

Executive Summary

Advanced Broadband Business Case – Fiber Build-out in Wheeling

Introduction

CostQuest Associates presents this Executive Summary of the business case for High-Speed Broadband deployment across Wheeling. The purpose of this summary is to present a full fiber deployment (FTTp) scenario for all residential, business and anchor institution locations across the City. The Advanced Broadband Model and resulting report includes a financial model and business case for build out of Gigabit-speed broadband deployment in Wheeling. The questions that are intended to be answered with this analysis include:

- Is it economically feasible to build and maintain fiber to the home and business throughout the community?
- How do the economics of this deployment work for each neighborhood/area in Wheeling?
- What is the upfront investment to build the network?

The results are, in fact, a feasibility study that can be used to support policy making and economic development work for the community.

The model assumes a 10-year business case that includes all aspects of deploying and maintaining an advanced broadband network across the community. This includes capital deployment costs, operations and maintenance costs, recurring and non-recurring revenue and success-based capital costs related to a growing subscriber business. The model uses the most advanced geospatial and network modeling available today. CostQuest’s modeling approach is the same used by the FCC and many national and local broadband providers.

This effort was developed to support the Wheeling/Ohio County Technology Plan developed through the Local Technology Planning Pilot project established by the West Virginia Department of Commerce and the WVBI.



Summary of Approach


The methodology used to model broadband deployment across the City is data-driven and based on the same geospatial and economic modeling used by the FCC and the telecommunications industry. This Gigabit City Model drives the results of the study.

- The Gigabit Broadband Model estimates the costs and potential profitability and ultimately the viability of the network
- The underlying geospatial/mapping model determines an efficient routing and architecture of the network
- The underlying cost model’s use of an extensive demand and demographic database provides the ability to understand potential take rates, costs and the revenue flows related to the network plan to understand the economics of each “fiber-hood”
- The Study looks at deployment costs, the costs to maintain the network and the expected revenue

Summary of Results -Wheeling, WV

The results of the financial modeling are driven by a core set of assumptions on take rate, engineering parameters, costs inputs and revenue models. These assumptions can be changed and the results can be updated instantly. Key assumptions for these results can be found on the following page of this summary.

Business Case Summary

 <p>Business Case Summary</p>		Inputs Used for Scenario (from "Key Use Assumptions" tab)			
		Discount Factor	8.0%		
		Length of Study	10		
		Average Useful Life of Assets	20.5		
		Customer Type			
			Residential	Business	
Video & High Speed Data	Install Charge	\$	300.00	\$	300.00
	Monthly	\$	120.00	\$	150.00
High Speed Data	Install Charge	\$	300.00	\$	300.00
	Monthly	\$	70.00	\$	100.00
Low Speed Data	Install Charge	\$	300.00	\$	300.00
	Monthly	\$	-	\$	-

Demand/Subscribers

Total Locations:	18,009.00	Housing Units:	14,489.00	Business Locations:	3,520.00
Assumed Take Rate:	31.9%	Assumes a market-wide average take rate levelized over 10 years. Take rates vary across rate plans/services and locations types such as residential and businesses.			
Total Subscribers:	5,189.64	Residential:	3,480.42	Business/Orgs:	1,709.22

Initial Investment with Success Capital

Total Initial Investment (upfront and success based capital costs) to Deploy Network:	\$15,451,073.91
---	-----------------


Summary of Business Case (levelized multi-year run rate)

Total Annual Costs:	\$4,200,070.62	Annual Capital Costs:	\$1,796,671.10	Annual Operational Costs:	\$2,403,399.52
Annual Revenue:	\$3,909,094.08	Annual Contribution Margin:	(\$290,976.54)		
Total 10-Year Net Present Value of Business:		(\$1,934,224.16)			

Subscriber Statistics

Per Active Subscriber Statistics	Capital Per Line	\$	3,957.42
	Net Non-Recurring Cost ("Customer Turn Up") per Line TOTAL	\$	(64.59)
	Total Monthly Revenue Run Rate	\$	83.44
	Total Monthly Cost per Line Run Rate	\$	89.65
	Monthly Capital Costs per line	\$	38.35
	Monthly Operating Expenses Per Line	\$	51.30
Levelized Monthly Contribution per Line Run Rate		\$	(6.21)


Area Summary

 <p>Region ("Fiber-hood") Summary</p>																			
	<table border="1"> <thead> <tr> <th>Total Locations Passed:</th> <th>Estimated Subscribers:</th> <th>Total Annual Costs:</th> <th>Total Annual Revenue:</th> <th>Annual Contribution Margin:</th> <th>Total 10-Year Net Present Value of Business:</th> </tr> </thead> <tbody> <tr> <td>All Regions</td> <td>16,496</td> <td>5,190</td> <td>\$4,200,070.62</td> <td>\$3,909,094.08</td> <td>(\$290,976.54) \$ (1,934,224.16)</td> </tr> <tr> <td>NORTWV02</td> <td>16,496</td> <td>5,190</td> <td>\$4,200,070.62</td> <td>\$3,909,094.08</td> <td>(\$290,976.54) \$ (1,934,224.16)</td> </tr> </tbody> </table>	Total Locations Passed:	Estimated Subscribers:	Total Annual Costs:	Total Annual Revenue:	Annual Contribution Margin:	Total 10-Year Net Present Value of Business:	All Regions	16,496	5,190	\$4,200,070.62	\$3,909,094.08	(\$290,976.54) \$ (1,934,224.16)	NORTWV02	16,496	5,190	\$4,200,070.62	\$3,909,094.08	(\$290,976.54) \$ (1,934,224.16)
Total Locations Passed:	Estimated Subscribers:	Total Annual Costs:	Total Annual Revenue:	Annual Contribution Margin:	Total 10-Year Net Present Value of Business:														
All Regions	16,496	5,190	\$4,200,070.62	\$3,909,094.08	(\$290,976.54) \$ (1,934,224.16)														
NORTWV02	16,496	5,190	\$4,200,070.62	\$3,909,094.08	(\$290,976.54) \$ (1,934,224.16)														

Key Assumptions and Inputs

The following are the key assumptions and inputs that drive the outcome of the model. These parameters, and others, can be adjusted.

Business Case Inputs



Instructions

- Please edit the green cells to values that you feel match your City
- If you have questions, please contact CostQuest Associates

Check Sum

- Based on the current inputs, demographics, and YOUR assumptions:
- Business Case NPV = \$ (1,934,224)
- Excluding neighborhoods with a negative NPV the
- Adjusted Business Case NPV = \$ -

Key User Assumptions

Financial

	Unit
Discount Factor	8.0% percent
Length of Study	10 Years
Average Useful Life of Assets	20.5 Years

Please choose the appropriate discount factor for use in business case
Please choose the appropriate span of the business case (valid values between 3 and 10 years)
Please choose the appropriate typical average life of the assets used in the business case (valid values between Length of Study and 30 years)

Demand

Please enter the expected market adoption of broadband across ALL providers

Business	Estimated Broadband Market Penetration		Please enter the Service Mix for the New Entrant (Values in green should sum to 1 in each row)		
	Low	High	% Low Speed Data	% High Speed Data	% Video with High Speed Data
All Businesses	-	20,000	10%	80%	10%
Residential Market by Average Income	-	20,000	35%	15%	50%
	20,000	40,000	25%	25%	50%
	40,000	75,000	10%	40%	50%
	75,000	10,000,000	5%	45%	50%

Please enter the expected end of year customer adoption for the New Entrant (e.g., a value of 30% indicates that the new Entrant will capture 30% of its total expected market by the end of the year specified, values should reach 100% at some point)

End of Year Market Adoption of New Entrants Service								
	1	2	3	4	5	6	7	8
All Businesses	30%	75%	85%	90%	95%	100%	100%	100%
Residential Market by Average Income	40%	65%	73%	75%	80%	85%	90%	100%
20,000	43%	68%	75%	80%	85%	90%	100%	100%
40,000	45%	73%	80%	85%	90%	95%	100%	100%
75,000	48%	75%	83%	88%	95%	100%	100%	100%

Service Price and Term

		Price for Installation and Monthly Service		Percent of Customers signing up for 2 year package	
		Customer Type		Customer Type	
		Res	Bus	Res	Bus
Video & High Speed Data	Install Charge	\$ 300.00	\$ 300.00	50%	50%
	Monthly	\$ 120.00	\$ 150.00		
High Speed Data	Install Charge	\$ 300.00	\$ 300.00	50%	50%
	Monthly	\$ 70.00	\$ 100.00		
Low Speed Data	Install Charge	\$ 300.00	\$ 300.00	50%	50%
	Monthly	\$ -	\$ -		

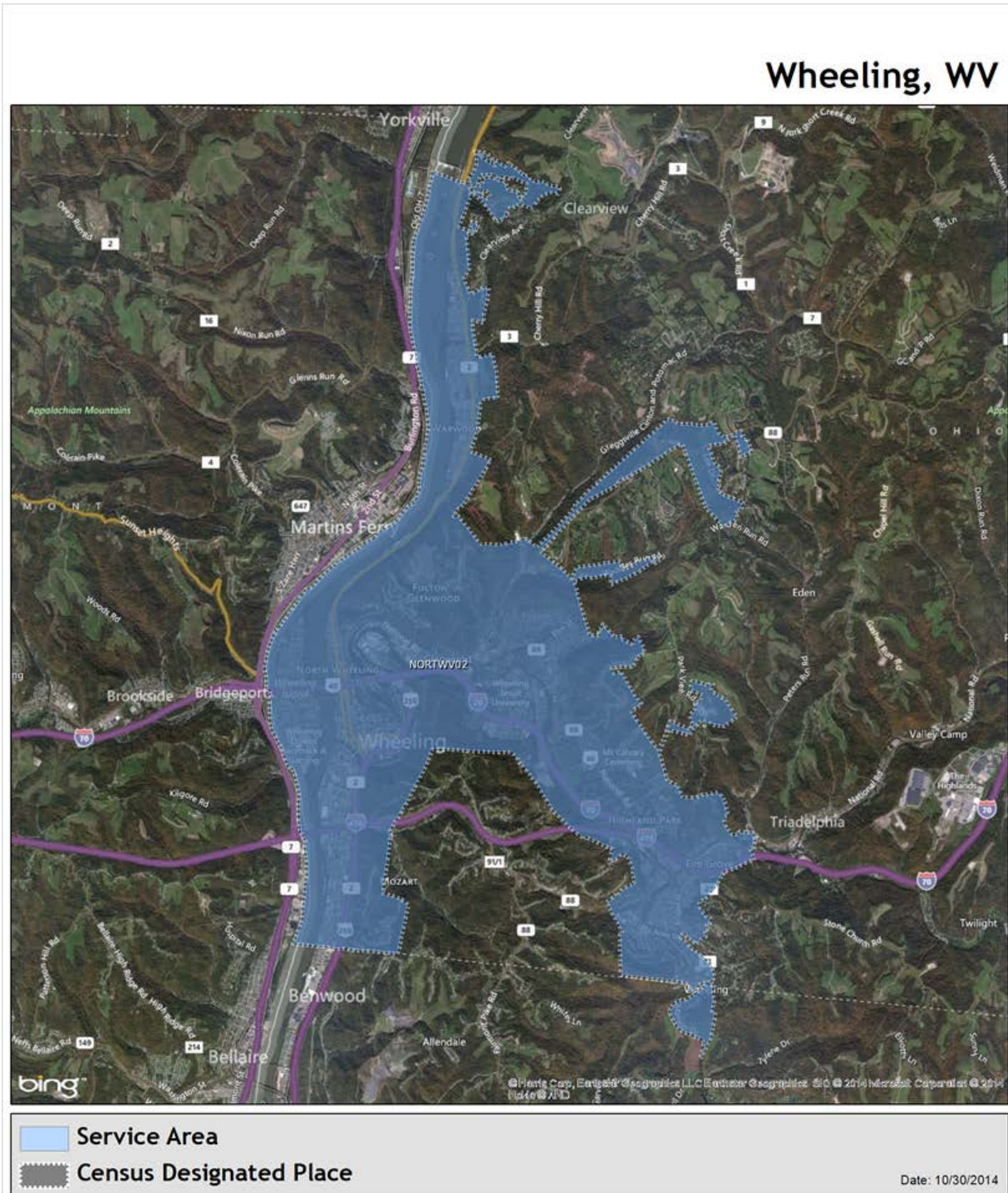
Other Key Inputs/Parameters

- | | |
|---|---|
| <ul style="list-style-type: none"> Depreciation, cost of money and income taxes Revenue Customer Prem equipment -- (Modem, Set top, remote, etc) Structure Sharing -- Sharing of feeder and distribution cable on same structure Fiber -- Drop Material Prices/ft Fiber -- Fiber Cable Material Prices/Ft Fiber -- Material Prices for Termination of Fiber on Panel in Node Location Eqpt Material Prices and Capacities -- ONT Eqpt Material Prices and Capacities-- Fiber Splitter Eqpt Material Prices, Labor and Capacities -- Fiber Drop Terminal Equipment Material Prices and Capacities -- OLT Labor Rates Miscellaneous Loadings Buildings -- Free Building Space Buildings -- Land and Building CAPEX Fiber -- Cable placement and splicing hours OPEX Factors -- Operating Expense factors Plant Mix - Mix of Aerial, Buried and Underground plant Structure -- structure (incl Buried) Sharing with other Parties Installation Expenses -- Data Only Installation Expenses -- Video / High Speed Data Conduit -- Underground conduit/duct/innerduct placement hours for owned conduit systems Excavation costs -- Buried Excavation Hours Excavation costs -- Underground Excavation Hours | <ul style="list-style-type: none"> Poles -- Pole Placement Hours for owned poles Conduit -- CAPEX if conduit is rented Conduit -- UG Material prices for conduit, duct/innerduct, manholes if conduit is owned Poles -- CAPEX for attaching cable to non-owned pole Poles -- Pole/Anchor/Guy Material Prices if owned poles Conduit -- Duct Rental Rates Pole/Conduit -- Mix of Free vs Non-Free Poles -- Attachment Rates % Customers Choosing each offering: LowData, HighData, Video&HighData CircuitPowerFactor SwitchPowerFactor UseRegionalCostAdjustment FLEC to Book Capex adjustment AssumedAreaDensity AssumedCompanySize Poles Conduit CarrierType Company Length of Study DiscountFactor |
|---|---|

Geographic Area

The geographic area modeled for the network deployment includes only those areas within the city limits, defined as a Census Designated Place. A process was also developed to aggregate neighborhoods together into common fiber service areas – or “fiber-hoods”. This allows the financial analysis to be done on a neighborhood-by-neighborhood basis.

MAP – SOURCE TAB CDP MAP



Next Steps - Full Advanced Broadband Study Report

CostQuest will be releasing a full report on the feasibility of Advanced Broadband service for the community. This report will include full financials for each community, network design mapping and data, documentation on methodology, and a report on guidance for steps the community should consider taking given the information presented.

The Advanced Broadband Report can help to support the following:

- Help community stakeholders develop an understanding of the economic feasibility of a gigabit speed network – City-wide or otherwise
- To support advocacy to policy makers and stakeholders on the value of such a network
- To manage procurement of a private partner to deploy or manage the network and business
- Manage leverage that the city might have, such as Right-of-way, city assets/equipment, permitting and franchising
- To manage architecture issues and other matters that may serve to expedite build-out
- Neighborhood demographics, demand and economic data will help to effectively manage deployment and adoption
- Can be used to advise applications for grant, loan and subsidy programs