

CONTENTS

I. RECOMMENDATION.....	1
II. EXECUTIVE SUMMARY.....	1
A. QUANTITATIVE RESEARCH	1
B. LARGE BUSINESS RESEARCH	1
C. MARKET ASSESSMENT	2
D. PRODUCT STRATEGY.....	2
E. BUSINESS STRUCTURE ANALYSIS	2
F. FINANCIAL ANALYSIS	3
G. BENCHMARK ANALYSIS.....	3
III. COMMUNITY BENEFITS.....	3
A. COMMUNITY BENEFITS	3
B. CONSUMER AND SMALL BUSINESS BENEFITS.....	4

I. Recommendation

Based on the results of the analysis provided in this report, Uptown recommends that Los Alamos County (LAC) should pursue the development of a retail fiber to the premises (FTTP) business. This recommendation was developed using the latest in research and financial analysis methods. This analysis has shown that there is a high probability that LAC would be able to service the long-term and short-term debt issues, while maintaining the highest standards in network and operating performance. There are always risks involved in such a project and Uptown tested scenarios that included drastic price competition and higher network construction costs. While these worst case scenarios hurt the overall case, the venture was still able to service its debt and generate minimal levels of positive cash flow over the 15 year life of the plan.

An executive summary of the sections of this report follows.

II. Executive Summary

Uptown Services, LLC (Uptown) completed a comprehensive business case analysis for the proposed LAC FTTP venture. The results of this analysis are summarized next.

A. Quantitative Research

A telephone survey of over 800 households and small business was conducted in September and October to quantify market perceptions and satisfaction levels with current video, Internet, and telephone services. A companion study was completed via online surveys using a conjoint research design as the basis for developing a market share simulation model, which has been used by Uptown to estimate market share for LAC. These two quantitative studies form the basis for the Uptown subscriber forecast and the resulting revenue forecast, both of which are key components of the Financial Analysis section of this business case. From this research, Uptown forecasts a 36% penetration rate for the County if it were to offer these three services via a bundle for \$90 per month (just over a 10% discount to current incumbent prices).

B. Large Business Research

A qualitative survey of 10 local institutions and large business was conducted using face-to-face interviews with the following firms:

- Bechtel
- KSL
- The County of Los Alamos
- Los Alamos Public Schools
- Community Bank
- Los Alamos National Bank
- University of New Mexico
- TRK
- Shannon Corporation
- Los Alamos National Laboratory

A detailed understanding of the current telecommunications needs, services utilization, satisfaction levels, and telecommunications spending was obtained for each firm. Furthermore, the insight of these business leaders on the viability and community impact of a venture of this nature was explored. Uptown has synthesized this information into its financial analysis with respect to the size of the large business telecommunications market in Los Alamos and the potential for the County to serve it via a new fiber optic system. From this research, Uptown forecasts nearly \$500k in annual revenues for the County from this sector through the provision of voice and data services.

C. Market Assessment

Uptown completed a detailed competitive analysis of the following service providers in Los Alamos with respect to their service offerings, customer satisfaction levels, and a technical evaluation of their respective networks in serving the future needs of the Los Alamos community:

- Comcast
- Dish Network
- Qwest

While these providers receive moderate satisfaction ratings and offer broadband services today, the capacity for incumbent network technology to grow with the community broadband needs of Los Alamos for the next ten years is not unlimited. As an example, the quantitative research revealed that already today, 18% of Los Alamos businesses would need a 10Mbps Internet service if it were available.

D. Product Strategy

Uptown has used this analysis to propose a robust set of broadband services offering which the County could provide to consumers and businesses at superior value compared to the above providers. As a later market entrant with the most advanced technology for delivering mass market broadband services, the two primary opportunities for Los Alamos to set itself apart from the incumbents are improved product performance and lower prices. The capacity and reliability characteristics of a fiber optic network versus incumbent network architecture will enable broadband services, especially Internet, to do more for the consumer. The overall pricing strategy being recommended, as indicated by price elasticity analysis from the conjoint model, is a 10% discount.

E. Business Structure Analysis

LAC entered the study process with the assumption that an open access (wholesale) business structure would be pursued for the FTTP business. Uptown had found this to be a sub-optimal approach in previous studies, so a detailed analysis was completed to evaluate the differences between wholesale and retail strategies in LAC. The analysis showed that the retail business structure provided for better financial returns than the wholesale option. The basic issue with the wholesale structure was the requirement that thin margins be split between two providers, instead of going to only one. For example, if wholesale Internet rates were set to a level (lower) that produced fair returns for the Internet retailer, the wholesaler would show very poor returns. Likewise, if the wholesale rates were sufficient to make money for the wholesaler (higher), the retail case suffered. Based on this analysis, Uptown recommended that LAC follow a 100% retail strategy for the FTTP venture.

F. Financial Analysis

Uptown used the Full Service Network Business Model (FSN Model) to complete a thorough financial analysis for the FTTP business opportunity. The results of this task are provided in the Financial Analysis section of this report. Uptown created the base case scenario for a retail business that offered triple-play services to residential and commercial customers in Los Alamos and White Rock. The results of this scenario were positive in that cash flow went positive in the 3rd year and cumulative cash levels exceeded total debt by the 15th year. These results were similar to other positive business cases that Uptown has completed over the past several years. Uptown also ran sensitivity analyses and found that the price for tier 1 Internet and residential telephone services were at the top of the list of most sensitive variables. However, when Uptown tested the worst case values for these assumptions, the business case still produced positive cash flow and covered all debt service in 13 out of 15 years of the plan.

G. Benchmark Analysis

Uptown compiled a complete benchmark analysis for the final LAC FTTP business case. The details of this analysis are provided in the Benchmark Analysis section of this report. According to this assessment, the results of the LAC business case fall within the boundaries of industry benchmarks established in the cable television, telephone and municipal broadband sectors of the telecommunications industry.

III. Community Benefits

Based on Uptown's recommendation to move forward with the project, the following sections highlight the types of benefits that might accrue to the community and its residents.

A. Community Benefits

1. Unparalleled bandwidth

The end-user bandwidth made available to Los Alamos households and small businesses would increase dramatically upon introduction of the fiber network. Furthermore, this capacity is available in both directions, which leapfrogs the current paradigm of significantly limited upstream capacity compared to downstream throughput.

2. New ways to work

The trend in teleworking and home-based businesses will substantially benefit from fiber architecture with applications such as:

- Telecommuting: even for high-bandwidth tasks- reduces traffic and stress
- Video conferencing: reduces travel expense and time
- Internet-based businesses can be started in any home in the county
- Disabled or homebound residents can work, learn and communicate from home

3. New services

The investment in fiber technology will stimulate innovation and development of new applications within the commercial sector. Examples of this could be:

- Education/Research: Live classes from anywhere, online homework and the ability to use the Internet to the fullest as a research tool
- Medical: Ability to remotely monitor patients

4. Improved access to information services

The fiber network would connects all homes and small businesses and would not be limited by current architecture limitations:

- DSL performance erodes as distance from the central office increases
- HFC performance erodes as more users compete for bandwidth on shared facilities

5. Community media production and distribution

The bandwidth of the fiber network is capable of supporting video applications that simply could not be realized in a ubiquitous fashion via current technology.

6. Potentially enhanced property values

An excellent market example of relative improvement in property value can be found in Iowa. Cedar Falls, which has a fiber network, has seen much greater appreciation in commercial and residential property values compared to its neighbor, Waterloo, which does not have a fiber network. This conclusion is compelling because statistical and economic data indicate that both of these markets are very similar except for the presence of the fiber network in Cedar Falls. Exhibit 2 summarizes the effects of this fiber investment.

Exhibit 2 – Effect of Municipal Fiber Upon Real Estate Valuations

		Cedar Falls	Waterloo	% Difference
DSL Available		Yes	Yes	-
Municipal Fiber Optic Network		Yes	No	-
New Construction Valuation	1996	\$32 M	\$58 M	- 49%
	2001	\$65 M	\$76 M	- 14%
	2002	\$101 M	\$53 M	+ 91%
Median Home Sale Price (2001)		\$105,000	\$72,000	+ 46%

Source: Iowa Association of Municipal Utilities, 2003

B. Consumer and Small Business Benefits

The sources for competitive differentiation in the broadband sector are derived from the technical capabilities of an all-fiber network, the ability of the operator to price services fairly and competitively, and the scale advantages of a broadband enterprise specific to the Los Alamos area.

1. Improved services capabilities

The Product Strategy portion of this feasibility study defines the potential for Los Alamos's FTTP network to redefine the mass market for data services by taking advantage of its fiber bandwidth. For video, it will similarly launch the most advanced applications such as high definition and video on demand.

2. Reduced prices and increased competition

LAC can directly bring better services pricing and increased value to Los Alamos consumers and small businesses in three ways:

- First, it could offer discounts compared to the “rate card” prices of incumbents. Across the three lines of businesses, Uptown recommends targeting a 10% - 20% discount.
- Second, especially for Internet service, providing greater product capability will enhance customer value. As an example, Comcast provides about 1.5Mbps downstream Internet bandwidth for \$45 per month. This equates to almost \$30 per 1Mbps throughput. Given proposed Internet tiers, this value relationship could improve to \$15 per 1 Mbps.
- Finally, Los Alamos will add value by bundling all three services. These bundles will be advertised and will help differentiate Los Alamos from incumbents who today do not or cannot offer all three services.

The effect of municipal competition can also result in lower prices from incumbent providers, as demonstrated in Exhibit 3. Although there are market examples where incumbent cable operators charge identical rates in non-competitive adjacent markets, in at least some instances there can be a significantly lower priced basic cable service.

Exhibit 3 – Price Differentials Within Competitive Markets

Region	Muni Competition?	Market	Price for Basic Cable	Price Reduction
South Georgia	No	Valdosta, GA	\$39.95 (Mediacom)	
	Yes	Tifton, GA	\$33.61 (Mediacom)	16%
		Thomasville, GA	\$35.71 (Mediacom)	11%
Western Ohio	No	Butler County, OH	\$38.82 (Time Warner)	
	Yes	Lebanon, OH	\$20.98 (Time Warner)	46%
Iowa	No	Waterloo, IA	\$34.95 (Mediacom)	
	Yes	Cedar Falls, IA	\$34.95 (Mediacom)	0%
Bristol	No	Bristol, TN	\$44.43 (Charter)	
	Yes	Bristol, VA	\$44.43 (Charter)	0%
Midwest	No	Topeka, KS	\$40.68 (Cox)	
	Yes (ILEC)	Omaha, NE	\$37.05 (Cox)	9%
National Average				13%

Source: Uptown Services Analysis, 2003

3. Improved customer service

Beyond the image advantage, Los Alamos will be able to realize operational improvements in customer service through its smaller scale and local community operations.