>66%</td>
<td>71%</td>
<td>76%</td>
</tr>
</tbody>
</table>
### Statement of Cash Flows

<table>
<thead>
<tr>
<th>Year</th>
<th>Year</th>
<th>Year</th>
<th>Year</th>
<th>Year</th>
<th>Year</th>
<th>Year</th>
<th>Year</th>
<th>Year</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>Interest income</td>
<td>0</td>
<td>793,856</td>
<td>305,321</td>
<td>53,092</td>
<td>291,055</td>
<td>633,940</td>
<td>1,026,109</td>
<td>1,449,049</td>
<td>1,885,363</td>
</tr>
<tr>
<td>Interest expense</td>
<td>-2,038,400</td>
<td>-1,955,200</td>
<td>-2,185,600</td>
<td>-2,069,600</td>
<td>-2,193,600</td>
<td>-2,197,600</td>
<td>-2,191,600</td>
<td>-2,195,600</td>
<td>-2,199,600</td>
</tr>
<tr>
<td>Taxes</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

| Change in working capital | | | | | | | | | |
| Increase(-)/decrease(+) in current assets | -170,351 | -273,433 | -324,322 | -227,549 | -151,764 | -44,883 | 0 | 0 | 0 |
| Decrease(-)/Increase(+) in current liabilities | 314,670 | -49,056 | 28,902 | -109,621 | 813 | 295 | 3,560 | 4,101 | 2,239 |
| Cash flow after change in working capital | -3,625,906 | 654,210 | 3,496,382 | 7,343,443 | 9,675,033 | 10,755,330 | 11,248,524 | 11,719,196 | 12,222,779 |

| Capital expenditures | | | | | | | | | |

| Free cash flow | -21,118,748 | -9,816,339 | -8,405,088 | 6,488,067 | 8,819,657 | 9,914,874 | 10,598,659 | 10,895,872 | 11,939,076 |

| Funding | | | | | | | | | |
| Change in long-term debt | 24,960,000 | -1,040,000 | 2,800,000 | -1,200,000 | -1,200,000 | -1,200,000 | -1,200,000 | -1,200,000 | -1,200,000 |
| Equity investment | 13,800,000 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Increase(-)/decrease(-) in cash and bank | 17,641,252 | -10,856,339 | -5,605,088 | 5,288,067 | 7,619,657 | 8,714,874 | 9,398,659 | 9,695,872 | 10,739,076 |
| Accumulated cash flow | 17,641,252 | 6,784,914 | 1,179,825 | 6,467,893 | 14,087,550 | 22,802,423 | 32,201,083 | 41,896,955 | 52,636,031 |

### Balance Sheet

<table>
<thead>
<tr>
<th>Year</th>
<th>Year</th>
<th>Year</th>
<th>Year</th>
<th>Year</th>
<th>Year</th>
<th>Year</th>
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<tbody>
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<td>Assets</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Fixed Assets</td>
<td>16,620,262</td>
<td>25,310,792</td>
<td>34,761,087</td>
<td>33,042,267</td>
<td>31,200,247</td>
<td>29,970,557</td>
<td>28,560,981</td>
<td>27,953,094</td>
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<tr>
<td>Current Assets - Receivables</td>
<td>170,351</td>
<td>443,765</td>
<td>766,107</td>
<td>995,656</td>
<td>1,147,420</td>
<td>1,192,303</td>
<td>1,192,303</td>
<td>1,192,303</td>
<td>1,192,303</td>
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<tr>
<td>Current Assets - Cash and bank deposit</td>
<td>17,300,002</td>
<td>6,383,307</td>
<td>715,147</td>
<td>5,937,304</td>
<td>13,488,084</td>
<td>22,130,982</td>
<td>31,454,426</td>
<td>41,071,999</td>
<td>51,728,639</td>
</tr>
<tr>
<td>Total assets</td>
<td>34,000,516</td>
<td>32,137,884</td>
<td>36,244,241</td>
<td>36,675,167</td>
<td>45,835,751</td>
<td>52,102,941</td>
<td>61,307,710</td>
<td>70,217,656</td>
<td>79,741,209</td>
</tr>
<tr>
<td>Shareholders' Equity and Liabilities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shareholders' Equity</td>
<td>8,012,196</td>
<td>7,946,520</td>
<td>9,255,074</td>
<td>14,355,521</td>
<td>21,295,292</td>
<td>29,893,187</td>
<td>39,193,295</td>
<td>49,209,280</td>
<td>60,020,554</td>
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<tr>
<td>Equity Investment</td>
<td>13,800,000</td>
<td>13,800,000</td>
<td>13,800,000</td>
<td>13,800,000</td>
<td>13,800,000</td>
<td>13,800,000</td>
<td>13,800,000</td>
<td>13,800,000</td>
<td>13,800,000</td>
</tr>
<tr>
<td>Retained earnings</td>
<td>0</td>
<td>-4,917,804</td>
<td>-5,851,480</td>
<td>-4,574,926</td>
<td>465,521</td>
<td>7,525,292</td>
<td>16,083,187</td>
<td>25,393,355</td>
<td>35,499,280</td>
</tr>
<tr>
<td>Net Income</td>
<td>-4,907,604</td>
<td>-680,676</td>
<td>1,276,544</td>
<td>5,040,447</td>
<td>7,099,771</td>
<td>8,557,955</td>
<td>9,310,200</td>
<td>10,105,885</td>
<td>10,721,274</td>
</tr>
<tr>
<td>Long-term liabilities</td>
<td>24,960,000</td>
<td>23,920,000</td>
<td>25,720,000</td>
<td>25,820,000</td>
<td>24,320,000</td>
<td>23,120,000</td>
<td>21,920,000</td>
<td>20,725,000</td>
<td>19,520,000</td>
</tr>
<tr>
<td>Other liabilities - Accounts payable</td>
<td>318,420</td>
<td>269,364</td>
<td>299,267</td>
<td>199,646</td>
<td>190,459</td>
<td>190,735</td>
<td>194,315</td>
<td>198,415</td>
<td>200,655</td>
</tr>
<tr>
<td>Total Shareholders' Equity and Liabilities</td>
<td>34,000,516</td>
<td>32,137,884</td>
<td>36,244,241</td>
<td>36,675,167</td>
<td>45,835,751</td>
<td>53,193,294</td>
<td>61,307,710</td>
<td>70,217,656</td>
<td>79,741,209</td>
</tr>
</tbody>
</table>

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Network Operating Plan

In order to instill and ensure an open access operating model, the network owners must empower an operating partner that will not compete with the service providers by offering services to end-users. Due to their industry experience in developing and operating open access networks throughout the world, the consortium recommends that Axia be the network operating partner. The goals and objectives of the operating partner are:

- **Simplicity.** Establish processes and procedures that make it easy for service providers to utilize the FTTP network. From interconnections to provisioning, simplicity will positively differentiate the network.

- **Fairness.** Establish network protocols that treat all service providers equally, so they may freely compete on quality of service, product features, and price while avoiding the usual barriers to network access imposed by incumbent operators.

- **Quality of Service (QoS).** Focus on system management and operations management that surpass current market QoS levels.

- **Superior User Experiences.** Remarkably positive network end user experiences lead to a) increased word-of-mouth referrals, b) a reduction in new customer acquisition costs, c) reduced customer churn, d) enhanced customer loyalty, and e) improved take rate.

Marketing Plan

PacketFront has extensive experience in what it takes to successfully launch an open access municipal network. Additionally, Axia NetMedia adds further experience to PacketFront’s residential expertise, with their proven knowledge of building, marketing and operating open access fiber networks that support businesses and governments alike. This joint approach and experience will be collectively delivered within the city of Palo Alto with our focus on local businesses, residents, the education sector, the health sector, and the government sector including libraries.

Many of the best practices that both organizations have used over the years will be incorporated into our marketing plan. The plan will focus on the marketing of the network itself, making sure people understand the multiple benefits the network will provide. One focus will be on creating and maintaining a wholesale product strategy that allows service providers the ability to develop competitive retail products. The product strategy will be highly flexible to ensure service providers can create retail products that enable them to differentiate themselves from other service providers on the open access network, as well as compete effectively in the broader market that exists today. Service providers will market their own services that they provide on
the network. The SPE will ensure all residents are aware of the network, the various service categories it supports, the freedom of choice on which SP and service one may desire to use and the additional benefits of connecting, which over time, should support "free" community and other local services.

The product strategy for Palo Alto based services would follow these key steps:

a) Ideation - stimulation for new products, most of which come from a variety of inputs
b) Development and Testing
c) Business Analysis
d) Testing – prior to market launch
e) Technical Implementation
f) Launch

The Consortium strongly believes that the SPE needs to embark on a marketing campaign that alerts the community to the universal community benefits of this open network and how it is significantly different from the current basic broadband services available in Palo Alto today. Significant funds have been allocated within the capital budget for this purpose with plans to target the approximately thirty identified neighborhoods in Palo Alto.

1. Once agreements have been met regarding the launch of this initiative, the following steps would occur:

a. Additional surveys and interviews with key segments of the business and residential markets
b. A comprehensive and cohesive marketing campaign customized for the Palo Alto market led by an experienced external firm
c. A specific brand and logo for the Palo Alto open access community network would be created and launched
d. Marketing collateral and materials would be created to assist with the campaign that could be adapted and utilized by the service providers on the network
e. A campaign website will be created that informs of latest news and how to ensure you can register interest in gaining service
f. Local media events will be organized to advise on current progress and what can be expected
g. Neighborhood ambassadors will be appointed and educational community seminars will be held to promote the benefits of the Palo Alto community network

This comprehensive approach leads to the intended results. Indeed, another PacketFront client, Affärsverken, Karlskrona, Sweden, followed a similar path. Additionally, they successfully leveraged the PacketFront portal, which is planned to be deployed in Palo Alto as well, as a successful way to differentiate the community network from the incumbent broadband services. Some snapshots as examples are provided below:
THE SERVICE SELECTION PORTAL

THE MARKETPLACE BETWEEN END-USER AND SERVICE PROVIDERS

Vělkommen

This is the welcome page for the Service Selection Portal; here, users can click any of the icons along the bottom to sign up for services or download content.

AN OPEN MARKET ON THE OPEN NETWORK

SUPPLYING SERVICES TO THE END-USER ON EQUAL TERMS

Bättre & billigare bredband

Många tjänster, inga begränsningar.
Populära tariff: 100/10 Mbit/s för 299 kr
Du kan beställa här via portalen och direkt få tillgång
vill våra tjänster. Du surrar inom någon minut.

bored

This is the broadband page; all the data service providers are listed along the bottom. Users click to see services and prices, and to subscribe instantly.
This is the digital TV selection page, where subscribers can choose video providers and packages.

2006 IT AWARD
BY THE SWEDISH HEALTHCARE SECTOR
A Healthcare Channel over the network

These are screenshots from a specialized health care service on the network—Syster Gudrun—which is very popular on the Affärsvärken network. Specialized and niche services like this are only available on open access networks. This service utilizes the high-quality two-way video conferencing capabilities of the network to provide remote medical consultations.
Next Steps and Proposed Dates

The Consortium recommends these next steps be taken:

- By City of Palo Alto Council:
  - Review this Consortium Overview
  - Accept the Consortium's Overview as a framework for achieving the City Council's stated goals and objectives in its original RFP and subsequent motions which prevailed
  - Direct staff to continue the cooperative efforts with the Consortium, including:
    - Immediately commence to identify and negotiate all agreements with the SPE relating to the SPE's access and use of existing City network facilities, including possible network usage commitments, such that mutually agreeable draft agreements will be ready in final-draft form for presentation to the City Council for ratification during one of its public meetings in the September 2008 timeframe
    - Reserve a place-holder on the Council agenda during September 2008 for final Council consideration and approval of detailed FTTP agreements

What follows is a tentative list of suggested next steps:

- **June 16.** Consortium delivered this Overview to staff designed to be shared with the public and discussed with the City Council, tentatively during the July 14, 2008 City Council public meeting.

- **July 3.** Staff tentatively plans to deliver a City Manager's Report (CMR) to City Council members accompanied by this Overview; all of which will be made publically available by staff.

- **July 14.** City Council consideration of this Overview. Council, during their July 2008 meeting, may direct staff to develop definitive agreements needed between the City and the SPE formed by Axia as outlined in this Plan. Full agreements are expected to be completed for consideration by Council during a Council meeting planned for September 2008.

- **July and August.** Suggested workshops with City staff, Consortium members, and Axia to develop definitive agreements between the City and the SPE. A series of public education meetings at various locations throughout the City will also occur.

- **August and thereafter.** Consortium members and Axia continue to drive out broader aspects of the Overview including, for example, identifying Service Providers.

- **September 2008.** A Council Action Item should be tentatively scheduled for a September, 2008, Council meeting with the intent that Council receives the definitive agreements and all parties ratify them on or soon after that date.
• **September to November.** Assuming Council approves the agreements during September, various activities will be implemented by the SPE and could include, among others, applications for various permits from the City that might not be part of the prior agreements. Other activities would include the SPE signing initial contracts with partners, service providers, and vendors to the project, and completing the required construction planning steps.

• **September.** Marketing of the initiative would start as soon as possible and include creating a community network awareness program, coupled with a citywide campaign to determine the specific interest levels of connecting within each neighborhood.

• **November to December.** Target timeframe to connect the first demonstration homes and first business customers to the lit network.
City of Palo Alto – Proposed Phased Build Out Map (Phase 1, 2 and 3)
City of Palo Alto – Proposed Phased Build Out Map (Phase 4)
Letter of Interest – Art Price, CEO, Axia NetMedia Corporation
May 12, 2008

Mr. Greg Pustelnik
Manager of Purchasing
Administrative Services Department
City of Palo Alto
Mezzanine
250 Hamilton Avenue
Palo Alto, CA 94301

Dear Mr. Pustelnik:


The purpose of this letter is to inform you of the strong interest of Axia in the “Broadband Business Plan for the City of Palo Alto” proposed by PacketFront and 180.

Axia, headquartered in Calgary, Alberta, Canada, is a public company incorporated under the laws of the Province of Alberta, Canada. Axia’s common shares trade on the Toronto Stock Exchange (“TSX”) under the symbol “AXX”. Axia has two material wholly owned subsidiaries: Axia SuperNet Ltd. (“ASL”), an Alberta private company and Axia Networks France (“ANF”), a French private company.

Axia is a specialized network services company that is expert in designing, building and operating ultra high-speed IP Networks to markets around the world. Axia has been operating for over ten years and has approximately 125 employees. The following success is proof of Axia’s capabilities and experience working with governments to achieve and exceed their expectations:

1. Canada: Axia, via ASL, operates the Alberta SuperNet, a Real Broadband™ Network serving 429 communities and directly connecting over 4,200 Government locations. The Alberta SuperNet consists of 10,900 kilometres of fibre optic network, 2,100 kilometres of wireless network over an area of 661,848 square kilometres. Axia’s team designed, implemented and now operates the Alberta SuperNet.

2. France: Axia conducts similar operations in France through Covage, a French private company jointly owned by ANF and VINCI Networks. Covage is involved in the acquisition, design, development, operation and ownership of public IP-based networks in France. To date, Covage has interests in 12 public networks that will provide network services to a population of over 5.2 million. All of these public networks were awarded through separate public tender processes.

Axia is also participating in competitive bid processes and strategy dialogue in other jurisdictions such as the Middle East, Europe, Asia and North America. Additional information can be found on Axia’s website at www.axia.com.
In February 2008, we entered into a strategic teaming agreement with PacketFront to jointly evaluate and potentially pursue and bid on opportunities in the high speed broadband market, specifically FTTp projects. It is through our relationship with PacketFront that we were apprised of this new and exciting opportunity in Palo Alto.

Axia is interested in this project for several reasons, including:

- The project is a strong fit for the joint capabilities of Axia and PacketFront.
- High speed fibre networks are in demand by leading businesses in Palo Alto and the FTTp model has received community support. The take up rates in the business model underlying the project will allow Axia to operate a profitable business.
- This project will be a reference case for other cities and regions considering FTTp. As Palo Alto is the centre of global Internet leadership, successful roll out and operation will enhance Axia’s global brand and support our other FTTp opportunities.

Based on the information exchanged as of this date, Axia confirms its interest in this project and Axia’s ability to provide the required capital and operating expertise for this project. This confirmation is subject to change pending receipt of additional information and upon your performing complete due diligence.

We look forward to further discussion with representatives of the City of Palo Alto and, if successful, we will begin a detailed due diligence process and enter into negotiations.

Thank you in advance for considering Axia for this opportunity.

Sincerely yours,

AXIA NETMEDIA CORPORATION

[Signature]

Art Price
Chairman & Chief Executive Officer
Attachment C

Comparison of Municipal Broadband Projects in Selected Cities

Alameda
Established in 1998, Alameda Power and Telecom’s (APT) telecommunication (Internet and cable TV) operation is in financial distress. It has approximately $77 million in debt ($33 million in bonds and a $44 million loan from the electric operation) and faces a balloon payment of $33 million in June 2009. In addition to a somewhat outdated coaxial cable system, Alameda has faced “intense competition, high labor costs compared to non-municipal providers, high programming costs...and stagnant customer counts.” (Alameda Sun, February 28, 2008).

A salient point in APT’s experience is the immediate response to its project by the incumbent, Comcast. This provider cut prices on its services and reduced APT’s expected market share and revenues. APT is pursuing a sale of its telecommunications system and is in the process of soliciting bids.

Seattle
The City of Seattle is expected to issue a broadband RFP in September 2008. It is awaiting a determination by Seattle City Light (SCL), its electric utility, on how it can use broadband services. SCL, for example, is examining using fiber optic service to perform automated meter reading. SCL has built a dark fiber ring in parts of their city. The RFP may include requests for private sector interest in building a broadband project.

Seattle is considering having a closed system for the first 4-5 years. Apparently, service providers are reluctant to participate in an openly competitive system given their concerns about recouping their investment in an open network. Like Palo Alto, Seattle has incumbent providers such as Comcast, Verizon, Broadstripe (video and internet cable provider), and Qwest. While Verizon’s presence is limited to a small geographic area and Qwest is not interested in expansion of services, Comcast has a citywide system and has indicated it opposes the City’s broadband plans.

Seattle has conducted extensive research into municipal broadband efforts. A staff person working on the project indicated that a viable and successful municipal broadband model has yet to emerge. While feasibility studies show bases for success, outcomes in other cities have not been as positive as originally anticipated. Staff indicated that where broadband systems are run by utilities that have demonstrated need, there appears to be a higher success rate.

Currently, Seattle estimates that it would need $500 million in bond proceeds to build a Fiber to the Premises (FTTP) system. As in Palo Alto, Seattle has considerable infrastructure needs such as rebuilding a highway and bridge along Puget Sound and these priorities will compete with the broadband project.
**Utopia System**

One of the most prominent efforts to implement a municipal broadband system is the Utopia system in Utah. Formed in 2002 and designed to reach underserved communities, 18 Utah cities banded together to deliver high speed broadband services to homes and businesses. Unlike the City of Palo Alto’s current plan, Utopia issued municipal bonds backed by the revenues of the broadband system to construct the FTTP project. Member cities also pledged General Fund revenues in the event Utopia debt service and operating costs could not be covered. In addition to the bonds, Utopia expected a significant loan from a local utility to build out and operate the system.

Because of problems with the loan and other issues, Utopia has refinanced the original loan and increased their financing. Current take rates are at 28 percent, the national average, and customers have been loyal to the Utopia program despite initial service missteps. It appears that Utopia is re-examining its initial business model and business relationships in an effort to right its ship.