

Executive Summary

Advanced Broadband Business Case – Fiber Build-out in Charleston and South Charleston

Introduction

CostQuest Associates presents this Executive Summary of the business case for High-Speed Broadband deployment across Charleston and South Charleston . 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 Charleston and South Charleston . 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 Charleston and South Charleston ?
- 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 Charleston and South Charleston /Kanawha 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 -Charleston and South Charleston , 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

CostQuest Associates, Inc. 		Inputs Used for Scenario (from "Key Use Assumptions" tab)					
		Discount Factor		8.0%			
Business Case Summary		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:	42,304.00	Housing Units:	32,696.00	Business Locations:	9,608.00
Assumed Take Rate:	39.1%	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:	15,295.19	Residential:	10,518.74	Business/Orgs:	4,776.45

Initial Investment with Success Capital

Total Initial Investment (upfront and success based capital costs) to Deploy Network:	\$44,117,210.91
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Summary of Business Case (levelized multi-year run rate)

Total Annual Costs:	\$12,158,025.42	Annual Capital Costs:	\$5,135,847.78	Annual Operational Costs:	\$7,022,177.65
Annual Revenue:	\$12,448,567.14	Annual Contribution Margin:	\$290,541.72		
Total 10-Year Net Present Value of Business:		\$1,962,825.75			

Subscriber Statistics

Per Active Subscriber Statistics	Capital Per Line	\$	3,754.03
	Net Non-Recurring Cost ("Customer Turn Up") per Line TOTAL	\$	(67.91)
	Total Monthly Revenue Run Rate	\$	88.27
	Total Monthly Cost per Line Run Rate	\$	86.21
	Monthly Capital Costs per line	\$	36.42
	Monthly Operating Expenses Per Line	\$	49.79
	Levelized Monthly Contribution per Line Run Rate	\$	2.06

Area Summary



Region ("Fiber-hood") Summary

	Total Locations Passed:	Estimated Subscribers:	Total Annual Costs:	Total Annual Revenue:	Annual Contribution Margin:	Total 10-Year Net Present Value of Business:
All Regions	39,690	15,295	\$12,158,025.42	\$12,448,567.14	\$290,541.72	\$ 1,962,825.75
ELK_WV01	11,935	4,141	\$2,922,423.80	\$3,246,981.25	\$324,557.44	\$ 2,282,866.82
FORTWV01	6,796	2,946	\$2,440,932.25	\$2,569,712.81	\$128,780.56	\$ 843,719.51
IVYDWV01	288	173	\$165,554.28	\$151,628.99	(\$13,925.29)	\$ (101,346.13)
NORTWV03	3,249	995	\$931,218.40	\$739,592.72	(\$191,625.68)	\$ (1,313,965.23)
RIVEWV01	4,580	1,995	\$1,675,893.06	\$1,656,004.02	(\$19,889.04)	\$ (164,342.20)
SOUTWV01	4,850	2,099	\$1,686,064.70	\$1,748,124.10	\$62,059.39	\$ 405,574.61
SPRIWV01	4,203	1,355	\$1,173,282.33	\$1,008,323.55	(\$164,958.79)	\$ (1,121,180.94)
WEBEWV01	3,789	1,592	\$1,162,656.59	\$1,328,199.71	\$165,543.12	\$ 1,131,499.31

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 = \$ 1,962,826
- Excluding neighborhoods with a negative NPV the
Adjusted Business Case NPV = \$ 4,663,660

Key User Assumptions

Financial

	Unit	
Discount Factor	8.0%	percent <small>Please choose the appropriate discount factor for use in business case</small>
Length of Study	10	Years <small>Please choose the appropriate span of the business case (valid values between 3 and 10 years)</small>
Average Useful Life of Assets	20.5	Years <small>Please choose the appropriate typical average life of the assets used in the business case (valid values between Length of Study and 30 years)</small>

Demand

Please enter the expected market adoption of broadband across ALL providers

Please enter the Service Mix for the New Entrant (Values in green should sum to 1 in each row)

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)

Business	All Businesses		Estimated Broadband Market Penetration	% Low Speed Data	% High Speed Data	% Video with High Speed Data	End of Year Market Adoption of New Entrants Service							
	Low	High					1	2	3	4	5	6	7	8
Business			95%	10%	80%	10%	30%	75%	85%	90%	95%	100%	100%	100%
Residential Market by Average Income	-	20,000	40.0%	35%	15%	50%	40%	65%	73%	75%	80%	85%	90%	100%
	20,000	40,000	60.0%	25%	25%	50%	43%	68%	75%	80%	85%	90%	100%	100%
	40,000	75,000	85.0%	10%	40%	50%	45%	73%	80%	85%	90%	95%	100%	100%
	75,000	10,000,000	95.0%	5%	45%	50%	48%	75%	83%	88%	95%	100%	100%	100%

Service Price and Term

	Customer Type	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

Depreciation, cost of money and income taxes	Poles -- Pole Placement Hours for owned poles
Revenue	Conduit -- CAPEX if conduit is rented
Customer Prem equipment -- (Modem, Set top, remote, etc)	Conduit -- UG Material prices for conduit, duct/innerduct, manholes if conduit is owned
Structure Sharing -- Sharing of feeder and distribution cable on same structure	Poles -- CAPEX for attaching cable to non-owned pole
Fiber -- Drop Material Prices/ft	Poles -- Pole/Anchor/Guy Material Prices if owned poles
Fiber -- Fiber Cable Material Prices/Ft	Conduit -- Duct Rental Rates
Fiber -- Material Prices for Termination of Fiber on Panel in Node Location	Pole/Conduit -- Mix of Free vs Non-Free
Eqpt Material Prices and Capacities -- ONT	Poles -- Attachment Rates
Eqpt Material Prices and Capacities-- Fiber Splitter	% Customers Choosing each offering: LowData, HighData, Video&HighData
Eqpt Material Prices, Labor and Capacities -- Fiber Drop Terminal	CircuitPowerFactor
Equipment Material Prices and Capacities -- OLT	SwitchPowerFactor
Labor Rates	UseRegionalCostAdjustment
Miscellaneous Loadings	FLEC to Book Capex adjustment
Buildings -- Free Building Space	AssumedAreaDensity
Buildings -- Land and Building CAPEX	AssumedCompanySize
Fiber -- Cable placement and splicing hours	Poles
OPEX Factors -- Operating Expense factors	Conduit
Plant Mix - Mix of Aerial, Buried and Underground plant	CarrierType
Structure -- structure (incl Buried) Sharing with other Parties	Company
Installation Expenses -- Data Only	Length of Study
Installation Expenses -- Video / High Speed Data	DiscountFactor
Conduit -- Underground conduit/duct/innerduct placement hours for owned conduit systems	
Excavation costs -- Buried Excavation Hours	
Excavation costs -- Underground Excavation Hours	

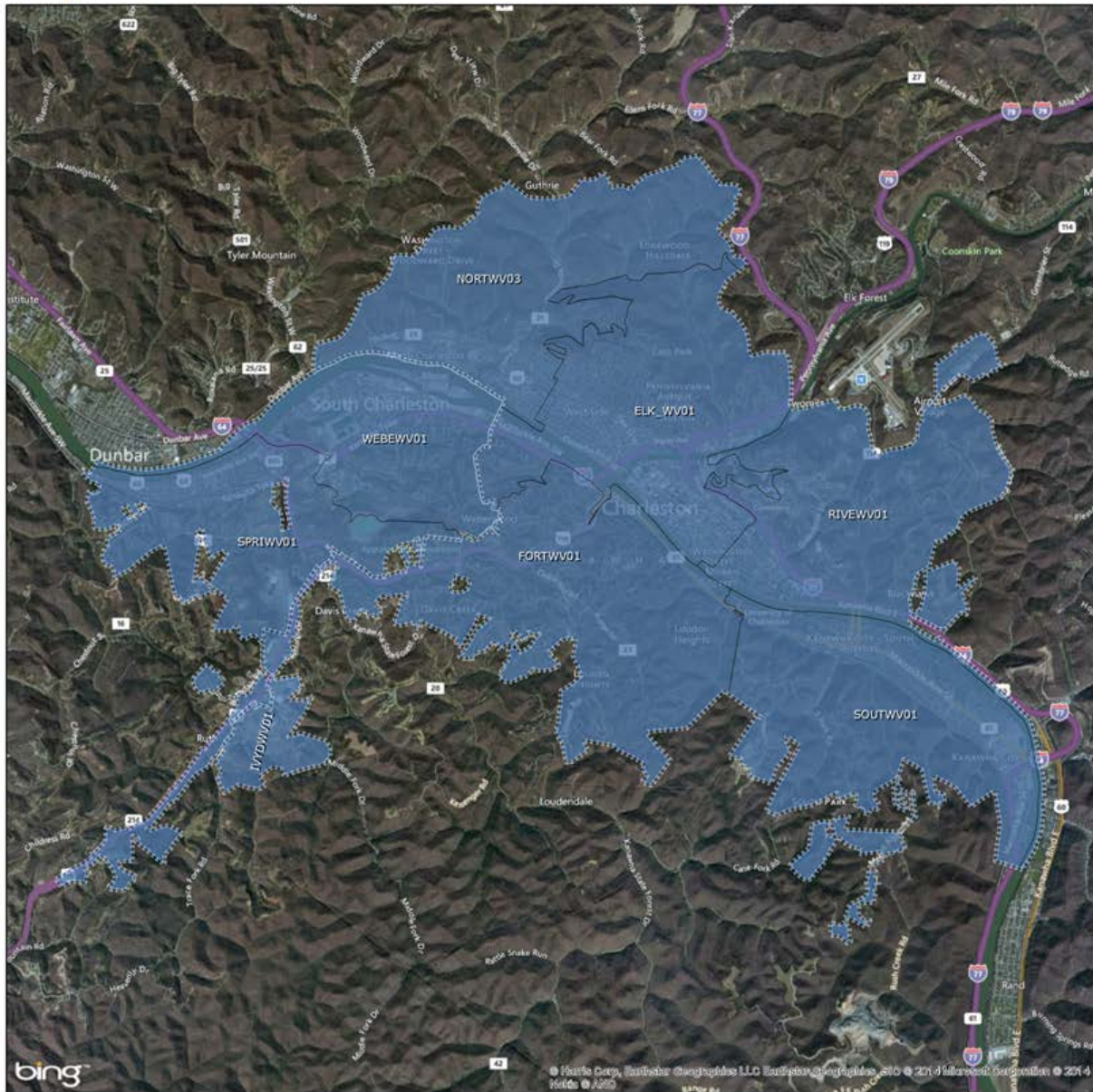
Geographic Area

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



Charleston and South Charleston, WV



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