Tellus Venture Associates

Lompoc Broadband Services Feasibility Study

Final Report
Submitted 1 December 2003

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Section I - Executive Summary Of The Findings

A. Is a High-Speed Broadband Network for Lompoc Even Feasible?

It is technologically and economically feasible for the City of Lompoc to build, own and operate a state-of-the-art municipal utility broadband telecommunications system.

A fiber optic broadband network offering television, high-speed Internet and telephone service, a wireless network offering mid-speed Internet service and a hybrid system combining the two would be technically sufficient and fiscally viable as independent enterprises. This assessment leads to the conclusion that it would be financially justified, economically advantageous and serve a public purpose for the City of Lompoc to continue developing a municipal broadband utility.

B. Is There Enough Public Demand To Support Such A Network?

Sufficient demand exists in the City of Lompoc for a competitive telecommunications system offering television, telephone and Internet services.

Quantitative primary research conducted in Lompoc indicates that 61% of households would purchase some level of broadband service from the City, with 53% interested in television service, 33% in high-speed Internet service, 36% in local telephone service and 45% in long-distance telephone service. Qualitative primary research confirms this result, and secondary research indicates that cities elsewhere with similar pre-launch survey results surpassed those expectations once actual service began.

C. What Do People Think About The City Providing These Services?

Public opinion of City services in general, and a prospective City-owned broadband network in particular, is very positive.

City utility services have an 88% positive public approval rating, with more than half of consumers surveyed describing their feelings as "very positive." The concept of a City-owned telecommunications network received an 81% positive public approval rating, with three-quarters of the positive respondents saying they "strongly" favored the idea. Wireless data service was well received, with 74% of

those surveyed saying it would increase the likelihood of purchasing Internet service from the City.

These strongly positive ratings were definitively confirmed during qualitative focus groups and one-on-one interviews, by both consumers and business people. Additionally, secondary research shows similar public attitudes nationwide, as well as examples of successful initiatives.

Although business people expressed some concern about a public entity competing with private enterprises, 94% of those interviewed believe the City should build a telecommunications network. A similar number believe that a City-owned telecommunications network would boost economic development in Lompoc. Opinions were split on the question of whether such a system should be operated directly by the City or managed under contract by a third party.

D. How Is It Working In Other Cities?

Municipalities elsewhere in the U.S. show positive results from building and operating broadband telecommunications service networks.

Cities that have installed broadband service networks have experienced greater than anticipated usage. The 61% total residential market penetration predicted by the quantitative research conducted in Lompoc is consistent with the actual results experienced by municipal broadband service networks elsewhere in the U.S.

Consumer acceptance of broadband services provided by municipalities can be fairly described as enthusiastic. In one city, more than 60% of households in neighborhoods where the service is available have signed up for service, and of those households nearly 90% have subscribed to a full package of television, high-speed Internet and telephony service.

E. Shouldn't The Private Sector Be Doing This?

Although some upgrades are planned by incumbent service providers in Lompoc, none plan to invest in advanced technology.

Comcast has committed to installing hybrid fiber-cable (HFC) infrastructure in Lompoc, but this sort of architecture is already outdated and will generally only be capable of supporting residential services that are marginally better than currently available. Verizon is expected to remain committed to its copper wire network for

the foreseeable future. No company has plans to install a citywide network capable of handling the heavy traffic necessary to support high technology businesses.

F. Is Fiber-To-The-Home The Best Solution For Lompoc?

A fiber optic network employing passive optical technology is the optimal method of providing high capacity, flexible and all-inclusive telecom service to the City of Lompoc.

Passive Optical Network (PON) technology is ideal for serving a relatively compact geographic area. Such a network can support television, high-speed Internet and telephone service and can be scaled up to meet increasing demand, both in terms of number of users and the amount of bandwidth required by each user. Simply by adding existing technology, the capacity of the basic PON system envisioned for the City of Lompoc can be increased many times over and can serve levels of demand well beyond anything envisioned in the foreseeable future.

A PON network would have more bandwidth capacity and technical capabilities than an HFC system, at a comparable or even lower cost. Compared to systems using active fiber optic network technology, PON offers the same range of bandwidth options at a much lower cost, if the distances involved are less than 12 miles. Because the outside plant consists only of actual fiber optic lines and passive splitters, it has lower maintenance costs and superior longevity when compared to either HFC or active network technologies.

Broadband Over Power Line technology is not mature enough to reliably support high-speed data service, let alone video and voice service. Wireless technologies were also evaluated and generally performed well for lower speed data services but could not support video and voice service.

G. How Risky Is This For The City?

A PON-based system offering television, telephone and high-speed Internet service can deliver a superior and expandable level of service with a positive return on investment by relying on a robust business case that can weather market risks.

A fiber optic-based system offering all three services would become cash flow positive in Year 4 of operation and reach full break even by Year 12. The internal

rate of return after 15 years of operation, with full debt repayment, would be 5.3%, representing a positive net present value of about $1.5 million.

If market penetration or revenue levels are less than expected, a full service fiber optic network would still be viable. Reducing revenue by 30% without a corresponding reduction in costs or marketing efforts would still result in an enterprise that is self-supporting over the long term, although full debt repayment would be delayed. On the other hand, if market acceptance follows the pattern set in other municipalities and exceeds initial expectations by 5%, the enterprise would be very financially attractive.

About 80% of the approximate $26 million cost of building a fiber optic network goes toward the basic infrastructure necessary to provide data service alone. On the other hand, approximately 80% of the projected revenue from such a system would come from offering television and telephone service.

A data-only service offered via a fiber optic network would not be financially viable. It would not generate enough revenue to pay operating expenses, let alone repay the capital investment required. A system that offered data and television service, but not telephone service, would be self-sustaining, although full debt retirement would be problematic.

H. How Does Wireless Best Help The Goals Of The City?

A wireless network can quickly and inexpensively deliver an acceptable level of data service to the entire City of Lompoc, with a good return on investment.

An economically viable, data-only service based on unlicensed spectrum using the 802.11 (Wi-Fi) standard could be deployed throughout the City of Lompoc within weeks or months for a capital investment of $1.2 million, which is approximately 5% of the cost of a fiber optic network. It would become cash flow positive in Year 2 of operation and reach full break even by Year 9. The internal rate of return after 15 years of operation, with full debt repayment, would be 12.2%, representing a positive net present value of $721,000.

Such a system would offer roughly the same service levels as currently available via digital subscriber line (DSL) technology and would have limited capacity for upgrade or expansion. However, it would immediately meet the current Internet access needs of a majority of residents and businesses within the City.

A Wi-Fi-based network would be more susceptible to market risks than a fiber optic-based system. A 10% decrease in projected revenue would still leave a financially viable business case, but a 20% decrease would push it close to the point of unsustainability. However, the much lower capital cost minimizes the absolute risk of a Wi-Fi-based system.

I. Should The City Deploy Both Fiber And Wireless?

Combining a rapid Wi-Fi network deployment with the build out of a fiber optic system could provide the best of both worlds with little additional risk.

Because a Wi-Fi network can be deployed quickly, it has the potential to enhance the business case for a full service fiber optic network that would follow within three or four years. The near to medium term results for a combined system would be effectively the same as for a fiber optic network, with positive cash flow in 4 years and full break even in 12 years. The longer-term financial outlook would be marginally improved, with a combined system generating a more rapid increase in net present value and an internal rate of return that is about half a percent better than a fiber optic network alone. Capital cost would increase marginally, as would the complexity of operating the system. In order to realize the benefits of this approach, unified management of the system would be essential.

J. How Do We Get Started?

Moving ahead with an RFP process would provide the City of Lompoc with the information necessary to make a final determination regarding a municipal broadband utility and would allow the City to secure the necessary resources.

The next steps in order for the City of Lompoc to pursue the development of a municipal broadband utility would be to prepare a request for proposal from parties interested in providing some or all of the facilities and services outlined in this study, and solicit responses. Upon evaluation, and comparison of these proposals to the benchmarks set forth in the business case, the City of Lompoc would be in a position to determine the scope of the venture, a specific implementation plan and a strategy for obtaining financing.

Section II - Types of Broadband Technologies

This section contains an overview of the different types of broadband technologies being deployed in other areas of the country. It also provides supporting logic behind McKibben Consulting's recommendation that the City of Lompoc consider deploying a PON solution to meet its telecommunications needs for the future.

It should be noted here that some system architectures reviewed early on in the study were ruled-out due to obvious show-stoppers. For each of these technologies, we applied a simple "yes/no" test to see if the technology merited further investigation. For example, we did not pursue technologies that:

- Suffer from severe bandwidth limitations
- Have relatively high acquisition costs
- Involve significant deployment risks
- Do not conform to published industry standards, or
- Employ single-vendor proprietary technology.

Technologies that we examined in depth during our analysis include:

- PON (Passive Optical Network ITU G.983)
- LML (Last Mile Link Optical Network)
- HFC coax (traditional cable television plant)
- Wireless (Wi-Fi 802.11b)
- BOPL (Broadband Over Power Line) or PLC (Power Line Communications)

We'll review the relevant factors relating to each of the above technologies in the following text section.

A. FTTH PON – Fiber-To-The-Home Passive Optical Network

In this section, we look at FTTH or Fiber-To-The-Home PON technologies. We examine three different flavors of PON technology … BPON, GPON and ePON. For the business model, we have chosen BPON technology since it is the most mature of the three variants.

One of the most important criteria we used during the course of our technical evaluation is the requirement for a standards-based architecture … particularly as it applies to the outside plant portion of the network. This is to insure that the City will not be adopting immature technology or technology that is only supported by one vendor. It is important that the City have the flexibility to adapt new services to the underlying technology over time. It's also important that the City have a selection of competing vendors when it comes time to purchase equipment and materials for the network.

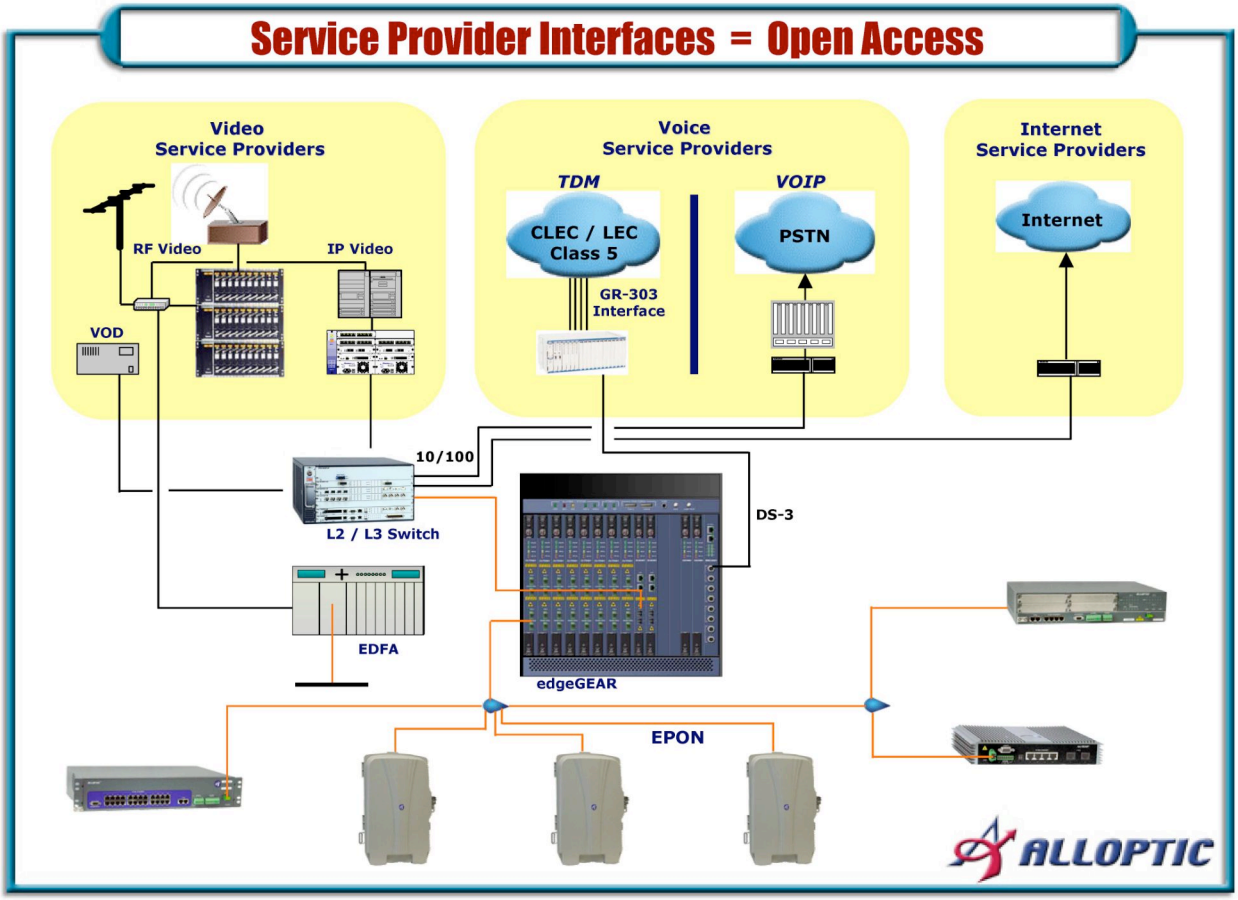
In recent years, the ITU (International Telecommunications Union) has adopted several standards applicable to Passive Optical Network technology. The specific standard that we are referring to in our recommendation is "ITU G.983". This standard is referred to throughout the industry as "BPON." Another ITU standard on the horizon, "ITU G.984", is referred to as "GPON." The primary difference between the two standards boils down to the maximum bit rate for data transmitted over the fiber … GPON provides for higher data throughput than BPON. Both GPON and BPON can coexist in the same fiber infrastructure. A network built today utilizing BPON technology can be updated at a later date to the GPON standard without replacing any of the actual fiber or other passive outdoor components. In this respect, the network has a migration path to allow for higher bit rates as required by the customer's application.

The BPON standard has been in place since 1999, and we are just now seeing significant competition in this arena. Prices are declining rapidly as manufacturers see volume build. It is this competitive environment that makes it possible for Lompoc to consider a BPON deployment at this time. For the rest of this discussion, assume that all fiber network components in the systems we're recommending comply with the BPON G.983 standard.

Both the BPON and GPON standards use Asynchronous Transfer Mode (ATM) protocol for transporting data from the central office to the customer premises. ATM is a widely accepted standard developed for the telephone industry.

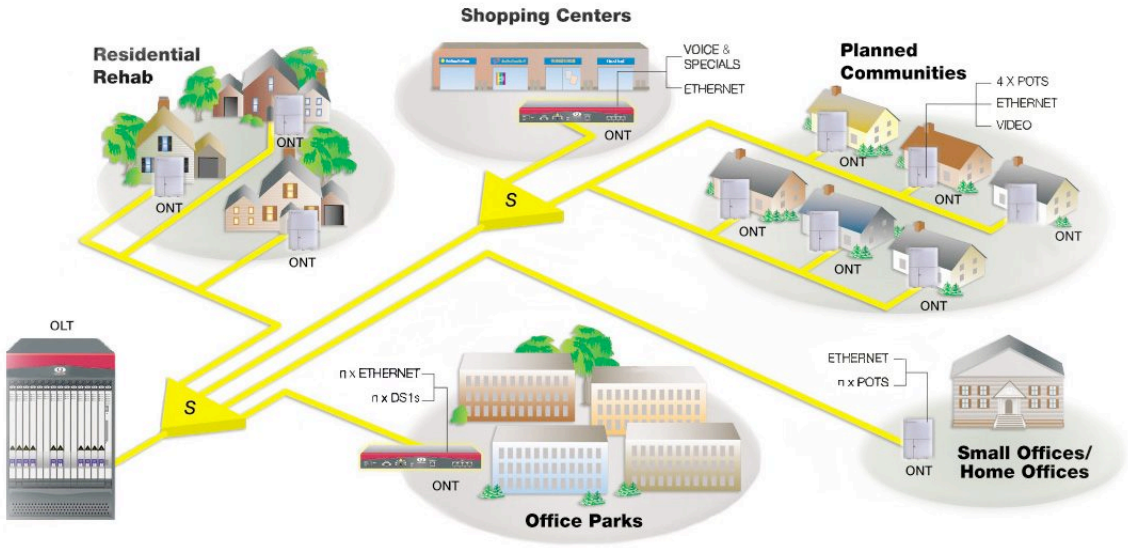
A third standard is emerging in the Passive Optical Network arena. "ePON" is based on the Gigabit Ethernet standard (instead of ATM) and has the advantage of providing symmetrical data rates … meaning that both the downstream and upstream data travels at 1 Gbps (gigabits per second). Gigabit Ethernet is a widely accepted standard. Another advantage to ePON technology is that the voice traffic carried over the network can interface directly to a Class 5 telephone switch instead of requiring a separate ATM Gateway interface.

Alloptic is one of the manufacturers offering an ePON solution, and we've included the graphic below to show how this architecture might look.



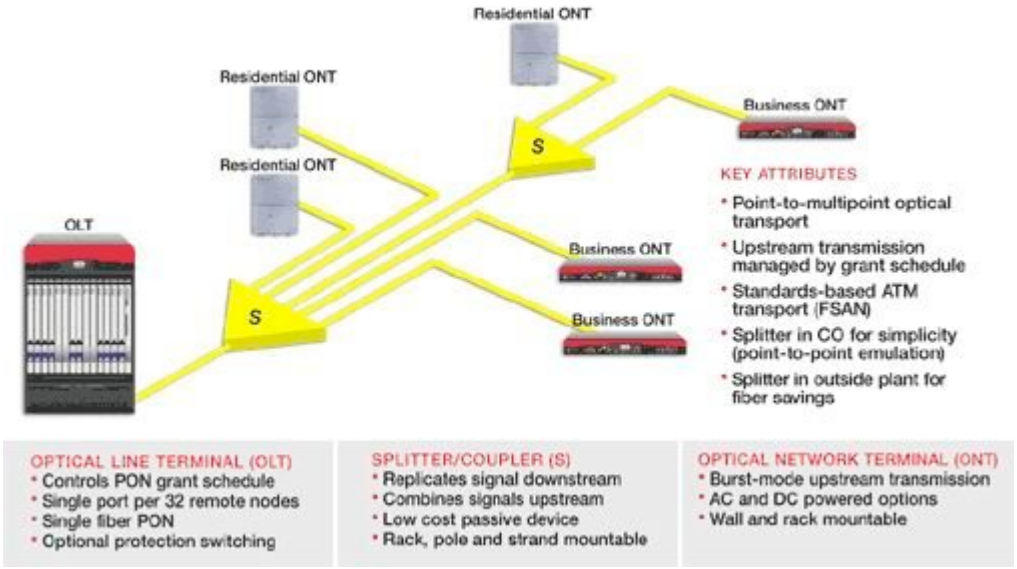
The Alloptic solution above shows the edgeGear in the central office and the ePON units that would be installed at the customer premises. Like all PON systems, there are no active electronics between the central office and the customer. The diagram above shows both a traditional RF video head-end and an IP video head-end. This is shown for example only as it would be unlikely for a network to deploy both video techniques simultaneously.

At the time that this report was being prepared, the Alloptic solution using ePON technology was more expensive to deploy. The benefits of ePON did not outweigh the negative impact of the additional costs on the business model. This cost discrepancy could certainly change by the time the City is ready to begin building its network, so the ePON option should be revisited before any final decisions are made.



The block diagram above has been borrowed from the Quantum Bridge Communications Web site. We've included it here to simply illustrate a typical BPON network. (Alcatel is another provider of BPON technology). The components shown in yellow are passive.

On the next page, we take a closer look at the individual components used in the Quantum Bridge example …



The passive components consist of the optical fiber and optical splitters. The light waves travel along the passive components much like water flows through a pipeline. The devices in the above drawing labeled OLT and ONT contain the active electronics. All of the active components in a PON system are located either in the central office or at the customer's home or business. The outdoor components (shown in yellow above) contain no electronics.

Systems built using PON architecture are, by nature, extremely simple to maintain. The fiber and the splitters require no regular maintenance. There are no outside electronics that require power and nothing to fail. Although a fiber optic cable can be physically damaged, it is very tough and will not deteriorate over time. When an individual customer starts having problems, there are only two places to look … the central office or at the customer premises. This means that repairs can be accomplished very quickly and troubleshooting time is kept to a minimum.

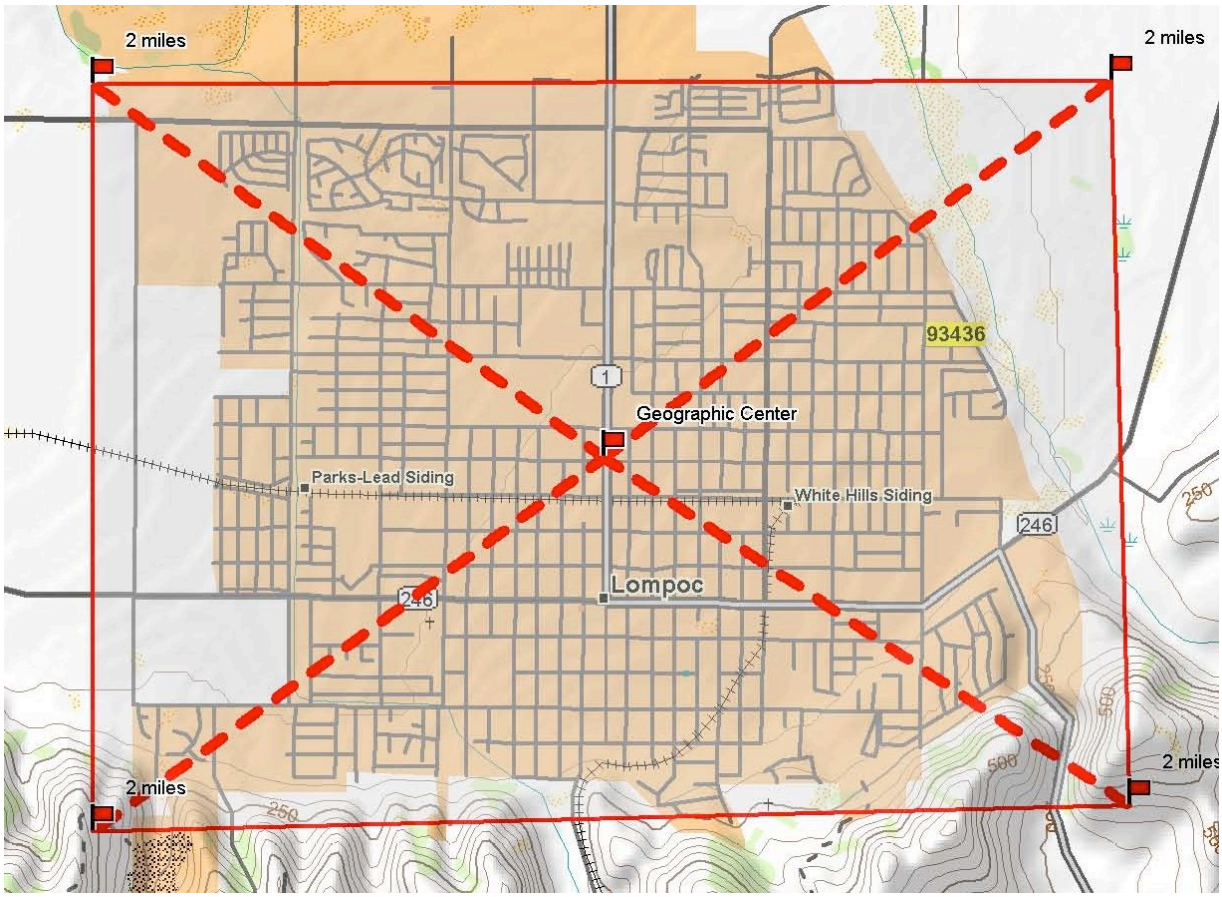
Prior to the evolution of PON technology, virtually all fiber optic networks used active components mounted in enclosures on utility poles or in cabinets on the ground. There are some drawbacks to this architecture:

- A failure in an active component can take down an entire neighborhood. Trouble-shooting can require examining multiple devices … some mounted high on utility poles. Dispatching a repair crew and fixing the problem takes more time.

- Adding additional capacity to the network can be expensive … in many cases the active devices installed in network nodes must be modified or replaced when it comes time to increase the capacity on the network. This can be an expensive, labor-intensive and time-consuming venture.

- Providing reliable power to the active devices can be difficult. A localized power failure can be responsible for outages in many neighborhoods downstream from the affected components.

PON networks have one significant disadvantage … they are limited in distance to 20 kilometers (12.4 miles) from the central office facility. Beyond 20 kilometers, a repeater station is required to boost the optical signals. We considered this issue carefully with respect to Lompoc. As demonstrated in the next graphic, it's clear that the most populated neighborhoods in Lompoc are well within a 2-mile reach from the geographic center of town. Even neighborhoods such as Mission Hills and Vandenburg Village are within a 5-mile reach.



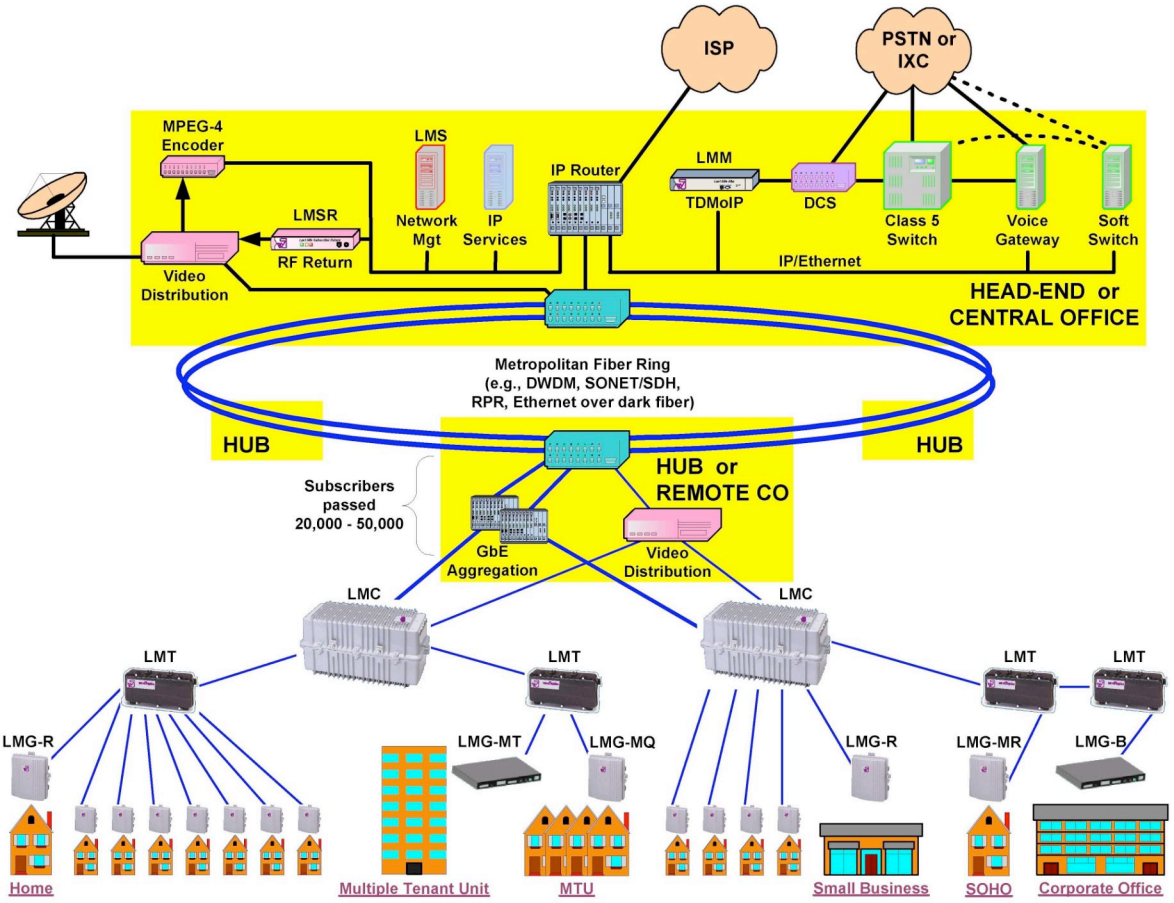
In contrast to networks using active intermediate nodes, PON technology offers the following advantages:

- Virtually unlimited bandwidth growth potential … Using WDM (Wave Division Multiplexing) technology, additional bandwidth and new services can be added to a PON network at any time without the need to string new fiber. The fiber infrastructure has the inherent capacity to meet the needs of the future without a requirement to change any of the outside plant components.
- No active components between the central office and the customer premises … PON fiber systems use passive components between the central office and the customer premises. This permits the unlimited bandwidth expansion mentioned above, which greatly reduces on-going maintenance expenses and simplifies troubleshooting.
- Co-existence of different transmission schemes on the same network … PON networks support multiple protocols and transmission schemes over the same fibers. This permits different technologies to be deployed to meet different customer needs. For example, a gigabit Ethernet facility could be deployed over the network on a different wavelength without disturbing the existing services.

As stated earlier, we have used the BPON architecture in the Conceptual Design and Business Case portion of this document.

B. LML Metro Area Optical Network (Last Mile Link)

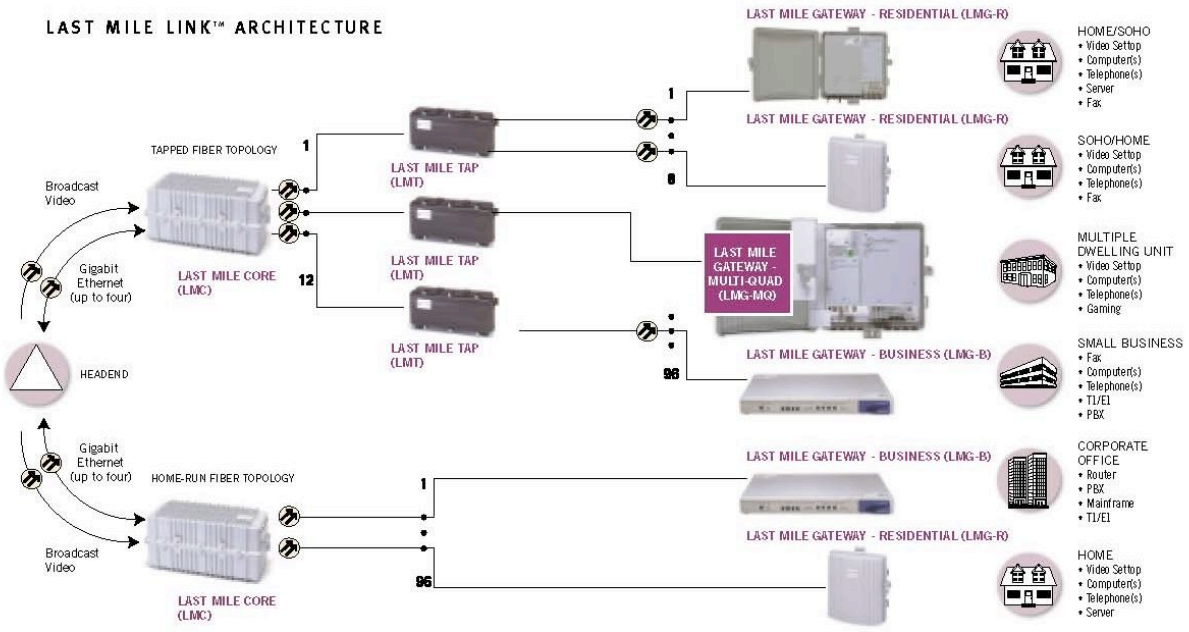
Wave 7 Optics has developed a unique architecture dubbed LML (Last Mile Link). It is a standards-based system capable of providing all of the services contemplated by this study including video, Internet and telephone. The Wave 7 approach employs a Metropolitan Fiber Ring to link a number of hubs placed throughout the service area.



Wave 7 Optics - LML Functional Overview

In the LML system, each of the hubs is designed to regenerate the data signals and perform optical amplification. This is particularly advantageous when the neighborhoods to be served are far enough from the central office to exceed the 20-kilometer limit of a typical PON network. In this manner, an LML network can serve virtually unlimited geographic areas.

The LML technology uses active components throughout the network. Active components require electrical power and are subject to environmental extremes. They are also subject to potential damage by accident or vandalism.

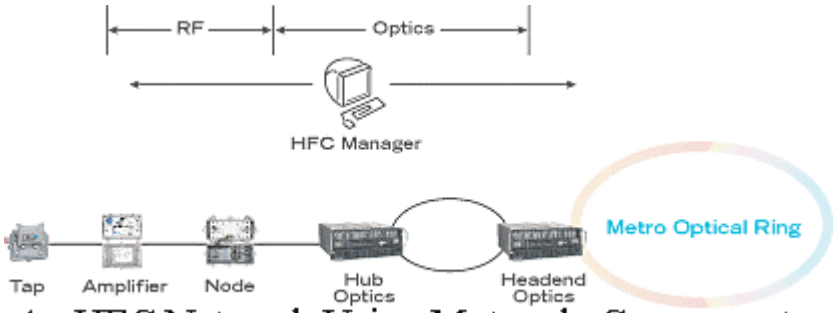


The above diagram depicts the various components that would be used in an LML network. The LMC (Last Mile Core) is typically installed on a utility pole or outdoor enclosure. The LMT (Last Mile Tap) also installs on a pole or outdoor enclosure. The diagram depicts the types of LMG (Last Mile Gateway) that would be used in different customer applications.

As stated earlier, the Wave 7 LML approach can support all of the services contemplated by this study. However, we are not recommending it at this time because of the added complexity associated with mounting active electronics outdoors. Because Lompoc has a small geographic footprint suitable for PON technology, there is simply no advantage in using a LML system.

C. HFC (Hybrid Fiber-Coax)

Many cable companies are using "hybrid fiber-coaxial cable" architecture to upgrade facilities originally installed using only coaxial trunk lines. The technique works well in cases where there is coaxial drop cable already running from the curb (or utility pole) into a customer's premise. The addition of fiber to an existing coaxial cable TV network allows for the network to be split into "nodes". Each node is then isolated and serves a specific neighborhood using traditional RF amplifiers and passive taps.



An HFC Network Using Motorola Components

HFC networks enable cable company operators to begin offering two-way data services such as cable modem service or even telephone service. This is possible because the bandwidth available via the coaxial connection is shared with fewer households. HFC networks require significant dollar commitments, and it often takes some time before a cable company can justify making the investment. In many rural communities, the conversion to HFC has been slow in coming.

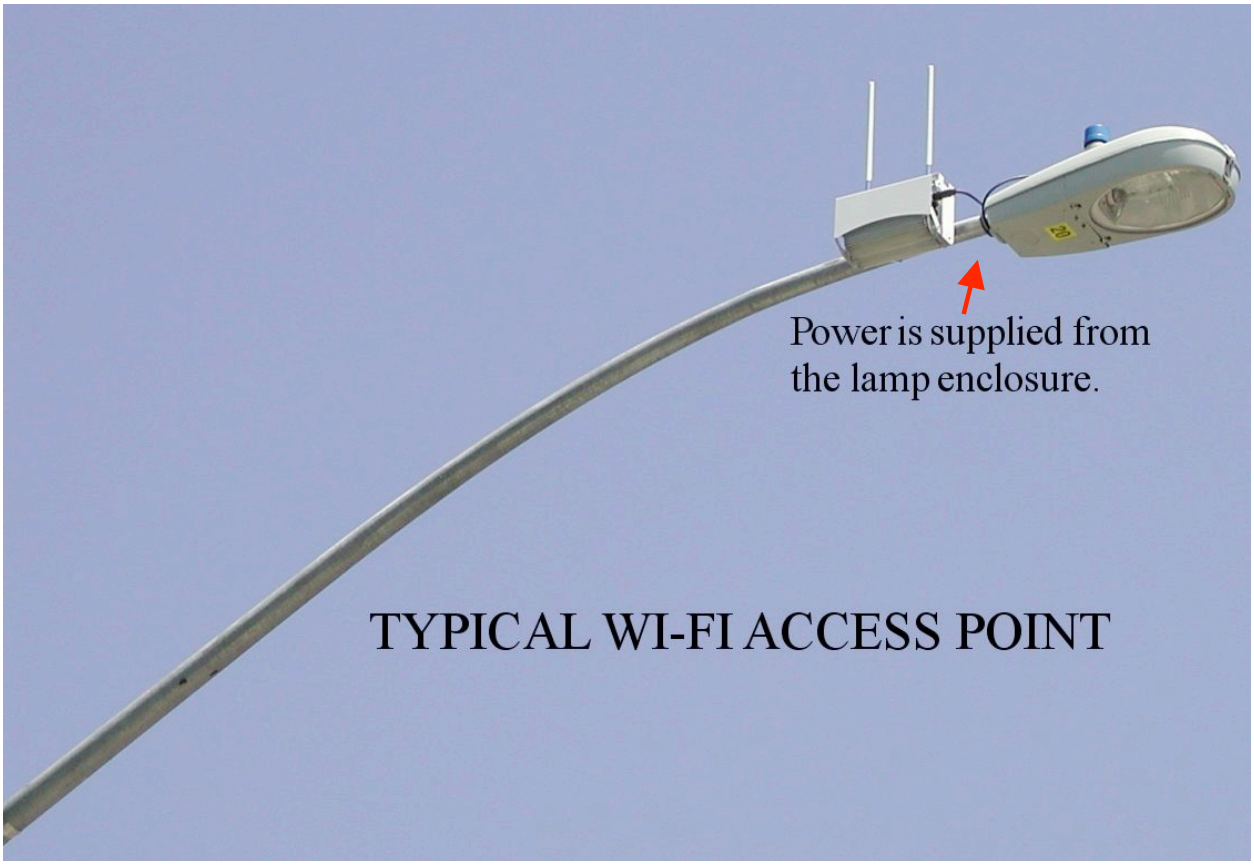
With the recent introduction of PON architecture, HFC networks make little sense for "Greenfield" deployments. While HFC networks are capable of providing broadband services, they cannot achieve the data rates supported in the PON systems. HFC only makes sense when there is existing coax running into the customer's home or business.

The City of Lompoc does not have an existing infrastructure in place for distribution of television signals. The advantages that make a HFC upgrade feasible for a cable company do not apply with respect to the City. Deployment of a HFC system by the City would be more costly than using a PON solution and would not provide as many benefits.

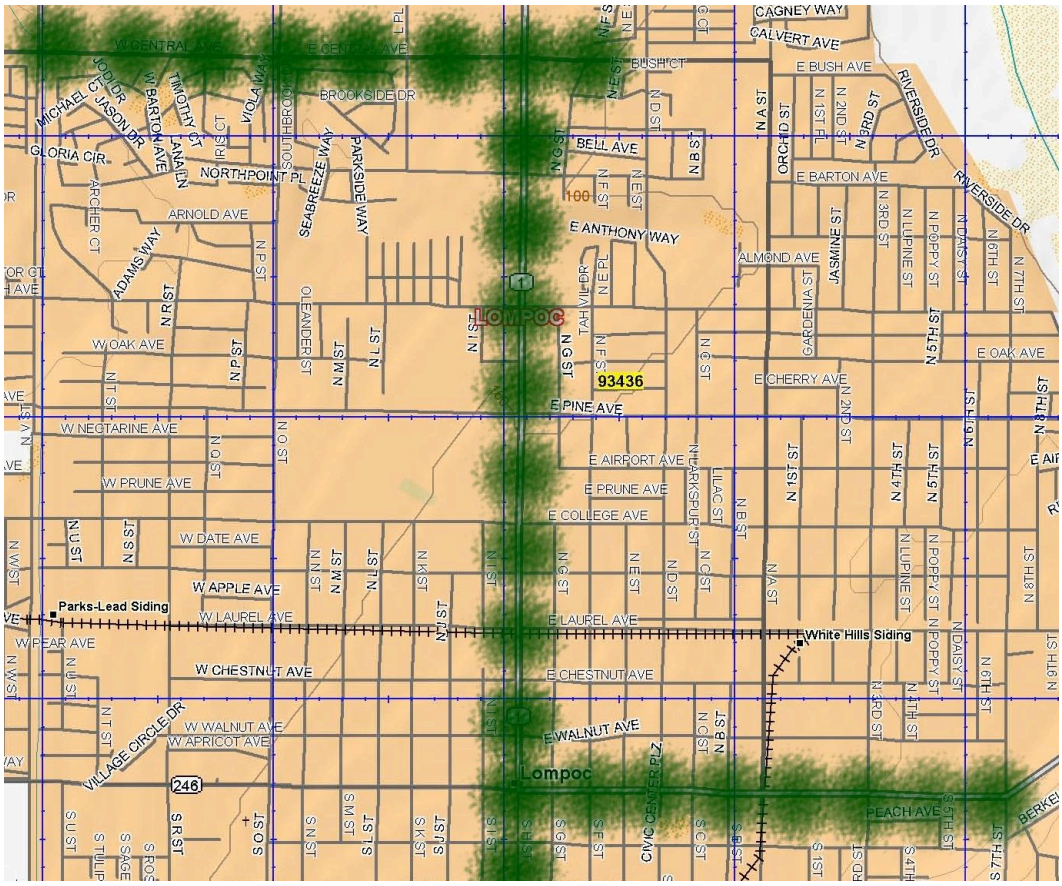
D. Wireless or "Wi-Fi" (IEEE 802.11b)

Wi-Fi technology holds great promise for bringing Internet access to smaller communities throughout the U.S. It offers high-speed Internet connectivity to any computer equipped with either a Wi-Fi NIC (network interface card) or the built-in "Centrino" chipset now found in many laptop computers. Based on the IEEE 802.11b standard, users can connect to the Internet at speeds up to 11Mbps … although this data rate is seldom achieved in practical deployments. Wi-Fi is well-suited for broadband Internet access and could also work for telephony applications such as voice-over-IP. However, it will not support video due to its bandwidth limitations. It is for this reason that we have ruled out using Wi-Fi as a long-term solution.

We see a role for Wi-Fi technology in Lompoc to meet the immediate need for high-speed Internet connectivity in the commercial areas of the City. Wi-Fi Access Points can be installed quickly on existing street lamps with little disruption to traffic. No physical wiring, other than power, is needed (see picture) since the access points communicate with each other using radio waves.



The next graphic is included as an example of how Wi-Fi Access points could potentially be deployed to provide consistent coverage in the Lompoc commercial centers that are concentrated around Ocean Avenue, H Street and Central Avenue. In this example, an initial deployment of roughly 25 access points linked to the Internet would make it possible for anyone within the coverage areas to enjoy high-speed Internet access. This includes people staying at local hotels or just stopping in for a meal on the way through town.



There are a number of Wi-Fi service companies that would be willing to capitalize the access point equipment and offer services to Lompoc citizens in partnership with the City. The typical arrangement would be for the City to enter into a contract that would grant access to the street lamps to permit the installation of the access points by one of these companies. Under this scenario, there would be no expense to the City.

One of the keys to a successful Wi-Fi deployment is making sure that there are an adequate number of access points to provide ubiquitous coverage. Another important factor is to have a relationship with a nationwide company so that roaming onto the network is easy and cost-effective. This will enable any Lompoc Wi-Fi subscriber to use other networks around the U.S. while traveling without having to pay another subscription fee.

E. BOPL (Broadband Over Power Line) or PLC (Power Line Communications)

Broadband Over Power Line (BOPL) or Power Line Telecommunications (PLT) is a method of transmitting data over the electrical power grid. This is accomplished by injecting radio signals (RF) onto the power lines. These RF signals range in frequency from 150kHz up to and including 30mHz.

There is on-going controversy with respect to PLT. The controversy revolves around the fact that PLT equipment shares the radio spectrum with many other users. Examples are amateur radio (HAM), public safety, short-wave broadcasters, maritime service operators, aeronautical services and military. PLT generates and receives interference in this spectrum.

In April, 2000, the Federal Communications Commission (F.C.C.) initiated a review of PLT regulations by publishing a "Notice of Inquiry". With this process, the Commission is examining what changes might be needed to accommodate the conflicting need of PLT proponents and incumbent users of the affected radio spectrum.

We took at hard look at the equipment available in the marketplace. We studied reports on tests that were conducted with PLT technology in Europe and in the U.S. One study, conducted by the BBC in England, made it clear that there is very good reason to be concerned about R.F. interference.

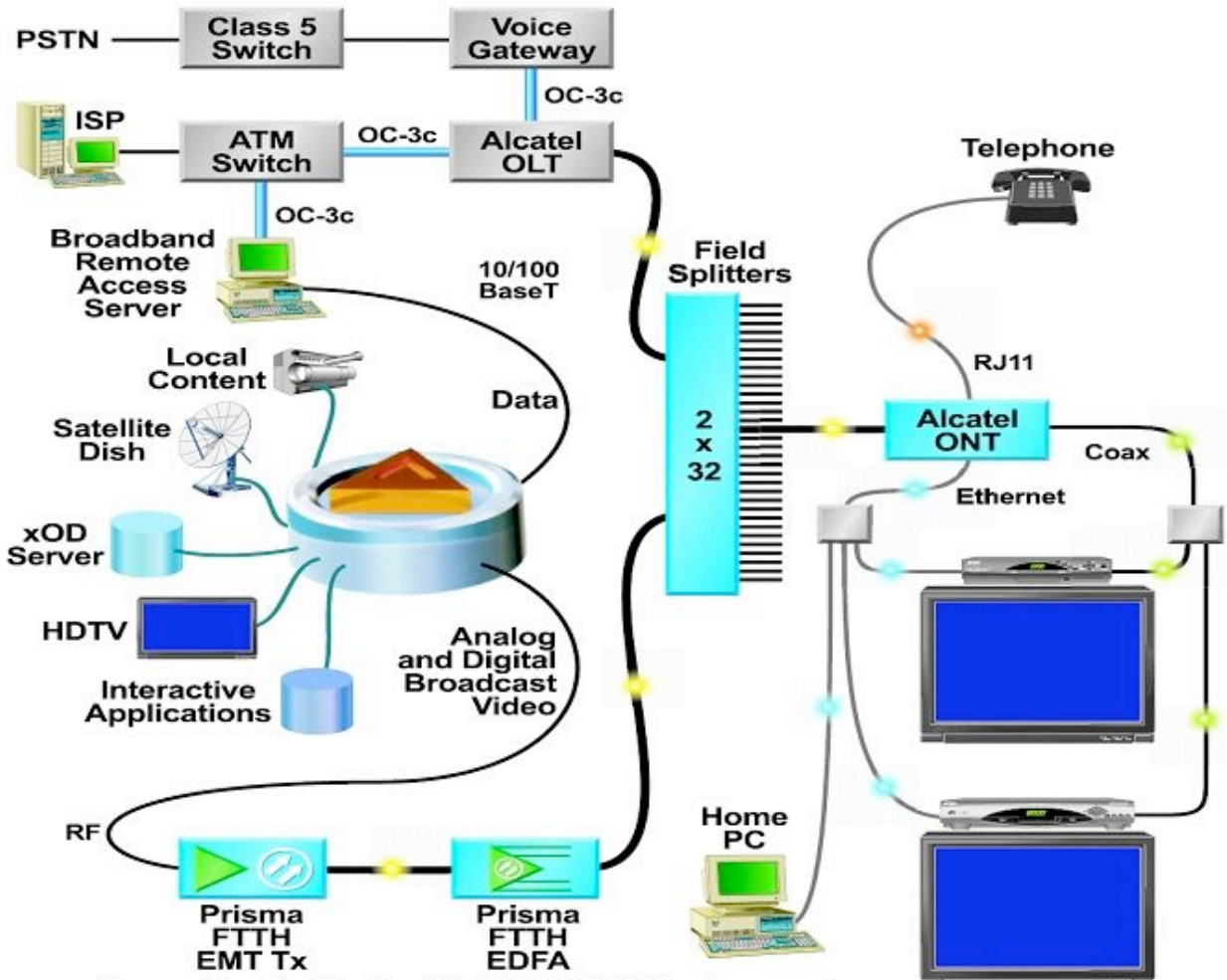
We also took a look at the promise of PLT with respect to potential benefits. We discovered that even the most optimistic projections of the data rates available using PLT technology limit the per-subscriber average throughput to roughly 1 Mbps. In most cases, it's significantly less. This level of throughout is comparable to DSL. It may support Internet access, but we don't see it being viable for telephony and video applications.

Our conclusion is that PLT simply does not offer enough benefits to overcome its limitations. With the F.C.C. proceedings on-going, there can be no assurance that this technology will even continue to remain viable for the long term. While we intend to continue monitoring the evolution of PLT technology, it is our recommendation that the City table any further consideration of PLT technology.

Section III - Conceptual Design of System

In this section we lay out a conceptual network design using the Passive Optical Network architecture described in the previous section. As each of the various system components is reviewed, we have attached budgetary cost numbers. It should be noted here that our goal with this study was not to pin down exact costs. That would require a very specific network design and detailed bids from all available vendors. Rather, we were tasked with determining if there was a business model that could work for the City of Lompoc. With this in mind, the budgetary system component costs have been projected as conservatively as possible.

The following graphic (borrowed from Scientific Atlanta and Alcatel) shows a typical PON system layout:



Example of a Typical PON/FTTH Deployment

(Drawing depicts Scientic-Atlanta and Alcatel supplied components)

This conceptual system supports three distinct broadband service offerings:

- Home entertainment programming (including television and music)
- Telephone
- Data and Internet

There are two separate and distinct fiber-optic transmission schemes used within the design … one that sends and receives very high-speed data and another that sends a one-way stream of entertainment content. In the diagram on the preceding page, the OLT supports the high-speed data while the PRISMA EDFA supplies the CATV signals.

Data, Internet and Telephone services are transported to/from the subscriber's home using a bi-directional data transmission system. The communications protocol is ATM (Asynchronous Transfer Mode). ATM is a well-understood, standards-based transmission protocol that has been in use for many years. The architecture of the system divides the network into segments. Each PON segment can support up to 32 distinct service addresses. The customers on a given PON segment share a 622 Mbps downstream and a 155 Mbps upstream. This architecture provides ample bandwidth to handle all of the voice, data and Internet services that we can envision. The transmission scheme described in this paragraph is compliant with the ITU-983 standard and is known as "BPON".

The Voice Gateway depicted converts from the ATM protocol to the GR303 protocol used by the Class 5 telephone switch. The Class 5 switch works like any telephone company central office switch. It permits phone calls to be processed and handed off as needed to the PSTN (Public Switched Telephone Network).

It should be noted that one PON vendor, Optical Solutions, offers a solution using a newer transport protocol for the data and telephone services. The "GPON" standard is based on the ITU-984 recommendation. GPON also uses ATM for porting data between the central office and the customer premise. The GPON standard allows for each PON segment to be served with 1.2 Gbps downstream and 622 Mbps upstream (this is more than double the bandwidth compared to BPON).

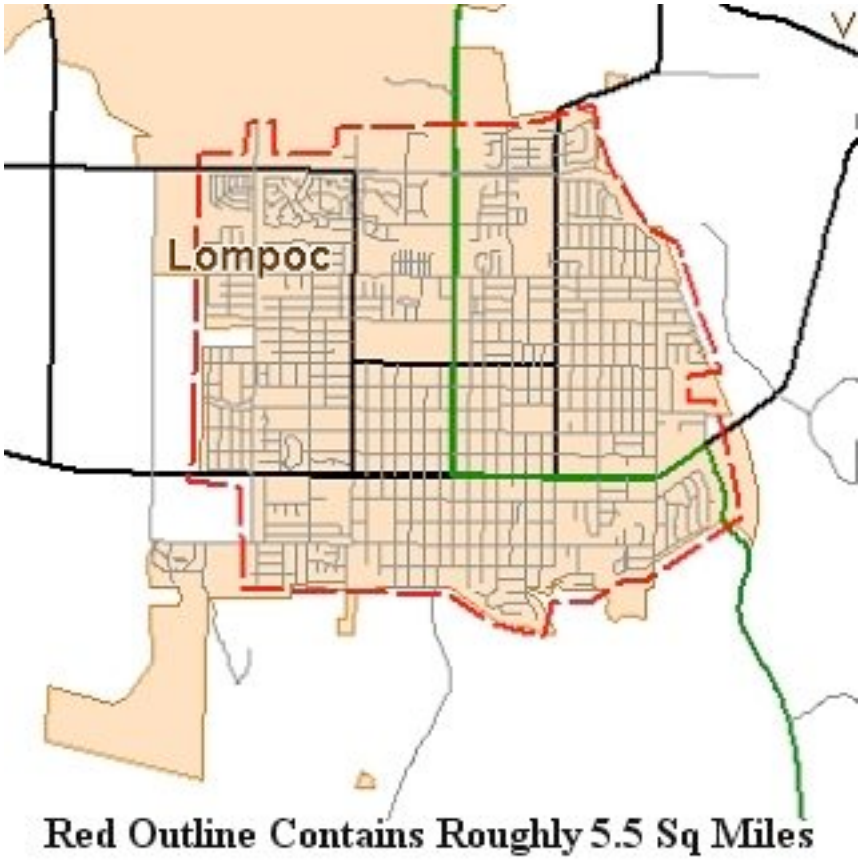
The Cable TV (CATV) video & audio signals are handled differently. In order to be compatible with legacy cable-ready TVs, the CATV equipment uses a mixture of analog and digital RF carriers that are converted to light frequencies for transmission down the fiber path. This is accomplished by dedicating distinct light

frequencies … two to handle the bi-directional ATM signals and one just for the Cable TV services. The CATV signals are sent only in one direction – from the central office to the subscriber.

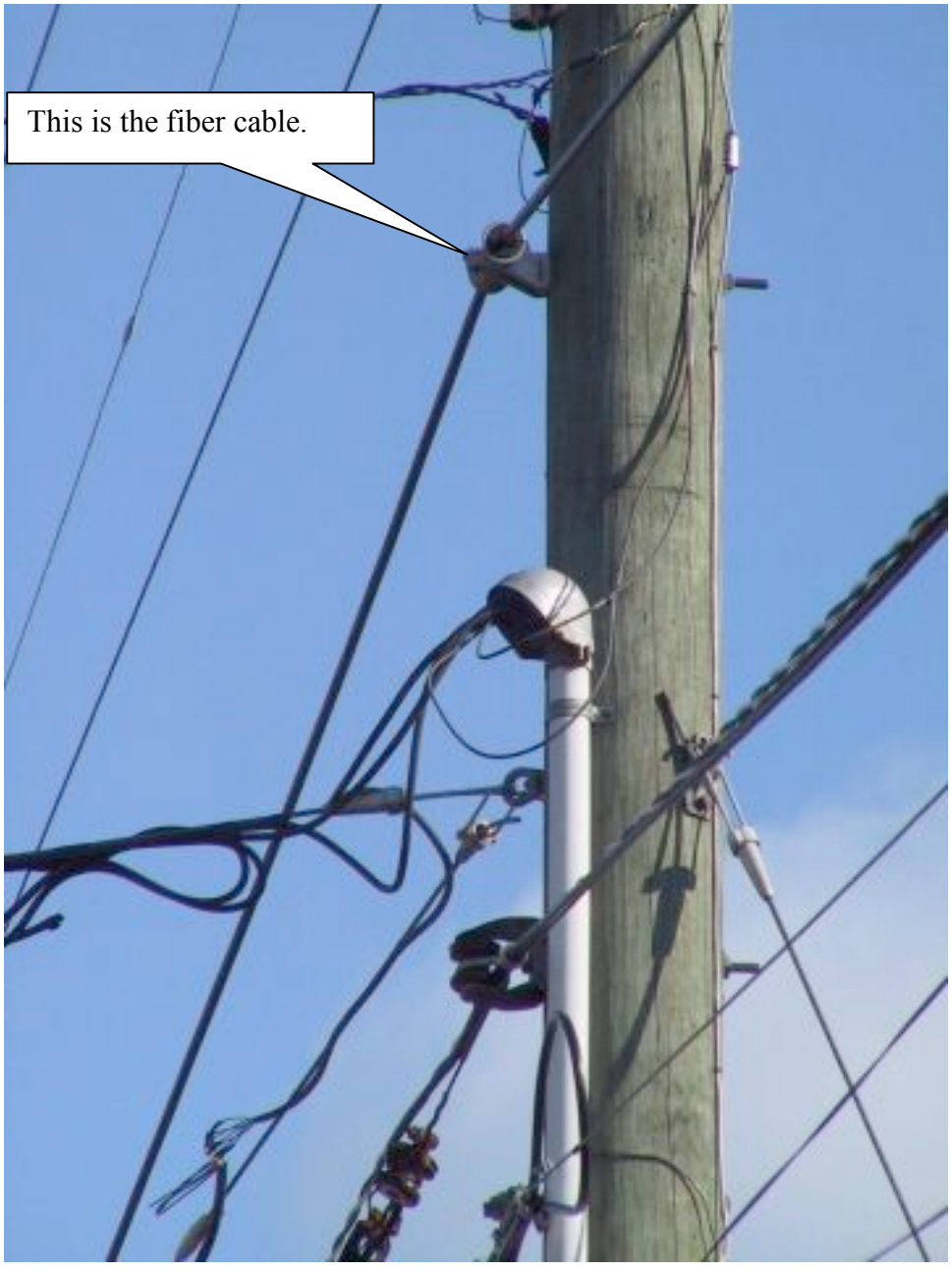
The first factor in designing a fiber network to serve Lompoc is to pick numbers for the total households and commercial businesses that will constitute "the universe". For both the design and business modeling exercise, we designed the system to a total universe of 14,000 residential households and 1,000 business/commercial establishments.

Many elements of the system are scalable, and we budgeted the appropriate capital expenditures to track hand-in-hand with the growth in subscriber count. Other elements of the system have to be in place at the start … whether there is one customer or eight thousand.

Because the geographic footprint of Lompoc is only about 5.5 square miles, the layout of the network is very straight-forward. The next graphic shows the boundaries that were used for our conceptual design.



We have estimated about 740,000 route feet of fiber optic plant will be required to provide service to Lompoc. Of this amount, we have assumed that 55% will be hung on utility poles and the remaining 45% will be run in underground conduits. The next picture depicts a typical pole-mounted fiber-optic cable.



A PON is currently limited to 32 potential subscribers. This is driven by the accumulated losses that occur when the light signals traveling over the fiber are divided up by the optical splitters.

There are lasers driving the light signals into the fibers both within the central office and also in each subscriber terminal (ONT). The power of these devices limits the distance from the central office. The practical limit with today's devices is 20km (12.4 miles). This limit applies to the total length of the fiber from the central office to the subscriber's home. This length has to take into account that most connections from a subscriber's home to the central office will not take a direct route. There will be turns in the routing that will add distance to the fiber length. It is for this reason that PON solutions may not work as well for cities that have large geographic footprints or complicated terrain. Fortunately, Lompoc is ideal for PON deployment.

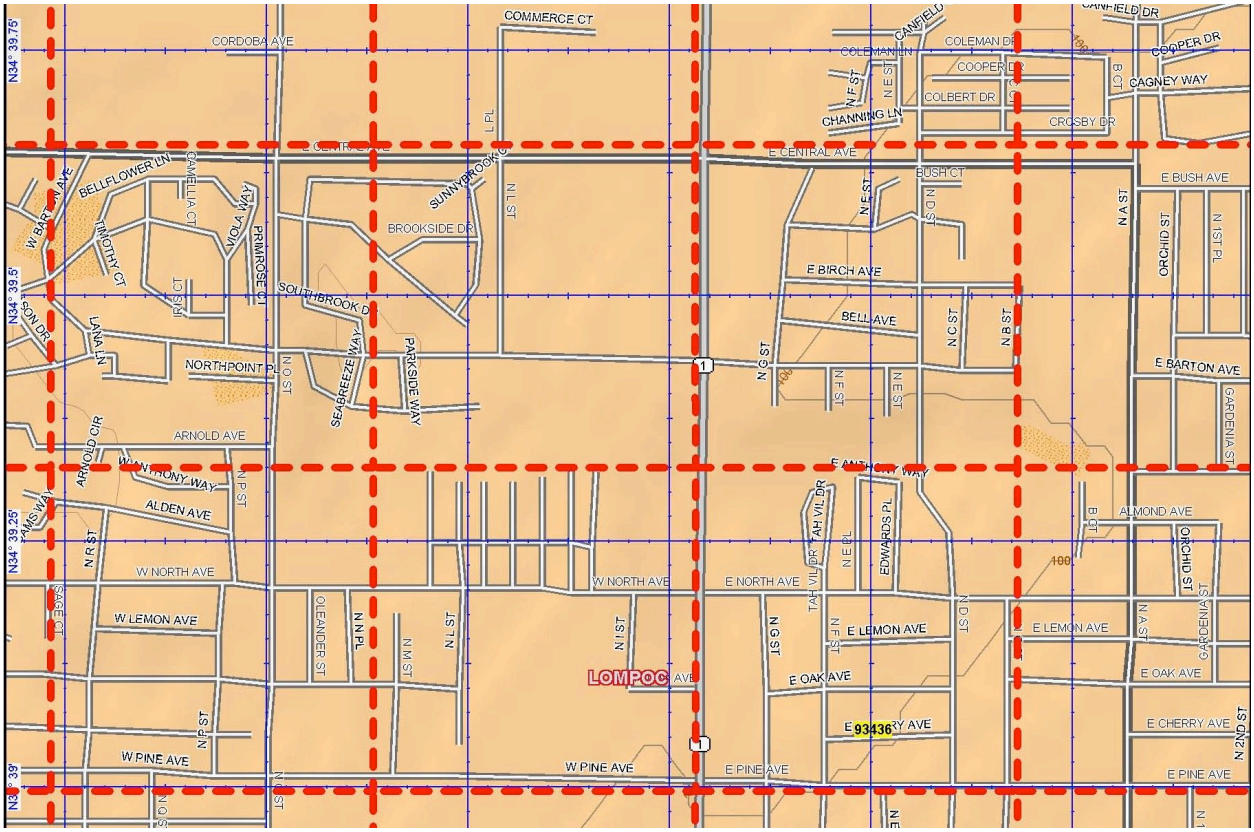
The above picture shows a head-end or central office facility where the OLT (Optical Line Termination) equipment would be installed. One end of each PON fiber ends in this building.

The PON design suggests segmenting the City into "serving areas". A "serving area" is defined as a region that will be served initially by two PON network segments. In the case of Lompoc, each serving area is a square 2,000 feet by 2,000 feet. Every PON network segment can support up to 32 subscribers. Therefore, each serving area will support 64 subscribers.

There are roughly 36 serving areas throughout the City. The initial build out will be configured to support 2,304 subscribers on day one. As the subscriber growth begins to take hold, additional PON segments may simply be added to each serving area to increase the density. The virtually infinite scalability of this architecture is

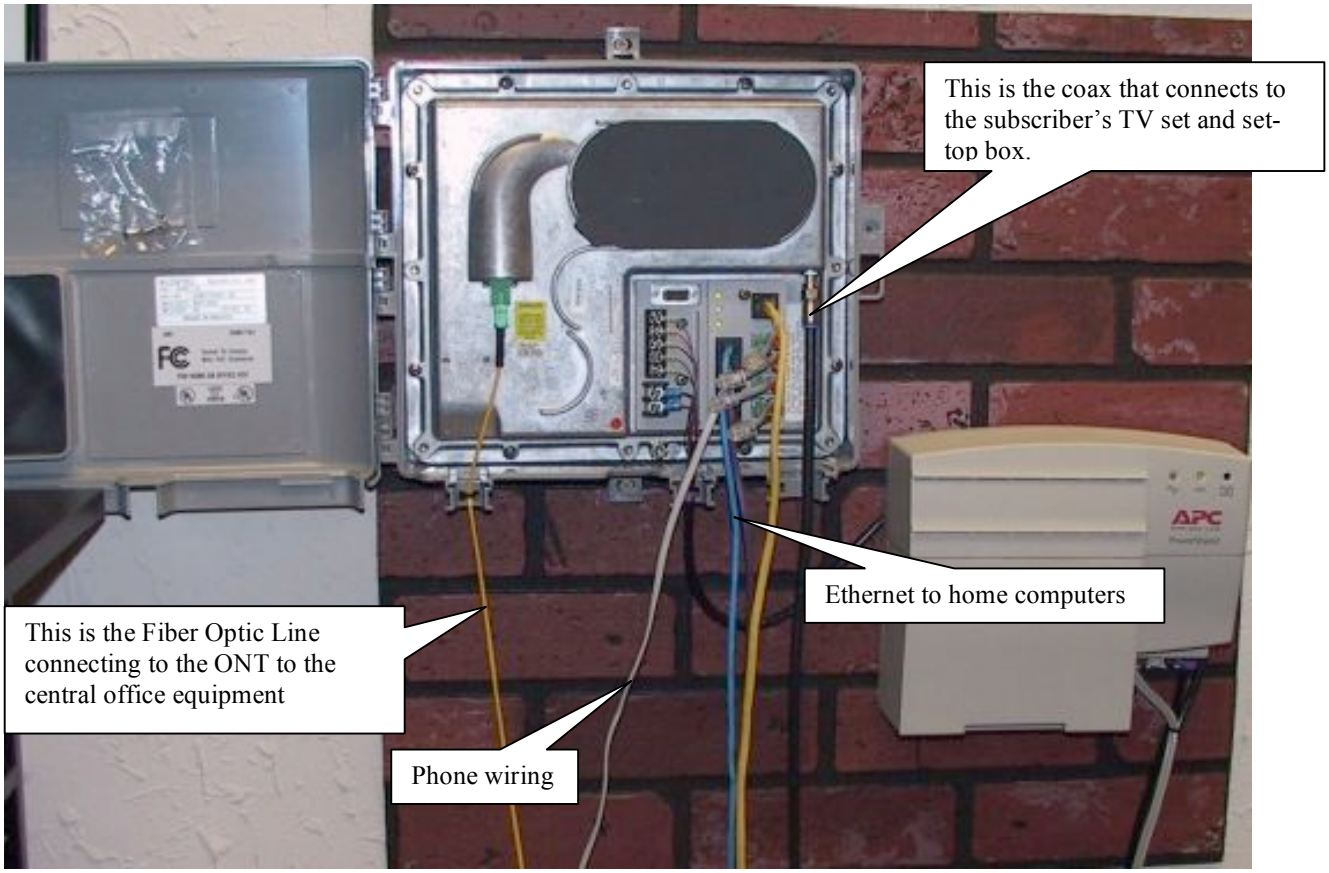
one of the advantages of PON-based networks. The network can grow to serve any number of customers.

The next graphic shows the 2,000-foot boundaries overlaid on a section of the City for the sole purpose of giving the reader an idea of the relative size of a typical serving area.



Please note that this is just a conceptual graphic … the actual serving area boundaries will need to conform to the City's existing utility pole layout as well as underground conduit infrastructure. The actual serving areas can be expected to be quite different once the exact construction details have been determined.

An Optical Network Terminal (ONT) is installed at each customer's home or business. It is designed to provide the physical interfaces needed to support each type of service. The following graphic depicts the Alcatel Home ONT and shows how each service would be connected at the subscriber's home.



The ONT provides for connections to the central office via the fiber-optic drop line and for all of the devices in the home:

- 4 connections for regular plain old telephone line service (POTS)
- 1 Fast Ethernet (100baseT) for computer interface
- 1 75ohm coaxial connection for hooking up the set-top box and TV sets in the home

The ONT has provisions for an external battery backup unit that will supply power to the unit during a loss of electrical power to the home.

Each of the three different broadband service offerings requires specialized equipment in the central office. The following sections describe the functional components required:

A. CATV Head-End – (Cable TV Video/Audio Origination Equipment)

The CATV head-end portion of the central office facility receives programming from all sources, conditions it into a channel line-up for distribution to subscriber homes and transmits the signal in one of several industry standard RF modulation formats.

Within the CATV sub-system, there are several types of entertainment service offerings that are processed by the head-end systems:

- **BASIC ANALOG** is the line-up of roughly 80 channels that includes all available local off-air signals, local government "public-access" channels, "free" satellite channels such as home-shopping services as well as nationwide advertiser supported-channels that are being delivered via satellites. BASIC ANALOG channels do not require a subscriber to have a set-top box. This means that any cable-ready TV set in the subscriber's home can receive any of the analog channels just by using the channel changer built into the TV. All subscribers that sign up for cable TV will have access to all of the BASIC ANALOG channels.

- **DIGITAL CHANNELS** begin with a group of basic channels that cannot be included in the BASIC ANALOG package due to a lack of available channel space. In order for a subscriber to receive these additional channels, he/she must have a digital set-top box. There is generally an extra fee charged for this "Digital Tier" since the cost of the set-top box must be recovered. The digital set-top box permits the customer to order ala carte channels that often carry an additional subscription fee.

- **PREMIUM PACKAGES** include the high-end channels for which the subscriber must pay an additional programming fee. These include MOVIE CHANNELS, SPORTS PACKAGES, DIGITAL MUSIC and other specialty subscription services. These channels require a layer of encryption to prevent unauthorized reception. The encryption process is controlled with a "conditional access" or CA system. This simply means that the subscriber cannot receive these channels unless he/she has agreed

to the extra fees. The CA system manages the authorization mechanism at the subscriber level.

- **PAY-PER-VIEW** channels use the same CA system described above, but have the added feature of being able to automatically interact with the subscriber through the set-top box remote control. This requires two-way communications between the set-top box and the CA system. Pay-Per-View allows for subscribers to view recently released movies, special events and other similar programming. The subscriber simply selects a viewing time and then "buys" that viewing by pressing a series of buttons on the remote control. He/she is then billed for the viewing on the next billing cycle.

- **VIDEO ON DEMAND** is similar to PAY-PER-VIEW with one exception … PPV allows a subscriber to watch a showing on a predetermined, fixed schedule. The customer can choose which showing but has to wait until the show starts playing. On the other hand, VOD allows the subscriber to begin watching a program at his/her convenience. VOD service behaves very much like a VCR in that the subscriber can pause, rewind or stop a program. He/she can go back to the beginning of the program and start it over. He/she can fast-forward to a later portion of the program. All of this is controlled through the remote-control that works with the set-top box. VOD is equivalent to renting a movie from Blockbuster video without having to get in the car.

The CATV Head-End equipment must transmit instructions to the subscriber's digital set-top box in order to control which video and/or audio services the subscriber is allowed to receive (this does not apply to the BASIC ANALOG channels). The CA (Conditional Access System) uses encryption to prevent piracy. Because of the encryption component, the set-top box contains highly proprietary technology. The CA system holds, in effect, the key to the kingdom. Many millions of dollars have been invested over the years to create very robust systems that insure that programming is not being stolen on a wide-scale basis.

There are really just two vendors to choose from in the CATV Head-End market segment … Scientific Atlanta and Motorola. These two vendors enjoy, essentially, a marketplace duopoly with respect to digital cable set-top box technology. The major program suppliers have made their content available on satellite using systems supplied by one of these two companies. For a CATV operator, it becomes prohibitively expensive to receive content via satellite if the set-top box

can't cope with one of the two primary encoding systems used by the program supplier to secure its content.

Motorola and Scientific-Atlanta have specific brand names for different components in their product lines. It's rather mind-numbing to keep track of all of them, but there are two in particular that thread through all their products and should be noted here:

- **DigiCipher II or DCII** refers to the conditional access system used in Motorola digital satellite receivers and digital cable set-top boxes.
- **PowerVu** refers to the conditional access system used in Scientific-Atlanta digital satellite receivers and digital cable set-top boxes.

For the purposes of our study and the business model, we have selected Motorola head-end equipment and set-top boxes to use in the conceptual design. This should not be interpreted to mean that we endorse the Motorola solution over that of Scientific-Atlanta. The differences between the two systems are subtle enough that we are confident the business model can be made to work regardless of which vendor solution is selected.

It should be noted that Scientific-Atlanta has chosen to partner with Alcatel, while Quantum Bridge has partnered with Motorola. All this really means is that Alcatel will not offer a "turn-key" solution using Motorola head-end equipment and Quantum Bridge will not offer a "turn-key" solution using Scientific-Atlanta equipment. There is a work-around for this partnering arrangement should the decision be made to select a particular vendor over another for price or technology reasons.

For purposes of the model, there are several CATV head-end functions that we are assuming will be sub-contracted out to "others":

- Set-top box authorizations and processing of Pay-Per-View and Video-On-demand transactions ... Motorola offers a service for a flat 50 cents per subscriber per month to deal with this complicated, transaction-based issue. The company has the facility to handle it in Denver, and we are assuming that this type of approach will be used.

- Set-top box GUI (graphical user interface) and program guide … will be handed off to a service company such as TV Guide, Gemstar, etc.

The task of regularly updating program schedules for over 300 channels is not something the City will want to take on.

Both of the above functions will be accomplished through machine interfaces that eliminate the need for human interaction with the systems.

B. Telephony Sub-System

There are 3 different solutions being offered by the leading PON vendors with respect to telephony services. We'll start the discussion with the things common to all three.

To provide advanced telephone services, Lompoc will need to install and operate a "Class 5" central office switch. This switch will process the calls from each subscriber's home or business phone and pass them on to the PSTN (public switched telephone network). The following photo depicts the Telica Class-5 switch installed at the Dalton Utilities central office.

The Class 5 switch can interface to a PON network using one of several telephone industry standard protocols. It then conditions the calls for the PSTN and interfaces to long-distance carriers and other phone companies using the SS7 protocol. SS7 is the standard for the signaling used when Class 5 switches hand

off phone calls to each other. It's the standard used by all phone companies worldwide.

The Class 5 switch provides all of the advanced calling features that people demand these days such as … call waiting, caller ID, call forwarding, 3-way calling, speed dialing and other similar features.

Connecting the PON network to the Class 5 switch is done one of three ways:

- At least one PON vendor has an integrated voice gateway function built into its OLT. The voice gateway is required to convert ATM protocol to GR-303 protocol. The City would have the choice of using the internal gateway or opting for an external one.

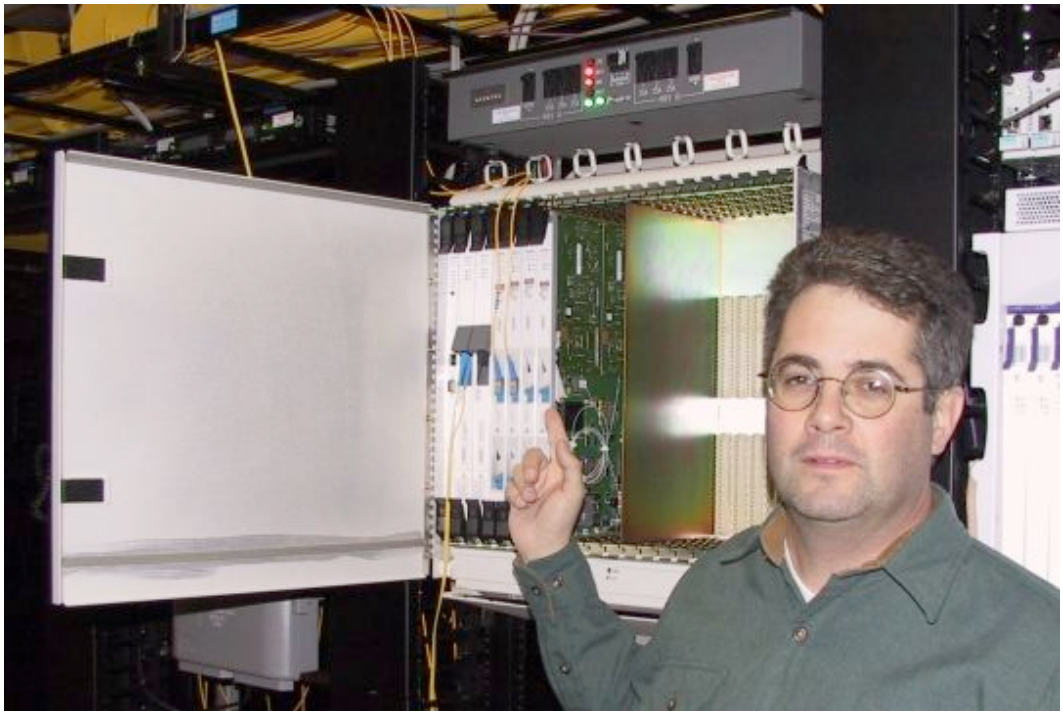
- Several vendors that use ATM protocol for the PON segments don't offer the internal gateway feature … forcing the use of an external one.

- At least two vendor solutions using GigE interfaces and the ePON standard obviate the need for a gateway by allowing for the connection to occur using the TDM (time-division multiplexing) standard used in many central offices.

The issue of whether to use an integrated voice gateway or an external one should be explored in more detail during the vendor selection process. For the purposes of the conceptual design, we have included an external voice gateway. We believe that the solutions offering an integrated voice gateway function for the BPON vendors cannot be scaled easily and will result in higher capital costs.

If an ePON solution is chosen, then there is no need for a voice gateway. However, we have seen higher costs for the ONT in ePON networks. Keeping the ONT cost down is more important than spending a few more dollars in the central office. These factors will have to be carefully reviewed after bids have been received to come up with the best overall design compromises.

The following picture depicts the General Bandwidth voice gateway installed at the Dalton Utilities head-end. The gentleman in the picture is Ray Buzzard from Dalton Utilities.



Voice-mail services will be handled using a stand-alone voice mail system separate from the Class 5 switch. These systems are PC-based and fully automated. A subscriber will be able to configure his/her own voice mail-box immediately after he/she has ordered the feature added to his/her account. The voice-mail system will also support the CRM (customer relationship management) and general management functions by providing automated call processing during peak busy times.

Handling of 411, 911 and operator assistance will be contracted to outside parties. Repair calls (611) will be routed to the CRMs during business hours and to a contracted support service for after hours. Special number shortcuts (i.e.: 199) can be programmed to ring to City departments. No additional equipment is required to support these functions.

C. Internet Access

All of the PON vendors have offered solutions for Internet access that are easy to implement. They all offer the same interface at the customer's premise … 100baseT Ethernet or Fast Ethernet. This is the one area where all vendors have leveled the playing field for the subscriber.

In the central office, there are some subtle differences in how Internet traffic is processed. The vendors offering ePON (GigE) solutions will be able to hand off the Internet traffic to a router (i.e. Cisco) using an Ethernet switch. All of the vendors using the BPON and GPON standards will need to have an ATM switch in order to hand off traffic to the router.

Regardless of the type of PON network deployed, the "demarcation point" to the Internet is in the router. Once the IP packets leave the building, an ISP will need to handle routing to the public Internet.

We have assumed for this model that the City will contract with a third-party such as EarthLink or Yahoo to provide email addresses. These companies offer the option of "co-branded" Web pages. By using these companies, the City will not need to bother with the support infrastructure required to run an ISP. Customers will have a 24-hour support number they can call to get help with their Internet services. They will also be able to access their e-mail using dial-up accounts (at an extra cost) when they are traveling anywhere in the world.

D. Management Support Systems

The business model has also taken into account the IT infrastructure that will be needed to support CRM "customer relationship management", billing and overall management. Computers and software will need to be in place so that the City residents will receive top-notch, locally-based support from the moment they call to place their first order for service. Billing will collect information automatically using machine-to-machine interfaces from the CATV system, telephone service providers and the ISP. The overall customer support relationship will be managed by the locally-based CRM personnel.

E. SCADA Support

It should be noted that the network, as designed, inherently provides the architecture to support SCADA requirements as needed. The ONT used for home installations has the required ports to permit AMR (automated meter reading) in addition to tying the City's entire utility infrastructure together over the network backbone. In effect, this system will turn the entire city into a LAN (Local Area Network) with connect points in convenient locations as required.

F. Public Safety Support

With high-speed data connections available virtually anywhere in town, the City could establish CCTV cameras to provide for monitoring throughout the city. These could be inexpensive "web-cams" mounted on the tops of utility poles and routed back to a monitoring station. With the addition of file-servers, these cameras could be used for traffic control and public safety. Although these add-on services are not included in the business model, they would be easily supported by the infrastructure proposed.

Section IV - Base Business Model

A. Summary Analysis

The base business model demonstrates that the conceptual high-speed broadband system contemplated by the City of Lompoc could succeed in the competitive marketplace. This model envisions a fiber optic network-based solution and incorporates all three services examined: television, high-speed Internet and telephone. Alternative business case scenarios encompassing wireless Internet-only service, fiber optic Internet-only service and fiber optic television and Internet service were also examined. As detailed above, power line networks of any type and wireless networks providing television and/or telephone service were found not to be feasible on technical grounds.

It should be noted that the model makes assumptions about how various functions and tasks will be implemented. Mixes of outsourced, in-house and City-provided solutions are assumed in the model. These assumptions were made solely for cost estimation purposes and should not be considered a prescription for implementation. In nearly every instance, workable alternatives exist (some are discussed below) and, if and when implementation decisions are made, can be evaluated on an economic basis using this model.

The model also uses the conceptual system detailed above as the benchmark design for the purposes of determining the costs of purchasing, installing and operating the fiber optic network infrastructure. Since this conceptual system was chosen on the basis of technical and financial criteria, alternative designs that generally fall within these benchmark parameters would also be supported by this model.

This base model describes a business that begins generating operating income in Year 3 and goes cash flow positive in Year 4. As currently envisioned, break even will occur in Year 12, and capital obligations will be repaid out of operations by Year 15.

As described below, this projected result was determined by generally understating expected revenue and prudently estimating operating expenses. Expenses were estimated using industry average or higher assumptions and using capital expenditure figures that reflect the experience of existing municipal broadband systems without assuming that evolving technology will reduce costs, even though

such assumptions would be justified based on past experience and current vendor expectations.

Despite generally pessimistic and skeptical assumptions, this base business model shows that a City-owned and operated broadband system in Lompoc is feasible.

1. Residential Market

Primary research conducted in the market showed significant demand for television, Internet access and telephony services. The quantitative survey showed that the Lompoc Broadband Network (LBN) will achieve residential penetration rates of 53% for video services, 33% for high-speed Internet access, 36% for feature-rich telephone service and 45% for a low-cost, long-distance package.

This result was tested in qualitative focus group sessions and validated by the experience of other municipalities. In focus groups conducted in Lompoc, the demand for television service and high-speed Internet service was definitively confirmed, both by affirmation of the research findings and consistent expressions of antipathy toward the incumbent providers. Less dissatisfaction was evident regarding current telephone providers, however sufficient interest was expressed to conclude that telephone service would be attractive as an incremental offering if the quality were comparable to existing choices.

Quality and reliability are essential to the success of all services offered, not just telephone service. Attractive pricing and a sufficient range of options are necessary to attract residential customers to any LBN service, but failure to fulfill expectations will quickly lead to the failure of the business.

The penetration rates developed in this research were applied to the total household count in Lompoc and moderated by the estimated construction rate of the fiber optic network. Conservatively, the only annual increase in subscriber numbers was assumed to be due to base population growth in the City of Lompoc, which is estimated to be 1.2% per year. Although it is reasonable to expect that experience gained over the years in operating LBN as well as new service offerings will further increase penetration, the base business model is intended to present a cautious assessment of the system's prospects.

By the end of the development, construction and roll out period, which is estimated to require three years, LBN will have approximately 8,600 residential subscribers, or roughly 61% of the market. Due to population increases, this figure will grow

to about 10,000 subscribers by the end of the initial twenty-year period. Most will subscribe to television services. The remaining households, along with about half of the television subscribers, will buy high-speed Internet and/or telephone service from LBN.

The research also made it possible to break out television subscribers by the amount and type of programming they would buy and to differentiate between high- and low-volume Internet users. Take up of additional features, such as sports packages, home shopping or voicemail, was projected by using a cautious blend of primary and secondary research.

2. Residential Revenue

The quantitative research established a series of penetration levels at given price points for both television and high-speed Internet service. This data was used to establish expected average monthly revenue per subscriber for both types of service. These average revenue figures were determined for modeling purposes and reflect an assumption that consumers will have a range of options from which to choose.

Research indicated that lower prices would afford a substantial competitive advantage. In general, lower price point assumptions, relative to incumbent providers, were used, both to meet market needs and to provide a conservative revenue estimate.

A single price point for local telephone service was tested and used in the business model. Based on secondary research, an assumption was made that an average of 1.5 lines would be provided to each subscriber. The system design analysis determined that a significant opportunity exists to provide flat rate long-distance service to subscribers, and the per-minute price point tested during the market research phase was used to develop a flat rate price of $10 per month.

Monthly revenue figures were matched to the corresponding penetration rates in order to determine monthly and annual revenue totals for specific services. A churn rate of 15% was factored into the model. This figure is a commonly used industry benchmark and is supported by the City utility department's 10% churn rate, which is based on customers moving in and out of town. Because LBN will be operating in a competitive environment, customers may disconnect (or connect) service subscriptions in order to change service provider. Consequently, the higher rate of 15% is in line with the City's current figure for monopoly utility service.

For the purposes of this conservative base business model, it is assumed that per subscriber revenue will not grow over time. Realistically though, as experience builds and new services are developed, incremental growth in revenue can be expected.

Likewise, digital video recording (DVR), true video on demand and other advanced television functions are not included in the model because quantitative market research shows little demand in Lompoc. Advanced television functions can be added to the system in the future, and likely will be, but the revenue generated by such services cannot be meaningfully forecast at this time. However, one of the criteria used in choosing the conceptual system design that forms the basis of this model was its ability to support a wide range of new digital services in the future. When those services become commercially viable, LBN will be able to add those new revenue streams at minimal incremental capital cost.

Advertising revenue has not been included in the model because the expense of selling and inserting local advertising is not justified by expected revenue in the first three years. Installation revenue is minimized based on the assumption that installation will be free for any residential customer ordering digital television service plus Internet or telephone service (i.e., buy a bundle, get installation free). Otherwise, the residential installation fee is benchmarked at $25. Revenue from the rental and support of additional set top boxes is assumed to be $3 per month per box, with an effective penetration rate of 25%. Minimal assumptions have also been made for various service and transactional fees.

3. Commercial Market

Extensive interviews and focus groups were conducted with Lompoc business people. More than half indicated a desire to purchase high-speed Internet and telephone service from LBN. This result was higher than similar estimates from other cities, so in keeping with the conservative approach adopted in the base model, a lower figure of 25% maximum penetration was used. This figure was applied to an estimated 1,000 premises-based businesses and other organizations in Lompoc (source: Lompoc electric utility records), and modified by an accelerated roll out rate that assumes that commercial districts will be reached earlier in the construction phase.

Very little interest was shown in television service by commercial customers, so it was omitted from the base model. However, there will likely be a significant opportunity to generate television revenue from certain types of commercial

accounts, such as hotels or residential care facilities. This opportunity can be pursued once the core business is established.

4. Commercial Revenue

Based on market research information, it was determined that Internet access services would, of necessity, be differentiated from residential service on the basis of quality, features and speed. Consequently, price points are estimated to be higher than those used for residential service:

Standard Internet access service:	$50
Custom Internet access services:	$150
Standard telephone service:	$25
Custom telephone service:	$50
Long distance service:	$20

Two levels of commercial service are assumed: standard and custom. A small number of commercial subscribers are assumed to be candidates for custom Internet and telephone service. These price points are assumed to be averages and are used for budgeting purposes only. The actual menu of services offered to businesses would likely include a much wider range of choices. In this model, custom and standard services are differentiated by the equipment required to provide the service. Standard residential-grade, customer-premise equipment can support the needs of most small and medium-sized businesses. However, past a certain point, more costly equipment is required, and service levels and prices would be determined on a case-by-case basis.

5. Cost of Services Provided

Some expenses associated with providing broadband services represent variable transfer payments to wholesale providers. For the purposes of the analysis, these expenses have been treated separately.

Television programming costs have been estimated as a percentage of programming revenue, using common industry percentages. As a practical matter, it is assumed that LBN will buy programming in bulk from one of the existing wholesale programmer packagers or cooperatives. In this scenario, costs (including administrative and management costs) are generally minimized; however, flexibility in determining which channels will be offered could be limited

in certain respects. It is assumed that to the extent this limitation is an issue, it will be overcome by providing for extra channel capacity and leaving open the option of sourcing programming from multiple vendors if necessary.

The basic cost of Internet service is based on the fixed cost of interconnecting to the Internet, plus a variable cost relating to the amount of bandwidth required. A support cost of $5 per subscriber per month was assumed, on the basis of quotes from potential outsourced providers, however an in-house solution could also fit within the budget parameters established.

Although no variable interconnection charges are required for telephone service, the business model assumes that a third-party telecoms management company will be brought in to manage that segment of the business. The business model assumes that LBN will own the physical facilities, so it should be possible to reduce these costs by managing telephone service in-house in later years. However, for the purposes of the model, it is assumed that these higher costs will continue through the period under analysis. Flat rate long-distance service is benchmarked at a quoted wholesale rate.

6. Operating Expense

Maintenance, training, and software licenses and upgrades account for most of the operating expense associated with running the central office, and a substantial portion of ongoing outside plant and customer-premise equipment costs. The cost figures and estimating methodologies used were obtained from multiple industry and vendor sources and validated by other municipal broadband system operators and contractors. Outside plant maintenance is assumed to be largely sub-contracted to the City Electric Utility and has been estimated using figures provided by the City. Likewise, installation and maintenance of customer-premise equipment is assumed to be outsourced to independent contractors, and the estimated costs reflect the experience of municipalities elsewhere as well as figures obtained from vendors and industry sources.

Ongoing maintenance of customer relationship management and accounting software is estimated to be $40,000 per year, on the basis of past experience. Billing costs are estimated to be $1 per customer per month, plus $150,000 per year in personnel costs. This budget would support an outsourced billing solution as well as supporting the use of existing City billing services, according to estimates provided by the City. Another $1 per customer per month has been budgeted for managing the conditional access system that determines which video

services a given subscriber will receive, along with providing the associated billing information and program guide services.

The model assumes that the City will provide general maintenance, support and utility services to the LBN central office, and general, administrative and personnel services to the enterprise as a whole. The cost of supporting the central office has been estimated by the City at $48,000 per year, and the cost of general and administrative support has been estimated at $500,000 per year, plus some variable personnel expenses detailed below. To the extent possible, the model accounts for the costs that the City will incur in building, operating and supporting LBN, in order to eliminate direct and indirect subsidies.

Sales, general and administrative costs have been benchmarked at relatively low levels. Marketing expenses, for example, should be relatively low given the excellent existing communications and customer relationships that the City electric utility already enjoys. One of the most valuable existing assets identified by the market research is the strong and positive brand identity the electric utility has already achieved. From a sales and marketing perspective, the task at hand is more like expanding an already successful business with well-satisfied customers than starting a new business from scratch. As a general rule-of-thumb, it costs five times as much to sell services to a new customer as it does to sell additional services to an existing customer. As the market research demonstrated, the City has the good fortune to already have, on the whole, an excellent business relationship with its utility customers. A further assumption was made that LBN would be managed with the cost-conscious approach evident in existing City operations.

7. Personnel Expense

In general, the assumption has been made that core, ongoing functions will be handled by full-time staff, while significantly variable or periodic functions, such as customer-premise equipment installation and telemarketing, or part-time functions requiring specialized expertise, will be outsourced. As noted above, these assumptions are made for modeling purposes only and do not represent managerial or policy prescriptions.

The conceptual staffing plan calls for key managers and supervisors to be hired to oversee information technology, customer relations management, operations, field activities and the central office, as well as an overall general manager. Customer relations representatives, central office technicians and specialists in marketing,

sales and administration are also required. It is assumed that employees will receive extensive cross training in order to insure that temporary spikes in particular activities can be efficiently handled.

Two particular functions – billing and outside plant maintenance – are assumed to be handled by existing City staff. The model assumes LBN will compensate the City for these services on the basis of full-time equivalent positions required to accommodate the extra load. These assumptions are for modeling purposes only, and the estimated budget can support other means of carrying out these functions, or other methods of assigning the costs.

Salary levels have been estimated using data obtained from the City regarding comparable existing positions. Benefits and employment taxes have been benchmarked at 40% of salary, and additional overhead directly associated with each employee has been estimated at 10% of salary. These variable costs are in addition to the fixed City cost reimbursements described above.

8. Capital Expense

Capital expenditures have been estimated using figures obtained from industry vendors and existing municipal broadband systems alike. In general, figures at the higher end of a given range have been used in order to produce a cautious assessment of project feasibility. It should be kept in mind that broadband technologies in general and fiber optic technology in particular are rapidly evolving.

Over the six-month span of this feasibility study, new vendors, new products and new technology have emerged that have significantly changed working cost estimates and system design parameters. Prices of capital items have generally dropped, and a fair expectation would be that costs will be somewhat lower still six months from now, when specific decisions have to be made. In that event, this business case will become even more attractive.

Variable capital expense consists primarily of customer-premise equipment. Three specific items will have to be provided: standard network terminals (which hang on the outside of homes and small businesses), advanced terminals for larger businesses and digital set-top boxes for most television customers. More details on the technology choices made in developing a prototype system are available in the technology assessment and conceptual design sections above.

Fixed capital costs include the cost of building and extending the fiber optic network throughout the entire City of Lompoc, constructing a central office building, installing the core facilities for operating a high-speed digital network capable of providing high-speed Internet access services and installing the incremental facilities required to provide television and telephone service. In constructing the system, the majority (approximately 80%) of the fixed capital cost goes toward building the basic infrastructure required to transport large amounts of data throughout Lompoc. Once that infrastructure is in place, video and telephony capabilities can be added for relatively little cost. Capital expenditures and the metrics used to determine those expenditures are itemized in the attached spreadsheets.

Also included in capital expense are maintenance facilities, information technology, legal and regulatory expenses and engineering design work. The figures reflect actual costs incurred by other municipal broadband systems already in operation. The cost of information technology, and particularly the cost of the billing and subscriber management system, was estimated on a conservative basis using a figure of $400,000, which is at the higher end of the range established by existing operators. In that sense, the figure is a worst-case estimate based on necessarily open-ended design questions. Once a system design is finalized, it is likely that this figure will turn out to be less.

Construction costs were estimated using City-provided data regarding the existing electricity distribution infrastructure and real estate costs, as well as information from industry sources, vendors and existing municipal broadband systems.

B. Proforma & Cash Flow Analyses

Standard techniques have been used to produce estimates of operating results, capital budgeting, annual cash flows and present value and internal rate of return analyses.

In addition, a comparison of anticipated system financial value versus nominal equipment replacement needs was done. Over a sufficient period of time, the net financial value of the enterprise (or its surplus cash flow, if the analysis is done in that way) is adequate to meet equipment replacement needs. However, given the continuing evolution of both technology and digital consumer services, it is likely that much of the equipment will be replaced before it wears out, either because the operating cost savings gained by using newer equipment will offset the new capital

spending required, or because the new equipment will enable LBN to offer new services with incremental revenue streams.

For details, please see the Addendum containing the business model spreadsheets.

C. Base Model Scenarios

The base business model was tested to determine how changes in certain overall assumptions would impact its performance.

A series of pessimistic assumptions were tested. The market penetration rate was progressively reduced to a point 20% below the rate indicated by the quantitative primary research. This reduction was then compounded by lowering the revenue forecast by an additional 10%, producing a revenue reduction of 29.1%. At this reduced level of income, holding all fixed capital and operating expenses constant, LBN still achieves positive cash flow by Year 4, and reaches break even with a positive internal rate of return by Year 21. Under this scenario, however, net present value does not turn positive within the 25-year time frame examined.

Reducing the market penetration rate by 10% and compounding it with a further 10% reduction in revenue produces a scenario where revenue drops by a total of 19.6%, positive cash flow appears in Year 4, break even occurs in Year 17 and net present value turns positive by Year 25.

These tests indicate that the model is quite robust, even under worst-case assumptions. Effectively, if revenue drops by nearly 30% for more than 20 years, expenditures remain constant for the same period of time and no changes are made in operating procedures or market strategy, LBN will still be able to support its own on-going operations and steadily pay down its long-term debt. In the real world, of course, such a drop in revenue would be met by aggressive cost cutting and/or marketing tactics, which should improve the financial picture.

Alternatively, more optimistic scenarios were also tested. In the base model, very conservative revenue assumptions were made and market penetration results from other municipalities, where initial projections were exceeded by 5% in actual operation, were ignored. If that 5% increase in expected market penetration is included, and a 5% revenue growth rate is assumed, the financial picture becomes very good indeed. Break even occurs in Year 8, and by Year 15 the net present value of the venture is over $38 million, with an internal rate of return of 18.0%, a

result that begins to make this project attractive even as a private business proposition.

D. Base Model Alternatives

Two lesser alternatives to a full-service fiber optic network were examined: fiber optic networks offering just Internet service (without television or telephone service) and just television and Internet service (without telephone service).

The first alternative simply doesn't work. The operating revenue never exceeds operating expenses, let alone satisfying total cash flow needs, even when expenses are reduced to account for lower subscriber and service levels. Building a fiber optic network solely to provide Internet service to the City of Lompoc is not feasible.

Dropping just telephone service from the base model severely degrades it, but not quite beyond the point of impossibility. In this sense, it is only marginally worse than the most pessimistic base model scenario examined above. Positive cash flow occurs in Year 4, and breakeven occurs in Year 25. Net present value never goes positive during the time frame examined. Total revenue drops by 31.9%; however, lower capital and operating costs offset some of that decrease.

This "no telephone" alternative could work as a business plan, if no financial return on investment is required and if the remainder of the base model performs at least as well as expected. However, adding telephone service to the mix greatly increases revenue with little addition to capital and operating costs.

E. Wireless Internet Service

1. Wi-Fi-based Internet Service

One of the options examined was offering wireless data service via unlicensed spectrum using the IEEE 802.11 standards, otherwise known as Wi-Fi service. Under this scenario, the City would install wireless access points on utility poles throughout town, and subscribers would access the service using their own equipment. A conditional access system would be set up, whereby only subscribers would be able to use the system, although it would be possible to make a limited amount of information, such as a city business directory, available freely.

A Wi-Fi network is relatively simple to deploy and could be fully functional within weeks or months of beginning implementation.

The quantitative research conducted in the City of Lompoc by McKibben Consulting identified a significant demand for Internet service, of any kind. Further focus group and one-on-one interview testing demonstrated that potential subscribers find Wi-Fi service to be an acceptable alternative, so long as it meets quality of service requirements.

The market penetration rate of a Wi-Fi based Internet service system was projected by taking the low speed (250 kbps) service penetration rate of 33% generated by the quantitative research and reducing it by 10% as a conservative way of accounting for potential quality of service issues that could arise in actual operations. A higher churn rate of 18% was also assumed, to account for subscribers who drop service in favor of potentially higher speed options.

The operating cost associated with a Wi-Fi network is considerably lower than the cost of running a fiber optic network. Central office facilities are limited to one or two racks of equipment, which could be accommodated in existing space. Although some day-to-day supervision and monitoring is required, it is not labor intensive. Some outside plant maintenance would be required on an ongoing basis, but the nature of the Wi-Fi access points is such that the most important skills required are those associated with electrical wiring and utility pole maintenance, skills already in good supply. No customer-premise equipment would be supplied or maintained by the City of Lompoc.

Customs relations management and billing would be greatly simplified. Only one level of residential service would be offered, and one level of commercial service. These functions can be handled in-house or contracted out. Information technology, sales and general and administrative costs would also be significantly lower.

The difference in capital costs between a fiber optic network and a Wi-Fi network is dramatic. Where a fiber optic network would require a capital investment in the $25 million range, the capital requirements of a Wi-Fi network (including working capital) would be just over $1 million.

Although the expected revenue from a Wi-Fi network would be nearly 90% lower than expected from a full-service fiber optic network, the lower costs make for a much more attractive financial picture. A Wi-Fi network would turn cash flow

positive in Year 2, would hit full break even by Year 9 and achieve a positive net present value with full retirement of debt by Year 10. The internal rate of return after 15 years would be 12.2%, with a net present value of $721 thousand, which is more than sufficient to support upgrades and expansion of the Wi-Fi network.

2. Wi-Fi Scenarios

As with a fiber optic-based network, both pessimistic and optimistic scenarios were tested. The Wi-Fi network business model is more sensitive to revenue decreases (and increases) than the business model for a full-featured fiber optic network. Dropping revenue projections by 10% degraded results to the point where full break even does not occur until Year 16, although positive cash flow still comes in Year 2. Dropping market penetration projections by 20% pushes positive cash flow into Year 6, and break even to Year 23, with negative net present values all the way through the period examined.

On the other hand, a cautiously optimistic scenario where market penetration is increased by 5% (which is still 5% under forecast level) and a 5% rate of revenue increase is assumed, full break even occurs in Year 5, and by Year 15 the net present value of the system is $6.2 million with a 37.3% internal rate of return.

3. Combined Fiber and Wi-Fi Model

Finally, an alternative was considered where the City of Lompoc builds both Wi-Fi and fiber optic-based networks. The advantage of this approach is that service can begin very rapidly, within weeks or months of a decision being made, allowing the City to take advantage of current market conditions and gain a lead over potential competition. A further advantage is that an early Wi-Fi system can serve to jump start the introduction of a full-service fiber optic network a year or so later, providing a valuable training and test bed, as well as ready-made brand identity and consumer awareness.

The disadvantage of such an approach is potential dilution of effort and market share. It is assumed in the combined model that the City will be able to upgrade residential and commercial wireless subscribers to fiber-based service and over time upgrade those subscribers to higher levels of service and subscription revenues. It is possible that Wi-Fi service will, in effect, pre-empt the City's own fiber optic upgrade, although that possibility is not deemed likely. In addition, the

relatively low operating and capital costs of a Wi-Fi network would not be burdensome to the overall business model.

The combined model assumes a greater level of operating and capital costs in the first year of operation than assumed for the Wi-Fi model alone, even though effectively the same network infrastructure would be installed and the same level of service would be offered. Part of the assumption is that the venture would be initially sized with the expansion plans of the coming years in mind. Although it would be quite possible, and potentially very desirable, to deploy an early Wi-Fi-based network as a market test for a later fiber optic network, there will be some costs incurred by canceling fiber optic deployment plans.

Using the conservative assumptions made for the base, fiber optic-based business model, moderated in the initial year of service by the more conservative assumptions made for a Wi-Fi-based model, a combined Wi-Fi-fiber optic system will go cash flow positive by the 4th year of operation and reach full break even by the 12th year. This result is the same as produced by the base, fiber optic-only model. In the 15th year of operation, the net present value of the system would be $2.4 million, with a 5.8% internal rate of return, which is marginally better than the results obtained with just the base fiber optic model alone.

Section V- Business Case

A. Staffing Summary

The proforma business plan incorporates a lean staffing model. In general, operational and supervisory personnel would be cross-trained to handle peak loads and emergencies. For example, the marketing coordinator, account executive and administrative assistant would have sufficient proficiency with the customer relations management system to be able to provide emergency support to customer relations representatives in the event of a major service outage. Likewise, central office technicians would be able to assist the field operations supervisor in maintaining service during a severe storm.

Managers would be given budgetary authority and flexibility to hire independent contractors when appropriate.

Information technology and operational systems specifications would include as a priority the requirement that minimal staff be required for ongoing operations and rapid maintenance and support service be available from vendors.

1. Job Descriptions

a. General Manager, Telecom Services

Has overall profit and loss responsibility for LBN. Oversees the operations, information technology and customer relations management departments, including top-level responsibility for ensuring smooth workflow and coordination between the three departments. Works directly with the account executive and marketing coordinator to supervise sales and marketing functions. Responsible for overall planning and service development and strategic direction. Reports to the City Utility Director.

b. IT Manager

Prime responsibility is ensuring that the customer relations management, subscriber management and billing systems properly communicate with each other and adequately support the current and future needs of the respective departments. Secondary responsibilities are managing day-to-day information technology needs and serving as an advisor to operations and technical managers. Reports to the General Manager.

c. Account Executive

Principally responsible for selling LBN services to commercial accounts, with priority given to custom Internet and telephone service customers. Reports to the General Manager.

d. Marketing Coordinator

Develops and implements targeted marketing initiatives. Manages relationships with telemarketing, direct marketing and advertising service providers. Serves as public relations and community affairs contact. Reports to the General Manager.

e. Administrative Assistant

Provides administrative support to the LBN organization, as determined by the General Manager. Serves as a general liaison for city staff. Reports to the General Manager.

f. Customer Relations Manager

Has overall responsibility for managing orders, service requests and trouble reports from existing customers and creating and activating accounts for new customers. Works with city billing and accounting departments to establish and maintain credit, payment and collection policies. Supervises and trains customer relations representatives. Plans and manages CRM system development. Reports to the General Manager.

g. Customer Relations Representatives

Take incoming telephone questions, orders and requests from subscribers and potential subscribers, enter the information into the customer relations management system and perform necessary follow-up work. Serve as primary point of contact for the general public. Report to the Customer Relations Manager.

h. Operations Manager

Has overall responsibility for all technical operations and standards, including, outside plant and customer premise provisioning and maintenance, outsourced technical support and technical and non-technical services provided by the City of Lompoc. Has specific responsibility for overseeing central office operations and

managing the network's technical development road map. Reports to the General Manager.

i. Field Operations Supervisor

Sets standards, policies and practices for utility department personnel assigned to maintain and upgrade the outside fiber optics network. Plans and schedules routine outside plant work, prioritizes urgent tasks and directly responds to emergencies. Works with utility department chain of command to ensure LBN objectives and needs are met. Supervises and manages outsourced customer premise equipment installation and maintenance. Reports to the operations manager.

j. Central Office Supervisor

Responsible for day-to-day central office operations, maintenance and provisioning. Assists operations manager in planning and implementing system upgrades. Supervises and trains central office technicians and serves as a liaison to contract technical operations personnel. Reports to the Operations Manager.

k. Central Office Technicians

Operate and maintain central office equipment and operate and monitor network infrastructure. Ensure that network operations and customer service implementation meet highest standards of quality. Serve as contingency backup for field operations emergencies. Report to the Central Office Supervisor.

B. Phased Build-Out Plan

In determining a time-line for a project of this magnitude, it is necessary to establish some basic assumptions. The first assumption is that once final approval for the project is given, there will be no artificial delays imposed by factors such as availability of financing. The second assumption is that there will be no extended trial period during the build-out phase. A trial period typically involves a partial build-out with a programmed halt in construction until a decision is reached to either continue or abandon the project. Because the technology being proposed in the Conceptual Design is now being deployed in other cities, a trial period is not necessary or recommended.

The financial Business Model described in Section IV above assumes a phased build-out of a Passive Optical Network system over a 3-year period of time. The time to complete is influenced by two issues: (a) the time necessary to build the physical plant facilities and (b) the time necessary for potential customers to learn of the new services and choose to become subscribers.

1. Project Vendors – Relationships & Hierarchy

During the construction phase of the project, there will be many different vendors required. For example:

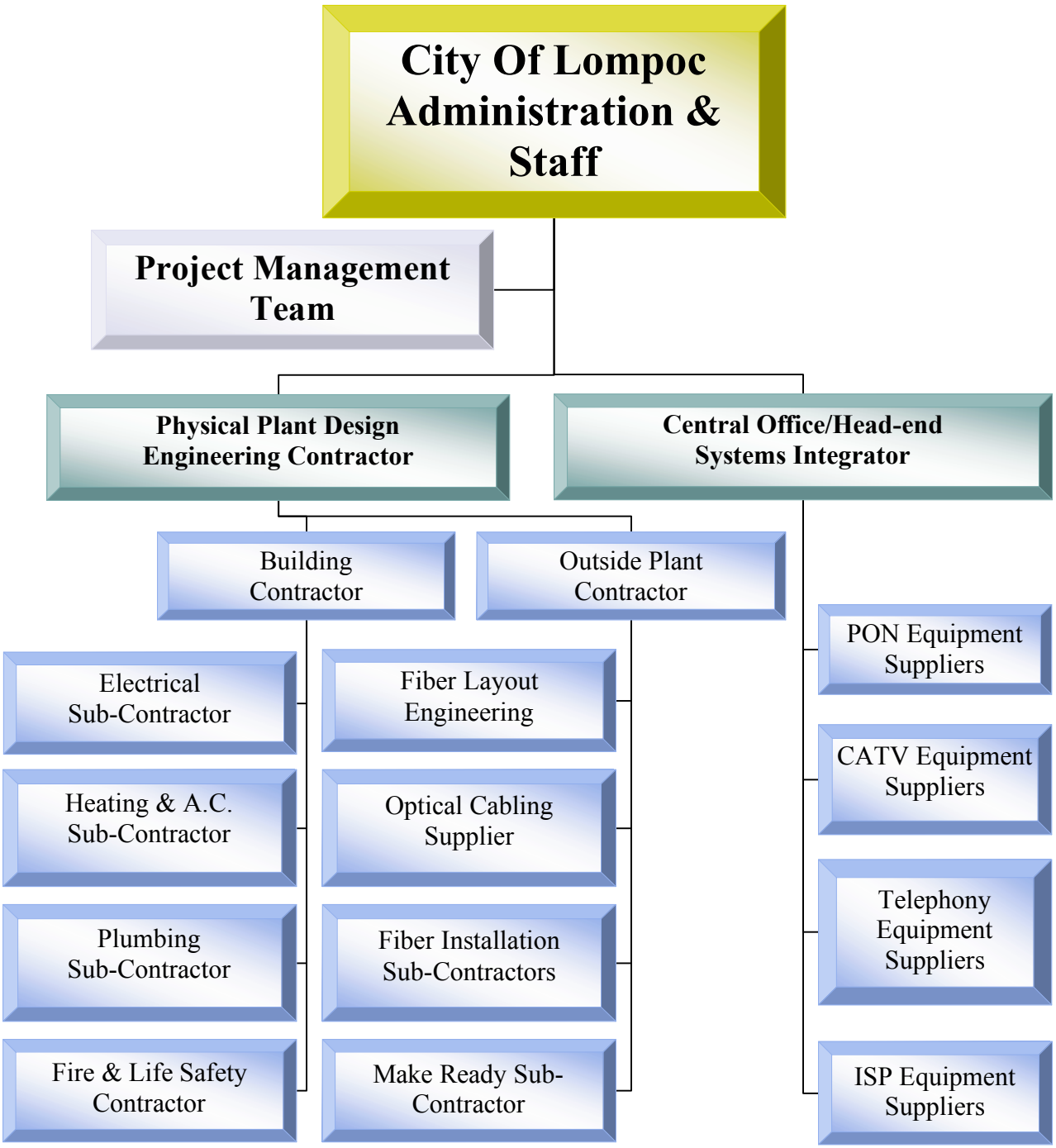
- PON equipment supplier
- Fiber Optic Cabling (outside plant) supplier
- Engineering Design company
- Central Office building construction company
- Outside Plant construction company
- Video Head-end equipment supplier
- Telephony equipment supplier
- Data/Internet equipment supplier
- Head-end/Central Office equipment integrator
- Overall Project Management organization

Each of these vendors will run a number of sub-contractors and will require a well-defined Scope of Work going into the project.

The first resource that the City should retain is a specialized Project Management Team to help administrate the project and coordinate the activities of all contractors. The Project Management Team must have a solid understanding of all

aspects of the entire project. The Project Management team should be involved in drafting all Scope of Work and RFP documents. This team should also be tasked with assisting the City in interviewing and validating the capabilities of each of the contractors prior to their selection by the City.

The diagram below shows a suggested relationship hierarchy for the project:



2. Likely Phasing Scenario

Construction of the PON fiber network will likely be broken into phases to allow the contractor to sequence the work logically. A city the size of Lompoc lends itself to a 4 quadrant approach. The exact dimensions of each quadrant cannot be determined until the engineering analysis of the City's infrastructure has been completed. For this exercise, it is not necessary to define the quadrants.

Once vendor selection is complete, construction should begin simultaneously on the outside plant and the central office/head-end building. Given that the building will need to be finished before any equipment can be installed, it's important to move the building construction to the highest priority level.

3. Sample Project Schedule

The tasks that will drive the system roll-out schedule are those tied to the construction of the physical plant facilities. While there are many tasks that will need to be accomplished on the business organization side of the fence, these are not as critical to getting the business operational. Until the physical facilities are in place, there can be no retail services offered. The project schedule below is shown as an example. It depicts the major physical construction activities that will determine when the City can offer services to all persons in Lompoc. This schedule is based on the Conceptual Design contained in this report:

FTTH - PON Broadband Services Project – Sample Construction Schedule

"X" as used in this chart refers to the project start date or decision to proceed

Task Description	Duration	Earliest Start	Likely Finish
Create Lead Vendor RFPs	30 days	X + 15 days	X + 45 days
Receive Bids and Choose Lead Vendors	60 days	X + 45 days	X + 105 days
Initial Physical Plant Engineering	30 days	X + 105 days	X + 135 days
Develop Rate Packages	60 days	X + 30 days	X + 90 days
Obtain All Necessary Permits	45 days	X + 135 days	X + 180 days
Construct Central Office Building	90 days	X + 180 days	X + 270 days
Construct Phase 1 – Outside Fiber Plant	90 days	X + 180 days	X + 270 days
Construct CATV Head-end	60 days	X + 270 days	X + 330 days
Construct ISP Central Office Plant	30 days	X + 270 days	X + 300 days
Construct Telephone Central Office Plant	30 days	X + 270 days	X + 300 days
Commence Retail Services	n/a	X + 300 days	n/a
Construct Phase 2 – Outside Fiber Plant	120 days	X + 270 days	X + 390 days

FTTH - PON Broadband Services Project – Sample Construction Schedule "X" as used in this chart refers to the project start date or decision to proceed			
Task Description	**Duration**	**Earliest Start**	**Likely Finish**
Construct Phase 3 – Outside Fiber Plant	120 days	X + 390 days	X + 510 days
Construct Phase 4 – Outside Fiber Plant	120 days	X + 510 days	X + 630 days

As demonstrated in the above table, it is feasible to have the entire PON system built in less than two years if an aggressive construction schedule can be maintained. From a practical standpoint, projects seldom proceed exactly on an ideal schedule. For this reason, the Business Model has allowed for up to three years for the system to be finished. This should accommodate unscheduled delays in the project.

4. Wireless (Wi-Fi) Sample Project Schedule

This section discusses the likely steps and schedule for deploying a Wi-Fi network throughout the City. This assumes roughly 16 Wi-Fi Access Points per square mile for a total of 88 initially. The average time to install an access point is 2 hours. Four work crews each working a normal day can easily install 8 units per day. At this rate, the access point installations would be up and running in about 2 weeks.

There is some configuration "tweaking" that will be required once the access points are installed. Allowing 30 days for this activity, the project will still be completed in a very short time.

Here's a possible schedule for a Wi-Fi system deployment:

Wi-Fi Network Deployment Schedule "X" as used in this chart refers to the project start date or decision to proceed			
Task Description	**Duration**	**Earliest Start**	**Likely Finish**
Create Vendor RFPs	30 days	X + 15 days	X + 45 days
Receive Bids and Choose Vendors	60 days	X + 45 days	X + 105 days
Initial Engineering	30 days	X + 105 days	X + 135 days
Obtain All Necessary Permits	45 days	X + 135 days	X + 180 days
Install Terminal Equipment for ISP Access	30 days	X + 135 days	X + 165 days
Install All Access Points	15 days	X + 180 days	X + 195 days

Wi-Fi Network Deployment Schedule

"X" as used in this chart refers to the project start date or decision to proceed

Task Description	Duration	Earliest Start	Likely Finish
Conduct Systems Tests	30 days	X + 195 days	X + 225 days
Begin Retail Services	n/a	X + 225 days	n/a

As the above table demonstrates, it will take longer to select the vendors and get the permits than it will to build the system and place it into operation.

C. ISP Plan

1. Internet-Only Scenario

Revenue from a broadband service that only offers high-speed Internet access will not support the cost of building and operating a fiber-to-the-home network. As the attached spreadsheet shows, such a service never achieves an operating profit. Every time a subscriber is added, losses increase, and this trend continues forever.

The capital invested will never be repaid, and under this scenario the system will require an operating subsidy of about $2 million per year for the first three years, and about $1 million per year afterwards.

Although some expenses can be cut from the base business model if video and telephony services are eliminated, a fiber-to-the-home network has a high fixed capital cost, and any sort of facilities-based telecommunications operating requires a certain level of fixed operating expense. If these expenses cannot be leveraged by additional services, such as television and telephone, the investment will be lost.

If an Internet-only service is desired, alternate network architectures must be considered. One possibility is to investigate potential partnerships with wireless Internet access providers. In such a scenario, the lower cost of wireless infrastructure combined with the ability of a private company to leverage fixed costs over several municipalities could combine to produce an attractive business case.

2. ISP Service Plan Spreadsheet

See Addendum for ISP Service Plan Spreadsheet.

D. Potential Third-Party Relationships

Looking at trends in other municipalities throughout the country, there are 2 basic business models that have evolved in recent years:

- The "Triple-Play" approach is the model believed to be the most viable for the City of Lompoc. Under this scenario, the City will own and operate all of the facilities including the outside plant, the video head-end, the ISP and the telephony services. The relationship with the consumer will be controlled by the City. Services will be offered through a "one-stop" shopping approach so that consumers can order any flavor of service with one phone call. While some of the functions associated with these services will be sub-contracted to other entities, this fact is invisible to the consumer. Ultimate control of the customer experience will be maintained by the City. Services provided in a Triple-Play model can be branded in a manner to allow bundling. For example, a consumer might receive a $5/month discount on Internet service if he/she is also purchasing television services. This ultimately results in the consumer paying less as he/she takes advantage of bundling offers.

- The second model is the "Open-Access" model. Cities that are currently following this path are putting in the fiber infrastructure but leaving it to third parties to provide the actual services. The third-party providers pay a fee for access to the fiber network. Consumers are given the choice of selecting service providers based on their personal preference. They must make multiple phone calls and shop for differences in service quality and features. In theory, giving consumers these choices makes it more likely that they will be happy with the results. In practice, consumers end up with an often bewildering selection of vendors. Everything is "ala carte", so there is seldom an opportunity to bundle services to achieve savings in monthly fees. Bills for telephone, ISP and television services will all arrive separately.

After reviewing the track record of cities that are implementing FTTH, the Open-Access model is not recommended for Lompoc. The customer experience in the Open-Access systems reviewed during this study has not been positive. There is often a significant amount of marketplace confusion as customers try to sort out all the different choices. Many of the content suppliers have encountered financial difficulties trying to compete in an Open-Access environment and some have failed altogether … leaving disenfranchised and unhappy consumers behind.

Open-Access, in some cases, has actually resulted in a free-for-all that is more difficult to administrate than simply providing the services directly under the Triple-Play model.

In some states, regulatory constraints have been imposed prohibiting individual municipalities from pursuing the Triple-Play model. For example, the State of Washington does not permit municipalities to provide telecommunications services directly. In Grant County, Washington, there is an Open-Access FTTH system operating. It has not been viewed as a successful deployment by those in the FTTH business.

Some of the incumbent service providers have fostered the Open-Access model and have lobbied very hard to get bills passed prohibiting cities from going with the Triple-Play approach. It's safe to assume that by promoting the Open-Access model, these incumbent service providers are trying to make it difficult for competition to evolve in these states. It can also be assumed that the incumbent providers feel they will have less trouble competing with the Open-Access providers.

Fortunately, the State of California has not yet restricted municipalities from providing telecommunication services directly. The U.S. Congress and the F.C.C. have also indicated that there should be no restrictions on municipalities providing telecommunications services directly.

Given that the Open-Access model is not recommended, there is really no joint-venture relationship that will support the Triple-Play scenario. The City only has 2 choices with respect to the Triple-Play scenario … (a) build the system and operate it or (b) don't build the system and hope that a private entity will. Unfortunately, there is no indication that any private entity will be proposing to build a FTTH system in Lompoc in the foreseeable future. This is evidenced by the fact that both Verizon and Comcast, the largest stakeholders in the Lompoc telecommunications market, have not announced any intention to provide advanced services to the citizens of Lompoc. On the contrary, they are providing services inferior to what's being offered to their customers in larger cities throughout the country.

The only area where the City should consider partnering with a third party is in the Wi-Fi arena. Lompoc can get significant leverage by linking up with a third-party service company to provide wireless services to the City. At least one entity has expressed interest in partnering with the City to develop a Wi-Fi network.

Here are two examples of Wi-Fi relationships that might work for Lompoc:

Scenario Description	Obvious "Pros"	Possible "Cons"
The City agrees to allow a third-party Wi-Fi operator to build access points on City-owned street lamps. The City makes no investment. The City collects "rent" for the use of the street lamps.	The City doesn't have to develop any expertise to operate or market the service. Citizens and visitors will have access to high-speed Internet without having to be plugged into a network. The City doesn't have to make any investment in equipment … thereby limiting risk.	Should the third party go out of business or enter bankruptcy, there could be a lot of useless equipment installed on the poles while things get sorted out in court. The City might have trouble collecting monies due with little practical recourse. Customers left high and dry will certainly be upset and could be unhappy with the City.
The City purchases and installs a Wi-Fi access point system and then leases it outright to a third-party operator for a negotiated monthly or quarterly lease fee. The lease fee will recover the City's cost over a reasonable period of time (such as 5 years).	The City doesn't have to develop any expertise to operate or market the services. The City maintains title in the equipment and control of the situation should the third party operator go out of business. The City could include terms allowing it to use the system for internal requirements such as public safety and promoting the City to visitors.	The City might be left holding the bag on the investment if the Wi-Fi operator cannot make timely payments on the system. This is mitigated by the fact that the City could begin operating the system itself on fairly short notice or offer the system to another entity.

VII. Addendum

NOTE: The following pages contain the spreadsheets related to the base Business Model as well as the various scenarios considered.

For more information concerning this report in general or these spreadsheets specifically, please contact:

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Base Model: TV, Telephone & Internet via Fiber

Residential Market	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Lompoc HHs	13,854	14,023	14,194	14,367	14,542	14,719	14,898	15,079	15,263	15,449	16,413	17,437
Roll out rate	25%	75%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Service profile (year end)												
Basic TV subs	104	316	426	431	436	442	447	452	458	463	492	523
Digital TV subs	1,732	5,259	7,097	7,183	7,271	7,359	7,449	7,540	7,632	7,724	8,206	8,719
Premium TV subs	1,108	3,366	4,542	4,597	4,653	4,710	4,767	4,825	4,884	4,944	5,252	5,580
Latino TV pkg subs	208	631	852	862	872	883	894	905	916	927	985	1,046
Pay per view users	190	578	779	789	798	808	818	828	838	848	901	957
Assumed PPV growth		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Monthly buy rate	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
Sports package subs	459	1,394	1,881	1,904	1,927	1,950	1,974	1,998	2,022	2,047	2,175	2,310
High-speed Internet subs	1,143	3,471	4,684	4,741	4,799	4,857	4,916	4,976	5,037	5,098	5,416	5,754
Transactional services penetration rate increase	5%	5%	5%	5%	5%	0%	0%	0%	0%	0%	0%	0%
Transactional services penetration rate	5%	10%	15%	20%	25%	25%	25%	25%	25%	25%	25%	25%
Transactional services users	57	347	703	948	1,200	1,214	1,229	1,244	1,259	1,275	1,354	1,439
Local telephony subscriber lines	1,870	5,679	7,665	7,758	7,852	7,948	8,045	8,143	8,242	8,342	8,863	9,416
Voicemail subs	935	2,840	3,832	3,879	3,926	3,974	4,022	4,071	4,121	4,171	4,431	4,708
Long distance subs	951	2,887	3,896	3,944	3,992	4,040	4,089	4,139	4,190	4,241	4,505	4,786

Base Model: TV, Telephone & Internet via Fiber

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Service profile (average)												
Basic TV subs	52	210	371	428	434	439	444	450	455	461	489	520
Digital TV subs	866	3,495	6,178	7,140	7,227	7,315	7,404	7,494	7,586	7,678	8,157	8,666
Premium TV subs	554	2,237	3,954	4,570	4,625	4,682	4,739	4,796	4,855	4,914	5,221	5,546
Latino TV pkg subs	104	419	741	857	867	878	889	899	910	921	979	1,040
Pay per view users	95	384	678	784	794	803	813	823	833	843	896	952
High-speed Internet subs	571	2,307	4,077	4,712	4,770	4,828	4,887	4,946	5,007	5,067	5,384	5,720
Transactional services users	29	202	525	825	1,074	1,207	1,222	1,237	1,252	1,267	1,346	1,430
Local telephony subscriber lines	935	3,775	6,672	7,711	7,805	7,900	7,997	8,094	8,192	8,292	8,810	9,359
Voicemail subs	468	1,887	3,336	3,856	3,903	3,950	3,998	4,047	4,096	4,146	4,405	4,680
Long distance subs	475	1,919	3,392	3,920	3,968	4,016	4,065	4,114	4,165	4,215	4,478	4,758
Activation profile												
Net new subs - total	2,113	4,303	2,243	105	107	108	109	111	112	113	120	128
Gross new subs - total	2,113	4,620	3,205	1,404	1,421	1,439	1,456	1,474	1,492	1,510	1,604	1,704
Disconnecting subs - total	0	317	962	1,299	1,315	1,331	1,347	1,363	1,380	1,397	1,484	1,576
Net new digital TV subs	1,732	3,527	1,838	86	87	89	90	91	92	93	99	105
Gross new digital TV subs	1,732	4,316	2,903	1,164	1,178	1,192	1,207	1,222	1,237	1,252	1,330	1,413
Disconnecting digital TV subs	0	789	1,065	1,077	1,091	1,104	1,117	1,131	1,145	1,159	1,231	1,308
Net new residential Internet subs	1,143	2,328	1,213	57	58	58	59	60	61	61	65	69
Gross new residential Internet subs	1,143	2,848	1,916	768	778	787	797	806	816	826	878	932
Disconnecting residential Internet subs	0	521	703	711	720	729	737	746	756	765	812	863
Net new telephone subscriber lines	935	2,840	2,897	1,039	94	95	96	97	99	100	106	113
Gross new telephone subscriber lines	935	2,980	3,463	2,040	1,251	1,266	1,281	1,297	1,313	1,329	1,412	1,500
Disconnecting telephone subscriber lines	0	140	566	1,001	1,157	1,171	1,185	1,199	1,214	1,229	1,306	1,387
Residential market summary												
Residential subscribers (year end)	2,113	6,416	8,658	8,764	8,870	8,978	9,088	9,198	9,310	9,424	10,012	10,637
Residential subscribers (average)	1,056	4,264	7,537	8,711	8,817	8,924	9,033	9,143	9,254	9,367	9,952	10,573

Base Model: TV, Telephone & Internet via Fiber

Residential Revenue ($000)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Assumed revenue growth		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Compounded revenue growth		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Television revenue												
Basic TV revenue	$12	$50	$89	$103	$104	$105	$107	$108	$109	$111	$117	$125
Digital TV revenue	$395	$1,594	$2,817	$3,256	$3,296	$3,336	$3,376	$3,417	$3,459	$3,501	$3,720	$3,952
Premium TV revenue	$106	$428	$756	$874	$885	$895	$906	$917	$928	$940	$998	$1,061
Latino TV pkg revenue	$8	$34	$59	$69	$69	$70	$71	$72	$73	$74	$78	$83
PPV revenue	$9	$36	$63	$73	$73	$74	$75	$76	$77	$78	$83	$88
Sports package revenue	$115	$348	$470	$476	$482	$488	$493	$500	$506	$512	$544	$578
TV revenue sub-total	$645	$2,489	$4,254	$4,850	$4,909	$4,969	$5,029	$5,090	$5,152	$5,215	$5,540	$5,886
Internet revenue												
Internet service revenue	$218	$881	$1,557	$1,799	$1,821	$1,843	$1,866	$1,889	$1,912	$1,935	$2,056	$2,184
Telephone revenue												
Local phone service revenue	$309	$1,246	$2,202	$2,545	$2,576	$2,607	$2,639	$2,671	$2,704	$2,736	$2,907	$3,089
Long distance service revenue	$57	$230	$407	$470	$476	$482	$488	$494	$500	$506	$537	$571
Telephone revenue sub-total	$366	$1,476	$2,609	$3,015	$3,052	$3,089	$3,127	$3,165	$3,203	$3,242	$3,445	$3,660
Misc. revenue												
Advertising revenue	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
CPE installation revenue	$21	$36	$26	$14	$14	$14	$14	$14	$14	$15	$16	$16
Telephone line installation revenue	$28	$89	$104	$61	$38	$38	$38	$39	$39	$40	$42	$45
Extra set top box rental and support	$1	$5	$9	$11	$11	$11	$11	$11	$11	$12	$12	$13
Service & support revenue	$11	$32	$43	$44	$44	$45	$45	$46	$47	$47	$50	$53
Net telephone service charges	$22	$68	$92	$93	$94	$95	$97	$98	$99	$100	$106	$113
Transactional revenue	$0	$0	$0	$0	$1	$1	$1	$1	$1	$1	$1	$1
Misc. revenue sub-total	$83	$231	$275	$223	$201	$204	$206	$209	$211	$214	$227	$241
Total residential revenue	$1,312	$5,077	$8,695	$9,887	$9,983	$10,105	$10,228	$10,352	$10,478	$10,606	$11,268	$11,971

Base Model: TV, Telephone & Internet via Fiber

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Commercial Market												
Lompoc medium/small businesses	1,004	1,016	1,029	1,041	1,054	1,067	1,080	1,093	1,106	1,120	1,189	1,264
Lompoc large businesses	233	236	239	242	245	248	251	254	257	260	276	293
Roll out rate	50%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Service profile (year end)												
Standard Internet	100	203	206	208	211	213	216	219	221	224	238	253
Standard phone lines	113	229	231	234	237	240	243	246	249	252	268	284
Custom Internet	23	47	48	48	49	50	50	51	51	52	55	59
Custom phone lines	26	53	54	54	55	56	56	57	58	58	62	66
Voicemail	56	114	116	117	119	120	121	123	124	126	134	142
Long distance	46	94	95	96	97	99	100	101	102	103	110	117
Service profile (average)												
Standard Internet	50	152	204	207	209	212	215	217	220	223	236	251
Standard phone lines	56	171	230	233	236	239	241	244	247	250	266	283
Custom Internet	12	35	47	48	49	49	50	50	51	52	55	58
Custom phone lines	13	40	53	54	55	55	56	57	57	58	62	66
Voicemail	28	85	115	116	118	119	121	122	124	125	133	141
Long distance	23	70	94	96	97	98	99	100	102	103	109	116
Activation profile												
Net new standard subs	126	129	3	3	3	3	3	3	3	3	4	4
Gross new standard subs	126	141	28	29	29	30	30	30	31	31	33	35
Disconnecting standard subs	0	13	25	26	26	26	27	27	27	28	29	31
Net new custom subs	29	30	1	1	1	1	1	1	1	1	1	1
Gross new custom subs	29	33	7	7	7	7	7	7	7	7	8	8
Disconnecting custom subs	0	3	6	6	6	6	6	6	6	6	7	7
Net new commercial Internet subs	124	127	3	3	3	3	3	3	3	3	4	4
Gross new commercial Internet subs	124	152	28	29	29	29	30	30	31	31	33	35
Disconnecting commercial Internet subs	0	25	25	26	26	26	27	27	27	28	29	31
Net new telephone subscriber lines	139	143	3	3	4	4	4	4	4	4	4	4
Gross new telephone subscriber lines	139	156	32	32	32	33	33	34	34	34	37	39
Disconnecting new telephone subscriber lines	0	14	28	29	29	29	30	30	30	31	33	35

Base Model: TV, Telephone & Internet via Fiber

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Commercial market summary												
Standard commercial subscribers (year end)	126	254	257	260	263	267	270	273	277	280	297	316
Custom commercial subscribers (year end)	29	59	60	60	61	62	63	63	64	65	69	73
Commercial subscribers (year end)	155	313	317	321	325	329	333	337	341	345	366	389
Commercial subscribers (average)	77	234	315	319	323	327	331	335	339	343	364	387

Commercial Revenue ($000)

Assumed revenue growth		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Compounded revenue growth		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Standard Internet	$45	$137	$184	$186	$189	$191	$193	$196	$198	$200	$213	$226
Standard phone lines	$17	$51	$69	$70	$71	$72	$72	$73	$74	$75	$80	$85
Custom Internet	$21	$63	$85	$86	$88	$89	$90	$91	$92	$93	$99	$105
Custom phone lines	$8	$24	$32	$32	$33	$33	$34	$34	$34	$35	$37	$39
Voicemail	$2	$5	$7	$7	$7	$7	$7	$7	$7	$8	$8	$8
Long distance	$11	$23	$23	$23	$23	$24	$24	$24	$25	$25	$26	$28
Commercial subscription revenue	$104	$303	$400	$405	$410	$415	$420	$425	$430	$436	$463	$492
CPE installation revenue	$15	$17	$4	$4	$4	$4	$4	$4	$4	$4	$4	$4
Telephone line installation revenue	$4	$5	$1	$1	$1	$1	$1	$1	$1	$1	$1	$1
Service & support revenue	$1	$2	$2	$2	$2	$2	$2	$2	$2	$2	$2	$2
Total commercial revenue	$124	$326	$406	$411	$416	$421	$426	$432	$437	$442	$470	$499

Base Model: TV, Telephone & Internet via Fiber

Market & Revenue Recap ($000)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Total subscribers (year end)	2,267	6,729	8,975	9,084	9,195	9,307	9,420	9,535	9,651	9,769	10,378	11,026
Total subscribers (average)	1,134	4,498	7,852	9,030	9,140	9,251	9,364	9,478	9,593	9,710	10,316	10,959
Television subscribers (year end)	1,836	5,574	7,523	7,614	7,707	7,801	7,896	7,992	8,089	8,188	8,699	9,242
Internet subscribers (year end)	1,267	3,721	4,937	4,998	5,058	5,120	5,182	5,245	5,309	5,374	5,709	6,066
Telephone subscriber lines	2,009	5,961	7,950	8,047	8,145	8,244	8,344	8,446	8,549	8,653	9,193	9,766
Residential television service revenue	$645	$2,489	$4,254	$4,850	$4,909	$4,969	$5,029	$5,090	$5,152	$5,215	$5,540	$5,886
Residential Internet service revenue	$218	$881	$1,557	$1,799	$1,821	$1,843	$1,866	$1,889	$1,912	$1,935	$2,056	$2,184
Commercial Internet service revenue	$66	$200	$269	$273	$276	$279	$283	$286	$290	$293	$312	$331
Internet service revenue	$284	$1,081	$1,826	$2,072	$2,097	$2,123	$2,149	$2,175	$2,201	$2,228	$2,367	$2,515
Residential phone service revenue	$366	$1,476	$2,609	$3,015	$3,052	$3,089	$3,127	$3,165	$3,203	$3,242	$3,445	$3,660
Commercial phone service revenue	$38	$103	$131	$132	$134	$136	$137	$139	$141	$142	$151	$161
Phone service revenue	$403	$1,579	$2,739	$3,147	$3,186	$3,225	$3,264	$3,304	$3,344	$3,385	$3,596	$3,820
Misc. revenue	$104	$254	$281	$229	$207	$210	$213	$215	$218	$220	$234	$249
Operating revenue	$1,436	$5,403	$9,101	$10,298	$10,399	$10,526	$10,654	$10,784	$10,915	$11,048	$11,738	$12,470

Base Model: TV, Telephone & Internet via Fiber

Cost of Services Provided ($000)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Programming costs												
Basic tier	$6	$23	$40	$46	$47	$47	$48	$49	$49	$50	$53	$56
Digital tier	$178	$717	$1,268	$1,465	$1,483	$1,501	$1,519	$1,538	$1,557	$1,576	$1,674	$1,778
Premium channels	$64	$257	$454	$524	$531	$537	$544	$550	$557	$564	$599	$636
Latino channels	$4	$15	$27	$31	$31	$32	$32	$32	$33	$33	$35	$37
Pay per view	$4	$18	$31	$36	$37	$37	$38	$38	$39	$39	$41	$44
Sports packages	$57	$174	$235	$238	$241	$244	$247	$250	$253	$256	$272	$289
Programming cost	$312	$1,204	$2,055	$2,341	$2,369	$2,398	$2,427	$2,457	$2,487	$2,517	$2,674	$2,841
Internet connect cost												
Residential bandwidth sold (Mbps)	533	2,150	3,799	4,391	4,445	4,499	4,554	4,609	4,665	4,722	5,017	5,330
Standard commercial bandwidth sold (Mbps)	151	455	613	621	628	636	644	652	660	668	709	754
Custom commercial bandwidth sold (Mbps)	70	211	285	288	292	295	299	302	306	310	329	350
Internet bandwidth sold (Mbps)	753	2,816	4,697	5,300	5,365	5,430	5,496	5,563	5,631	5,700	6,055	6,433
Wholesale Internet bandwidth required	8	28	47	53	54	54	55	56	56	57	61	64
Wholesale Internet bandwidth cost	$104	$104	$208	$208	$208	$208	$208	$208	$208	$208	$208	$208
Bandwidth transport cost	$120	$120	$120	$120	$120	$120	$120	$120	$120	$120	$120	$120
ISP service charges	$6	$19	$25	$25	$25	$26	$26	$26	$27	$27	$29	$30
Total Internet connect cost	$231	$243	$353	$353	$354	$354	$354	$355	$355	$355	$357	$359
Telephone service cost												
Exchange operating cost	$144	$395	$644	$732	$740	$748	$757	$765	$774	$782	$828	$875
PSTN connect cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Voicemail cost	$18	$71	$124	$143	$145	$146	$148	$150	$152	$154	$163	$174
Long distance wholesale cost	$30	$119	$209	$241	$244	$247	$250	$253	$256	$259	$275	$292
Total telephone service cost	$192	$585	$978	$1,116	$1,129	$1,142	$1,155	$1,168	$1,182	$1,195	$1,266	$1,341
Gross margin												
TV service margin	$333	$1,286	$2,200	$2,509	$2,539	$2,570	$2,602	$2,633	$2,665	$2,698	$2,866	$3,045
Internet service margin	$54	$838	$1,473	$1,719	$1,744	$1,769	$1,794	$1,820	$1,846	$1,873	$2,010	$2,156
Telephone service margin	$211	$994	$1,762	$2,032	$2,057	$2,083	$2,109	$2,135	$2,162	$2,189	$2,330	$2,479
Misc. revenue	$104	$254	$281	$229	$207	$210	$213	$215	$218	$220	$234	$249
Net revenue	$701	$3,372	$5,716	$6,488	$6,547	$6,632	$6,718	$6,804	$6,892	$6,980	$7,440	$7,929

Base Model: TV, Telephone & Internet via Fiber

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Operating Expense ($000)												
Central office costs												
Video management system software	$40	$40	$40	$40	$40	$40	$40	$40	$40	$40	$40	$40
Hardware & PON controller software	$19	$30	$35	$36	$36	$36	$37	$37	$37	$38	$39	$41
Outsourced hardware maintenance	$102	$160	$189	$191	$192	$194	$195	$197	$198	$200	$208	$217
Training	$42	$24	$24	$24	$24	$24	$24	$24	$24	$24	$24	$24
City of Lompoc charge back for site support	$48	$48	$48	$48	$48	$48	$48	$48	$48	$48	$48	$48
Total central office costs	$251	$302	$337	$338	$340	$342	$344	$346	$348	$350	$359	$370
Outside plant & customer premise costs												
Basic installations	$5	$11	$8	$3	$3	$4	$4	$4	$4	$4	$4	$4
Standard installations	$534	$1,133	$769	$341	$345	$349	$354	$358	$362	$367	$390	$414
Custom installations	$12	$13	$3	$3	$3	$3	$3	$3	$3	$3	$3	$3
Vendor-provided CPE maintenance hard	$17	$50	$66	$67	$67	$68	$69	$70	$71	$72	$76	$81
Vendor-provided CPE maintenance soft	$23	$66	$88	$89	$90	$91	$92	$93	$94	$96	$102	$108
Outside plant spares & supplies	$12	$35	$47	$47	$47	$47	$47	$47	$47	$47	$47	$47
Electric department logistics charge back	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100
Total OSP & CPE costs	$701	$1,409	$1,080	$649	$655	$662	$668	$674	$681	$687	$721	$757
IT, CRM & accounting costs												
CRM &billing system software	$40	$40	$40	$40	$40	$40	$40	$40	$40	$40	$40	$40
Conditional access management & EPG	$10	$42	$74	$86	$87	$88	$89	$90	$91	$92	$98	$104
Billing	$14	$54	$94	$108	$110	$111	$112	$114	$115	$117	$124	$132
Total IT & accounting costs	$64	$136	$208	$234	$236	$239	$241	$244	$246	$249	$262	$276
Sales, general & administrative costs												
Advertising	$10	$10	$10	$10	$10	$10	$10	$10	$10	$10	$10	$10
Direct marketing	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50
Telemarketing	$57	$50	$44	$43	$43	$44	$44	$45	$45	$46	$49	$52
Legal & regulatory	$10	$10	$10	$10	$10	$10	$10	$10	$10	$10	$10	$10
General & administrative	$20	$20	$20	$20	$20	$20	$20	$20	$20	$20	$20	$20
City of Lompoc charge back	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500
Total SG&A	$647	$640	$634	$633	$633	$634	$634	$635	$635	$636	$639	$642

Base Model: TV, Telephone & Internet via Fiber

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Operating expense summary												
Central office	$251	$302	$337	$338	$340	$342	$344	$346	$348	$350	$359	$370
Outside plant & customer premise	$701	$1,409	$1,080	$649	$655	$662	$668	$674	$681	$687	$721	$757
IT & accounting	$64	$136	$208	$234	$236	$239	$241	$244	$246	$249	$262	$276
SG&A	$647	$640	$634	$633	$633	$634	$634	$635	$635	$636	$639	$642
Total operating expense	$1,663	$2,487	$2,259	$1,854	$1,865	$1,876	$1,887	$1,898	$1,910	$1,921	$1,981	$2,044

Base Model: TV, Telephone & Internet via Fiber

Personnel Expense ($000)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Head count												
General manager, telecom services	1	1	1	1	1	1	1	1	1	1	1	1
IT manager	1	1	1	1	1	1	1	1	1	1	1	1
Account executive	1	1	1	1	1	1	1	1	1	1	1	1
Marketing coordinator	1	1	1	1	1	1	1	1	1	1	1	1
Administrative assistant	1	1	1	1	1	1	1	1	1	1	1	1
Customer relations manager	1	1	1	1	1	1	1	1	1	1	1	1
Customer relations representatives	4	4	4	3	3	2	2	2	2	2	2	2
Operations manager	1	1	1	1	1	1	1	1	1	1	1	1
Field operations supervisor	1	1	1	1	1	1	1	1	1	1	1	1
Central office supervisor	1	1	1	1	1	1	1	1	1	1	1	1
Central office technicians	2	2	2	1	1	1	1	1	1	1	1	1
Total telecoms services staff	15	15	15	13	13	12	12	12	12	12	12	12
Field operations man-hour pool (FTE)	1	1	1	1	1	1	1	1	1	1	1	1
Billing operations man-hour pool (FTE)	2	2	2	2	2	2	2	2	2	2	2	2
Total telecom services FTE	18	18	18	16	16	15	15	15	15	15	15	15
Average salary (000)												
General manager, telecom services	$87	$87	$87	$87	$87	$87	$87	$87	$87	$87	$87	$87
IT manager	$80	$80	$80	$80	$80	$80	$80	$80	$80	$80	$80	$80
Sales manager	$45	$45	$45	$45	$45	$45	$45	$45	$45	$45	$45	$45
Marketing coordinator	$63	$63	$63	$63	$63	$63	$63	$63	$63	$63	$63	$63
Administrative assistant	$39	$39	$39	$39	$39	$39	$39	$39	$39	$39	$39	$39
Customer relations manager	$44	$44	$44	$44	$44	$44	$44	$44	$44	$44	$44	$44
Customer relations representative	$38	$38	$38	$38	$38	$38	$38	$38	$38	$38	$38	$38
Operations manager	$80	$80	$80	$80	$80	$80	$80	$80	$80	$80	$80	$80
Field operations supervisor	$60	$60	$60	$60	$60	$60	$60	$60	$60	$60	$60	$60
Central office supervisor	$60	$60	$60	$60	$60	$60	$60	$60	$60	$60	$60	$60
Central office technician	$39	$39	$39	$39	$39	$39	$39	$39	$39	$39	$39	$39
Field operations man-hour pool	$61	$61	$61	$61	$61	$61	$61	$61	$61	$61	$61	$61
Billing operations man-hour pool	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50

Base Model: TV, Telephone & Internet via Fiber

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Additional employee costs												
Benefits & taxes	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%
General employee costs	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Additional employee cost increment	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
Total staff costs												
General manager, telecom services	$131	$131	$131	$131	$131	$131	$131	$131	$131	$131	$131	$131
IT manager	$120	$120	$120	$120	$120	$120	$120	$120	$120	$120	$120	$120
Sales manager	$68	$68	$68	$68	$68	$68	$68	$68	$68	$68	$68	$68
Marketing coordinator	$95	$95	$95	$95	$95	$95	$95	$95	$95	$95	$95	$95
Administrative assistant	$59	$59	$59	$59	$59	$59	$59	$59	$59	$59	$59	$59
Customer relations manager	$66	$66	$66	$66	$66	$66	$66	$66	$66	$66	$66	$66
Customer relations representatives	$228	$228	$228	$171	$171	$114	$114	$114	$114	$114	$114	$114
Operations manager	$120	$120	$120	$120	$120	$120	$120	$120	$120	$120	$120	$120
Field operations supervisor	$90	$90	$90	$90	$90	$90	$90	$90	$90	$90	$90	$90
Central office supervisor	$90	$90	$90	$90	$90	$90	$90	$90	$90	$90	$90	$90
Central office technicians	$117	$117	$117	$59	$59	$59	$59	$59	$59	$59	$59	$59
Field operations man-hour pool	$92	$92	$92	$92	$92	$92	$92	$92	$92	$92	$92	$92
Billing operations man-hour pool	$150	$150	$150	$150	$150	$150	$150	$150	$150	$150	$150	$150
Management & operations support	$43	$162	$273	$309	$312	$316	$320	$324	$327	$331	$352	$374
Total staffing cost	$1,467	$1,586	$1,697	$1,617	$1,620	$1,567	$1,571	$1,575	$1,578	$1,582	$1,603	$1,625

Base Model: TV, Telephone & Internet via Fiber

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Capital Expense ($000)												
Variable capital expense												
Standard optical network terminals	$1,567	$3,102	$1,572	$76	$77	$78	$79	$80	$81	$82	$87	$92
Custom optical network terminals	$125	$128	$3	$3	$3	$3	$3	$3	$3	$3	$4	$4
Digital set top boxes	$541	$1,102	$574	$27	$27	$28	$28	$28	$29	$29	$31	$33
Central office facilities	$0	$0	$0	$37	$38	$38	$39	$39	$40	$40	$43	$45
Incremental telephony facilities	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1	$2	$2
ONT spares	$17	$32	$16	$1	$1	$1	$1	$1	$1	$1	$1	$1
Variable capital expense	$2,250	$4,365	$2,165	$144	$146	$148	$150	$152	$153	$157	$166	$177
Fixed capital expense												
Fiber network	$2,332	$4,665	$2,332	$0	$0	$0	$0	$0	$0	$0	$0	$0
Core central office facilities	$1,018	$1,019	$509	$0	$0	$0	$0	$0	$0	$0	$0	$0
Incremental telephony facilities	$813											
Central office TV head end facilitiies	$723	$431	$215	$0	$0	$0	$0	$0	$0	$0	$0	$0
General central office facilities	$1,100											
Information technology	$458											
SG& A	$575											
Total fixed capital expense	$7,020	$6,114	$3,057	$0	$0	$0	$0	$0	$0	$0	$0	$0
Annual capital expense	$9,270	$10,479	$5,222	$144	$146	$148	$150	$152	$153	$157	$166	$177
Cumulative capital expense	$9,270	$19,749	$24,971	$25,115	$25,261	$25,409	$25,559	$25,711	$25,864	$26,021	$26,833	$27,697
Capital Worksheet ($000)												
Cumulative central office hardware expense	$2,554	$4,004	$4,728	$4,766	$4,804	$4,842	$4,881	$4,920	$4,960	$5,000	$5,209	$5,431
Cumulative CPE expense	$2,250	$6,615	$8,780	$8,887	$8,995	$9,105	$9,216	$9,328	$9,442	$9,557	$10,153	$10,786
Cumulative OSP expense	$2,332	$6,997	$9,329	$9,329	$9,329	$9,329	$9,329	$9,329	$9,329	$9,329	$9,329	$9,329
Cumulative capital equipment replacement	$240	$771	$1,447	$2,129	$2,819	$3,517	$4,221	$4,934	$5,654	$6,382	$10,141	$14,108

Base Model: TV, Telephone & Internet via Fiber

Proforma	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Revenue												
Residential revenue	$1,229	$4,846	$8,420	$9,664	$9,782	$9,901	$10,022	$10,144	$10,267	$10,392	$11,041	$11,729
Commercial revenue	$104	$303	$400	$405	$410	$415	$420	$425	$430	$436	$463	$492
Misc. revenue	$104	$254	$281	$229	$207	$210	$213	$215	$218	$220	$234	$249
Total Revenue	$1,436	$5,403	$9,101	$10,298	$10,399	$10,526	$10,654	$10,784	$10,915	$11,048	$11,738	$12,470
Cost of Services Provided												
Television	$312	$1,204	$2,055	$2,341	$2,369	$2,398	$2,427	$2,457	$2,487	$2,517	$2,674	$2,841
Internet	$231	$243	$353	$353	$354	$354	$354	$355	$355	$355	$357	$359
Telephone	$192	$585	$978	$1,116	$1,129	$1,142	$1,155	$1,168	$1,182	$1,195	$1,266	$1,341
Operating Expense												
Central office	$251	$302	$337	$338	$340	$342	$344	$346	$348	$350	$359	$370
Outside plant & customer premise	$701	$1,409	$1,080	$649	$655	$662	$668	$674	$681	$687	$721	$757
IT & accounting	$64	$136	$208	$234	$236	$239	$241	$244	$246	$249	$262	$276
Personnel	$1,467	$1,586	$1,697	$1,617	$1,620	$1,567	$1,571	$1,575	$1,578	$1,582	$1,603	$1,625
SG&A	$647	$640	$634	$633	$633	$634	$634	$635	$635	$636	$639	$642
Total Operating Expense	$3,865	$6,104	$7,341	$7,281	$7,337	$7,337	$7,394	$7,453	$7,512	$7,571	$7,881	$8,210
Operating Income	($2,429)	($701)	$1,761	$3,017	$3,062	$3,189	$3,260	$3,331	$3,404	$3,477	$3,856	$4,260
Operating Margin	(198%)	(14%)	21%	31%	31%	32%	33%	33%	33%	33%	35%	36%
Capital												
Outside plant	$2,332	$4,665	$2,332	$0	$0	$0	$0	$0	$0	$0	$0	$0
Customer premise equipment	$2,250	$4,365	$2,165	$107	$108	$110	$111	$112	$114	$115	$122	$130
Central office	$3,654	$1,449	$725	$37	$38	$38	$39	$39	$40	$40	$43	$45
SG&A	$1,033	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total Capital Expense	$9,270	$10,479	$5,222	$144	$146	$148	$150	$152	$153	$155	$165	$175

Base Model: TV, Telephone & Internet via Fiber

Cash Flow Analysis	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Operating Income												
Total revenue	$1,436	$5,403	$9,101	$10,298	$10,399	$10,526	$10,654	$10,784	$10,915	$11,048	$11,738	$12,470
Total expense	($3,865)	($6,104)	($7,341)	($7,281)	($7,337)	($7,337)	($7,394)	($7,453)	($7,512)	($7,571)	($7,881)	($8,210)
Operating Profit/(Loss)	($2,429)	($701)	$1,761	$3,017	$3,062	$3,189	$3,260	$3,331	$3,404	$3,477	$3,856	$4,260
Capital expenditures	($9,270)	($10,479)	($5,222)	($144)	($146)	($148)	($150)	($152)	($153)	($155)	($165)	($175)
Total	($11,699)	($11,180)	($3,462)	$2,872	$2,916	$3,041	$3,110	$3,180	$3,250	$3,322	$3,691	$4,084
Cumulative Cash	($11,699)	($22,878)	($26,340)	($23,468)	($20,551)	($17,510)	($14,400)	($11,220)	($7,970)	($4,648)	$13,060	$32,687
Net Present Value	($11,195)	($21,432)	($24,466)	($22,057)	($19,717)	($17,381)	($15,096)	($12,860)	($10,673)	($8,534)	$1,459	$10,348
Internal Rate of Return					(42.4%)	(27.8%)	(18.3%)	(11.7%)	(7.0%)	(3.5%)	5.3%	8.5%

Key Indicators	
Years to positive cash flow	4
Years to break even	12
NPV - Year 10	($8,534)
NPV - Year 15	$1,459
IRR - Year 10	(3.5%)
IRR - Year 15	5.3%
Cost of Capital	4.5%

Base Model: TV, Telephone & Internet via Fiber

Capital Equipment Replacement	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Cumulative CPE & central office equipment	$4,804	$10,618	$13,509	$13,653	$13,799	$13,947	$14,097	$14,248	$14,402	$14,557	$15,362	$16,217
Accumulated replacement needs	$240	$771	$1,447	$2,129	$2,819	$3,517	$4,221	$4,934	$5,654	$6,382	$10,141	$14,108
Net Present Value	($11,195)	($21,432)	($24,466)	($22,057)	($19,717)	($17,381)	($15,096)	($12,860)	($10,673)	($8,534)	$1,459	$10,348
Nominal surplus/(deficit)	($11,435)	($22,203)	($25,912)	($24,186)	($22,536)	($20,898)	($19,317)	($17,794)	($16,327)	($14,916)	($8,682)	($3,761)
Equipment lifetime (years)	20											

Scenario & Sensitivity Analysis

Base Model: TV, Telephone & Internet via Fiber

	Pessimistic Scenario Aggregate 30% Reduction in Revenue	Cautiously Optimistic Scenario Aggregate 10% Performance Improvement
Market growth scenario scaling	80.0%	105.0%
Revenue scenario scaling	90.0%	100.0%
Revenue rate of increase scenario	0.0%	5.0%

Key Indicators	**Scenario**	**Nominal**	**Change**	**% Change**	**Scenario**	**Nominal**	**Change**	**% Change**
Years to positive cash flow	4	4	0	0.0%	4	4	0	0.0%
Years to break even	21	12	9	75.0%	8	12	(4)	(33.3%)
NPV - Year 10	($18,492)	($8,534)	($9,958)	116.7%	$7,455	($8,534)	$15,990	(187.4%)
NPV - Year 15	($14,028)	$1,459	($15,487)	(1061.4%)	$38,394	$1,459	$36,935	2531.3%
IRR - Year 10	(17.6%)	(3.5%)	(14.1%)	404.0%	9.7%	(3.5%)	13.2%	(377.9%)
IRR - Year 15	(5.4%)	5.3%	(10.7%)	(201.9%)	18.0%	5.3%	12.7%	238.9%

Operating Metrics	**Scenario**	**Nominal**	**Change**	**% Change**	**Scenario**	**Nominal**	**Change**	**% Change**
Residential revenue - Year 10	$7,362	$10,392	($3,031)	(29.2%)	$16,996	$10,392	$6,604	63.5%
Commercial revenue - Year 10	$313	$436	($123)	(28.2%)	$710	$436	$275	63.0%
Misc. revenue - Year 10	$158	$220	($62)	(28.1%)	$359	$220	$139	62.9%
Total Revenue - Year 10	$7,833	$11,048	($3,216)	(29.1%)	$18,065	$11,048	$7,017	63.5%
Total Operating Expense - Year 10	$6,312	$7,571	($1,259)	(16.6%)	$9,531	$7,571	$1,959	25.9%
Operating Income - Year 10	$1,521	$3,477	($1,956)	(56.3%)	$8,535	$3,477	$5,058	145.5%
Operating Margin - Year 10	21%	33%	(13%)	(38.3%)	50%	33%	17%	50.1%
Residential revenue - Year 15	$7,821	$11,041	($3,220)	(29.2%)	$23,045	$11,041	$12,005	108.7%
Commercial revenue - Year 15	$332	$463	($131)	(28.2%)	$963	$463	$500	108.1%
Misc. revenue - Year 15	$168	$234	($66)	(28.1%)	$487	$234	$253	107.9%
Total Revenue - Year 15	$8,321	$11,738	($3,416)	(29.1%)	$24,495	$11,738	$12,757	108.7%
Total Operating Expense - Year 15	$6,534	$7,881	($1,347)	(17.1%)	$11,330	$7,881	$3,449	43.8%
Operating Income - Year 15	$1,787	$3,856	($2,069)	(53.7%)	$13,165	$3,856	$9,308	241.4%
Operating Margin - Year 15	23%	35%	(12%)	(34.6%)	57%	35%	22%	63.5%

Base Minus TV & Telephone Model: Internet Only, via Fiber

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Residential Market												
Lompoc HHs	13,854	14,023	14,194	14,367	14,542	14,719	14,898	15,079	15,263	15,449	16,413	17,437
Roll out rate	25%	75%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Service profile (year end)												
Basic TV subs	0	0	0	0	0	0	0	0	0	0	0	0
Digital TV subs	0	0	0	0	0	0	0	0	0	0	0	0
Premium TV subs	0	0	0	0	0	0	0	0	0	0	0	0
Latino TV pkg subs	0	0	0	0	0	0	0	0	0	0	0	0
Pay per view users	0	0	0	0	0	0	0	0	0	0	0	0
Assumed PPV growth		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Monthly buy rate	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sports package subs	0	0	0	0	0	0	0	0	0	0	0	0
High-speed Internet subs	1,143	3,471	4,684	4,741	4,799	4,857	4,916	4,976	5,037	5,098	5,416	5,754
Transactional services penetration rate increase	5%	5%	5%	5%	5%	0%	0%	0%	0%	0%	0%	0%
Transactional services penetration rate	5%	10%	15%	20%	25%	25%	25%	25%	25%	25%	25%	25%
Transactional services users	57	347	703	948	1,200	1,214	1,229	1,244	1,259	1,275	1,354	1,439
Local telephony subscriber lines	0	0	0	0	0	0	0	0	0	0	0	0
Voicemail subs	0	0	0	0	0	0	0	0	0	0	0	0
Long distance subs	0	0	0	0	0	0	0	0	0	0	0	0

Base Minus TV & Telephone Model: Internet Only, via Fiber

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Service profile (average)												
Basic TV subs	0	0	0	0	0	0	0	0	0	0	0	0
Digital TV subs	0	0	0	0	0	0	0	0	0	0	0	0
Premium TV subs	0	0	0	0	0	0	0	0	0	0	0	0
Latino TV pkg subs	0	0	0	0	0	0	0	0	0	0	0	0
Pay per view users	0	0	0	0	0	0	0	0	0	0	0	0
High-speed Internet subs	571	2,307	4,077	4,712	4,770	4,828	4,887	4,946	5,007	5,067	5,384	5,720
Transactional services users	29	202	525	825	1,074	1,207	1,222	1,237	1,252	1,267	1,346	1,430
Local telephony subscriber lines	0	0	0	0	0	0	0	0	0	0	0	0
Voicemail subs	0	0	0	0	0	0	0	0	0	0	0	0
Long distance subs	0	0	0	0	0	0	0	0	0	0	0	0
Activation profile												
Net new subs - total	1,143	2,328	1,213	57	58	58	59	60	61	61	65	69
Gross new subs - total	1,143	2,499	1,734	760	769	778	788	797	807	817	868	922
Disconnecting subs - total	0	171	521	703	711	720	729	737	746	756	803	853
Net new digital TV subs	0	0	0	0	0	0	0	0	0	0	0	0
Gross new digital TV subs	0	0	0	0	0	0	0	0	0	0	0	0
Disconnecting digital TV subs	0	0	0	0	0	0	0	0	0	0	0	0
Net new residential Internet subs	1,143	2,328	1,213	57	58	58	59	60	61	61	65	69
Gross new residential Internet subs	1,143	2,848	1,916	768	778	787	797	806	816	826	878	932
Disconnecting residential Internet subs	0	521	703	711	720	729	737	746	756	765	812	863
Net new telephone subscriber lines	0	0	0	0	0	0	0	0	0	0	0	0
Gross new telephone subscriber lines	0	0	0	0	0	0	0	0	0	0	0	0
Disconnecting telephone subscriber lines	0	0	0	0	0	0	0	0	0	0	0	0
Residential market summary												
Residential subscribers (year end)	1,143	3,471	4,684	4,741	4,799	4,857	4,916	4,976	5,037	5,098	5,416	5,754
Residential subscribers (average)	571	2,307	4,077	4,712	4,770	4,828	4,887	4,946	5,007	5,067	5,384	5,720

Base Minus TV & Telephone Model: Internet Only, via Fiber

Residential Revenue ($000)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Assumed revenue growth		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Compounded revenue growth		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Television revenue												
Basic TV revenue	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Digital TV revenue	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Premium TV revenue	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Latino TV pkg revenue	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
PPV revenue	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Sports package revenue	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
TV revenue sub-total	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Internet revenue												
Internet service revenue	$218	$881	$1,557	$1,799	$1,821	$1,843	$1,866	$1,889	$1,912	$1,935	$2,056	$2,184
Telephone revenue												
Local phone service revenue	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Long distance service revenue	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Telephone revenue sub-total	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Misc. revenue												
Advertising revenue	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
CPE installation revenue	$29	$62	$43	$19	$19	$19	$20	$20	$20	$20	$22	$23
Telephone line installation revenue	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Extra set top box rental and support	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Service & support revenue	$6	$17	$23	$24	$24	$24	$25	$25	$25	$25	$27	$29
Net telephone service charges	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Transactional revenue	$0	$0	$0	$0	$1	$1	$1	$1	$1	$1	$1	$1
Misc. revenue sub-total	$34	$80	$67	$43	$44	$44	$45	$45	$46	$47	$49	$53
Total residential revenue	$253	$961	$1,624	$1,842	$1,865	$1,888	$1,911	$1,934	$1,958	$1,981	$2,105	$2,236

Base Minus TV & Telephone Model: Internet Only, via Fiber

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Commercial Market												
Lompoc medium/small businesses	1,004	1,016	1,029	1,041	1,054	1,067	1,080	1,093	1,106	1,120	1,189	1,264
Lompoc large businesses	233	236	239	242	245	248	251	254	257	260	276	293
Roll out rate	50%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Service profile (year end)												
Standard Internet	100	203	206	208	211	213	216	219	221	224	238	253
Standard phone lines	0	0	0	0	0	0	0	0	0	0	0	0
Custom Internet	23	47	48	48	49	50	50	51	51	52	55	59
Custom phone lines	0	0	0	0	0	0	0	0	0	0	0	0
Voicemail	0	0	0	0	0	0	0	0	0	0	0	0
Long distance	0	0	0	0	0	0	0	0	0	0	0	0
Service profile (average)												
Standard Internet	50	152	204	207	209	212	215	217	220	223	236	251
Standard phone lines	0	0	0	0	0	0	0	0	0	0	0	0
Custom Internet	12	35	47	48	49	49	50	50	51	52	55	58
Custom phone lines	0	0	0	0	0	0	0	0	0	0	0	0
Voicemail	0	0	0	0	0	0	0	0	0	0	0	0
Long distance	0	0	0	0	0	0	0	0	0	0	0	0
Activation profile												
Net new standard subs	100	103	2	3	3	3	3	3	3	3	3	3
Gross new standard subs	100	113	23	23	23	24	24	24	25	25	26	28
Disconnecting standard subs	0	10	20	21	21	21	21	22	22	22	24	25
Net new custom subs	23	24	1	1	1	1	1	1	1	1	1	1
Gross new custom subs	23	26	5	5	5	5	6	6	6	6	6	7
Disconnecting custom subs	0	2	5	5	5	5	5	5	5	5	5	6
Net new commercial Internet subs	124	127	3	3	3	3	3	3	3	3	4	4
Gross new commercial Internet subs	124	152	28	29	29	29	30	30	31	31	33	35
Disconnecting commercial Internet subs	0	25	25	26	26	26	27	27	27	28	29	31
Net new telephone subscriber lines	0	0	0	0	0	0	0	0	0	0	0	0
Gross new telephone subscriber lines	0	0	0	0	0	0	0	0	0	0	0	0
Disconnecting new telephone subscriber lines	0	0	0	0	0	0	0	0	0	0	0	0

Base Minus TV & Telephone Model: Internet Only, via Fiber

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Commercial market summary												
Standard commercial subscribers (year end)	100	203	206	208	211	213	216	219	221	224	238	253
Custom commercial subscribers (year end)	23	47	48	48	49	50	50	51	51	52	55	59
Commercial subscribers (year end)	124	250	253	257	260	263	266	269	273	276	293	311
Commercial subscribers (average)	62	187	252	255	258	261	264	268	271	274	291	310
Commercial Revenue ($000)												
Assumed revenue growth		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Compounded revenue growth		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Standard Internet	$45	$137	$184	$186	$189	$191	$193	$196	$198	$200	$213	$226
Standard phone lines	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Custom Internet	$21	$63	$85	$86	$88	$89	$90	$91	$92	$93	$99	$105
Custom phone lines	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Voicemail	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Long distance	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Commercial subscription revenue	$66	$200	$269	$273	$276	$279	$283	$286	$290	$293	$312	$331
CPE installation revenue	$12	$14	$3	$3	$3	$3	$3	$3	$3	$3	$3	$3
Telephone line installation revenue	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Service & support revenue	$1	$1	$1	$1	$1	$1	$1	$1	$1	$1	$1	$2
Total commercial revenue	$79	$215	$274	$277	$280	$284	$287	$291	$294	$298	$316	$336

Base Minus TV & Telephone Model: Internet Only, via Fiber

Market & Revenue Recap ($000)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Total subscribers (year end)	1,267	3,721	4,937	4,998	5,058	5,120	5,182	5,245	5,309	5,374	5,709	6,066
Total subscribers (average)	633	2,494	4,329	4,967	5,028	5,089	5,151	5,214	5,277	5,342	5,675	6,029
Television subscribers (year end)	0	0	0	0	0	0	0	0	0	0	0	0
Internet subscribers (year end)	1,267	3,721	4,937	4,998	5,058	5,120	5,182	5,245	5,309	5,374	5,709	6,066
Telephone subscriber lines	0	0	0	0	0	0	0	0	0	0	0	0
Residential television service revenue	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Residential Internet service revenue	$218	$881	$1,557	$1,799	$1,821	$1,843	$1,866	$1,889	$1,912	$1,935	$2,056	$2,184
Commercial Internet service revenue	$66	$200	$269	$273	$276	$279	$283	$286	$290	$293	$312	$331
Internet service revenue	$284	$1,081	$1,826	$2,072	$2,097	$2,123	$2,149	$2,175	$2,201	$2,228	$2,367	$2,515
Residential phone service revenue	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Commercial phone service revenue	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Phone service revenue	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Misc. revenue	$47	$95	$71	$47	$48	$49	$49	$50	$50	$51	$54	$58
Operating revenue	$332	$1,176	$1,897	$2,119	$2,145	$2,171	$2,198	$2,225	$2,252	$2,279	$2,421	$2,572

Base Minus TV & Telephone Model: Internet Only, via Fiber

Cost of Services Provided ($000)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Programming costs												
Basic tier	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Digital tier	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Premium channels	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Latino channels	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Pay per view	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Sports packages	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Programming cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Internet connect cost												
Residential bandwidth sold (Mbps)	533	2,150	3,799	4,391	4,445	4,499	4,554	4,609	4,665	4,722	5,017	5,330
Standard commercial bandwidth sold (Mbps)	151	455	613	621	628	636	644	652	660	668	709	754
Custom commercial bandwidth sold (Mbps)	70	211	285	288	292	295	299	302	306	310	329	350
Internet bandwidth sold (Mbps)	753	2,816	4,697	5,300	5,365	5,430	5,496	5,563	5,631	5,700	6,055	6,433
Wholesale Internet bandwidth required	8	28	47	53	54	54	55	56	56	57	61	64
Wholesale Internet bandwidth cost	$104	$104	$208	$208	$208	$208	$208	$208	$208	$208	$208	$208
Bandwidth transport cost	$120	$120	$120	$120	$120	$120	$120	$120	$120	$120	$120	$120
ISP service charges	$6	$19	$25	$25	$25	$26	$26	$26	$27	$27	$29	$30
Total Internet connect cost	$231	$243	$353	$353	$354	$354	$354	$355	$355	$355	$357	$359
Telephone service cost												
Exchange operating cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
PSTN connect cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Voicemail cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Long distance wholesale cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total telephone service cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Gross margin												
TV service margin	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Internet service margin	$54	$838	$1,473	$1,719	$1,744	$1,769	$1,794	$1,820	$1,846	$1,873	$2,010	$2,156
Telephone service margin	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Misc. revenue	$47	$95	$71	$47	$48	$49	$49	$50	$50	$51	$54	$58
Net revenue	$101	$933	$1,544	$1,766	$1,791	$1,817	$1,843	$1,870	$1,897	$1,924	$2,064	$2,214

Base Minus TV & Telephone Model: Internet Only, via Fiber

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Operating Expense ($000)												
Central office costs												
Video management system software	$40	$40	$40	$40	$40	$40	$40	$40	$40	$40	$40	$40
Hardware & PON controller software	$8	$15	$19	$19	$19	$19	$19	$19	$19	$19	$19	$19
Outsourced hardware maintenance	$41	$81	$102	$102	$102	$102	$102	$102	$102	$102	$102	$103
Training	$42	$24	$24	$24	$24	$24	$24	$24	$24	$24	$24	$24
City of Lompoc charge back for site support	$48	$48	$48	$48	$48	$48	$48	$48	$48	$48	$48	$48
Total central office costs	$178	$209	$233	$233	$233	$233	$233	$233	$233	$233	$233	$234
Outside plant & customer premise costs												
Basic installations	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Standard installations	$311	$653	$439	$196	$198	$200	$203	$205	$208	$210	$224	$237
Custom installations	$9	$10	$2	$2	$2	$2	$2	$2	$2	$2	$2	$3
Vendor-provided CPE maintenance hard	$7	$21	$27	$28	$28	$28	$29	$29	$30	$30	$32	$34
Vendor-provided CPE maintenance soft	$10	$28	$37	$37	$38	$38	$38	$39	$39	$40	$42	$45
Outside plant spares & supplies	$12	$35	$47	$47	$47	$47	$47	$47	$47	$47	$47	$47
Electric department logistics charge back	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100
Total OSP & CPE costs	$449	$848	$652	$409	$413	$416	$419	$422	$426	$429	$447	$466
IT, CRM & accounting costs												
CRM &billing system software	$20	$20	$20	$20	$20	$20	$20	$20	$20	$20	$20	$20
Conditional access management & EPG	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Billing	$8	$30	$52	$60	$60	$61	$62	$63	$63	$64	$68	$72
Total IT & accounting costs	$28	$50	$72	$80	$80	$81	$82	$83	$83	$84	$88	$92
Sales, general & administrative costs												
Advertising	$10	$10	$10	$10	$10	$10	$10	$10	$10	$10	$10	$10
Direct marketing	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50
Telemarketing	$58	$54	$51	$51	$51	$52	$53	$53	$54	$55	$58	$62
Legal & regulatory	$5	$5	$5	$5	$5	$5	$5	$5	$5	$5	$5	$5
General & administrative	$10	$10	$10	$10	$10	$10	$10	$10	$10	$10	$10	$10
City of Lompoc charge back	$250	$250	$250	$250	$250	$250	$250	$250	$250	$250	$250	$250
Total SG&A	$383	$379	$376	$376	$376	$377	$378	$378	$379	$380	$383	$387

Base Minus TV & Telephone Model: Internet Only, via Fiber

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Operating expense summary												
Central office	$178	$209	$233	$233	$233	$233	$233	$233	$233	$233	$233	$234
Outside plant & customer premise	$449	$848	$652	$409	$413	$416	$419	$422	$426	$429	$447	$466
IT & accounting	$28	$50	$72	$80	$80	$81	$82	$83	$83	$84	$88	$92
SG&A	$383	$379	$376	$376	$376	$377	$378	$378	$379	$380	$383	$387
Total operating expense	$1,038	$1,486	$1,333	$1,098	$1,102	$1,107	$1,112	$1,116	$1,121	$1,126	$1,151	$1,179

Base Minus TV & Telephone Model: Internet Only, via Fiber

Personnel Expense ($000)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Head count												
General manager, telecom services	1	1	1	1	1	1	1	1	1	1	1	1
IT manager	1	1	1	1	1	1	1	1	1	1	1	1
Account executive	1	1	1	1	1	1	1	1	1	1	1	1
Marketing coordinator	1	1	1	1	1	1	1	1	1	1	1	1
Administrative assistant	1	1	1	1	1	1	1	1	1	1	1	1
Customer relations manager	1	1	1	1	1	1	1	1	1	1	1	1
Customer relations representatives	3	3	3	2	2	1	1	1	1	1	1	1
Operations manager	1	1	1	1	1	1	1	1	1	1	1	1
Field operations supervisor	1	1	1	1	1	1	1	1	1	1	1	1
Central office supervisor	1	1	1	1	1	1	1	1	1	1	1	1
Central office technicians	1	1	1	1	1	1	1	1	1	1	1	1
Total telecoms services staff	13	13	13	12	12	11	11	11	11	11	11	11
Field operations man-hour pool (FTE)	1	1	1	1	1	1	1	1	1	1	1	1
Billing operations man-hour pool (FTE)	1	1	1	1	1	1	1	1	1	1	1	1
Total telecom services FTE	15	15	15	14	14	13	13	13	13	13	13	13
Average salary (000)												
General manager, telecom services	$87	$87	$87	$87	$87	$87	$87	$87	$87	$87	$87	$87
IT manager	$80	$80	$80	$80	$80	$80	$80	$80	$80	$80	$80	$80
Sales manager	$45	$45	$45	$45	$45	$45	$45	$45	$45	$45	$45	$45
Marketing coordinator	$63	$63	$63	$63	$63	$63	$63	$63	$63	$63	$63	$63
Administrative assistant	$39	$39	$39	$39	$39	$39	$39	$39	$39	$39	$39	$39
Customer relations manager	$44	$44	$44	$44	$44	$44	$44	$44	$44	$44	$44	$44
Customer relations representative	$38	$38	$38	$38	$38	$38	$38	$38	$38	$38	$38	$38
Operations manager	$80	$80	$80	$80	$80	$80	$80	$80	$80	$80	$80	$80
Field operations supervisor	$60	$60	$60	$60	$60	$60	$60	$60	$60	$60	$60	$60
Central office supervisor	$60	$60	$60	$60	$60	$60	$60	$60	$60	$60	$60	$60
Central office technician	$39	$39	$39	$39	$39	$39	$39	$39	$39	$39	$39	$39
Field operations man-hour pool	$61	$61	$61	$61	$61	$61	$61	$61	$61	$61	$61	$61
Billing operations man-hour pool	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50

Base Minus TV & Telephone Model: Internet Only, via Fiber

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Additional employee costs												
Benefits & taxes	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%
General employee costs	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Additional employee cost increment	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
Total staff costs												
General manager, telecom services	$131	$131	$131	$131	$131	$131	$131	$131	$131	$131	$131	$131
IT manager	$120	$120	$120	$120	$120	$120	$120	$120	$120	$120	$120	$120
Sales manager	$68	$68	$68	$68	$68	$68	$68	$68	$68	$68	$68	$68
Marketing coordinator	$95	$95	$95	$95	$95	$95	$95	$95	$95	$95	$95	$95
Administrative assistant	$59	$59	$59	$59	$59	$59	$59	$59	$59	$59	$59	$59
Customer relations manager	$66	$66	$66	$66	$66	$66	$66	$66	$66	$66	$66	$66
Customer relations representatives	$171	$171	$171	$114	$114	$57	$57	$57	$57	$57	$57	$57
Operations manager	$120	$120	$120	$120	$120	$120	$120	$120	$120	$120	$120	$120
Field operations supervisor	$90	$90	$90	$90	$90	$90	$90	$90	$90	$90	$90	$90
Central office supervisor	$90	$90	$90	$90	$90	$90	$90	$90	$90	$90	$90	$90
Central office technicians	$59	$59	$59	$59	$59	$59	$59	$59	$59	$59	$59	$59
Field operations man-hour pool	$92	$92	$92	$92	$92	$92	$92	$92	$92	$92	$92	$92
Billing operations man-hour pool	$75	$75	$75	$75	$75	$75	$75	$75	$75	$75	$75	$75
Management & operations support	$10	$35	$57	$64	$64	$65	$66	$67	$68	$68	$73	$77
Total staffing cost	$1,243	$1,268	$1,290	$1,240	$1,240	$1,184	$1,185	$1,186	$1,187	$1,187	$1,192	$1,196

Base Minus TV & Telephone Model: Internet Only, via Fiber

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Capital Expense ($000)												
Variable capital expense												
Standard optical network terminals	$870	$1,701	$851	$42	$42	$43	$43	$44	$44	$45	$48	$51
Custom optical network terminals	$100	$103	$2	$3	$3	$3	$3	$3	$3	$3	$3	$3
Digital set top boxes	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Central office facilities	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$25
Incremental telephony facilities	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
ONT spares	$10	$18	$9	$0	$0	$0	$0	$0	$0	$0	$1	$1
Variable capital expense	$980	$1,822	$862	$45	$45	$46	$46	$47	$47	$48	$51	$79
Fixed capital expense												
Fiber network	$2,332	$4,665	$2,332	$0	$0	$0	$0	$0	$0	$0	$0	$0
Core central office facilities	$1,018	$1,019	$509	$0	$0	$0	$0	$0	$0	$0	$0	$0
Incremental telephony facilities	$0											
Central office TV head end facilitiies	$0											
General central office facilities	$990											
Information technology	$229											
SG& A	$450											
Total fixed capital expense	$5,020	$5,684	$2,842	$0	$0	$0	$0	$0	$0	$0	$0	$0
Annual capital expense	$6,000	$7,506	$3,704	$45	$45	$46	$46	$47	$47	$48	$51	$79
Cumulative capital expense	$6,000	$13,506	$17,209	$17,254	$17,299	$17,345	$17,391	$17,438	$17,485	$17,533	$17,782	$18,072
Capital Worksheet ($000)												
Cumulative central office hardware expense	$1,018	$2,037	$2,547	$2,547	$2,547	$2,547	$2,547	$2,547	$2,547	$2,547	$2,547	$2,572
Cumulative CPE expense	$980	$2,802	$3,664	$3,709	$3,754	$3,800	$3,846	$3,893	$3,940	$3,988	$4,237	$4,502
Cumulative OSP expense	$2,332	$6,997	$9,329	$9,329	$9,329	$9,329	$9,329	$9,329	$9,329	$9,329	$9,329	$9,329
Cumulative capital equipment replacement	$100	$342	$652	$965	$1,280	$1,598	$1,917	$2,239	$2,564	$2,890	$4,561	$6,298

Base Minus TV & Telephone Model: Internet Only, via Fiber

Proforma	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Revenue												
Residential revenue	$218	$881	$1,557	$1,799	$1,821	$1,843	$1,866	$1,889	$1,912	$1,935	$2,056	$2,184
Commercial revenue	$66	$200	$269	$273	$276	$279	$283	$286	$290	$293	$312	$331
Misc. revenue	$47	$95	$71	$47	$48	$49	$49	$50	$50	$51	$54	$58
Total Revenue	$332	$1,176	$1,897	$2,119	$2,145	$2,171	$2,198	$2,225	$2,252	$2,279	$2,421	$2,572
Cost of Services Provided												
Television	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Internet	$231	$243	$353	$353	$354	$354	$354	$355	$355	$355	$357	$359
Telephone	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Operating Expense												
Central office	$178	$209	$233	$233	$233	$233	$233	$233	$233	$233	$233	$234
Outside plant & customer premise	$449	$848	$652	$409	$413	$416	$419	$422	$426	$429	$447	$466
IT & accounting	$28	$50	$72	$80	$80	$81	$82	$83	$83	$84	$88	$92
Personnel	$1,243	$1,268	$1,290	$1,240	$1,240	$1,184	$1,185	$1,186	$1,187	$1,187	$1,192	$1,196
SG&A	$383	$379	$376	$376	$376	$377	$378	$378	$379	$380	$383	$387
Total Operating Expense	$2,511	$2,997	$2,976	$2,691	$2,696	$2,645	$2,651	$2,657	$2,663	$2,669	$2,700	$2,734
Operating Income	($2,180)	($1,821)	($1,079)	($572)	($551)	($474)	($453)	($432)	($411)	($389)	($278)	($161)
Operating Margin	(999%)	(207%)	(69%)	(32%)	(30%)	(26%)	(24%)	(23%)	(21%)	(20%)	(14%)	(7%)
Capital												
Outside plant	$2,332	$4,665	$2,332	$0	$0	$0	$0	$0	$0	$0	$0	$0
Customer premise equipment	$980	$1,822	$862	$45	$45	$46	$46	$47	$47	$48	$51	$54
Central office	$2,008	$1,019	$509	$0	$0	$0	$0	$0	$0	$0	$0	$25
SG&A	$679	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total Capital Expense	$6,000	$7,506	$3,704	$45	$45	$46	$46	$47	$47	$48	$51	$79

Base Minus TV & Telephone Model: Internet Only, via Fiber

Cash Flow Analysis	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Operating Income												
Total revenue	$332	$1,176	$1,897	$2,119	$2,145	$2,171	$2,198	$2,225	$2,252	$2,279	$2,421	$2,572
Total expense	($2,511)	($2,997)	($2,976)	($2,691)	($2,696)	($2,645)	($2,651)	($2,657)	($2,663)	($2,669)	($2,700)	($2,734)
Operating Profit/(Loss)	($2,180)	($1,821)	($1,079)	($572)	($551)	($474)	($453)	($432)	($411)	($389)	($278)	($161)
Capital expenditures	($6,000)	($7,506)	($3,704)	($45)	($45)	($46)	($46)	($47)	($47)	($48)	($51)	($79)
Total	($8,180)	($9,326)	($4,783)	($616)	($596)	($519)	($499)	($479)	($458)	($437)	($329)	($240)
Cumulative Cash	($8,180)	($17,506)	($22,289)	($22,905)	($23,501)	($24,021)	($24,520)	($24,999)	($25,457)	($25,895)	($27,760)	($29,091)
Net Present Value	($7,827)	($16,368)	($20,559)	($21,076)	($21,554)	($21,953)	($22,320)	($22,657)	($22,965)	($23,247)	($24,307)	($24,914)
Internal Rate of Return					N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Key Indicators	
Years to positive cash flow	26
Years to break even	26
NPV - Year 10	($23,247)
NPV - Year 15	($24,307)
IRR - Year 10	N/A
IRR - Year 15	N/A
Cost of Capital	4.5%

Base Minus TV & Telephone Model: Internet Only, via Fiber

Capital Equipment Replacement	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Cumulative CPE & central office equipment	$1,999	$4,840	$6,211	$6,256	$6,301	$6,347	$6,393	$6,440	$6,487	$6,535	$6,784	$7,073
Accumulated replacement needs	$100	$342	$652	$965	$1,280	$1,598	$1,917	$2,239	$2,564	$2,890	$4,561	$6,298
Net Present Value	($7,827)	($16,368)	($20,559)	($21,076)	($21,554)	($21,953)	($22,320)	($22,657)	($22,965)	($23,247)	($24,307)	($24,914)
Nominal surplus/(deficit)	($7,927)	($16,710)	($21,211)	($22,041)	($22,834)	($23,551)	($24,237)	($24,896)	($25,529)	($26,137)	($28,868)	($31,212)
Equipment lifetime (years)	20											

Base Minus Telephone Model: Television & Internet Only

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Residential Market												
Lompoc HHs	13,854	14,023	14,194	14,367	14,542	14,719	14,898	15,079	15,263	15,449	16,413	17,437
Roll out rate	25%	75%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Service profile (year end)												
Basic TV subs	104	316	426	431	436	442	447	452	458	463	492	523
Digital TV subs	1,732	5,259	7,097	7,183	7,271	7,359	7,449	7,540	7,632	7,724	8,206	8,719
Premium TV subs	1,108	3,366	4,542	4,597	4,653	4,710	4,767	4,825	4,884	4,944	5,252	5,580
Latino TV pkg subs	208	631	852	862	872	883	894	905	916	927	985	1,046
Pay per view users	190	578	779	789	798	808	818	828	838	848	901	957
Assumed PPV growth		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Monthly buy rate	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
Sports package subs	459	1,394	1,881	1,904	1,927	1,950	1,974	1,998	2,022	2,047	2,175	2,310
High-speed Internet subs	1,143	3,471	4,684	4,741	4,799	4,857	4,916	4,976	5,037	5,098	5,416	5,754
Transactional services penetration rate increase	5%	5%	5%	5%	5%	0%	0%	0%	0%	0%	0%	0%
Transactional services penetration rate	5%	10%	15%	20%	25%	25%	25%	25%	25%	25%	25%	25%
Transactional services users	57	347	703	948	1,200	1,214	1,229	1,244	1,259	1,275	1,354	1,439
Local telephony subscriber lines	0	0	0	0	0	0	0	0	0	0	0	0
Voicemail subs	0	0	0	0	0	0	0	0	0	0	0	0
Long distance subs	0	0	0	0	0	0	0	0	0	0	0	0

Base Minus Telephone Model: Television & Internet Only

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Service profile (average)												
Basic TV subs	52	210	371	428	434	439	444	450	455	461	489	520
Digital TV subs	866	3,495	6,178	7,140	7,227	7,315	7,404	7,494	7,586	7,678	8,157	8,666
Premium TV subs	554	2,237	3,954	4,570	4,625	4,682	4,739	4,796	4,855	4,914	5,221	5,546
Latino TV pkg subs	104	419	741	857	867	878	889	899	910	921	979	1,040
Pay per view users	95	384	678	784	794	803	813	823	833	843	896	952
High-speed Internet subs	571	2,307	4,077	4,712	4,770	4,828	4,887	4,946	5,007	5,067	5,384	5,720
Transactional services users	29	202	525	825	1,074	1,207	1,222	1,237	1,252	1,267	1,346	1,430
Local telephony subscriber lines	0	0	0	0	0	0	0	0	0	0	0	0
Voicemail subs	0	0	0	0	0	0	0	0	0	0	0	0
Long distance subs	0	0	0	0	0	0	0	0	0	0	0	0
Activation profile												
Net new subs - total	2,078	4,232	2,206	104	105	106	108	109	110	112	118	126
Gross new subs - total	2,078	4,544	3,152	1,381	1,398	1,415	1,432	1,450	1,467	1,485	1,578	1,676
Disconnecting subs - total	0	312	947	1,277	1,293	1,309	1,325	1,341	1,357	1,374	1,459	1,550
Net new digital TV subs	1,732	3,527	1,838	86	87	89	90	91	92	93	99	105
Gross new digital TV subs	1,732	4,316	2,903	1,164	1,178	1,192	1,207	1,222	1,237	1,252	1,330	1,413
Disconnecting digital TV subs	0	789	1,065	1,077	1,091	1,104	1,117	1,131	1,145	1,159	1,231	1,308
Net new residential Internet subs	1,143	2,328	1,213	57	58	58	59	60	61	61	65	69
Gross new residential Internet subs	1,143	2,848	1,916	768	778	787	797	806	816	826	878	932
Disconnecting residential Internet subs	0	521	703	711	720	729	737	746	756	765	812	863
Net new telephone subscriber lines	0	0	0	0	0	0	0	0	0	0	0	0
Gross new telephone subscriber lines	0	0	0	0	0	0	0	0	0	0	0	0
Disconnecting telephone subscriber lines	0	0	0	0	0	0	0	0	0	0	0	0
Residential market summary												
Residential subscribers (year end)	2,078	6,310	8,516	8,620	8,725	8,831	8,939	9,048	9,158	9,269	9,848	10,462
Residential subscribers (average)	1,039	4,194	7,413	8,568	8,672	8,778	8,885	8,993	9,103	9,214	9,789	10,399

Base Minus Telephone Model: Television & Internet Only

Residential Revenue ($000)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Assumed revenue growth		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Compounded revenue growth		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Television revenue												
Basic TV revenue	$12	$50	$89	$103	$104	$105	$107	$108	$109	$111	$117	$125
Digital TV revenue	$395	$1,594	$2,817	$3,256	$3,296	$3,336	$3,376	$3,417	$3,459	$3,501	$3,720	$3,952
Premium TV revenue	$106	$428	$756	$874	$885	$895	$906	$917	$928	$940	$998	$1,061
Latino TV pkg revenue	$8	$34	$59	$69	$69	$70	$71	$72	$73	$74	$78	$83
PPV revenue	$9	$36	$63	$73	$73	$74	$75	$76	$77	$78	$83	$88
Sports package revenue	$115	$348	$470	$476	$482	$488	$493	$500	$506	$512	$544	$578
TV revenue sub-total	$645	$2,489	$4,254	$4,850	$4,909	$4,969	$5,029	$5,090	$5,152	$5,215	$5,540	$5,886
Internet revenue												
Internet service revenue	$218	$881	$1,557	$1,799	$1,821	$1,843	$1,866	$1,889	$1,912	$1,935	$2,056	$2,184
Telephone revenue												
Local phone service revenue	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Long distance service revenue	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Telephone revenue sub-total	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Misc. revenue												
Advertising revenue	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
CPE installation revenue	$20	$34	$25	$13	$13	$13	$13	$14	$14	$14	$15	$16
Telephone line installation revenue	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Extra set top box rental and support	$1	$5	$9	$11	$11	$11	$11	$11	$11	$12	$12	$13
Service & support revenue	$10	$32	$43	$43	$44	$44	$45	$45	$46	$46	$49	$52
Net telephone service charges	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Transactional revenue	$0	$0	$0	$0	$1	$1	$1	$1	$1	$1	$1	$1
Misc. revenue sub-total	$32	$71	$77	$67	$68	$69	$70	$71	$72	$72	$77	$82
Total residential revenue	$895	$3,441	$5,888	$6,716	$6,798	$6,881	$6,965	$7,050	$7,135	$7,222	$7,673	$8,152

Base Minus Telephone Model: Television & Internet Only

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Commercial Market												
Lompoc medium/small businesses	1,004	1,016	1,029	1,041	1,054	1,067	1,080	1,093	1,106	1,120	1,189	1,264
Lompoc large businesses	233	236	239	242	245	248	251	254	257	260	276	293
Roll out rate	50%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Service profile (year end)												
Standard Internet	100	203	206	208	211	213	216	219	221	224	238	253
Standard phone lines	0	0	0	0	0	0	0	0	0	0	0	0
Custom Internet	23	47	48	48	49	50	50	51	51	52	55	59
Custom phone lines	0	0	0	0	0	0	0	0	0	0	0	0
Voicemail	0	0	0	0	0	0	0	0	0	0	0	0
Long distance	0	0	0	0	0	0	0	0	0	0	0	0
Service profile (average)												
Standard Internet	50	152	204	207	209	212	215	217	220	223	236	251
Standard phone lines	0	0	0	0	0	0	0	0	0	0	0	0
Custom Internet	12	35	47	48	49	49	50	50	51	52	55	58
Custom phone lines	0	0	0	0	0	0	0	0	0	0	0	0
Voicemail	0	0	0	0	0	0	0	0	0	0	0	0
Long distance	0	0	0	0	0	0	0	0	0	0	0	0
Activation profile												
Net new standard subs	100	103	2	3	3	3	3	3	3	3	3	3
Gross new standard subs	100	113	23	23	23	24	24	24	25	25	26	28
Disconnecting standard subs	0	10	20	21	21	21	21	22	22	22	24	25
Net new custom subs	23	24	1	1	1	1	1	1	1	1	1	1
Gross new custom subs	23	26	5	5	5	5	6	6	6	6	6	7
Disconnecting custom subs	0	2	5	5	5	5	5	5	5	5	5	6
Net new commercial Internet subs	124	127	3	3	3	3	3	3	3	3	4	4
Gross new commercial Internet subs	124	152	28	29	29	29	30	30	31	31	33	35
Disconnecting commercial Internet subs	0	25	25	26	26	26	27	27	27	28	29	31
Net new telephone subscriber lines	0	0	0	0	0	0	0	0	0	0	0	0
Gross new telephone subscriber lines	0	0	0	0	0	0	0	0	0	0	0	0
Disconnecting new telephone subscriber lines	0	0	0	0	0	0	0	0	0	0	0	0

Base Minus Telephone Model: Television & Internet Only

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Commercial market summary												
Standard commercial subscribers (year end)	100	203	206	208	211	213	216	219	221	224	238	253
Custom commercial subscribers (year end)	23	47	48	48	49	50	50	51	51	52	55	59
Commercial subscribers (year end)	124	250	253	257	260	263	266	269	273	276	293	311
Commercial subscribers (average)	62	187	252	255	258	261	264	268	271	274	291	310

Commercial Revenue ($000)

Assumed revenue growth		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Compounded revenue growth		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Standard Internet	$45	$137	$184	$186	$189	$191	$193	$196	$198	$200	$213	$226
Standard phone lines	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Custom Internet	$21	$63	$85	$86	$88	$89	$90	$91	$92	$93	$99	$105
Custom phone lines	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Voicemail	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Long distance	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Commercial subscription revenue	$66	$200	$269	$273	$276	$279	$283	$286	$290	$293	$312	$331
CPE installation revenue	$12	$14	$3	$3	$3	$3	$3	$3	$3	$3	$3	$3
Telephone line installation revenue	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Service & support revenue	$1	$1	$1	$1	$1	$1	$1	$1	$1	$1	$1	$2
Total commercial revenue	$79	$215	$274	$277	$280	$284	$287	$291	$294	$298	$316	$336

Base Minus Telephone Model: Television & Internet Only

Market & Revenue Recap ($000)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Total subscribers (year end)	2,202	6,561	8,770	8,877	8,985	9,094	9,205	9,317	9,430	9,545	10,141	10,774
Total subscribers (average)	1,101	4,381	7,665	8,823	8,931	9,039	9,149	9,261	9,374	9,488	10,080	10,709
Television subscribers (year end)	1,836	5,574	7,523	7,614	7,707	7,801	7,896	7,992	8,089	8,188	8,699	9,242
Internet subscribers (year end)	1,267	3,721	4,937	4,998	5,058	5,120	5,182	5,245	5,309	5,374	5,709	6,066
Telephone subscriber lines	0	0	0	0	0	0	0	0	0	0	0	0
Residential television service revenue	$645	$2,489	$4,254	$4,850	$4,909	$4,969	$5,029	$5,090	$5,152	$5,215	$5,540	$5,886
Residential Internet service revenue	$218	$881	$1,557	$1,799	$1,821	$1,843	$1,866	$1,889	$1,912	$1,935	$2,056	$2,184
Commercial Internet service revenue	$66	$200	$269	$273	$276	$279	$283	$286	$290	$293	$312	$331
Internet service revenue	$284	$1,081	$1,826	$2,072	$2,097	$2,123	$2,149	$2,175	$2,201	$2,228	$2,367	$2,515
Residential phone service revenue	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Commercial phone service revenue	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Phone service revenue	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Misc. revenue	$45	$86	$81	$71	$72	$73	$74	$75	$76	$77	$82	$87
Operating revenue	$974	$3,656	$6,162	$6,993	$7,078	$7,165	$7,252	$7,340	$7,430	$7,520	$7,989	$8,488

Base Minus Telephone Model: Television & Internet Only

Cost of Services Provided ($000)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Programming costs												
Basic tier	$6	$23	$40	$46	$47	$47	$48	$49	$49	$50	$53	$56
Digital tier	$178	$717	$1,268	$1,465	$1,483	$1,501	$1,519	$1,538	$1,557	$1,576	$1,674	$1,778
Premium channels	$64	$257	$454	$524	$531	$537	$544	$550	$557	$564	$599	$636
Latino channels	$4	$15	$27	$31	$31	$32	$32	$32	$33	$33	$35	$37
Pay per view	$4	$18	$31	$36	$37	$37	$38	$38	$39	$39	$41	$44
Sports packages	$57	$174	$235	$238	$241	$244	$247	$250	$253	$256	$272	$289
Programming cost	$312	$1,204	$2,055	$2,341	$2,369	$2,398	$2,427	$2,457	$2,487	$2,517	$2,674	$2,841
Internet connect cost												
Residential bandwidth sold (Mbps)	533	2,150	3,799	4,391	4,445	4,499	4,554	4,609	4,665	4,722	5,017	5,330
Standard commercial bandwidth sold (Mbps)	151	455	613	621	628	636	644	652	660	668	709	754
Custom commercial bandwidth sold (Mbps)	70	211	285	288	292	295	299	302	306	310	329	350
Internet bandwidth sold (Mbps)	753	2,816	4,697	5,300	5,365	5,430	5,496	5,563	5,631	5,700	6,055	6,433
Wholesale Internet bandwidth required	8	28	47	53	54	54	55	56	56	57	61	64
Wholesale Internet bandwidth cost	$104	$104	$208	$208	$208	$208	$208	$208	$208	$208	$208	$208
Bandwidth transport cost	$120	$120	$120	$120	$120	$120	$120	$120	$120	$120	$120	$120
ISP service charges	$6	$19	$25	$25	$25	$26	$26	$26	$27	$27	$29	$30
Total Internet connect cost	$231	$243	$353	$353	$354	$354	$354	$355	$355	$355	$357	$359
Telephone service cost												
Exchange operating cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
PSTN connect cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Voicemail cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Long distance wholesale cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total telephone service cost	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Gross margin												
TV service margin	$333	$1,286	$2,200	$2,509	$2,539	$2,570	$2,602	$2,633	$2,665	$2,698	$2,866	$3,045
Internet service margin	$54	$838	$1,473	$1,719	$1,744	$1,769	$1,794	$1,820	$1,846	$1,873	$2,010	$2,156
Telephone service margin	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Misc. revenue	$45	$86	$81	$71	$72	$73	$74	$75	$76	$77	$82	$87
Net revenue	$431	$2,210	$3,754	$4,299	$4,355	$4,412	$4,470	$4,529	$4,588	$4,648	$4,958	$5,288

Base Minus Telephone Model: Television & Internet Only

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Operating Expense ($000)												
Central office costs												
Video management system software	$40	$40	$40	$40	$40	$40	$40	$40	$40	$40	$40	$40
Hardware & PON controller software	$13	$24	$29	$29	$29	$30	$30	$30	$31	$31	$32	$34
Outsourced hardware maintenance	$70	$128	$157	$157	$157	$158	$160	$161	$163	$164	$172	$181
Training	$42	$24	$24	$24	$24	$24	$24	$24	$24	$24	$24	$24
City of Lompoc charge back for site support	$48	$48	$48	$48	$48	$48	$48	$48	$48	$48	$48	$48
Total central office costs	$213	$264	$298	$298	$298	$300	$302	$303	$305	$307	$317	$327
Outside plant & customer premise costs												
Basic installations	$5	$11	$8	$3	$3	$3	$4	$4	$4	$4	$4	$4
Standard installations	$519	$1,108	$755	$334	$338	$342	$346	$351	$355	$359	$382	$405
Custom installations	$9	$10	$2	$2	$2	$2	$2	$2	$2	$2	$2	$3
Vendor-provided CPE maintenance hard	$16	$48	$64	$65	$66	$67	$68	$68	$69	$70	$75	$79
Vendor-provided CPE maintenance soft	$22	$65	$86	$87	$88	$89	$90	$91	$92	$94	$99	$106
Outside plant spares & supplies	$12	$35	$47	$47	$47	$47	$47	$47	$47	$47	$47	$47
Electric department logistics charge back	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100
Total OSP & CPE costs	$683	$1,378	$1,062	$638	$644	$650	$657	$663	$669	$675	$708	$744
IT, CRM & accounting costs												
CRM &billing system software	$40	$40	$40	$40	$40	$40	$40	$40	$40	$40	$40	$40
Conditional access management & EPG	$10	$42	$74	$86	$87	$88	$89	$90	$91	$92	$98	$104
Billing	$13	$53	$92	$106	$107	$108	$110	$111	$112	$114	$121	$129
Total IT & accounting costs	$64	$135	$206	$232	$234	$236	$239	$241	$244	$246	$259	$272
Sales, general & administrative costs												
Advertising	$10	$10	$10	$10	$10	$10	$10	$10	$10	$10	$10	$10
Direct marketing	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50
Telemarketing	$57	$51	$45	$43	$44	$44	$45	$45	$46	$46	$49	$52
Legal & regulatory	$10	$10	$10	$10	$10	$10	$10	$10	$10	$10	$10	$10
General & administrative	$20	$20	$20	$20	$20	$20	$20	$20	$20	$20	$20	$20
City of Lompoc charge back	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500
Total SG&A	$647	$641	$635	$633	$634	$634	$635	$635	$636	$636	$639	$642

Base Minus Telephone Model: Television & Internet Only

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Operating expense summary												
Central office	$213	$264	$298	$298	$298	$300	$302	$303	$305	$307	$317	$327
Outside plant & customer premise	$683	$1,378	$1,062	$638	$644	$650	$657	$663	$669	$675	$708	$744
IT & accounting	$64	$135	$206	$232	$234	$236	$239	$241	$244	$246	$259	$272
SG&A	$647	$641	$635	$633	$634	$634	$635	$635	$636	$636	$639	$642
Total operating expense	$1,607	$2,417	$2,201	$1,801	$1,810	$1,821	$1,832	$1,843	$1,854	$1,865	$1,923	$1,986

Base Minus Telephone Model: Television & Internet Only

Personnel Expense ($000)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Head count												
General manager, telecom services	1	1	1	1	1	1	1	1	1	1	1	1
IT manager	1	1	1	1	1	1	1	1	1	1	1	1
Account executive	1	1	1	1	1	1	1	1	1	1	1	1
Marketing coordinator	1	1	1	1	1	1	1	1	1	1	1	1
Administrative assistant	1	1	1	1	1	1	1	1	1	1	1	1
Customer relations manager	1	1	1	1	1	1	1	1	1	1	1	1
Customer relations representatives	4	4	4	3	3	2	2	2	2	2	2	2
Operations manager	1	1	1	1	1	1	1	1	1	1	1	1
Field operations supervisor	1	1	1	1	1	1	1	1	1	1	1	1
Central office supervisor	1	1	1	1	1	1	1	1	1	1	1	1
Central office technicians	2	2	2	1	1	1	1	1	1	1	1	1
Total telecoms services staff	15	15	15	13	13	12	12	12	12	12	12	12
Field operations man-hour pool (FTE)	1	1	1	1	1	1	1	1	1	1	1	1
Billing operations man-hour pool (FTE)	2	2	2	2	2	2	2	2	2	2	2	2
Total telecom services FTE	18	18	18	16	16	15	15	15	15	15	15	15
Average salary (000)												
General manager, telecom services	$87	$87	$87	$87	$87	$87	$87	$87	$87	$87	$87	$87
IT manager	$80	$80	$80	$80	$80	$80	$80	$80	$80	$80	$80	$80
Sales manager	$45	$45	$45	$45	$45	$45	$45	$45	$45	$45	$45	$45
Marketing coordinator	$63	$63	$63	$63	$63	$63	$63	$63	$63	$63	$63	$63
Administrative assistant	$39	$39	$39	$39	$39	$39	$39	$39	$39	$39	$39	$39
Customer relations manager	$44	$44	$44	$44	$44	$44	$44	$44	$44	$44	$44	$44
Customer relations representative	$38	$38	$38	$38	$38	$38	$38	$38	$38	$38	$38	$38
Operations manager	$80	$80	$80	$80	$80	$80	$80	$80	$80	$80	$80	$80
Field operations supervisor	$60	$60	$60	$60	$60	$60	$60	$60	$60	$60	$60	$60
Central office supervisor	$60	$60	$60	$60	$60	$60	$60	$60	$60	$60	$60	$60
Central office technician	$39	$39	$39	$39	$39	$39	$39	$39	$39	$39	$39	$39
Field operations man-hour pool	$61	$61	$61	$61	$61	$61	$61	$61	$61	$61	$61	$61
Billing operations man-hour pool	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50

Base Minus Telephone Model: Television & Internet Only

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Additional employee costs												
Benefits & taxes	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%
General employee costs	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Additional employee cost increment	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
Total staff costs												
General manager, telecom services	$131	$131	$131	$131	$131	$131	$131	$131	$131	$131	$131	$131
IT manager	$120	$120	$120	$120	$120	$120	$120	$120	$120	$120	$120	$120
Sales manager	$68	$68	$68	$68	$68	$68	$68	$68	$68	$68	$68	$68
Marketing coordinator	$95	$95	$95	$95	$95	$95	$95	$95	$95	$95	$95	$95
Administrative assistant	$59	$59	$59	$59	$59	$59	$59	$59	$59	$59	$59	$59
Customer relations manager	$66	$66	$66	$66	$66	$66	$66	$66	$66	$66	$66	$66
Customer relations representatives	$228	$228	$228	$171	$171	$114	$114	$114	$114	$114	$114	$114
Operations manager	$120	$120	$120	$120	$120	$120	$120	$120	$120	$120	$120	$120
Field operations supervisor	$90	$90	$90	$90	$90	$90	$90	$90	$90	$90	$90	$90
Central office supervisor	$90	$90	$90	$90	$90	$90	$90	$90	$90	$90	$90	$90
Central office technicians	$117	$117	$117	$59	$59	$59	$59	$59	$59	$59	$59	$59
Field operations man-hour pool	$92	$92	$92	$92	$92	$92	$92	$92	$92	$92	$92	$92
Billing operations man-hour pool	$150	$150	$150	$150	$150	$150	$150	$150	$150	$150	$150	$150
Management & operations support	$29	$110	$185	$210	$212	$215	$218	$220	$223	$226	$240	$255
Total staffing cost	$1,453	$1,533	$1,608	$1,518	$1,520	$1,466	$1,469	$1,471	$1,474	$1,477	$1,491	$1,506

Base Minus Telephone Model: Television & Internet Only

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Capital Expense ($000)												
Variable capital expense												
Standard optical network terminals	$1,525	$3,035	$1,546	$74	$75	$76	$77	$78	$79	$80	$85	$90
Custom optical network terminals	$100	$103	$2	$3	$3	$3	$3	$3	$3	$3	$3	$3
Digital set top boxes	$541	$1,102	$574	$27	$27	$28	$28	$28	$29	$29	$31	$33
Central office facilities	$0	$0	$0	$0	$0	$37	$38	$38	$39	$39	$42	$44
Incremental telephony facilities	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
ONT spares	$16	$31	$15	$1	$1	$1	$1	$1	$1	$1	$1	$1
Variable capital expense	$2,183	$4,271	$2,138	$105	$106	$145	$146	$148	$150	$152	$161	$171
Fixed capital expense												
Fiber network	$2,332	$4,665	$2,332	$0	$0	$0	$0	$0	$0	$0	$0	$0
Core central office facilities	$1,018	$1,019	$509	$0	$0	$0	$0	$0	$0	$0	$0	$0
Incremental telephony facilities	$0											
Central office TV head end facilitiies	$723	$431	$215	$0	$0	$0	$0	$0	$0	$0	$0	$0
General central office facilities	$1,100											
Information technology	$458											
SG& A	$450											
Total fixed capital expense	$6,082	$6,114	$3,057	$0	$0	$0	$0	$0	$0	$0	$0	$0
Annual capital expense	$8,264	$10,385	$5,195	$105	$106	$145	$146	$148	$150	$152	$161	$171
Cumulative capital expense	$8,264	$18,649	$23,844	$23,949	$24,055	$24,200	$24,346	$24,494	$24,644	$24,796	$25,584	$26,420
Capital Worksheet ($000)												
Cumulative central office hardware expense	$1,741	$3,191	$3,915	$3,915	$3,915	$3,953	$3,991	$4,029	$4,068	$4,107	$4,311	$4,528
Cumulative CPE expense	$2,183	$6,453	$8,592	$8,696	$8,802	$8,909	$9,018	$9,128	$9,239	$9,351	$9,935	$10,555
Cumulative OSP expense	$2,332	$6,997	$9,329	$9,329	$9,329	$9,329	$9,329	$9,329	$9,329	$9,329	$9,329	$9,329
Cumulative capital equipment replacement	$196	$678	$1,304	$1,934	$2,570	$3,213	$3,864	$4,522	$5,187	$5,860	$9,342	$13,028

Base Minus Telephone Model: Television & Internet Only

Proforma	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Revenue												
Residential revenue	$863	$3,370	$5,811	$6,649	$6,730	$6,812	$6,895	$6,979	$7,064	$7,150	$7,596	$8,070
Commercial revenue	$66	$200	$269	$273	$276	$279	$283	$286	$290	$293	$312	$331
Misc. revenue	$45	$86	$81	$71	$72	$73	$74	$75	$76	$77	$82	$87
Total Revenue	$974	$3,656	$6,162	$6,993	$7,078	$7,165	$7,252	$7,340	$7,430	$7,520	$7,989	$8,488
Cost of Services Provided												
Television	$312	$1,204	$2,055	$2,341	$2,369	$2,398	$2,427	$2,457	$2,487	$2,517	$2,674	$2,841
Internet	$231	$243	$353	$353	$354	$354	$354	$355	$355	$355	$357	$359
Telephone	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Operating Expense												
Central office	$213	$264	$298	$298	$298	$300	$302	$303	$305	$307	$317	$327
Outside plant & customer premise	$683	$1,378	$1,062	$638	$644	$650	$657	$663	$669	$675	$708	$744
IT & accounting	$64	$135	$206	$232	$234	$236	$239	$241	$244	$246	$259	$272
Personnel	$1,453	$1,533	$1,608	$1,518	$1,520	$1,466	$1,469	$1,471	$1,474	$1,477	$1,491	$1,506
SG&A	$647	$641	$635	$633	$634	$634	$635	$635	$636	$636	$639	$642
Total Operating Expense	$3,602	$5,396	$6,217	$6,013	$6,053	$6,039	$6,082	$6,125	$6,170	$6,214	$6,445	$6,691
Operating Income	($2,628)	($1,740)	($55)	$980	$1,025	$1,126	$1,170	$1,215	$1,260	$1,306	$1,544	$1,797
Operating Margin	(304%)	(52%)	(1%)	15%	15%	17%	17%	17%	18%	18%	20%	22%
Capital												
Outside plant	$2,332	$4,665	$2,332	$0	$0	$0	$0	$0	$0	$0	$0	$0
Customer premise equipment	$2,183	$4,271	$2,138	$105	$106	$107	$109	$110	$111	$113	$120	$127
Central office	$2,841	$1,449	$725	$0	$0	$37	$38	$38	$39	$39	$42	$44
SG&A	$908	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total Capital Expense	$8,264	$10,385	$5,195	$105	$106	$145	$146	$148	$150	$152	$161	$171

Base Minus Telephone Model: Television & Internet Only

Cash Flow Analysis	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Operating Income												
Total revenue	$974	$3,656	$6,162	$6,993	$7,078	$7,165	$7,252	$7,340	$7,430	$7,520	$7,989	$8,488
Total expense	($3,602)	($5,396)	($6,217)	($6,013)	($6,053)	($6,039)	($6,082)	($6,125)	($6,170)	($6,214)	($6,445)	($6,691)
Operating Profit/(Loss)	($2,628)	($1,740)	($55)	$980	$1,025	$1,126	$1,170	$1,215	$1,260	$1,306	$1,544	$1,797
Capital expenditures	($8,264)	($10,385)	($5,195)	($105)	($106)	($145)	($146)	($148)	($150)	($152)	($161)	($171)
Total	($10,892)	($12,125)	($5,250)	$875	$919	$981	$1,023	$1,066	$1,110	$1,154	$1,383	$1,625
Cumulative Cash	($10,892)	($23,017)	($28,267)	($27,392)	($26,473)	($25,492)	($24,469)	($23,402)	($22,292)	($21,138)	($14,688)	($7,052)
Net Present Value	($10,423)	($21,526)	($26,127)	($25,393)	($24,656)	($23,902)	($23,150)	($22,400)	($21,654)	($20,910)	($17,275)	($13,821)
Internal Rate of Return						(50.8%)	(40.0%)	(32.0%)	(26.0%)	(21.2%)	(8.1%)	(2.5%)

Key Indicators	
Years to positive cash flow	4
Years to break even	25
NPV - Year 10	($20,910)
NPV - Year 15	($17,275)
IRR - Year 10	(21.2%)
IRR - Year 15	(8.1%)
Cost of Capital	4.5%

Base Minus Telephone Model: Television & Internet Only

Capital Equipment Replacement	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Cumulative CPE & central office equipment	$3,924	$9,644	$12,507	$12,612	$12,718	$12,862	$13,009	$13,157	$13,307	$13,459	$14,246	$15,083
Accumulated replacement needs	$196	$678	$1,304	$1,934	$2,570	$3,213	$3,864	$4,522	$5,187	$5,860	$9,342	$13,028
Net Present Value	($10,423)	($21,526)	($26,127)	($25,393)	($24,656)	($23,902)	($23,150)	($22,400)	($21,654)	($20,910)	($17,275)	($13,821)
Nominal surplus/(deficit)	($10,619)	($22,205)	($27,431)	($27,328)	($27,226)	($27,116)	($27,014)	($26,922)	($26,840)	($26,770)	($26,617)	($26,848)
Equipment lifetime (years)	20											

Wireless Model: Internet Only

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Residential Market												
Lompoc HHs	13,854	14,023	14,194	14,367	14,542	14,719	14,898	15,079	15,263	15,449	16,413	17,437
Roll out rate	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Service profile (year end)												
High-speed Internet subs	4,320	4,373	4,426	4,480	4,535	4,590	4,646	4,703	4,760	4,818	5,118	5,438
Transactional services penetration rate increase	5%	5%	5%	5%	5%	0%	0%	0%	0%	0%	0%	0%
Transactional services penetration rate	5%	10%	15%	20%	25%	25%	25%	25%	25%	25%	25%	25%
Transactional services users	227	459	697	941	1,190	1,205	1,220	1,234	1,249	1,265	1,344	1,427
Service profile (average)												
High-speed Internet subs	2,160	4,347	4,400	4,453	4,508	4,562	4,618	4,674	4,731	4,789	5,088	5,405
Transactional services users	113	343	578	819	1,066	1,198	1,212	1,227	1,242	1,257	1,335	1,419
Activation profile												
Net new residential Internet subs	4,320	53	53	54	55	55	56	57	57	58	62	65
Gross new residential Internet subs	4,320	840	850	860	871	881	892	903	914	925	983	1,044
Disconnecting residential Internet subs	0	787	797	806	816	826	836	846	857	867	921	979
Residential market summary												
Residential subscribers (year end)	4,320	4,373	4,426	4,480	4,535	4,590	4,646	4,703	4,760	4,818	5,118	5,438
Residential subscribers (average)	2,160	4,347	4,400	4,453	4,508	4,562	4,618	4,674	4,731	4,789	5,088	5,405
Residential Revenue ($000)												
Assumed revenue growth		5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Compounded revenue growth		5.0%	10.3%	15.8%	21.6%	27.6%	34.0%	40.7%	47.7%	55.1%	98.0%	152.7%
Internet service revenue	$518	$1,095	$1,164	$1,237	$1,315	$1,398	$1,485	$1,579	$1,678	$1,783	$2,418	$3,278
Service & support revenue	$22	$22	$22	$22	$23	$23	$23	$24	$24	$24	$26	$27
Transactional revenue	$0	$0	$0	$0	$1	$1	$1	$1	$1	$1	$1	$1
Total residential revenue	$540	$1,117	$1,187	$1,260	$1,338	$1,421	$1,509	$1,603	$1,702	$1,808	$2,444	$3,306

Wireless Model: Internet Only

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Commercial Market												
Lompoc medium/small businesses	1,004	1,016	1,029	1,041	1,054	1,067	1,080	1,093	1,106	1,120	1,189	1,264
Lompoc large businesses	233	236	239	242	245	248	251	254	257	260	276	293
Roll out rate	50%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Service profile (year end)												
Standard Internet	105	213	216	219	221	224	227	229	232	235	250	265
Service profile (average)												
Standard Internet	53	159	215	217	220	223	225	228	231	234	248	264
Activation profile												
Net new standard Internet subs	105	108	3	3	3	3	3	3	3	3	3	3
Gross new standard Internet subs	105	119	24	24	25	25	25	25	26	26	28	29
Disconnecting standard Internet subs	0	11	21	22	22	22	22	23	23	23	25	26
Commercial Revenue ($000)												
Assumed revenue growth		5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Compounded revenue growth		5.0%	10.3%	15.8%	21.6%	27.6%	34.0%	40.7%	47.7%	55.1%	98.0%	152.7%
Standard Internet	$25	$80	$114	$121	$128	$136	$145	$154	$164	$174	$236	$320
Commercial subscription revenue	$25	$80	$114	$121	$128	$136	$145	$154	$164	$174	$236	$320
Service & support revenue	$0	$1	$1	$1	$1	$1	$2	$2	$2	$2	$2	$3
Total commercial revenue	$26	$81	$115	$122	$130	$138	$146	$156	$165	$176	$238	$323

Wireless Model: Internet Only

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Market & Revenue Recap ($000)												
Total subscribers (year end)	4,426	4,586	4,642	4,699	4,756	4,814	4,873	4,932	4,992	5,053	5,368	5,703
Total subscribers (average)	2,213	4,506	4,614	4,671	4,727	4,785	4,843	4,902	4,962	5,022	5,336	5,669
Residential Internet service revenue	$518	$1,095	$1,164	$1,237	$1,315	$1,398	$1,485	$1,579	$1,678	$1,783	$2,418	$3,278
Commercial Internet service revenue	$25	$80	$114	$121	$128	$136	$145	$154	$164	$174	$236	$320
Internet service revenue	$544	$1,176	$1,278	$1,358	$1,443	$1,534	$1,630	$1,733	$1,841	$1,957	$2,653	$3,598
Misc. revenue	$22	$23	$24	$24	$25	$25	$25	$26	$26	$27	$29	$31
Operating revenue	$566	$1,199	$1,301	$1,382	$1,468	$1,559	$1,656	$1,758	$1,867	$1,983	$2,682	$3,629
Cost of Services Provided ($000)												
Internet connect & support cost												
Residential bandwidth sold (Mbps)	540	1,087	1,100	1,113	1,127	1,141	1,154	1,169	1,183	1,197	1,272	1,351
Commercial bandwidth sold (Mbps)	13	40	54	54	55	56	56	57	58	58	62	66
Internet bandwidth sold (Mbps)	553	1,127	1,154	1,168	1,182	1,196	1,211	1,226	1,241	1,256	1,334	1,417
Wholesale Internet bandwidth required	6	11	12	12	12	12	12	12	12	13	13	14
Wholesale Internet bandwidth cost	$17	$33	$33	$33	$33	$33	$36	$36	$36	$36	$39	$42
Bandwidth transport cost	$120	$120	$120	$120	$120	$120	$120	$120	$120	$120	$120	$120
ISP service charges	$133	$270	$277	$280	$284	$287	$291	$294	$298	$301	$320	$340
Total Internet connect & support cost	$269	$424	$430	$434	$437	$440	$447	$450	$454	$457	$479	$502
Gross margin												
Internet service margin	$274	$752	$848	$924	$1,006	$1,093	$1,183	$1,282	$1,388	$1,499	$2,174	$3,096
Misc. revenue	$22	$23	$24	$24	$25	$25	$25	$26	$26	$27	$29	$31
Net revenue	$296	$775	$871	$948	$1,031	$1,118	$1,209	$1,308	$1,414	$1,526	$2,203	$3,127

Wireless Model: Internet Only

Operating Expense ($000)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Central office costs												
Software upgrades & maintenance	$1	$1	$1	$1	$1	$1	$1	$1	$1	$1	$1	$1
Outsourced hardware maintenance	$4	$4	$4	$4	$4	$4	$4	$4	$4	$4	$4	$4
Training	$1	$1	$1	$1	$1	$1	$1	$1	$1	$1	$1	$1
City of Lompoc charge back for site support	$3	$3	$3	$3	$3	$3	$3	$3	$3	$3	$3	$3
Total central office costs	$9	$9	$9	$9	$9	$9	$9	$9	$9	$9	$9	$9
Outside plant costs												
Outside plant spares & supplies	$6	$6	$6	$6	$6	$6	$6	$6	$6	$6	$6	$6
Electric department logistics charge back	$24	$24	$24	$24	$24	$24	$24	$24	$24	$24	$24	$24
Total OSP costs	$30	$30	$30	$30	$30	$30	$30	$30	$30	$30	$30	$30
IT, CRM & accounting costs												
CRM &billing system software	$2	$2	$2	$2	$2	$2	$2	$2	$2	$2	$2	$2
Billing	$7	$14	$14	$14	$14	$14	$15	$15	$15	$15	$16	$17
Total IT & account costs	$8	$15	$15	$16	$16	$16	$16	$16	$16	$17	$18	$19
Sales, general & administrative costs												
Advertising	$10	$10	$10	$10	$10	$10	$10	$10	$10	$10	$10	$10
Direct marketing	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50
Telemarketing	$26	$22	$22	$22	$22	$22	$23	$23	$23	$24	$25	$27
Legal & regulatory	$10	$10	$10	$10	$10	$10	$10	$10	$10	$10	$10	$10
City of Lompoc charge back	$12	$12	$12	$12	$12	$12	$12	$12	$12	$12	$12	$12
Total SG&A	$108	$104	$104	$104	$104	$104	$105	$105	$105	$106	$107	$109
Operating expense summary												
Central office	$9	$9	$9	$9	$9	$9	$9	$9	$9	$9	$9	$9
Outside plant & customer premise	$30	$30	$30	$30	$30	$30	$30	$30	$30	$30	$30	$30
IT & accounting	$8	$15	$15	$16	$16	$16	$16	$16	$16	$17	$18	$19
SG&A	$108	$104	$104	$104	$104	$104	$105	$105	$105	$106	$107	$109
Total operating expense	$155	$158	$158	$158	$159	$159	$160	$160	$161	$161	$164	$166

Wireless Model: Internet Only

Personnel Expense ($000)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Head count												
General manager, telecom services	0	0	0	0	0	0	0	0	0	0	0	0
IT manager	0	0	0	0	0	0	0	0	0	0	0	0
Account executive	0	0	0	0	0	0	0	0	0	0	0	0
Marketing coordinator	1	1	1	1	1	1	1	1	1	1	1	1
Administrative assistant	0	0	0	0	0	0	0	0	0	0	0	0
Customer relations manager	1	1	1	1	1	1	1	1	1	1	1	1
Customer relations representatives	0	0	0	0	0	0	0	0	0	0	0	0
Operations manager	1	1	1	1	1	1	1	1	1	1	1	1
Field operations supervisor	0	0	0	0	0	0	0	0	0	0	0	0
Central office supervisor	0	0	0	0	0	0	0	0	0	0	0	0
Central office technicians	0	0	0	0	0	0	0	0	0	0	0	0
Total telecoms services staff	3	3	3	3	3	3	3	3	3	3	3	3
Field operations man-hour pool (FTE)	1	1	1	1	1	1	1	1	1	1	1	1
Billing operations man-hour pool (FTE)	0	0	0	0	0	0	0	0	0	0	0	0
Total telecom services FTE	4	4	4	4	4	4	4	4	4	4	4	4
Average salaries (000)												
General manager, telecom services	$87	$87	$87	$87	$87	$87	$87	$87	$87	$87	$87	$87
IT manager	$80	$80	$80	$80	$80	$80	$80	$80	$80	$80	$80	$80
Sales manager	$45	$45	$45	$45	$45	$45	$45	$45	$45	$45	$45	$45
Marketing coordinator	$63	$63	$63	$63	$63	$63	$63	$63	$63	$63	$63	$63
Administrative assistant	$39	$39	$39	$39	$39	$39	$39	$39	$39	$39	$39	$39
Customer relations manager	$44	$44	$44	$44	$44	$44	$44	$44	$44	$44	$44	$44
Customer relations representatives	$38	$38	$38	$38	$38	$38	$38	$38	$38	$38	$38	$38
Operations manager	$80	$80	$80	$80	$80	$80	$80	$80	$80	$80	$80	$80
Field operations supervisor	$60	$60	$60	$60	$60	$60	$60	$60	$60	$60	$60	$60
Central office supervisor	$60	$60	$60	$60	$60	$60	$60	$60	$60	$60	$60	$60
Central office technicians	$39	$39	$39	$39	$39	$39	$39	$39	$39	$39	$39	$39
Field operations man-hour pool	$61	$61	$61	$61	$61	$61	$61	$61	$61	$61	$61	$61
Billing operations man-hour pool	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50

Wireless Model: Internet Only

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Additional employee costs												
Benefits & taxes	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%
General employee costs	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Additional employee cost increment	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
Total staff costs												
General manager, telecom services	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
IT manager	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Sales manager	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Marketing coordinator	$95	$95	$95	$95	$95	$95	$95	$95	$95	$95	$95	$95
Administrative assistant	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Customer relations manager	$66	$66	$66	$66	$66	$66	$66	$66	$66	$66	$66	$66
Customer relations representatives	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Operations manager	$120	$120	$120	$120	$120	$120	$120	$120	$120	$120	$120	$120
Field operations supervisor	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Central office supervisor	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Central office technicians	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Field operations man-hour pool	$92	$92	$92	$92	$92	$92	$92	$92	$92	$92	$92	$92
Billing operations man-hour pool	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Outsourced management & operations support	$17	$36	$39	$41	$44	$47	$50	$53	$56	$60	$80	$109
Total staffing cost	$389	$408	$411	$413	$416	$419	$422	$425	$428	$432	$452	$481

Wireless Model: Internet Only

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Capital Expense ($000)												
Variable capital expense												
OSP upgrades	$6	$6	$6	$6	$6	$6	$6	$6	$6	$6	$6	$6
Variable capital expense	$6	$6	$6	$6	$6	$6	$6	$6	$6	$6	$6	$6
Fixed capital expense												
Tropos radio network	$616	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Core central office facilities	$100											
Information technology	$40											
SG& A	$115											
Total fixed capital expense	$871	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Annual capital expense	$877	$6	$6	$6	$6	$6	$6	$6	$6	$6	$6	$6
Cumulative capital expense	$877	$883	$889	$896	$902	$908	$914	$920	$926	$933	$963	$994
Capital Worksheet ($000)												
Cumulative central office hardware expense	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100
Cumulative OSP expense	$616	$616	$616	$616	$616	$616	$616	$616	$616	$616	$616	$616
Cumulative capital equipment replacement	$72	$107	$143	$179	$215	$251	$286	$322	$358	$394	$573	$752

Wireless Model: Internet Only

Proforma	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Revenue												
Residential revenue	$518	$1,095	$1,164	$1,237	$1,315	$1,398	$1,485	$1,579	$1,678	$1,783	$2,418	$3,278
Commercial revenue	$25	$80	$114	$121	$128	$136	$145	$154	$164	$174	$236	$320
Misc. revenue	$22	$23	$24	$24	$25	$25	$25	$26	$26	$27	$29	$31
Total Revenue	$566	$1,199	$1,301	$1,382	$1,468	$1,559	$1,656	$1,758	$1,867	$1,983	$2,682	$3,629
Cost of Services Provided												
Internet	$269	$424	$430	$434	$437	$440	$447	$450	$454	$457	$479	$502
Operating Expense												
Central office	$9	$9	$9	$9	$9	$9	$9	$9	$9	$9	$9	$9
Outside plant & customer premise	$30	$30	$30	$30	$30	$30	$30	$30	$30	$30	$30	$30
IT & accounting	$8	$15	$15	$16	$16	$16	$16	$16	$16	$17	$18	$19
Personnel	$389	$408	$411	$413	$416	$419	$422	$425	$428	$432	$452	$481
SG&A	$108	$104	$104	$104	$104	$104	$105	$105	$105	$106	$107	$109
Total Expense	$813	$989	$999	$1,006	$1,012	$1,019	$1,028	$1,035	$1,043	$1,050	$1,095	$1,149
Operating Income	($248)	$209	$302	$377	$456	$540	$627	$723	$825	$933	$1,587	$2,480
Operating Margin	(48%)	19%	26%	30%	35%	39%	42%	46%	49%	52%	66%	76%
Capital												
Outside plant	$622	$6	$6	$6	$6	$6	$6	$6	$6	$6	$6	$6
Central office	$100	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
SG&A	$155	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	$877	$6	$6	$6	$6	$6	$6	$6	$6	$6	$6	$6

Wireless Model: Internet Only

Cash Flow Analysis	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Operating Income												
Total revenue	$566	$1,199	$1,301	$1,382	$1,468	$1,559	$1,656	$1,758	$1,867	$1,983	$2,682	$3,629
Total expense	($813)	($989)	($999)	($1,006)	($1,012)	($1,019)	($1,028)	($1,035)	($1,043)	($1,050)	($1,095)	($1,149)
Operating Profit/(Loss)	($248)	$209	$302	$377	$456	$540	$627	$723	$825	$933	$1,587	$2,480
Capital expenditures	($877)	($6)	($6)	($6)	($6)	($6)	($6)	($6)	($6)	($6)	($6)	($6)
Total	($1,125)	$203	$296	$370	$450	$534	$621	$717	$819	$927	$1,581	$2,474
Cumulative Cash	($1,125)	($922)	($626)	($255)	$194	$729	$1,350	$2,067	$2,885	$3,812	$10,328	$20,804
Net Present Value	($1,076)	($890)	($631)	($320)	$40	$451	$907	$1,411	$1,962	$2,559	$6,209	$10,925
Internal Rate of Return				(10.9%)	5.9%	16.3%	23.0%	27.5%	30.6%	32.7%	37.3%	38.3%

Key Indicators	
Years to positive cash flow	2
Years to break even	5
NPV - Year 10	$2,559
NPV - Year 15	$6,209
IRR - Year 10	32.7%
IRR - Year 15	37.3%
Cost of Capital	4.5%

Wireless Model: Internet Only

Capital Equipment Replacement	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Accumulated replacement needs	$72	$107	$143	$179	$215	$251	$286	$322	$358	$394	$573	$752
Net Present Value	($1,076)	($890)	($631)	($320)	$40	$451	$907	$1,411	$1,962	$2,559	$6,209	$10,925
Nominal surplus/(deficit)	($1,148)	($998)	($774)	($499)	($174)	$200	$621	$1,089	$1,604	$2,165	$5,636	$10,174
Equipment lifetime (years)	10											

Scenario & Sensitivity Analysis

Wireless Model: Internet Only

	Pessimistic Scenario Aggregate 10% Reduction in Revenue	Cautiously Optimistic Scenario Aggregate 10% Performance Improvement
Market growth scenario scaling	100.0%	105.0%
Revenue scenario scaling	90.0%	100.0%
Revenue rate of increase scenario	0.0%	5.0%

Key Indicators	**Scenario**	**Nominal**	**Change**	**% Change**	**Scenario**	**Nominal**	**Change**	**% Change**
Years to positive cash flow	2	2	0	0.0%	2	2	0	0.0%
Years to break even	16	9	7	77.8%	5	9	(4)	(44.4%)
NPV - Year 10	($785)	$48	($833)	(1736.4%)	$2,559	$48	$2,511	5231.3%
NPV - Year 15	($461)	$721	($1,182)	(163.9%)	$6,209	$721	$5,488	761.0%
IRR - Year 10	(12.8%)	5.4%	(18.2%)	(338.6%)	32.7%	5.4%	27.3%	508.2%
IRR - Year 15	(1.2%)	12.2%	(13.4%)	(109.7%)	37.3%	12.2%	25.1%	206.1%
Operating Metrics	**Scenario**	**Nominal**	**Change**	**% Change**	**Scenario**	**Nominal**	**Change**	**% Change**
Residential revenue - Year 10	$985	$1,095	($109)	(10.0%)	$1,783	$1,095	$688	62.9%
Commercial revenue - Year 10	$96	$107	($11)	(10.0%)	$174	$107	$67	62.9%
Misc. revenue - Year 10	$22	$25	($2)	(10.0%)	$27	$25	$2	7.7%
Total Revenue - Year 10	$1,103	$1,226	($123)	(10.0%)	$1,983	$1,226	$757	61.8%
Total Operating Expense - Year 10	$1,006	$1,010	($4)	(0.4%)	$1,050	$1,010	$40	4.0%
Operating Income - Year 10	$97	$216	($119)	(55.1%)	$933	$216	$717	332.2%
Operating Margin - Year 10	10%	20%	(10%)	(50.1%)	52%	20%	33%	165.3%
Residential revenue - Year 15	$1,047	$1,163	($116)	(10.0%)	$2,418	$1,163	$1,255	107.9%
Commercial revenue - Year 15	$102	$113	($11)	(10.0%)	$236	$113	$122	107.9%
Misc. revenue - Year 15	$24	$26	($3)	(10.0%)	$29	$26	$3	9.8%
Total Revenue - Year 15	$1,172	$1,303	($130)	(10.0%)	$2,682	$1,303	$1,380	105.9%
Total Operating Expense - Year 15	$1,032	$1,035	($4)	(0.4%)	$1,095	$1,035	$60	5.8%
Operating Income - Year 15	$141	$267	($126)	(47.3%)	$1,587	$267	$1,320	494.2%
Operating Margin - Year 15	13%	23%	(10%)	(41.5%)	66%	23%	43%	185.8%

Base Model Plus WiFi: Rapid Wireless Internet, then TV, Telephone & Internet via Fiber

	Year Zero	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Residential Market													
Lompoc HHs	13,686	13,854	14,023	14,194	14,367	14,542	14,719	14,898	15,079	15,263	15,449	16,413	17,437
Roll out rate	100%	25%	75%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Service profile (year end)													
Basic TV subs		104	316	426	431	436	442	447	452	458	463	492	523
Digital TV subs		1,732	5,259	7,097	7,183	7,271	7,359	7,449	7,540	7,632	7,724	8,206	8,719
Premium TV subs		1,108	3,366	4,542	4,597	4,653	4,710	4,767	4,825	4,884	4,944	5,252	5,580
Latino TV pkg subs		208	631	852	862	872	883	894	905	916	927	985	1,046
Pay per view users		190	578	779	789	798	808	818	828	838	848	901	957
Assumed PPV growth			0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Monthly buy rate		2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
Sports package subs		459	1,394	1,881	1,904	1,927	1,950	1,974	1,998	2,022	2,047	2,175	2,310
High-speed Internet subs	4,065	4,115	4,165	4,684	4,741	4,799	4,857	4,916	4,976	5,037	5,098	5,416	5,754
Transactional svcs penetration rate inc.	5%	5%	5%	5%	5%	5%	0%	0%	0%	0%	0%	0%	0%
Transactional services penetration rate	5%	5%	10%	15%	20%	25%	25%	25%	25%	25%	25%	25%	25%
Transactional services users	206	206	416	703	948	1,200	1,214	1,229	1,244	1,259	1,275	1,354	1,439
Local telephony subscriber lines		1,870	5,679	7,665	7,758	7,852	7,948	8,045	8,143	8,242	8,342	8,863	9,416
Voicemail subs		935	2,840	3,832	3,879	3,926	3,974	4,022	4,071	4,121	4,171	4,431	4,708
Long distance subs		951	2,887	3,896	3,944	3,992	4,040	4,089	4,139	4,190	4,241	4,505	4,786

Base Model Plus WiFi: Rapid Wireless Internet, then TV, Telephone & Internet via Fiber

	Year Zero	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Service profile (average)													
Basic TV subs		52	210	371	428	434	439	444	450	455	461	489	520
Digital TV subs		866	3,495	6,178	7,140	7,227	7,315	7,404	7,494	7,586	7,678	8,157	8,666
Premium TV subs		554	2,237	3,954	4,570	4,625	4,682	4,739	4,796	4,855	4,914	5,221	5,546
Latino TV pkg subs		104	419	741	857	867	878	889	899	910	921	979	1,040
Pay per view users		95	384	678	784	794	803	813	823	833	843	896	952
High-speed Internet subs	2,032	4,090	4,140	4,424	4,712	4,770	4,828	4,887	4,946	5,007	5,067	5,384	5,720
Transactional services users		103	311	560	825	1,074	1,207	1,222	1,237	1,252	1,267	1,346	1,430
Local telephony subscriber lines		935	3,775	6,672	7,711	7,805	7,900	7,997	8,094	8,192	8,292	8,810	9,359
Voicemail subs		468	1,887	3,336	3,856	3,903	3,950	3,998	4,047	4,096	4,146	4,405	4,680
Long distance subs		475	1,919	3,392	3,920	3,968	4,016	4,065	4,114	4,165	4,215	4,478	4,758
Activation profile													
Net new fiber subs - total		5,085	2,025	1,549	105	107	108	109	111	112	113	120	128
Gross new fiber subs - total		5,085	2,788	2,615	1,404	1,421	1,439	1,456	1,474	1,492	1,510	1,604	1,704
Disconnecting fiber subs - total		0	763	1,066	1,299	1,315	1,331	1,347	1,363	1,380	1,397	1,484	1,576
Net new digital TV subs		1,732	3,527	1,838	86	87	89	90	91	92	93	99	105
Gross new digital TV subs		1,732	4,316	2,903	1,164	1,178	1,192	1,207	1,222	1,237	1,252	1,330	1,413
Disconnecting digital TV subs		0	789	1,065	1,077	1,091	1,104	1,117	1,131	1,145	1,159	1,231	1,308
Net new residential Internet subs	4,065	50	50	519	57	58	58	59	60	61	61	65	69
Gross new residential Internet subs	4,065	667	675	1,222	768	778	787	797	806	816	826	878	932
Disconnecting residential Internet subs	0	617	625	703	711	720	729	737	746	756	765	812	863
Net new telephone subscriber lines		935	2,840	2,897	1,039	94	95	96	97	99	100	106	113
Gross new telephone subscriber lines		935	2,980	3,463	2,040	1,251	1,266	1,281	1,297	1,313	1,329	1,412	1,500
Disconnecting telephone sub lines		0	140	566	1,001	1,157	1,171	1,185	1,199	1,214	1,229	1,306	1,387
Residential market summary													
Residential subscribers (year end)	4,065	5,085	7,110	8,658	8,764	8,870	8,978	9,088	9,198	9,310	9,424	10,012	10,637
Residential subscribers (average)	2,032	4,575	6,097	7,884	8,711	8,817	8,924	9,033	9,143	9,254	9,367	9,952	10,573

Base Model Plus WiFi: Rapid Wireless Internet, then TV, Telephone & Internet via Fiber

Residential Revenue ($000)	Year Zero	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Assumed revenue growth		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Compounded revenue growth		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Television revenue													
Basic TV revenue		$12	$50	$89	$103	$104	$105	$107	$108	$109	$111	$117	$125
Digital TV revenue		$395	$1,594	$2,817	$3,256	$3,296	$3,336	$3,376	$3,417	$3,459	$3,501	$3,720	$3,952
Premium TV revenue		$106	$428	$756	$874	$885	$895	$906	$917	$928	$940	$998	$1,061
Latino TV pkg revenue		$8	$34	$59	$69	$69	$70	$71	$72	$73	$74	$78	$83
PPV revenue		$9	$36	$63	$73	$73	$74	$75	$76	$77	$78	$83	$88
Sports package revenue		$115	$348	$470	$476	$482	$488	$493	$500	$506	$512	$544	$578
TV revenue sub-total		$645	$2,489	$4,254	$4,850	$4,909	$4,969	$5,029	$5,090	$5,152	$5,215	$5,540	$5,886
Internet revenue													
Internet service revenue	$488	$1,272	$1,385	$1,689	$1,799	$1,821	$1,843	$1,866	$1,889	$1,912	$1,935	$2,056	$2,184
Telephone revenue													
Local phone service revenue		$309	$1,246	$2,202	$2,545	$2,576	$2,607	$2,639	$2,671	$2,704	$2,736	$2,907	$3,089
Long distance service revenue		$57	$230	$407	$470	$476	$482	$488	$494	$500	$506	$537	$571
Telephone revenue sub-total		$366	$1,476	$2,609	$3,015	$3,052	$3,089	$3,127	$3,165	$3,203	$3,242	$3,445	$3,660
Misc. revenue													
Advertising revenue		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
CPE installation revenue		$95	($10)	$12	$14	$14	$14	$14	$14	$14	$15	$16	$16
Telephone line installation revenue		$28	$89	$104	$61	$38	$38	$38	$39	$39	$40	$42	$45
Extra set top box rental and support		$1	$5	$9	$11	$11	$11	$11	$11	$11	$12	$12	$13
Service & support revenue	$20	$25	$36	$43	$44	$44	$45	$45	$46	$47	$47	$50	$53
Net telephone service charges		$22	$68	$92	$93	$94	$95	$97	$98	$99	$100	$106	$113
Transactional revenue	$0	$0	$0	$0	$0	$1	$1	$1	$1	$1	$1	$1	$1
Misc. revenue sub-total	$20	$172	$188	$260	$223	$201	$204	$206	$209	$211	$214	$227	$241
Total residential revenue	$508	$2,455	$5,539	$8,813	$9,887	$9,983	$10,105	$10,228	$10,352	$10,478	$10,606	$11,268	$11,971

Base Model Plus WiFi: Rapid Wireless Internet, then TV, Telephone & Internet via Fiber

	Year Zero	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Commercial Market													
Lompoc medium/small businesses	992	1,004	1,016	1,029	1,041	1,054	1,067	1,080	1,093	1,106	1,120	1,189	1,264
Lompoc large businesses	230	233	236	239	242	245	248	251	254	257	260	276	293
Roll out rate	100%	50%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Service profile (year end)													
Standard Internet	198	201	203	206	208	211	213	216	219	221	224	238	253
Standard phone lines		113	229	231	234	237	240	243	246	249	252	268	284
Custom Internet		23	47	48	48	49	50	50	51	51	52	55	59
Custom phone lines		26	53	54	54	55	56	56	57	58	58	62	66
Voicemail		56	114	116	117	119	120	121	123	124	126	134	142
Long distance		46	94	95	96	97	99	100	101	102	103	110	117
Service profile (average)													
Standard Internet	99	100	202	204	207	209	212	215	217	220	223	236	251
Standard phone lines		56	171	230	233	236	239	241	244	247	250	266	283
Custom Internet		12	35	47	48	49	49	50	50	51	52	55	58
Custom phone lines		13	40	53	54	55	55	56	57	57	58	62	66
Voicemail		28	85	115	116	118	119	121	122	124	125	133	141
Long distance		23	70	94	96	97	98	99	100	102	103	109	116
Activation profile													
Net new standard fiber subs		201	53	3	3	3	3	3	3	3	3	4	4
Gross new standard fiber subs		201	73	28	29	29	30	30	30	31	31	33	35
Disconnecting standard fiber subs		0	20	25	26	26	26	27	27	27	28	29	31
Net new custom subs		29	30	1	1	1	1	1	1	1	1	1	1
Gross new custom subs		29	33	7	7	7	7	7	7	7	7	8	8
Disconnecting custom subs		0	3	6	6	6	6	6	6	6	6	7	7
Net new commercial Internet subs	198	26	26	3	3	3	3	3	3	3	3	4	4
Gross new commercial Internet subs	198	48	51	28	29	29	29	30	30	31	31	33	35
Disconnecting commercial Internet subs	0	22	25	25	26	26	26	27	27	27	28	29	31
Net new telephone subscriber lines		139	143	3	3	4	4	4	4	4	4	4	4
Gross new telephone subscriber lines		139	156	32	32	32	33	33	34	34	34	37	39
Disconnecting new telephone sub lines		0	14	28	29	29	29	30	30	30	31	33	35

Base Model Plus WiFi: Rapid Wireless Internet, then TV, Telephone & Internet via Fiber

	Year Zero	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Commercial market summary													
Standard commercial subs (year end)	198	201	254	257	260	263	267	270	273	277	280	297	316
Custom commercial subs (year end)		29	59	60	60	61	62	63	63	64	65	69	73
Commercial subscribers (year end)	198	230	313	317	321	325	329	333	337	341	345	366	389
Commercial subscribers (average)	99	214	271	315	319	323	327	331	335	339	343	364	387
Commercial Revenue ($000)													
Assumed revenue growth		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Compounded revenue growth		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Standard Internet	$48	$90	$182	$184	$186	$189	$191	$193	$196	$198	$200	$213	$226
Standard phone lines		$17	$51	$69	$70	$71	$72	$72	$73	$74	$75	$80	$85
Custom Internet		$21	$63	$85	$86	$88	$89	$90	$91	$92	$93	$99	$105
Custom phone lines		$8	$24	$32	$32	$33	$33	$34	$34	$34	$35	$37	$39
Voicemail		$2	$5	$7	$7	$7	$7	$7	$7	$7	$8	$8	$8
Long distance		$11	$23	$23	$23	$23	$24	$24	$24	$25	$25	$26	$28
Commercial subscription revenue	$48	$149	$348	$400	$405	$410	$415	$420	$425	$430	$436	$463	$492
CPE installation revenue		$23	$11	$4	$4	$4	$4	$4	$4	$4	$4	$4	$4
Telephone line installation revenue		$4	$5	$1	$1	$1	$1	$1	$1	$1	$1	$1	$1
Service & support revenue	$1	$1	$2	$2	$2	$2	$2	$2	$2	$2	$2	$2	$2
Total commercial revenue	$49	$177	$365	$406	$411	$416	$421	$426	$432	$437	$442	$470	$499

Base Model Plus WiFi: Rapid Wireless Internet, then TV, Telephone & Internet via Fiber

Market & Revenue Recap ($000)	Year Zero	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Total subscribers (year end)	4,263	5,314	7,423	8,975	9,084	9,195	9,307	9,420	9,535	9,651	9,769	10,378	11,026
Total subscribers (average)	2,131	4,789	6,369	8,199	9,030	9,140	9,251	9,364	9,478	9,593	9,710	10,316	10,959
Television subscribers (year end)		1,836	5,574	7,523	7,614	7,707	7,801	7,896	7,992	8,089	8,188	8,699	9,242
Internet subscribers (year end)	4,263	4,339	4,415	4,937	4,998	5,058	5,120	5,182	5,245	5,309	5,374	5,709	6,066
Telephone subscriber lines		2,009	5,961	7,950	8,047	8,145	8,244	8,344	8,446	8,549	8,653	9,193	9,766
Residential television service revenue		$645	$2,489	$4,254	$4,850	$4,909	$4,969	$5,029	$5,090	$5,152	$5,215	$5,540	$5,886
Residential Internet service revenue	$488	$1,272	$1,385	$1,689	$1,799	$1,821	$1,843	$1,866	$1,889	$1,912	$1,935	$2,056	$2,184
Commercial Internet service revenue	$48	$111	$245	$269	$273	$276	$279	$283	$286	$290	$293	$312	$331
Internet service revenue	$535	$1,383	$1,630	$1,959	$2,072	$2,097	$2,123	$2,149	$2,175	$2,201	$2,228	$2,367	$2,515
Residential phone service revenue		$366	$1,476	$2,609	$3,015	$3,052	$3,089	$3,127	$3,165	$3,203	$3,242	$3,445	$3,660
Commercial phone service revenue		$38	$103	$131	$132	$134	$136	$137	$139	$141	$142	$151	$161
Phone service revenue		$403	$1,579	$2,739	$3,147	$3,186	$3,225	$3,264	$3,304	$3,344	$3,385	$3,596	$3,820
Misc. revenue	$21	$201	$205	$266	$229	$207	$210	$213	$215	$218	$220	$234	$249
Operating revenue	$557	$2,632	$5,903	$9,219	$10,298	$10,399	$10,526	$10,654	$10,784	$10,915	$11,048	$11,738	$12,470

Base Model Plus WiFi: Rapid Wireless Internet, then TV, Telephone & Internet via Fiber

Cost of Services Provided ($000)	Year Zero	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Programming costs													
Basic tier		$6	$23	$40	$46	$47	$47	$48	$49	$49	$50	$53	$56
Digital tier		$178	$717	$1,268	$1,465	$1,483	$1,501	$1,519	$1,538	$1,557	$1,576	$1,674	$1,778
Premium channels		$64	$257	$454	$524	$531	$537	$544	$550	$557	$564	$599	$636
Latino channels		$4	$15	$27	$31	$31	$32	$32	$32	$33	$33	$35	$37
Pay per view		$4	$18	$31	$36	$37	$37	$38	$38	$39	$39	$41	$44
Sports packages		$57	$174	$235	$238	$241	$244	$247	$250	$253	$256	$272	$289
Programming cost		$312	$1,204	$2,055	$2,341	$2,369	$2,398	$2,427	$2,457	$2,487	$2,517	$2,674	$2,841
Internet connect cost													
Residential bandwidth sold (Mbps)	1,894	3,811	3,858	4,123	4,391	4,445	4,499	4,554	4,609	4,665	4,722	5,017	5,330
Standard comm'l bandwidth sold (Mbps)	298	301	606	613	621	628	636	644	652	660	668	709	754
Custom comm'l bandwidth sold (Mbps)	0	70	211	285	288	292	295	299	302	306	310	329	350
Internet bandwidth sold (Mbps)	2,191	4,182	4,675	5,021	5,300	5,365	5,430	5,496	5,563	5,631	5,700	6,055	6,433
Wholesale Internet bandwidth required	22	42	47	50	53	54	54	55	56	56	57	61	64
Wholesale Internet bandwidth cost	$104	$208	$208	$208	$208	$208	$208	$208	$208	$208	$208	$208	$208
Bandwidth transport cost	$120	$120	$120	$120	$120	$120	$120	$120	$120	$120	$120	$120	$120
ISP service charges	$21	$22	$22	$25	$25	$25	$26	$26	$26	$27	$27	$29	$30
Total Internet connect cost	$246	$350	$351	$353	$353	$354	$354	$354	$355	$355	$355	$357	$359
Telephone service cost													
Exchange operating cost		$144	$395	$644	$732	$740	$748	$757	$765	$774	$782	$828	$875
PSTN connect cost		$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Voicemail cost		$18	$71	$124	$143	$145	$146	$148	$150	$152	$154	$163	$174
Long distance wholesale cost		$30	$119	$209	$241	$244	$247	$250	$253	$256	$259	$275	$292
Total telephone service cost		$192	$585	$978	$1,116	$1,129	$1,142	$1,155	$1,168	$1,182	$1,195	$1,266	$1,341
Gross margin													
TV service margin		$333	$1,286	$2,200	$2,509	$2,539	$2,570	$2,602	$2,633	$2,665	$2,698	$2,866	$3,045
Internet service margin	$290	$1,033	$1,280	$1,606	$1,719	$1,744	$1,769	$1,794	$1,820	$1,846	$1,873	$2,010	$2,156
Telephone service margin		$211	$994	$1,762	$2,032	$2,057	$2,083	$2,109	$2,135	$2,162	$2,189	$2,330	$2,479
Misc. revenue		$201	$205	$266	$229	$207	$210	$213	$215	$218	$220	$234	$249
Net revenue	$290	$1,777	$3,764	$5,834	$6,488	$6,547	$6,632	$6,718	$6,804	$6,892	$6,980	$7,440	$7,929

Base Model Plus WiFi: Rapid Wireless Internet, then TV, Telephone & Internet via Fiber

	Year Zero	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Operating Expense ($000)													
Central office costs													
Video management system software		$40	$40	$40	$40	$40	$40	$40	$40	$40	$40	$40	$40
Hardware & PON controller software	$1	$20	$31	$36	$36	$37	$37	$37	$38	$38	$38	$40	$41
Outsourced hardware maintenance	$4	$106	$164	$193	$195	$196	$198	$199	$201	$202	$204	$212	$221
Training	$4	$42	$24	$24	$24	$24	$24	$24	$24	$24	$24	$24	$24
City charge back for site support	$3	$48	$48	$48	$48	$48	$48	$48	$48	$48	$48	$48	$48
Total central office costs	$11	$256	$307	$341	$343	$345	$347	$349	$350	$352	$354	$364	$375
Outside plant & cust. premise costs													
Basic installations		$13	$7	$6	$3	$3	$4	$4	$4	$4	$4	$4	$4
Standard installations		$1,259	$681	$629	$341	$345	$349	$354	$358	$362	$367	$390	$414
Custom installations		$12	$13	$3	$3	$3	$3	$3	$3	$3	$3	$3	$3
Vendor-provided CPE maintenance hard		$33	$53	$66	$67	$67	$68	$69	$70	$71	$72	$76	$81
Vendor-provided CPE maintenance soft		$44	$71	$88	$89	$90	$91	$92	$93	$94	$96	$102	$108
Outside plant spares & supplies	$3	$15	$38	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50
Electric department logistics charge back	$24	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100	$100
Total OSP & CPE costs	$27	$1,475	$963	$941	$653	$659	$665	$671	$678	$684	$691	$724	$760
IT, CRM & accounting costs													
CRM &billing system software	$40	$40	$40	$40	$40	$40	$40	$40	$40	$40	$40	$40	$40
Conditional access management & EPG		$10	$42	$74	$86	$87	$88	$89	$90	$91	$92	$98	$104
Billing	$26	$57	$76	$98	$108	$110	$111	$112	$114	$115	$117	$124	$132
Total IT & accounting costs	$66	$108	$158	$213	$234	$236	$239	$241	$244	$246	$249	$262	$276
Sales, general & admin costs													
Advertising	$10	$10	$10	$10	$10	$10	$10	$10	$10	$10	$10	$10	$10
Direct marketing	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50
Telemarketing	$54	$49	$46	$43	$43	$43	$44	$44	$45	$45	$46	$49	$52
Legal & regulatory	$10	$10	$10	$10	$10	$10	$10	$10	$10	$10	$10	$10	$10
General & administrative	$20	$20	$20	$20	$20	$20	$20	$20	$20	$20	$20	$20	$20
City of Lompoc charge back	$12	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500	$500
Total SG&A	$156	$639	$636	$633	$633	$633	$634	$634	$635	$635	$636	$639	$642

Base Model Plus WiFi: Rapid Wireless Internet, then TV, Telephone & Internet via Fiber

	Year Zero	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Operating expense summary													
Central office	$11	$256	$307	$341	$343	$345	$347	$349	$350	$352	$354	$364	$375
Outside plant & customer premise	$27	$1,475	$963	$941	$653	$659	$665	$671	$678	$684	$691	$724	$760
IT & accounting	$66	$108	$158	$213	$234	$236	$239	$241	$244	$246	$249	$262	$276
SG&A	$156	$639	$636	$633	$633	$633	$634	$634	$635	$635	$636	$639	$642
Total operating expense	$260	$2,478	$2,065	$2,129	$1,862	$1,873	$1,884	$1,895	$1,906	$1,918	$1,929	$1,989	$2,052

Base Model Plus WiFi: Rapid Wireless Internet, then TV, Telephone & Internet via Fiber

Personnel Expense ($000)	Year Zero	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Head count													
General manager, telecom services	1	1	1	1	1	1	1	1	1	1	1	1	1
IT manager	1	1	1	1	1	1	1	1	1	1	1	1	1
Account executive		1	1	1	1	1	1	1	1	1	1	1	1
Marketing coordinator	1	1	1	1	1	1	1	1	1	1	1	1	1
Administrative assistant		1	1	1	1	1	1	1	1	1	1	1	1
Customer relations manager	1	1	1	1	1	1	1	1	1	1	1	1	1
Customer relations representatives		4	4	4	3	3	2	2	2	2	2	2	2
Operations manager	1	1	1	1	1	1	1	1	1	1	1	1	1
Field operations supervisor		1	1	1	1	1	1	1	1	1	1	1	1
Central office supervisor		1	1	1	1	1	1	1	1	1	1	1	1
Central office technicians		2	2	2	1	1	1	1	1	1	1	1	1
Total telecoms services staff	5	15	15	15	13	13	12	12	12	12	12	12	12
Field operations man-hour pool (FTE)	1	1	1	1	1	1	1	1	1	1	1	1	1
Billing operations man-hour pool (FTE)	1	2	2	2	2	2	2	2	2	2	2	2	2
Total telecom services FTE	7	18	18	18	16	16	15	15	15	15	15	15	15
Average salary (000)													
General manager, telecom services	$87	$87	$87	$87	$87	$87	$87	$87	$87	$87	$87	$87	$87
IT manager	$80	$80	$80	$80	$80	$80	$80	$80	$80	$80	$80	$80	$80
Sales manager	$45	$45	$45	$45	$45	$45	$45	$45	$45	$45	$45	$45	$45
Marketing coordinator	$63	$63	$63	$63	$63	$63	$63	$63	$63	$63	$63	$63	$63
Administrative assistant	$39	$39	$39	$39	$39	$39	$39	$39	$39	$39	$39	$39	$39
Customer relations manager	$44	$44	$44	$44	$44	$44	$44	$44	$44	$44	$44	$44	$44
Customer relations representative	$38	$38	$38	$38	$38	$38	$38	$38	$38	$38	$38	$38	$38
Operations manager	$80	$80	$80	$80	$80	$80	$80	$80	$80	$80	$80	$80	$80
Field operations supervisor	$60	$60	$60	$60	$60	$60	$60	$60	$60	$60	$60	$60	$60
Central office supervisor	$60	$60	$60	$60	$60	$60	$60	$60	$60	$60	$60	$60	$60
Central office technician	$39	$39	$39	$39	$39	$39	$39	$39	$39	$39	$39	$39	$39
Field operations man-hour pool	$61	$61	$61	$61	$61	$61	$61	$61	$61	$61	$61	$61	$61
Billing operations man-hour pool	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50	$50

Base Model Plus WiFi: Rapid Wireless Internet, then TV, Telephone & Internet via Fiber

	Year Zero	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Additional employee costs													
Benefits & taxes	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%
General employee costs	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Additional employee cost increment	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
Total staff costs													
General manager, telecom services	$131	$131	$131	$131	$131	$131	$131	$131	$131	$131	$131	$131	$131
IT manager	$120	$120	$120	$120	$120	$120	$120	$120	$120	$120	$120	$120	$120
Sales manager	$0	$68	$68	$68	$68	$68	$68	$68	$68	$68	$68	$68	$68
Marketing coordinator	$95	$95	$95	$95	$95	$95	$95	$95	$95	$95	$95	$95	$95
Administrative assistant	$0	$59	$59	$59	$59	$59	$59	$59	$59	$59	$59	$59	$59
Customer relations manager	$66	$66	$66	$66	$66	$66	$66	$66	$66	$66	$66	$66	$66
Customer relations representatives	$0	$228	$228	$228	$171	$171	$114	$114	$114	$114	$114	$114	$114
Operations manager	$120	$120	$120	$120	$120	$120	$120	$120	$120	$120	$120	$120	$120
Field operations supervisor	$0	$90	$90	$90	$90	$90	$90	$90	$90	$90	$90	$90	$90
Central office supervisor	$0	$90	$90	$90	$90	$90	$90	$90	$90	$90	$90	$90	$90
Central office technicians	$0	$117	$117	$117	$59	$59	$59	$59	$59	$59	$59	$59	$59
Field operations man-hour pool	$92	$92	$92	$92	$92	$92	$92	$92	$92	$92	$92	$92	$92
Billing operations man-hour pool	$75	$150	$150	$150	$150	$150	$150	$150	$150	$150	$150	$150	$150
Management & operations support	$17	$79	$177	$277	$309	$312	$316	$320	$324	$327	$331	$352	$374
Total staffing cost	$714	$1,502	$1,601	$1,700	$1,617	$1,620	$1,567	$1,571	$1,575	$1,578	$1,582	$1,603	$1,625

Capital Expense ($000)

Variable capital expense													
Standard optical network terminals		$3,700	$1,455	$1,086	$76	$77	$78	$79	$80	$81	$82	$87	$92
Custom optical network terminals		$125	$128	$3	$3	$3	$3	$3	$3	$3	$3	$4	$4
Digital set top boxes		$541	$1,102	$574	$27	$27	$28	$28	$28	$29	$29	$31	$33
Central office facilities		$0	$0	$0	$37	$38	$38	$39	$39	$40	$40	$43	$45
Incremental telephony facilities		$0	$0	$0	$0	$0	$0	$0	$0	$0	$1	$2	$2
WiFi OSP upgrades	$6	$6	$6	$6	$6	$6	$6	$6	$6	$6	$6	$6	$6
ONT spares		$38	$16	$11	$1	$1	$1	$1	$1	$1	$1	$1	$1
Variable capital expense	$6	$4,411	$2,707	$1,681	$151	$152	$154	$156	$158	$160	$163	$173	$183

Base Model Plus WiFi: Rapid Wireless Internet, then TV, Telephone & Internet via Fiber

	Year Zero	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Fixed capital expense													
Fiber & WiFi network	$616	$2,332	$4,665	$2,332	$0	$0	$0	$0	$0	$0	$0	$0	$0
Core central office facilities	$100	$1,018	$1,019	$509	$0	$0	$0	$0	$0	$0	$0	$0	$0
Incremental telephony facilities		$813											
Central office TV head end facilitiies		$723	$431	$215	$0	$0	$0	$0	$0	$0	$0	$0	$0
General central office facilities		$1,100											
Information technology	$40	$458											
SG& A	$115	$575											
Total fixed capital expense	$871	$7,020	$6,114	$3,057	$0	$0	$0	$0	$0	$0	$0	$0	$0
Annual capital expense	$877	$11,430	$8,821	$4,738	$151	$152	$154	$156	$158	$160	$163	$173	$183
Cumulative capital expense	$877	$12,307	$21,129	$25,867	$26,017	$26,169	$26,323	$26,479	$26,637	$26,797	$26,959	$27,803	$28,697

Capital Worksheet ($000)

Cume central office hardware expense	$100	$2,654	$4,104	$4,828	$4,866	$4,904	$4,942	$4,981	$5,020	$5,060	$5,100	$5,309	$5,531
Cumulative CPE expense		$4,404	$7,106	$8,780	$8,887	$8,995	$9,105	$9,216	$9,328	$9,442	$9,557	$10,153	$10,786
Cumulative OSP expense	$622	$2,961	$7,631	$9,970	$9,976	$9,982	$9,988	$9,995	$10,001	$10,007	$10,013	$10,044	$10,075
Cume capital equipment replacement	$5	$358	$918	$1,599	$2,286	$2,981	$3,684	$4,394	$5,111	$5,836	$6,569	$10,353	$14,346

Base Model Plus WiFi: Rapid Wireless Internet, then TV, Telephone & Internet via Fiber

Proforma	Year Zero	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Revenue													
Residential revenue	$488	$2,282	$5,350	$8,552	$9,664	$9,782	$9,901	$10,022	$10,144	$10,267	$10,392	$11,041	$11,729
Commercial revenue	$48	$149	$348	$400	$405	$410	$415	$420	$425	$430	$436	$463	$492
Misc. revenue	$21	$201	$205	$266	$229	$207	$210	$213	$215	$218	$220	$234	$249
Total Revenue	$557	$2,632	$5,903	$9,219	$10,298	$10,399	$10,526	$10,654	$10,784	$10,915	$11,048	$11,738	$12,470
Cost of Services Provided													
Television	$0	$312	$1,204	$2,055	$2,341	$2,369	$2,398	$2,427	$2,457	$2,487	$2,517	$2,674	$2,841
Internet	$246	$350	$351	$353	$353	$354	$354	$354	$355	$355	$355	$357	$359
Telephone	$0	$192	$585	$978	$1,116	$1,129	$1,142	$1,155	$1,168	$1,182	$1,195	$1,266	$1,341
Operating Expense													
Central office	$11	$256	$307	$341	$343	$345	$347	$349	$350	$352	$354	$364	$375
Outside plant & customer premise	$27	$1,475	$963	$941	$653	$659	$665	$671	$678	$684	$691	$724	$760
IT & accounting	$66	$108	$158	$213	$234	$236	$239	$241	$244	$246	$249	$262	$276
Personnel	$714	$1,502	$1,601	$1,700	$1,617	$1,620	$1,567	$1,571	$1,575	$1,578	$1,582	$1,603	$1,625
SG&A	$156	$639	$636	$633	$633	$633	$634	$634	$635	$635	$636	$639	$642
Total Operating Expense	$1,219	$4,835	$5,805	$7,214	$7,289	$7,345	$7,345	$7,402	$7,461	$7,520	$7,580	$7,889	$8,219
Operating Income	($663)	($2,203)	$98	$2,005	$3,009	$3,054	$3,181	$3,252	$3,323	$3,395	$3,469	$3,848	$4,251
Operating Margin	(136%)	(97%)	2%	23%	31%	31%	32%	32%	33%	33%	33%	35%	36%
Capital													
Outside plant	$622	$2,338	$4,671	$2,338	$6	$6	$6	$6	$6	$6	$6	$6	$6
Customer premise equipment	$0	$4,404	$2,701	$1,675	$107	$108	$110	$111	$112	$114	$115	$122	$130
Central office	$100	$3,654	$1,449	$725	$37	$38	$38	$39	$39	$40	$40	$43	$45
SG&A	$155	$1,033	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total Capital Expense	$877	$11,430	$8,821	$4,738	$151	$152	$154	$156	$158	$160	$161	$171	$181

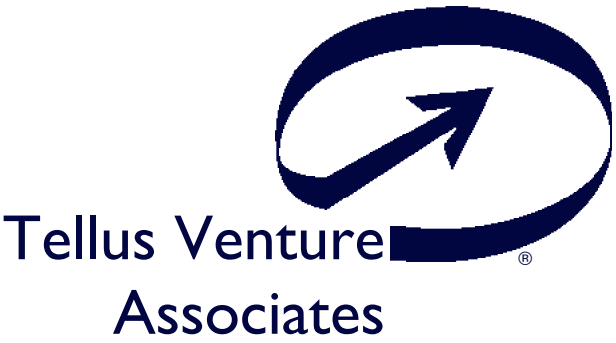
Base Model Plus WiFi: Rapid Wireless Internet, then TV, Telephone & Internet via Fiber

Cash Flow Analysis	Year Zero	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Operating Income													
Total revenue	$557	$2,632	$5,903	$9,219	$10,298	$10,399	$10,526	$10,654	$10,784	$10,915	$11,048	$11,738	$12,470
Total expense	($1,219)	($4,835)	($5,805)	($7,214)	($7,289)	($7,345)	($7,345)	($7,402)	($7,461)	($7,520)	($7,580)	($7,889)	($8,219)
Operating Profit/(Loss)	($663)	($2,203)	$98	$2,005	$3,009	$3,054	$3,181	$3,252	$3,323	$3,395	$3,469	$3,848	$4,251
Capital expenditures	($877)	($11,430)	($8,821)	($4,738)	($151)	($152)	($154)	($156)	($158)	($160)	($161)	($171)	($181)
Total	($1,540)	($13,633)	($8,723)	($2,733)	$2,858	$2,902	$3,027	$3,096	$3,165	$3,236	$3,307	$3,677	$4,070
Cumulative Cash	($1,540)	($15,173)	($23,896)	($26,629)	($23,770)	($20,868)	($17,841)	($14,745)	($11,580)	($8,344)	($5,037)	$12,600	$32,154
Net Present Value	($1,474)	($13,046)	($21,034)	($23,429)	($21,032)	($18,703)	($16,378)	($14,104)	($11,878)	($9,700)	($7,570)	$2,382	$11,238
Internal Rate of Return						(40.1%)	(26.0%)	(16.9%)	(10.6%)	(6.0%)	(2.7%)	5.8%	8.9%

Key Indicators	
Years to positive cash flow	4
Years to break even	12
NPV - Year 10	($7,570)
NPV - Year 15	$2,382
IRR - Year 10	(2.7%)
IRR - Year 15	5.8%
Cost of Capital	4.5%

Base Model Plus WiFi: Rapid Wireless Internet, then TV, Telephone & Internet via Fiber

Capital Equipment Replacement	Year Zero	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 15	Year 20
Cume CPE & central office equipment	$100	$7,059	$11,209	$13,609	$13,753	$13,899	$14,047	$14,197	$14,348	$14,502	$14,657	$15,462	$16,317
Accumulated replacement needs	$5	$358	$918	$1,599	$2,286	$2,981	$3,684	$4,394	$5,111	$5,836	$6,569	$10,353	$14,346
Net Present Value	($1,474)	($13,046)	($21,034)	($23,429)	($21,032)	($18,703)	($16,378)	($14,104)	($11,878)	($9,700)	($7,570)	$2,382	$11,238
Nominal surplus/(deficit)	($1,479)	($13,404)	($21,952)	($25,028)	($23,318)	($21,684)	($20,062)	($18,497)	($16,989)	($15,536)	($14,139)	($7,971)	($3,108)
Equipment lifetime (years)	20												



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Tellus Venture Associates® is a consultancy focusing on business development, market research and analysis, demand and new venture creation and evaluation for the broadband, digital broadcasting and satellite communications industries, with an emphasis on digital products and services delivered directly to consumers and enterprises. Located in the Monterey Bay Area, Tellus Venture Associates serves firms in the satellite, Internet and consumer electronics industries, as well as municipalities and private communities, and digital content and technology oriented start-ups in North and South America, Europe, Africa, Asia and the Pacific Rim.

Stephen A. Blum, a 30-year veteran of the broadcasting and telecommunications industry, is President of Tellus Venture Associates. He has built a well respected, results oriented consulting practice, and is widely recognized as an expert in developing new digital broadband and satellite broadcasting ventures. He is a frequent contributor to professional journals and speaker at industry events, is a regular columnist for *Sky Report, Satellite News* and *The Orbiter*, has published definitive studies on satellite radio, television and Internet broadcasting, authored widely used market forecasts for new digital products and services, is Vice President *ex officio* of the Society of Satellite Professionals International and is a member of the New Zealand Wireless Data Forum.

Blum was an early member of the start-up team and a consumer marketing executive for U.S. Satellite Broadcasting, playing a key role in the development, launch and growth of DirecTv, North America's first true DBS service and the most successful new product introduction in consumer electronics history. He helped take USSB from its formation and initial capitalization stages, through its operational launch and finally to a very successful IPO. Blum has also served as director of marketing for Conus Communications, and as a broadcast news executive and journalist. He has received a number of major professional honors, including the PRSA Silver Anvil and the Ellen B. Scripps Fellowship. He is a member of the Rotary Club of Monterey Pacific, a past Vice President of the World Affairs Council of the Monterey Bay Area, and is on the board of USA Triathlon/Southwest. He holds an A.B. in History from the University of California, Berkeley, an M.A. in East Asia Studies from the University of Washington, and an M.B.A. from the University of St. Thomas. He is a nationally ranked triathlete and a multiple Ironman finisher.

Consulting Assignments

Tellus Venture Associates maintains strict confidentiality concerning the proprietary research, analysis and consultation we perform for clients. Since 1996 we have provided market research and analysis, business plan development assistance and strategic guidance to dozens of ventures involving new digital products and services destined for the consumer and enterprise markets, including...

New Venture Development

- WiMAX and WiFi-based municipal and community broadband services,
- Fiber to the home (FTTH) broadband systems offering TV, phone and Internet service, for private developers, homeowners associations and municipalities,
- Information technology ventures leveraging proven consumer business models,
- Next generation DBS systems in Asia/Pacific, Africa and North America,
- Internet radio product and service introduction,
- Consumer electronics product management for satellite radio ventures,
- Opportunity evaluations for satellite Internet and data ventures,
- Partnership development and marketing planning for new technologies,
- Business plan development for new multimedia content services,
- Business plan and application development for atmospheric satellites,
- Business development counsel for start-ups.

Strategic Planning

- Complete feasibility study and business model development for municipal and private community broadband ventures,
- Strategic planning for DBS ventures in Europe, the Americas, Africa, Asia/Pacific,
- Strategic evaluations for the satellite manufacturing industry,
- Global digital technology and service tracking for high technology component and equipment manufacturers,
- Public relations and marketing counsel.

Investment Analysis

- Business case evaluation and due diligence research for municipal bond financing of broadband ventures,
- Due diligence research for satellite radio and information technology investments,
- Market analyses for new television networks,
- Competitive analyses of digital terrestrial and cable services.

Market Evaluation

- Feasibility studies of wireless broadband for municipalities and communities.
- Analysis of greenfield and overbuild FTTH opportunities in private developments,
- Market evaluations for DBS proposals in the Americas, Europe, Asia and Africa,
- Digital audio/video market studies for electronics manufacturers and retailers,
- Sales forecasts for new broadcasting and information technology ventures.

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