



Broadband Feasibility Study
for
Longmont Power & Communications

City Council Readout

May 14, 2013

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CONTENTS

- ◆ Technology Strategy
- ◆ FTTP Deployment Strategy
- ◆ Quantitative Market Research Survey
- ◆ Service Strategy and Competitive Assessment
- ◆ Financial Analysis

Technology Strategy



FIBER TO THE PREMISES (FTTP)

- ◇ Why FTTP?
 - ❖ Gold standard for local broadband services distribution
 - ❖ Technology is far superior to any other option now and in the future
- ◇ Gigabit Passive Optical Network assumed for new network
 - ❖ 2.4 Gbps down / 1.2 Gbps up
 - ❖ GPON commercially available from multiple suppliers
 - ❖ Mature technology with millions of units shipped
- ◇ Standard GPON architecture
 - ❖ 1:32 splitters deployed in centralized split network
 - ❖ One splitter cabinet typically serves 250-260 homes / businesses
 - ❖ Cabinets can be pad or pole mounted – very low profile
 - ❖ System reach is 20 km from GPON equipment (OLT) location
- ◇ FTTP outside plant comprises the largest capital cost



EXISTING COMMUNICATIONS INFRASTRUCTURE

◆ Fiber Backbone

- ❖ Approximately 17 miles of fiber cable with 84 available fibers
- ❖ Connects to most key LPC and City facilities
- ❖ Many splice points and slack loops offer great flexibility
- ❖ Smaller sized laterals offer fewer spare fibers

◆ Network Equipment

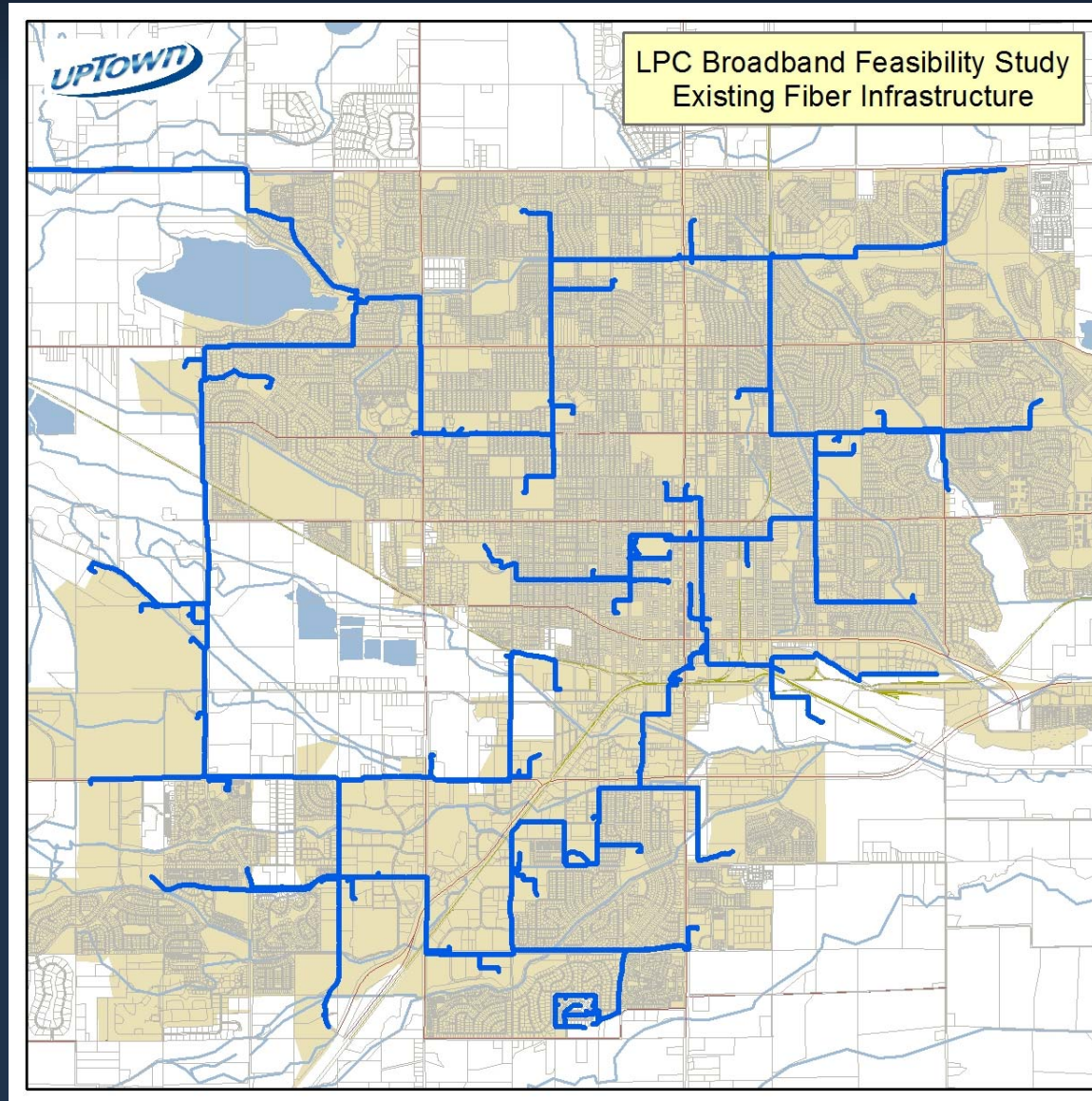
- ❖ Core network equipment located at LPC Operations and 350 Kimbark
- ❖ Routers located at 350 Kimbark
- ❖ Currently supports delivery of wireless Internet services
- ❖ Internet connection through Level3 (1Gig)

◆ Applicability to FTTP

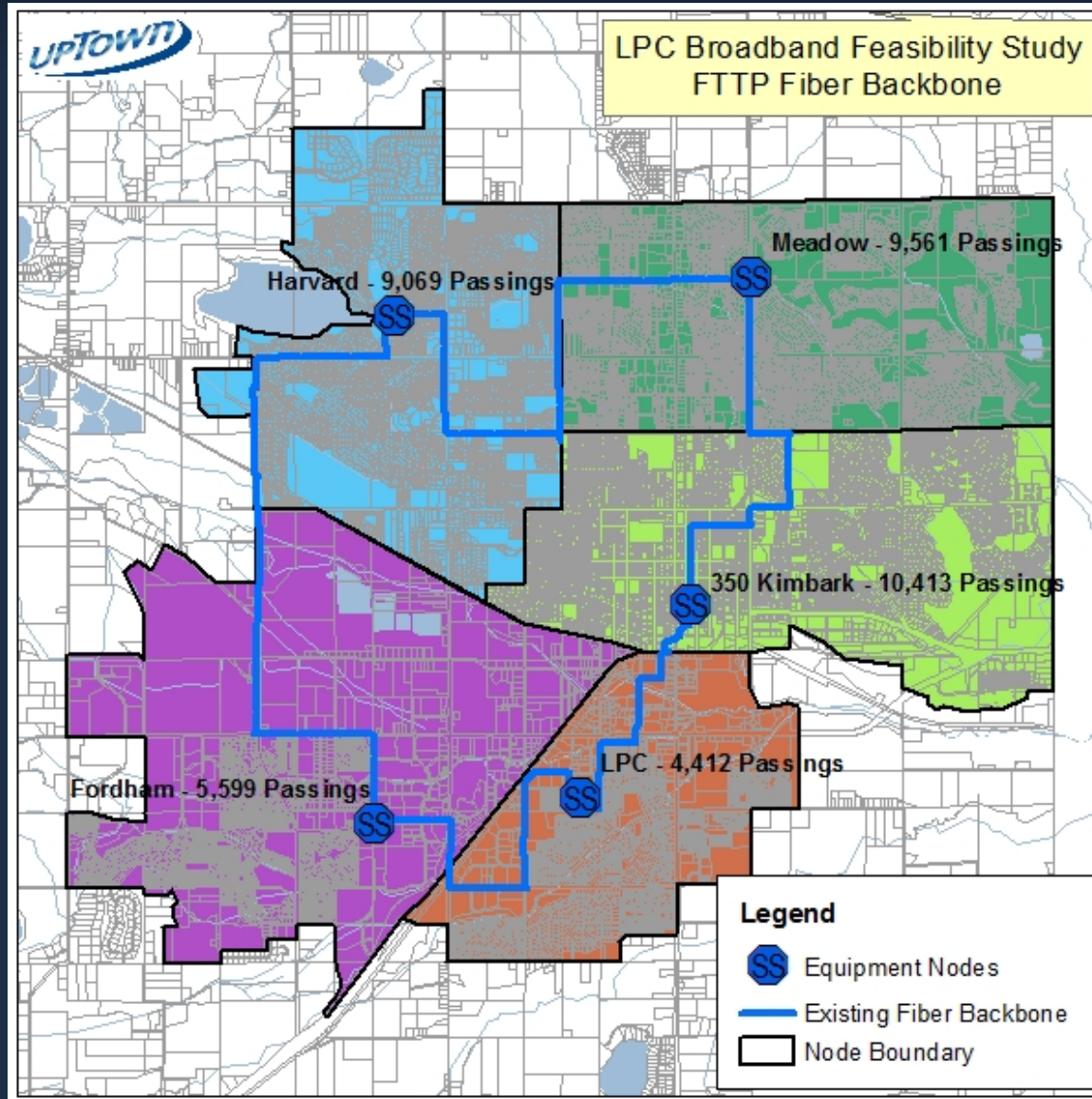
- ❖ Fiber backbone can be used to interconnect FTTP equipment sites
- ❖ New routers would be required to support future FTTP requirements

◆ LPC network is well positioned to take on FTTP

LPC FIBER OPTIC INFRASTRUCTURE



PROPOSED FTTP BACKBONE AND HUBSITES



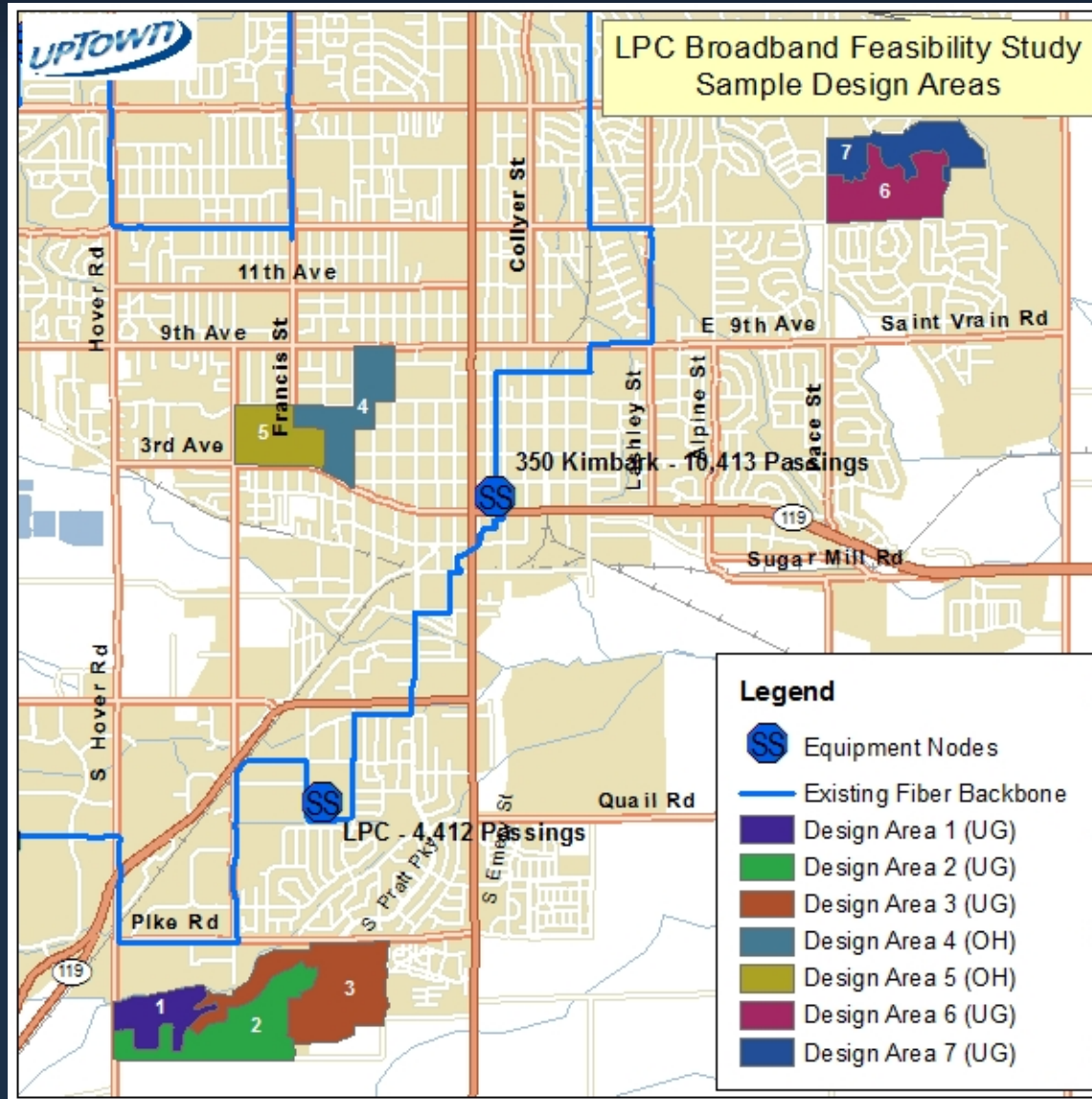
Sample Designs



UPTOWN CAPITAL BUDGETING APPROACH

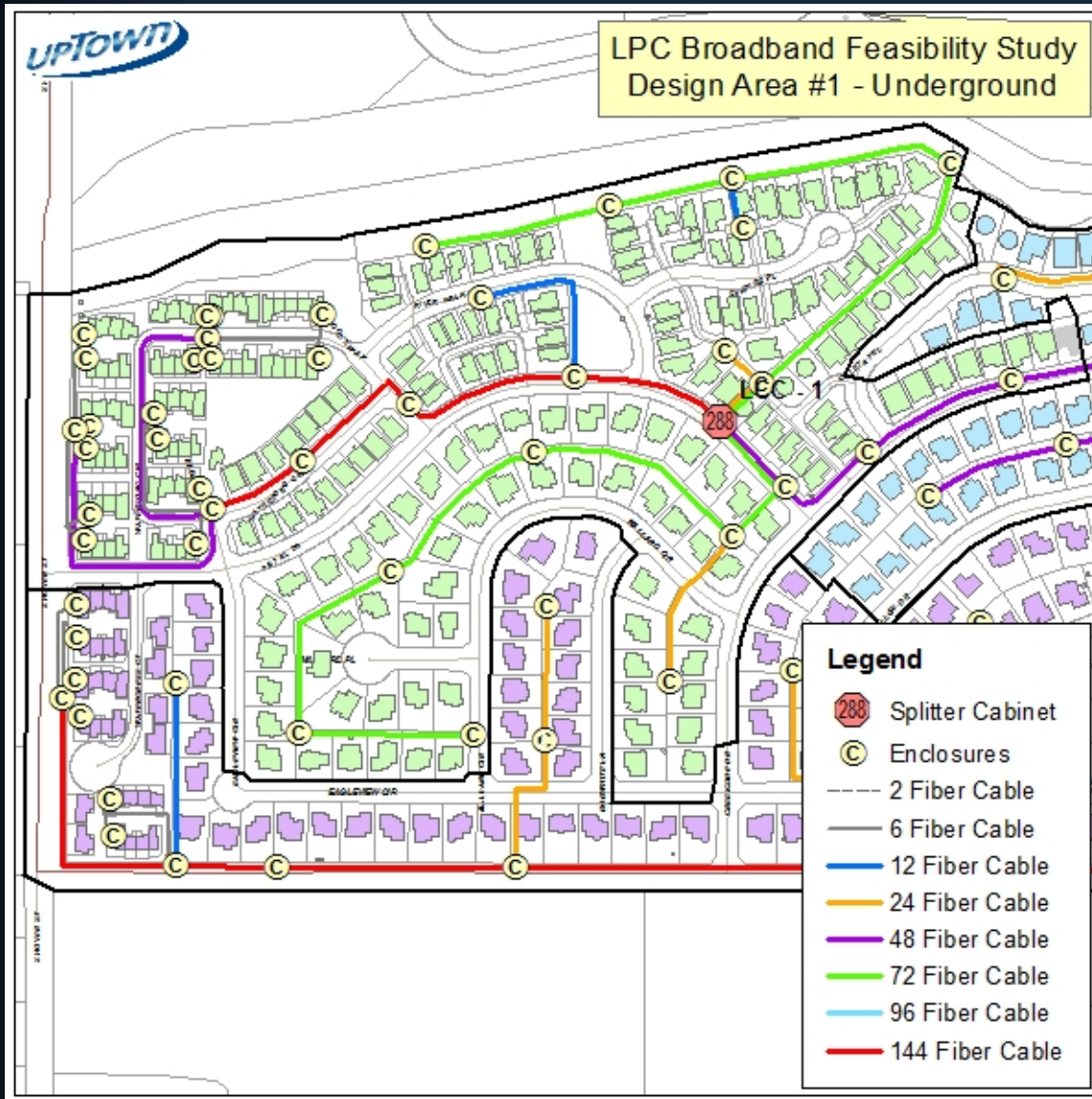
- ◆ Capital budget accuracy is critical
 - ❖ Funding estimates need to be close to what will actually be used
 - ❖ Unexpended bond amounts can cause arbitrage issues
 - ❖ Underfunding raises credibility issues with investors in latter rounds
- ◆ Uptown draws on many sources for each capital budget
 - ❖ Actual bid results from our latest FTTP implementations
 - ❖ Our role as the engineering firm for five other FTTP systems
 - ❖ Ongoing pilot projects and studies for other clients
- ◆ Sample designs are primary source for each study
 - ❖ Each community is different from outside plant perspective
 - ❖ Uptown selected representative areas
 - ❖ Single family home neighborhoods – overhead and underground
 - ❖ Seven neighborhood designs completed including 1,670 passings
 - ❖ Hub sites, OLTs and RF overlay components included in design
 - ❖ Overhead and underground MDU costs derived from other design results
- ◆ Uptown used conservative assumptions for this process

SAMPLE DESIGN AREA OVERVIEW



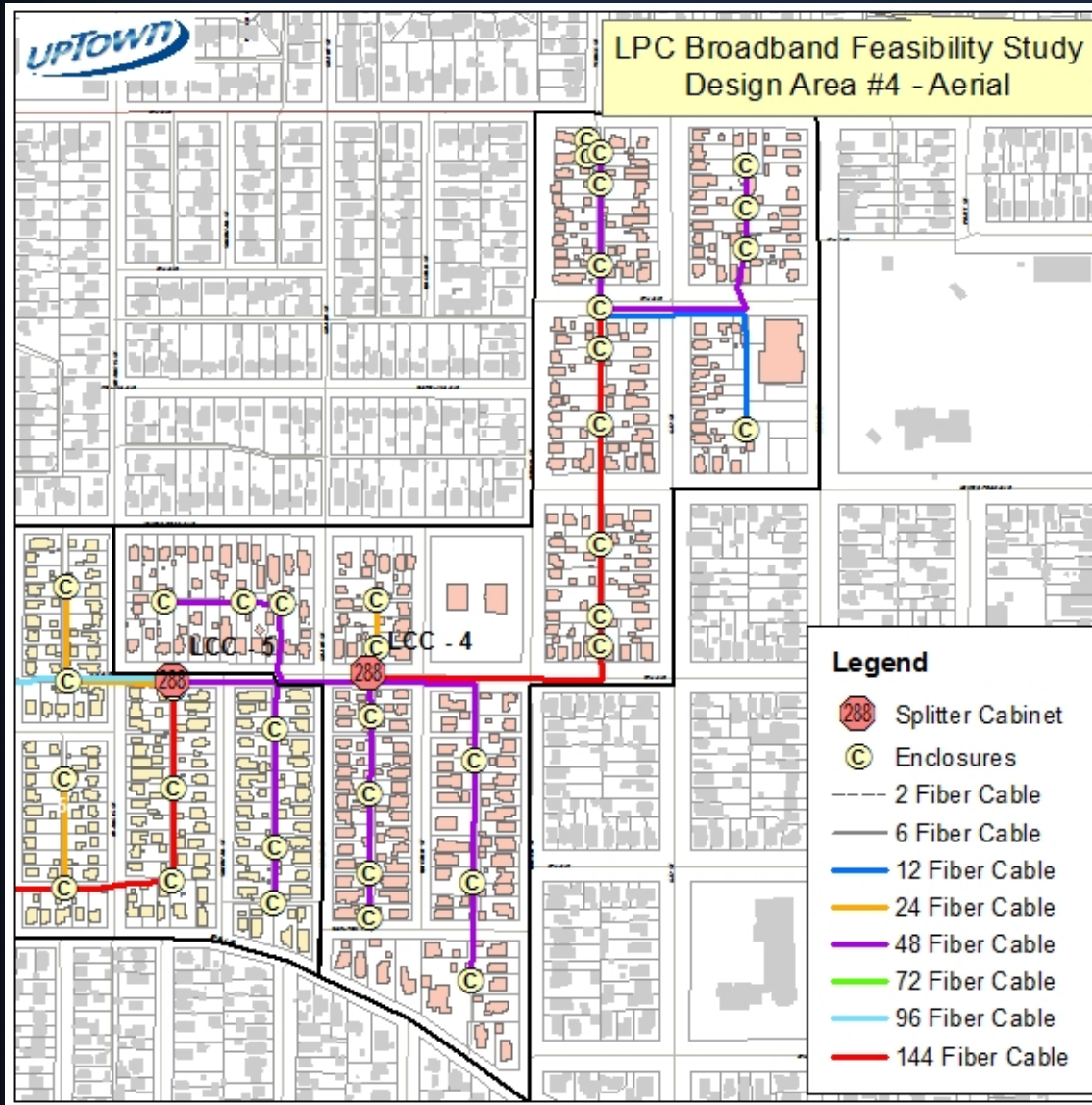


SINGLE FAMILY UNDERGROUND – CABINET 1



Design Metric	Value
Aerial Plant Miles	0.0
Underground Plant Miles	2.1
% Aerial	0%
% UG	100%
Passings	231
Passings per Mile of Plant	109
Materials Cost per Passing	\$131.37
Labor Cost per Passing	\$561.41
Total Cost per Passing	\$692.78
Total Materials (no drops)	\$30,347
Total Labor (no drops)	\$129,686
Total Cost	\$160,033
Savings from Existing Facilities	
Materials	\$11,260
Labor	\$101,156
Total Savings	\$112,416
Cost to Complete OSP for FTTP*	
Materials	\$19,088
Labor	\$28,530
Total Cost Remaining	\$47,618
Per Passing	\$206.14

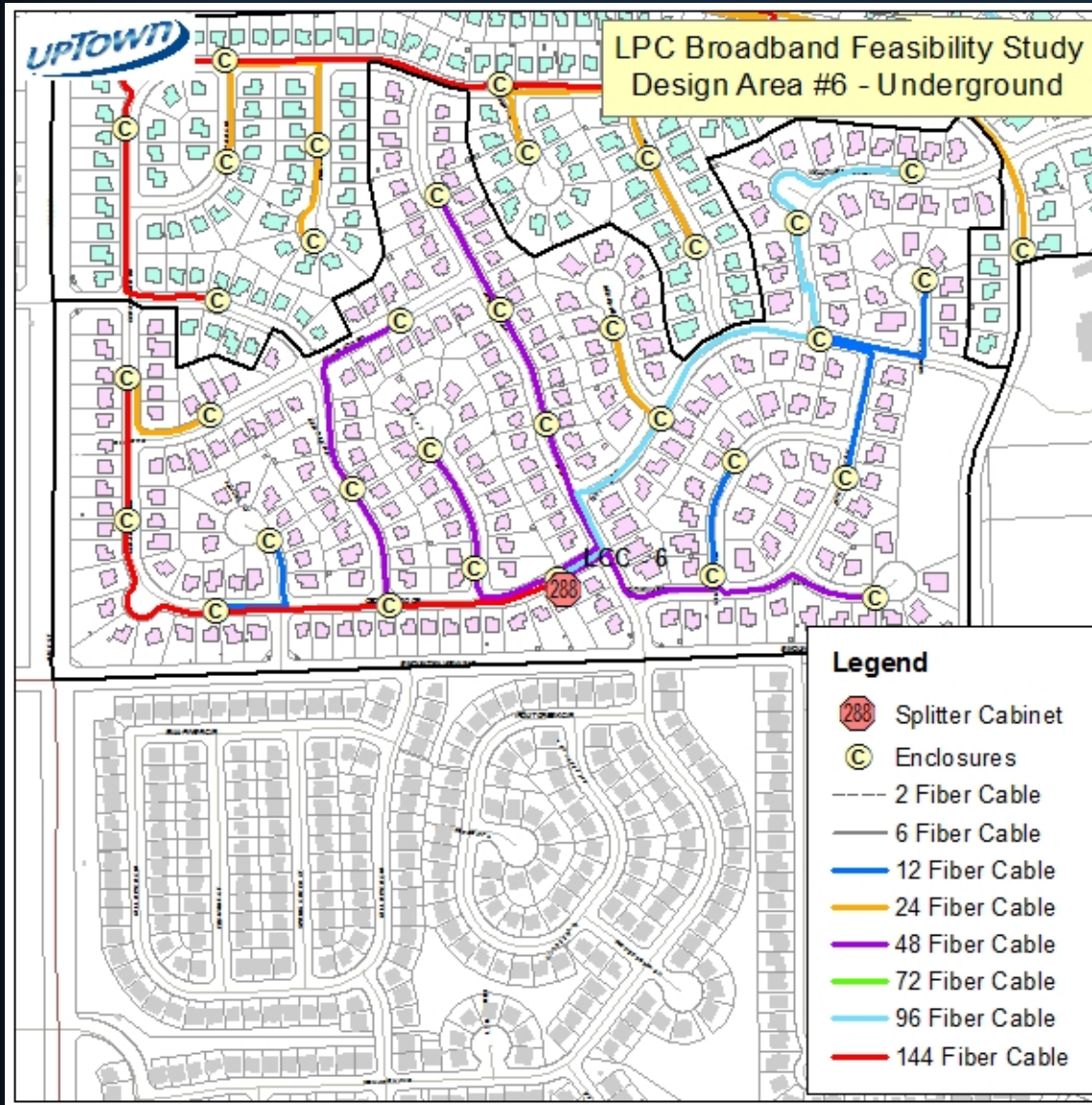
* - Does not include engineering, fixed equipment, subscriber capital and installation costs.



Design Metric	Value
Aerial Plant Miles	1.3
Underground Plant Miles	0.0
% Aerial	100%
% UG	0%
Passings	234
Passings per Mile of Plant	187
Materials Cost per Passing	\$72.69
Labor Cost per Passing	\$113.23
Total Cost per Passing	\$185.91
Total Materials (no drops)	\$17,008
Total Labor (no drops)	\$26,495
Total Cost	\$43,504



SINGLE FAMILY UNDERGROUND – CABINET 6



Design Metric	Value
Aerial Plant Miles	0.0
Underground Plant Miles	3.0
% Aerial	0%
% UG	100%
Passings	248
Passings per Mile of Plant	83
Materials Cost per Passing	\$132.93
Labor Cost per Passing	\$662.95
Total Cost per Passing	\$795.87
Total Materials (no drops)	\$32,966
Total Labor (no drops)	\$164,411
Total Cost	\$197,377



SERVICE AREA CHARACTERIZATION

Meters by Plant Type			Percent of Total Meters			
Dwelling Type	Overhead Meters	Underground Meters	Total Meters	Overhead Meters	Underground Meters	Total Meters
Single Family	6,384	21,949	28,333	16.3%	56.2%	72.5%
MDU	3,580	7,141	10,721	9.2%	18.3%	27.5%
Total	9,964	29,090	39,054	25.5%	74.5%	100.0%

Meters by Market			Percent of Total Meters			
Dwelling Type	Residential	Commercial*	Total	Residential	Commercial*	Total
Single Family	26,402	1,931	28,333	67.6%	4.9%	72.5%
MDU	8,946	1,775	10,721	22.9%	4.5%	27.5%
Total	35,348	3,706	39,054	90.5%	9.5%	100.0%



SAMPLE DESIGN SUMMARY

Sample Design Area	OH Miles	UG Miles	Passings	Passings per Mile	Weight	Materials per Passing	Labor per Passing	Total per Passing
LCC - 1	0.0	2.1	231	109	11%	\$131	\$561	\$693
LCC - 2	0.0	3.4	247	73	11%	\$160	\$757	\$917
LCC - 3	0.0	4.1	253	61	11%	\$167	\$867	\$1,034
LCC - 4	1.3	0.0	234	187	8%	\$73	\$113	\$186
LCC - 5	1.3	0.0	240	184	8%	\$72	\$102	\$174
LCC - 6	0.0	3.0	248	83	11%	\$133	\$663	\$796
LCC - 7	0.0	2.7	217	81	11%	\$144	\$685	\$830
MDU - OH*	0.0	0.0	0.0	0.0	9%	\$36	\$54	\$90
MDU - UG*	0.0	0.0	0.0	0.0	18%	\$74	\$353	\$427
Weighted Average / Total	2.6	15.3	1,670	94	100%	\$111	\$484	\$596

* - MDU sample designs not completed. Materials and labor costs estimated at 50% of SFU design results.



SAMPLE DESIGN SUMMARY

Outside Plant Costs	Weighted Average Per Passing	Total System Cost @ 39,054 Passings
Materials	\$111	\$4,349,534
Technical Services	\$62	\$2,427,625
OH Fiber Placement	\$9	\$337,791
UG Fiber Placement	\$24	\$943,893
UG Path Creation	\$389	\$15,205,147
Total	\$596	\$23,263,990
Contingency	\$60	\$2,326,399
Total	\$656	\$25,590,389

Key Construction Costs

- ❖ Aerial fiber placement - \$1.10 per sheath foot
- ❖ UG path creation - \$8.00 per foot (combined methods)
- ❖ Pulling fiber in conduit - \$0.60 per sheath foot
- ❖ Splicing - \$30 per splice

Market Research Survey Results



SURVEY DESIGN FRAMEWORK

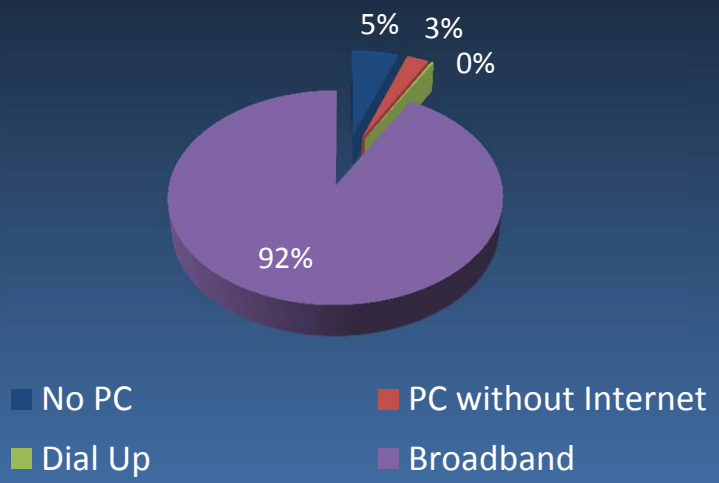
- ◆ Survey conducted by Pioneer Marketing Research located in Atlanta and serving Fortune 500 clients in a wide range of industries since 1979
- ◆ Area of Interest: Universe of \approx 35,000 households (HHs)
 - ❖ Total sample size of 400 respondents
 - ❖ Exceeded 95% Confidence Interval (\pm 4.9 sample error)
- ◆ Sample quotas used to ensure minimum sample of 60 for each age decile. Results then weighted to reflect Longmont 2010 Census data.
- ◆ Respondents screened to ensure
 - ❖ Decision-maker for telecommunications and entertainment services in the home
 - ❖ Respondents with immediate family members employed by The City of Longmont, LPC, CenturyLink, or Comcast were excluded



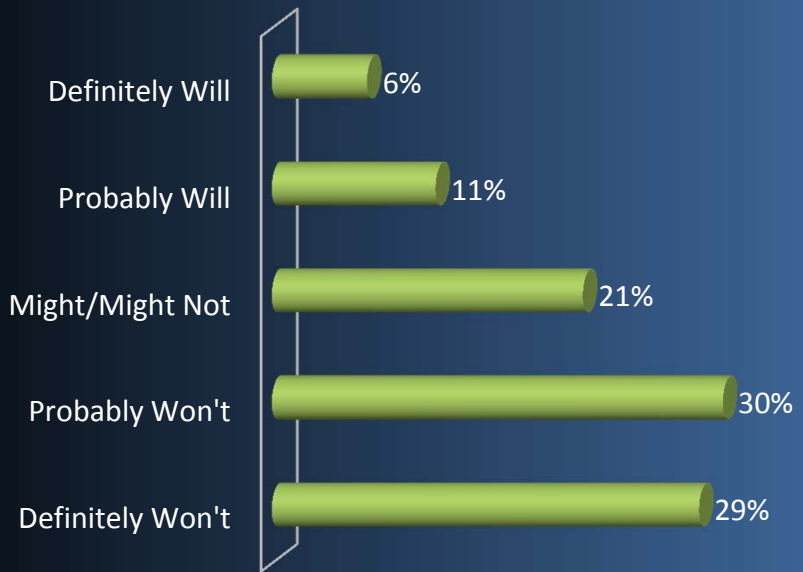
INTERNET SERVICE PURCHASING BEHAVIOR

- ◆ 92% of Longmont households use the Internet at home
- ◆ Cable Modem and DSL have the vast majority of market share at 95%

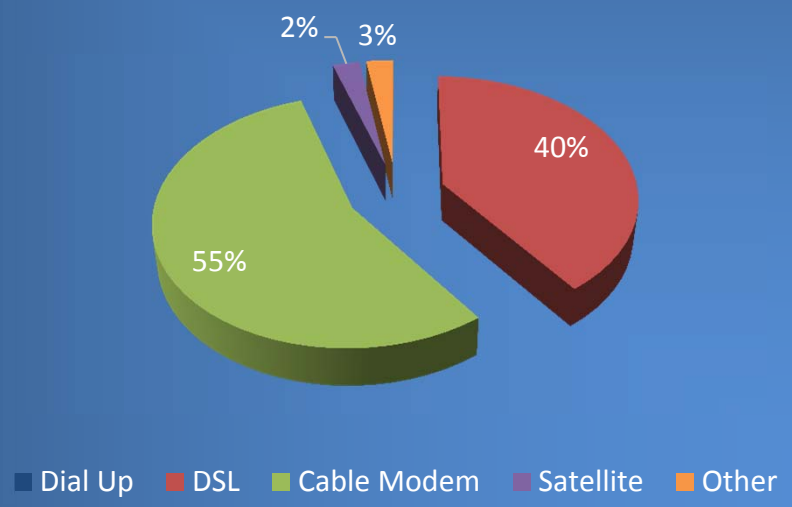
Incidence of Internet Households



Q19: "How likely are you to upgrade your Internet service speed..."



Internet Market Share (Households)

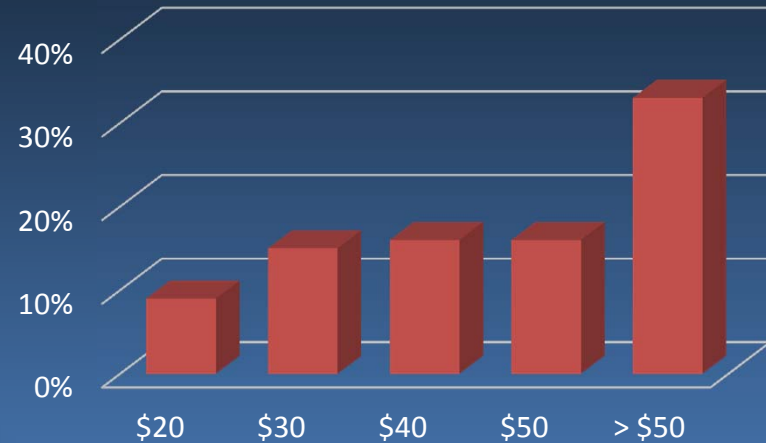




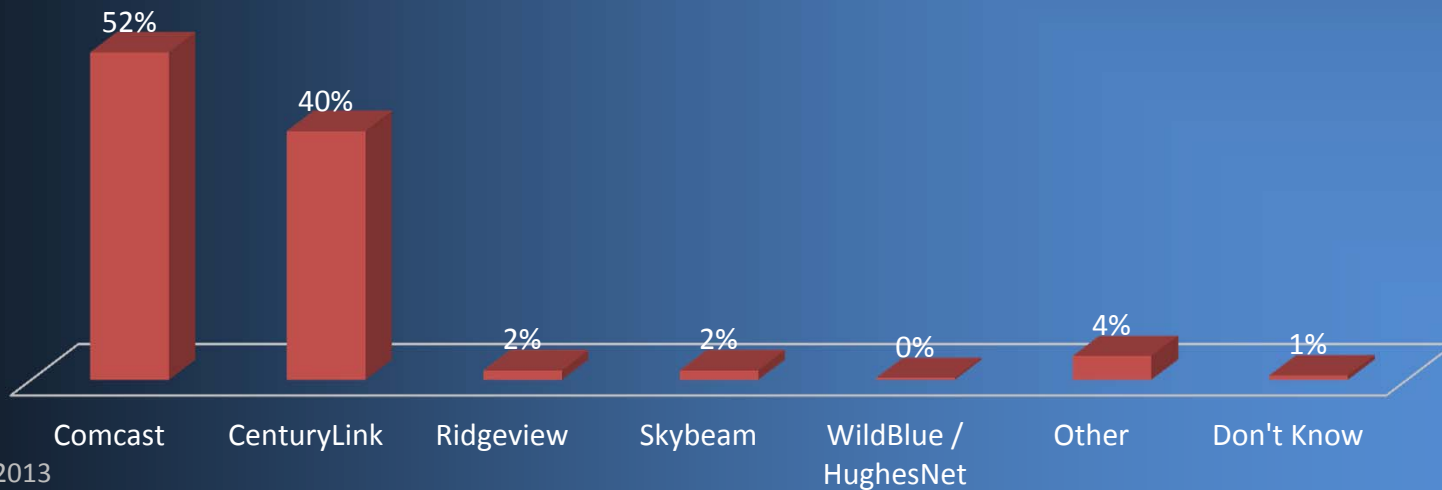
INTERNET SERVICE PURCHASING BEHAVIOR

- ◆ Comcast and CenturyLink are the only two ISPs with material market share in Longmont
- ◆ Stated average monthly Internet spend is \$44 per household

Monthly Internet Spend



Internet Access Provider

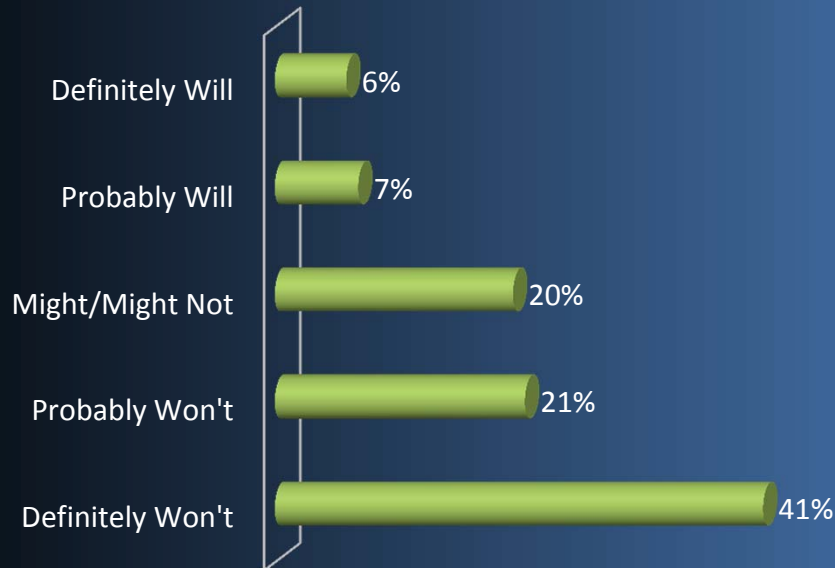




WIRELINE PHONE MARKET SHARE

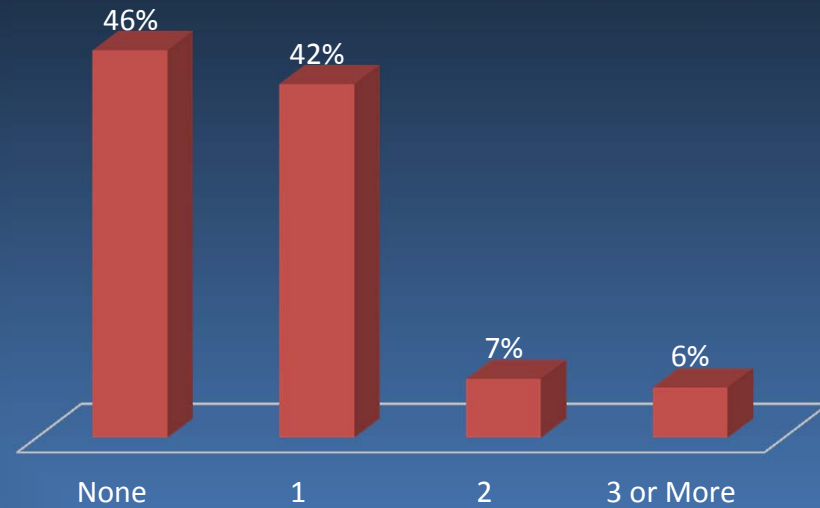
- ◆ The average number of lines is:
 - ❖ All Households: 0.7
 - ❖ Wireline Households: 1.3
- ◆ Wireless has become a substitute service for wireline, especially among younger HHs
- ◆ A further 9% of wireline phone users will drop for wireless in the next 12 months

Q13: "How likely are you to disconnect the wired phone line and only use your cell..."

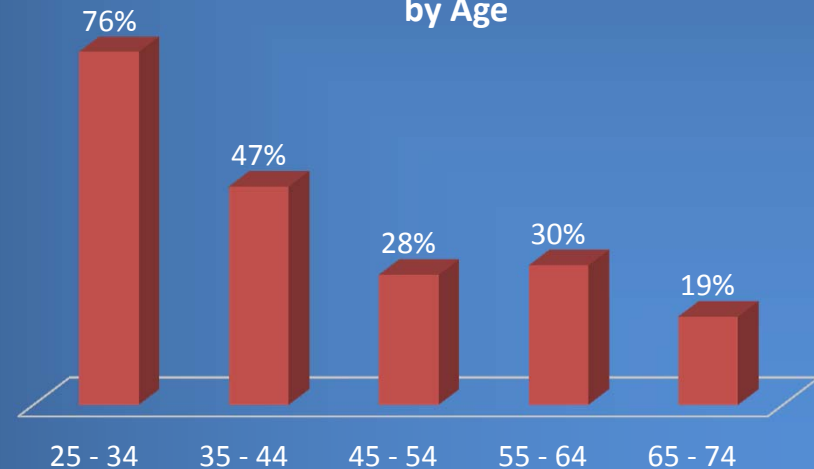


May 14, 2013

Number of Phone Lines in the Home



Households Without Wireline Phone Service by Age

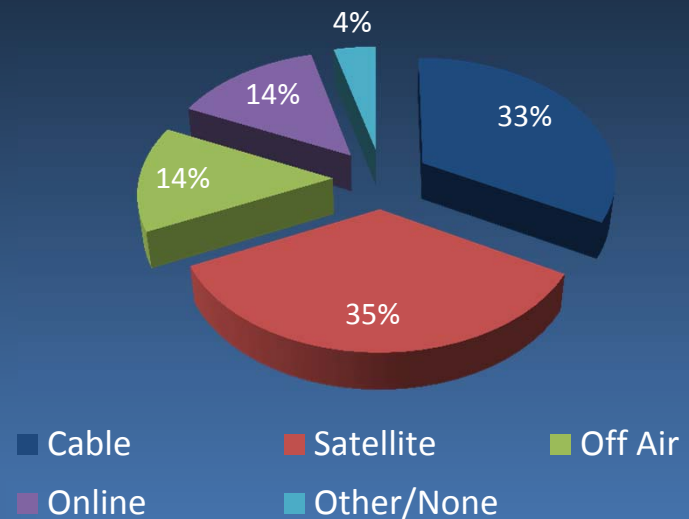




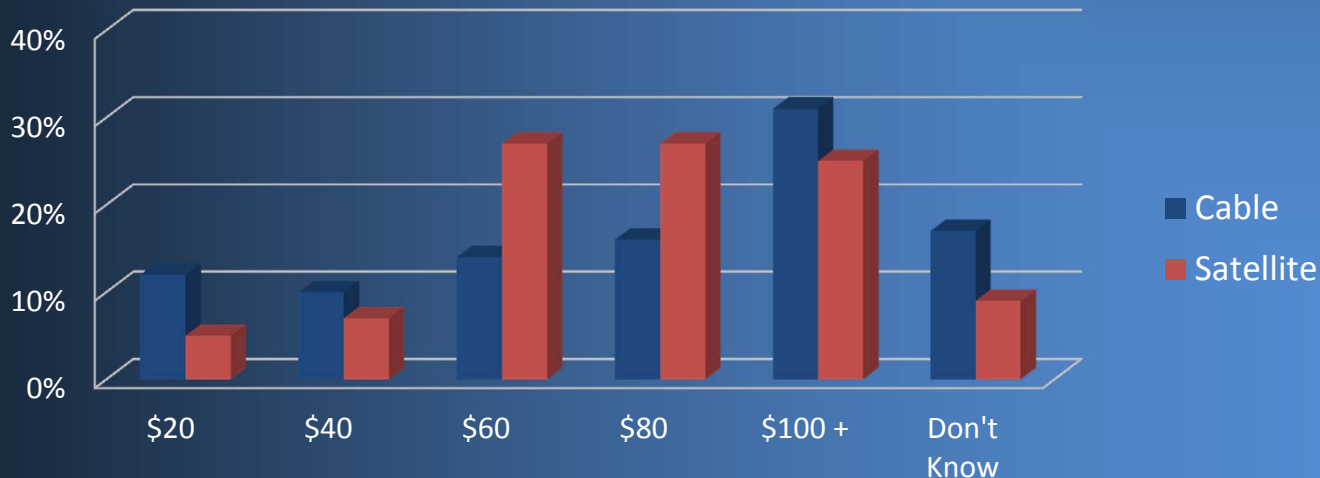
VIDEO SERVICES PURCHASING BEHAVIOR

- ◆ 68% of households use traditional pay TV (cable or satellite dish)
- ◆ Comcast has only 33% penetration for video
- ◆ In Longmont today, 14% of households are using online video
- ◆ Another 14% are using Off Air reception without supplemental Pay TV service
- ◆ Stated average monthly spend:
 - ❖ Cable: \$59
 - ❖ Satellite: \$67

Q2: "For TV service, do you have..."



Monthly Pay TV Spend

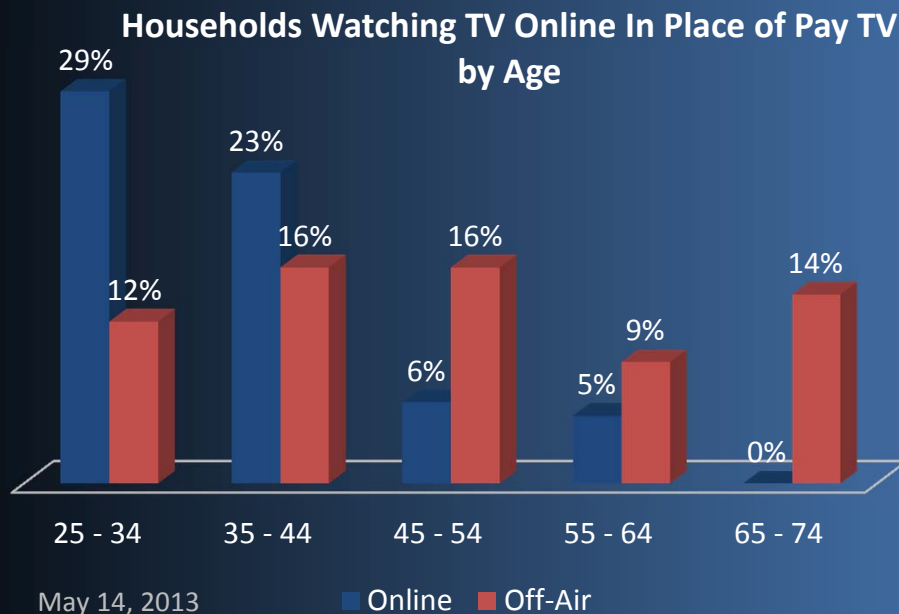
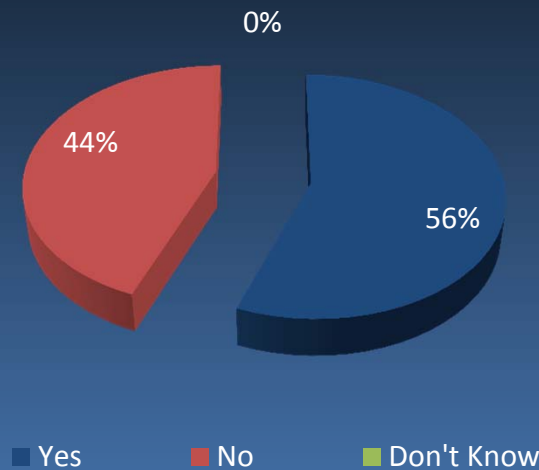




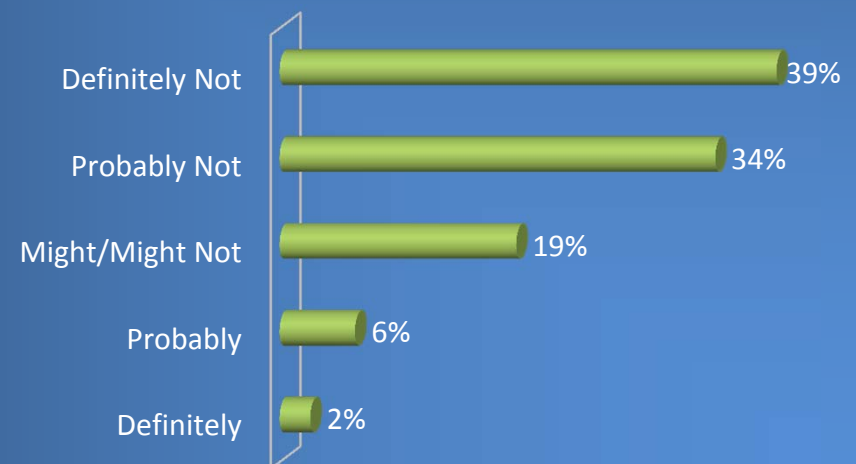
- ◆ Over-the-Top (OTT) or online TV viewing has recently become a material substitute service for traditional cable TV with a majority of households using OTT
- ◆ Among younger households, up to 29% are using OTT as a substitute service
- ◆ Uptown estimates a further 5% of pay TV users in Longmont will 'cut the cord' in the next 12 months

EMERGING VIDEO SERVICES

Q7: "Do you sometimes watch TV online?"

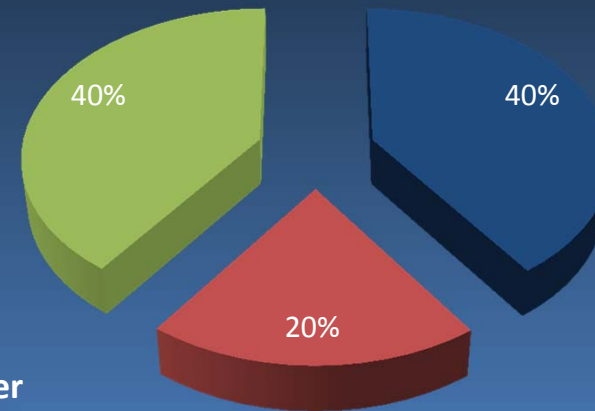


Likelihood of Cancelling Pay TV for OTT (among all pay TV users)

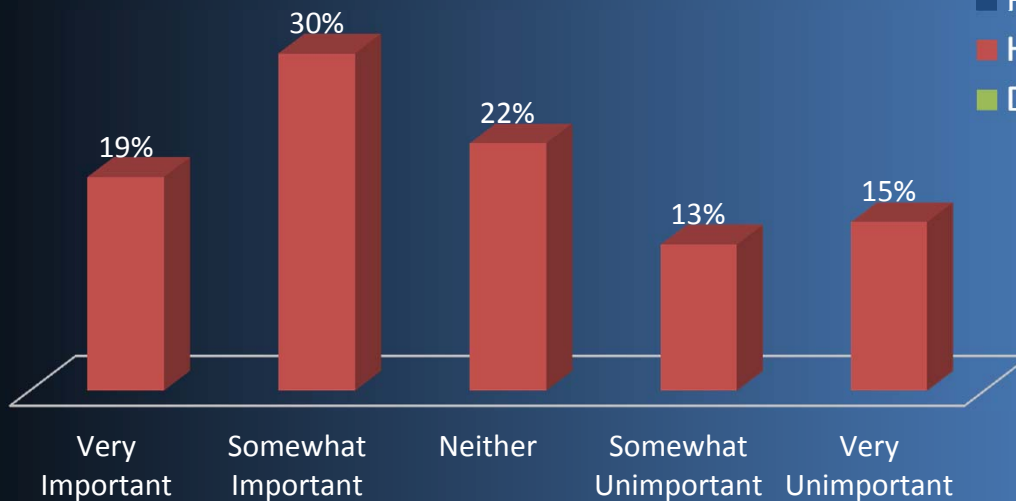


- ◆ Across all households in Longmont, only 20% have all 3 services from a single provider
- ◆ Bundling is very important for 1 in 5 households

Incidence of Triple Play Bundle



**Importance of Having All 3 Services from a Single Provider
(Among All Respondents)**

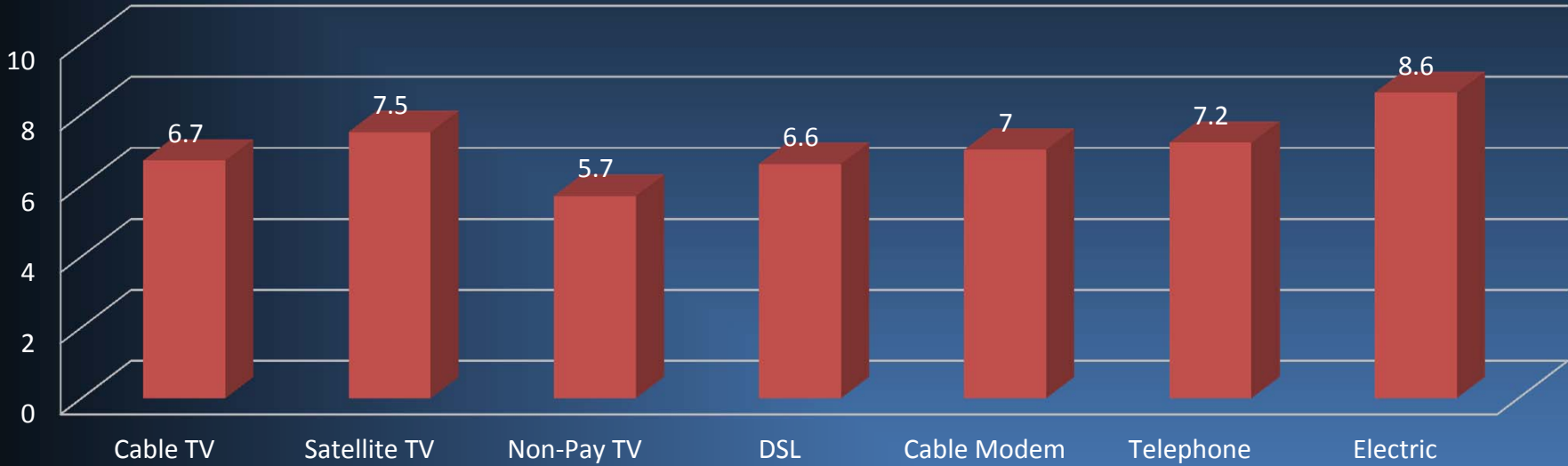


- Have All 3 Services From Multiple Providers
- Have All 3 From Single Provider
- Do Not Have All 3 Services

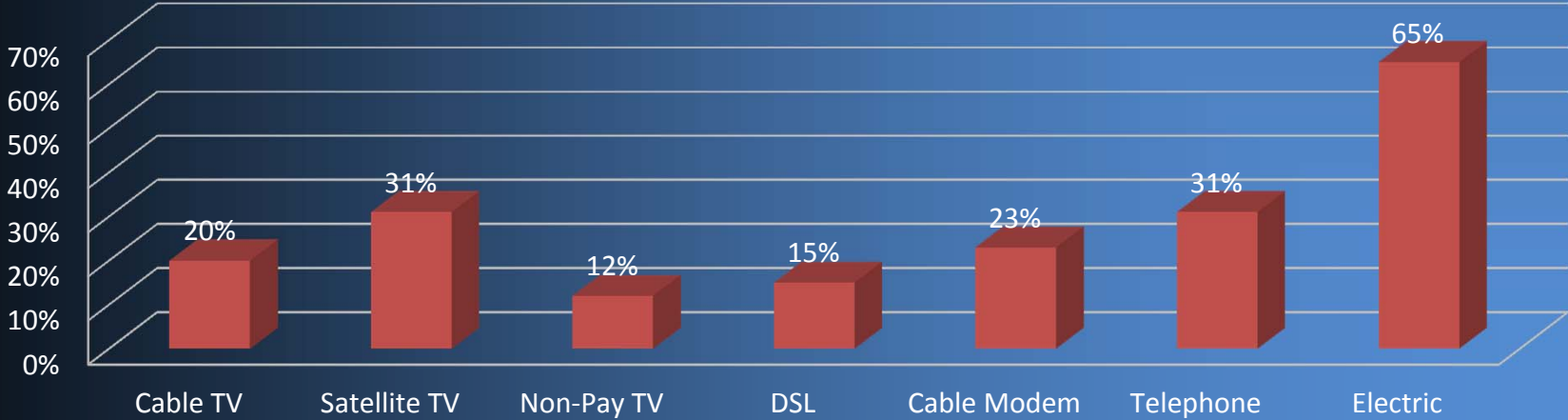


SATISFACTION RATINGS

Satisfaction Rating by Service/Service Provider
(Mean Rating on a 1-10 Scale)



Satisfaction Rating by Service/Service Provider
(Percent Rating a '9' or '10')



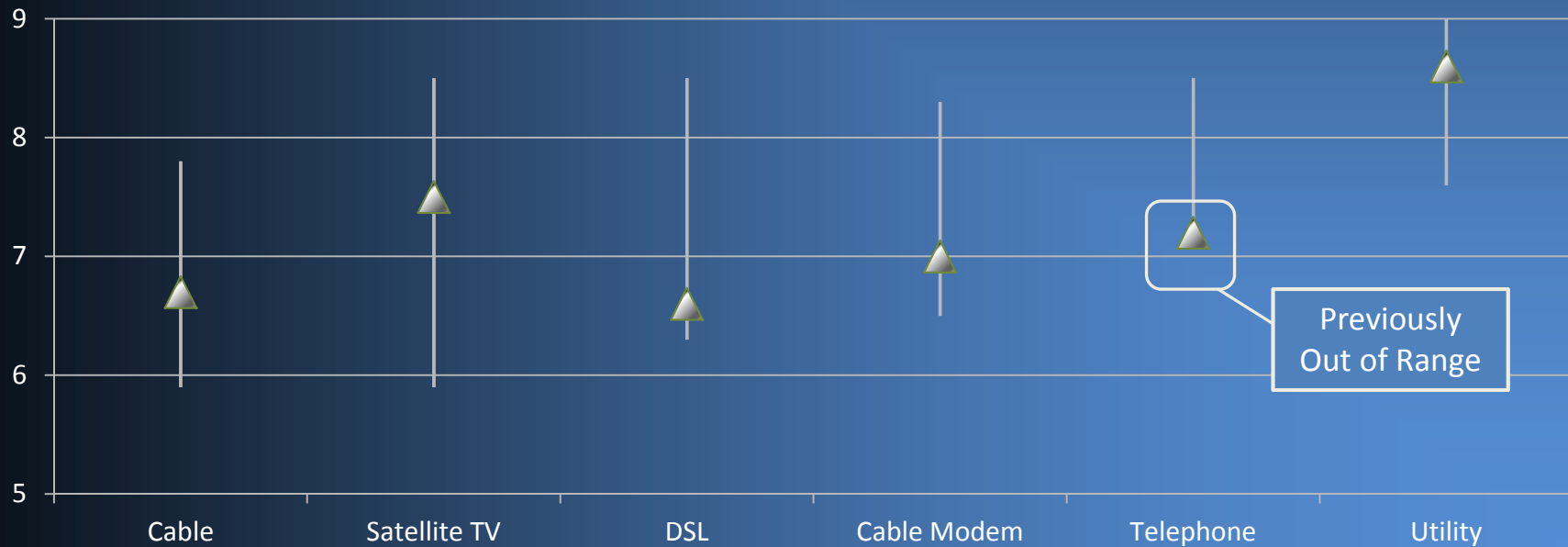


SATISFACTION RATING BENCHMARKS

- ◆ The chart below compares the results of this study with 21 other markets (with a total sample of 8,350) where Uptown has completed similar quantitative research:

<i>Northern Ohio (2)</i>	<i>Washington (state)</i>	<i>North Carolina</i>	<i>Oregon</i>
<i>Southern Ohio</i>	<i>Wisconsin</i>	<i>Kansas (2)</i>	<i>Alabama</i>
<i>Georgia</i>	<i>Oklahoma (2)</i>	<i>New York</i>	<i>Arkansas</i>
<i>Tennessee (3)</i>	<i>Michigan</i>	<i>Kentucky</i>	<i>Colorado</i>

Satisfaction Rating by Service/Service Provider
(Mean Rating on a 1 to 10 Scale)

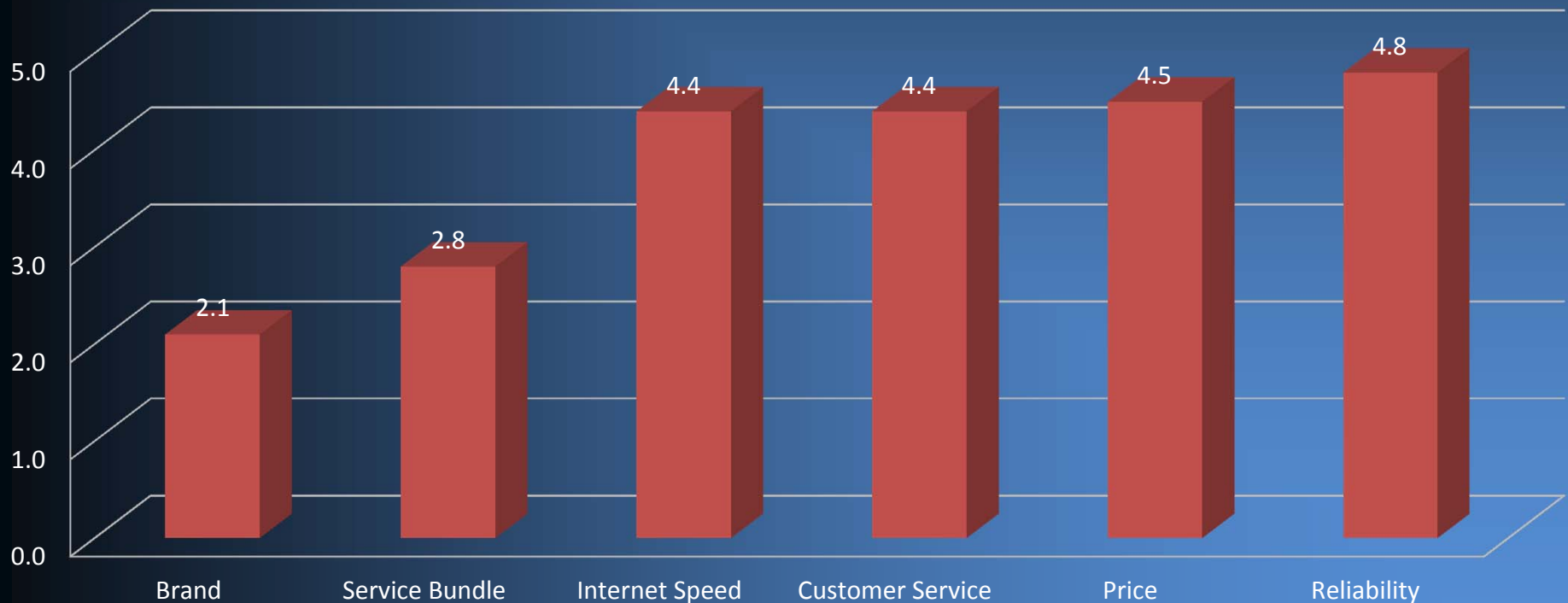




ATTRIBUTE IMPORTANCE

- ◆ While reliability and price are always important, Internet speed has dramatically increased in importance over the last several years. Bundling is secondary in importance to other attributes...

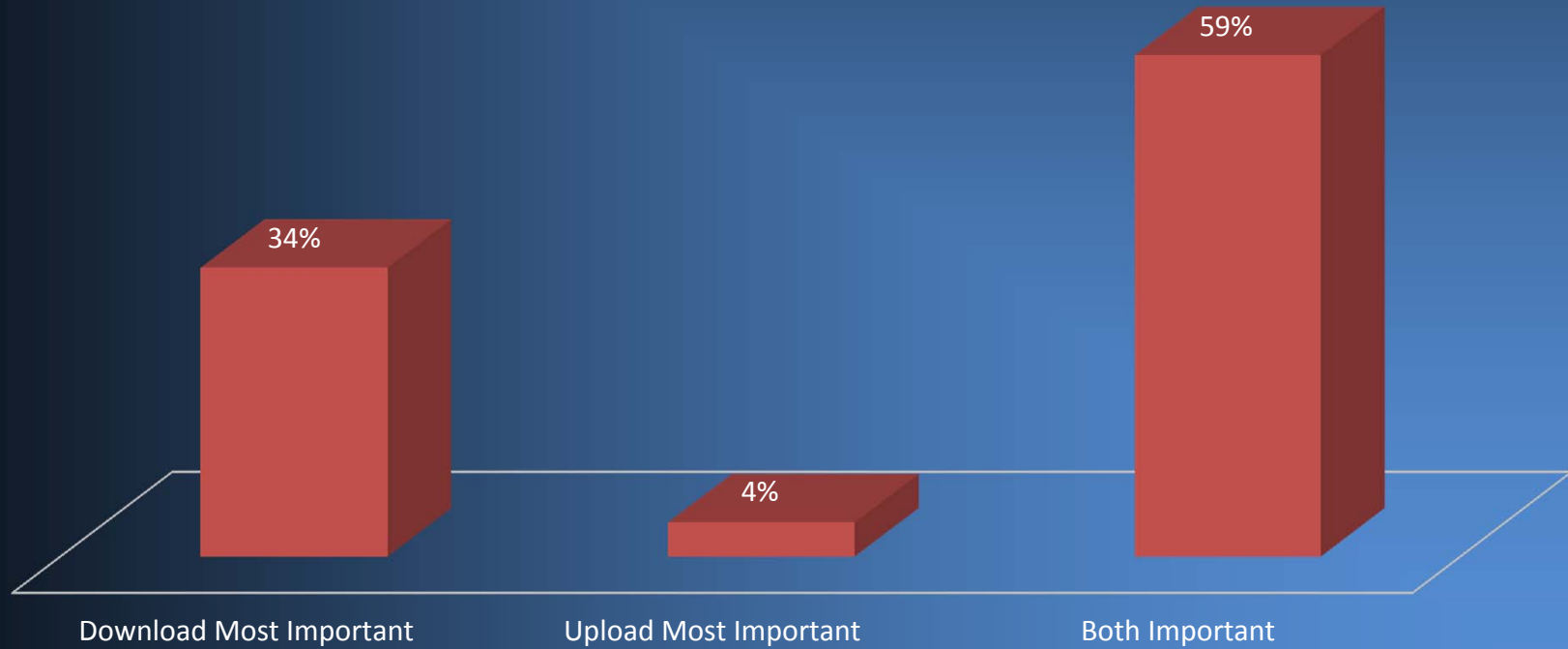
Importance Rating of Select Broadband Service Attributes
(Mean Rating on a 1-5 Scale)



IMPORTANCE OF DOWNLOAD VS. UPLOAD

◆ Question 40: “What aspect of Internet speed is most important?”

Importance of Internet Speed on Download vs. Upload

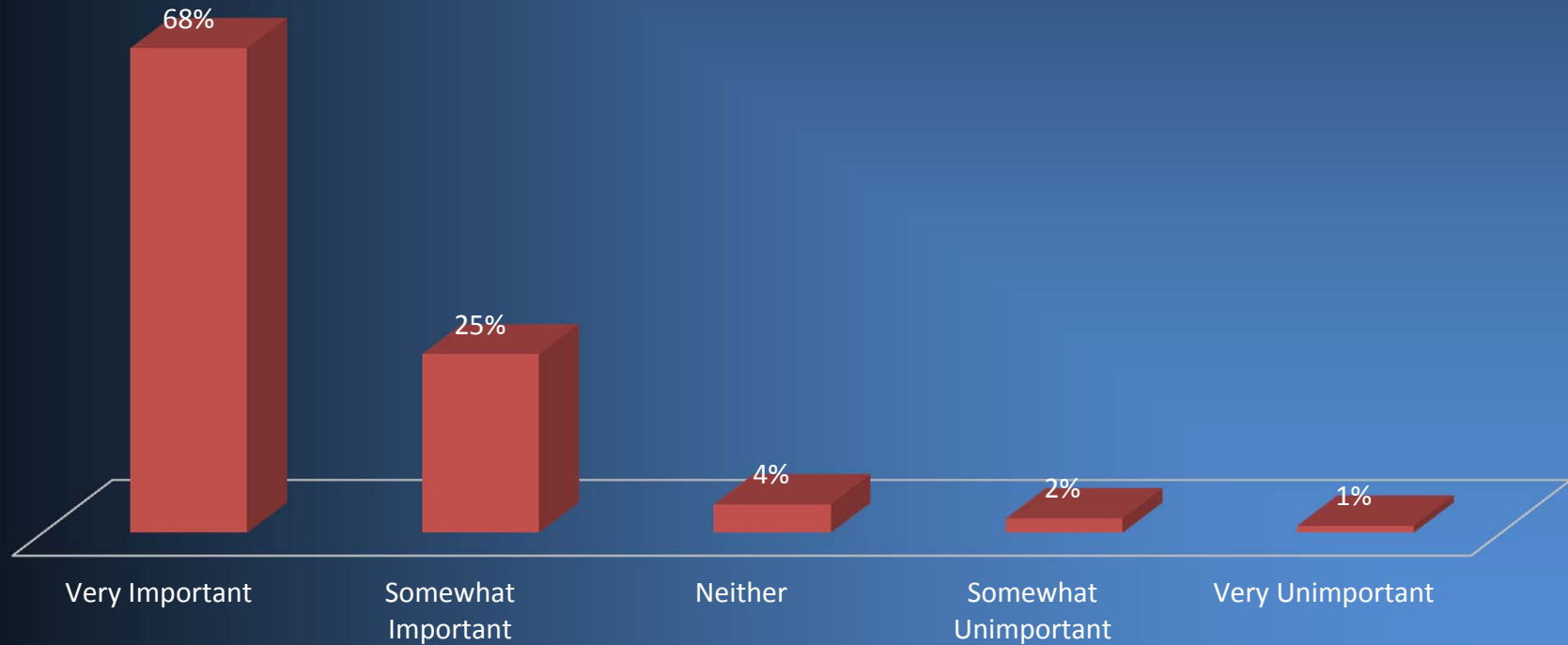




IMPORTANCE OF LOW COST HIGH-SPEED INTERNET

- ◆ Question 37: “In your opinion, is the availability of low-cost, high-speed Internet important to the future local economy?”

Importance of Having Low Cost High-Speed Internet

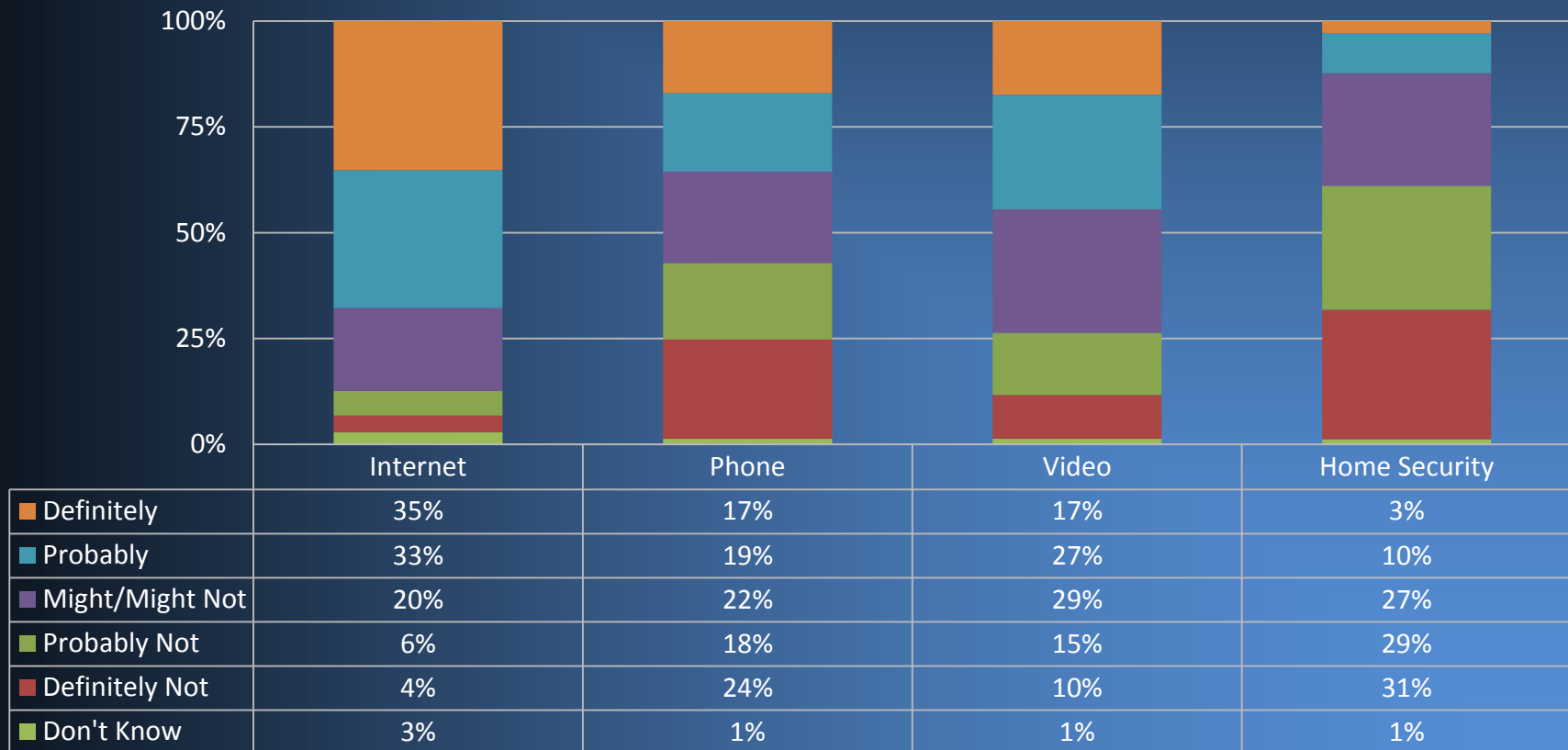




PURCHASE INTENT

- ◆ 68% of respondents indicated they would definitely or probably switch to the FTTP system for Internet service...

Q32-35: "How likely would you be to subscribe to [insert service] if it were 10% less than [insert incumbent provider] charges?"





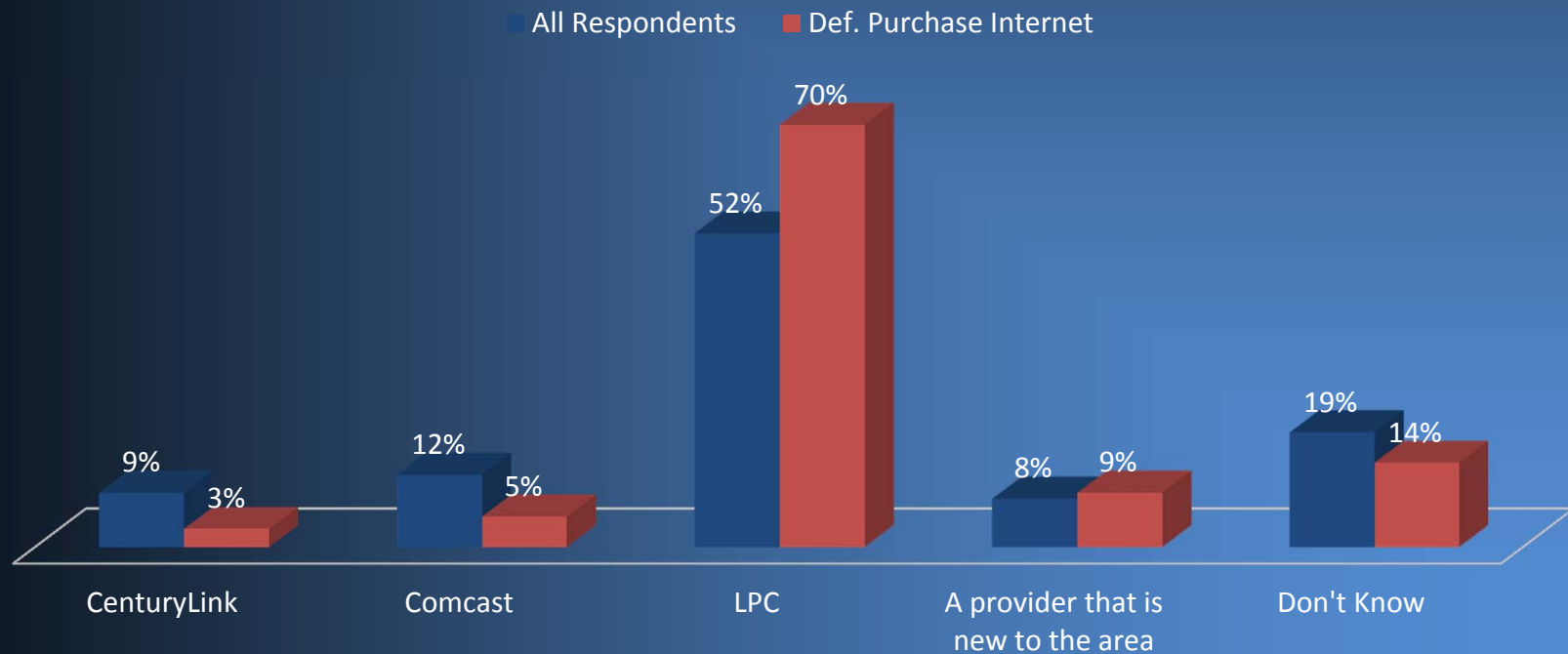
PENETRATION CALCULATIONS

- ❖ Uptown uses a 'Likert Scale' with Overstatement Adjustment
 - ❖ Conservative research techniques from the Packaged Goods sector
 - ❖ Clearly specify purchase intent vs. "interest" and removes overstatement bias
- ❖ Example: "How likely would you be to subscribe?"
 - ❖ Definitely Would 21.5% x 70% = 15.0%
 - ❖ Probably Would 35.6% x 30% = 10.7%
 - ❖ Might/Might Not 20.0% x 10% = 2.0%
 - ❖ Probably Would Not 10.4% 27.7% = Penetration Estimate
 - ❖ Definitely Would Not 4.4%

	Residential	Small Business	
	Market Research Outcome	Business Case Input	Business Case
Video	23.2%	0%	0%
Internet	36.4%	36.4%	40%
Telephone	19.6%	19.6%	35%
Home Security	7.5%	0%	0%

- ◆ The majority of respondents, when given the choice, would prefer to receive high speed Internet from LPC. The preference for the city is strongest among those most likely to switch their Internet service...

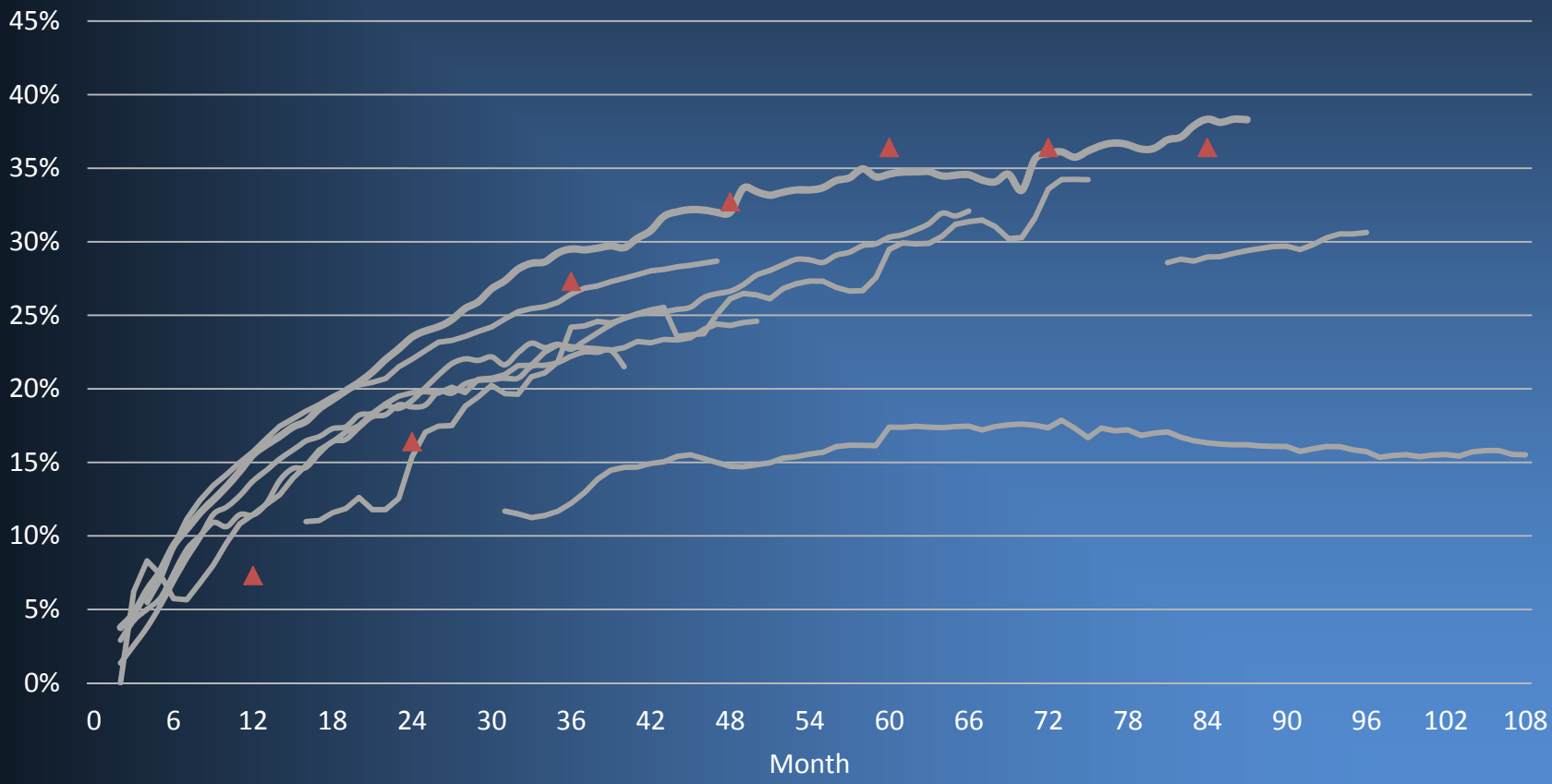
Q36: “Among the following list of potential providers, who would you prefer to receive high-speed Internet service from?”





INTERNET PENETRATION OF MUNI OVERBUILDERS

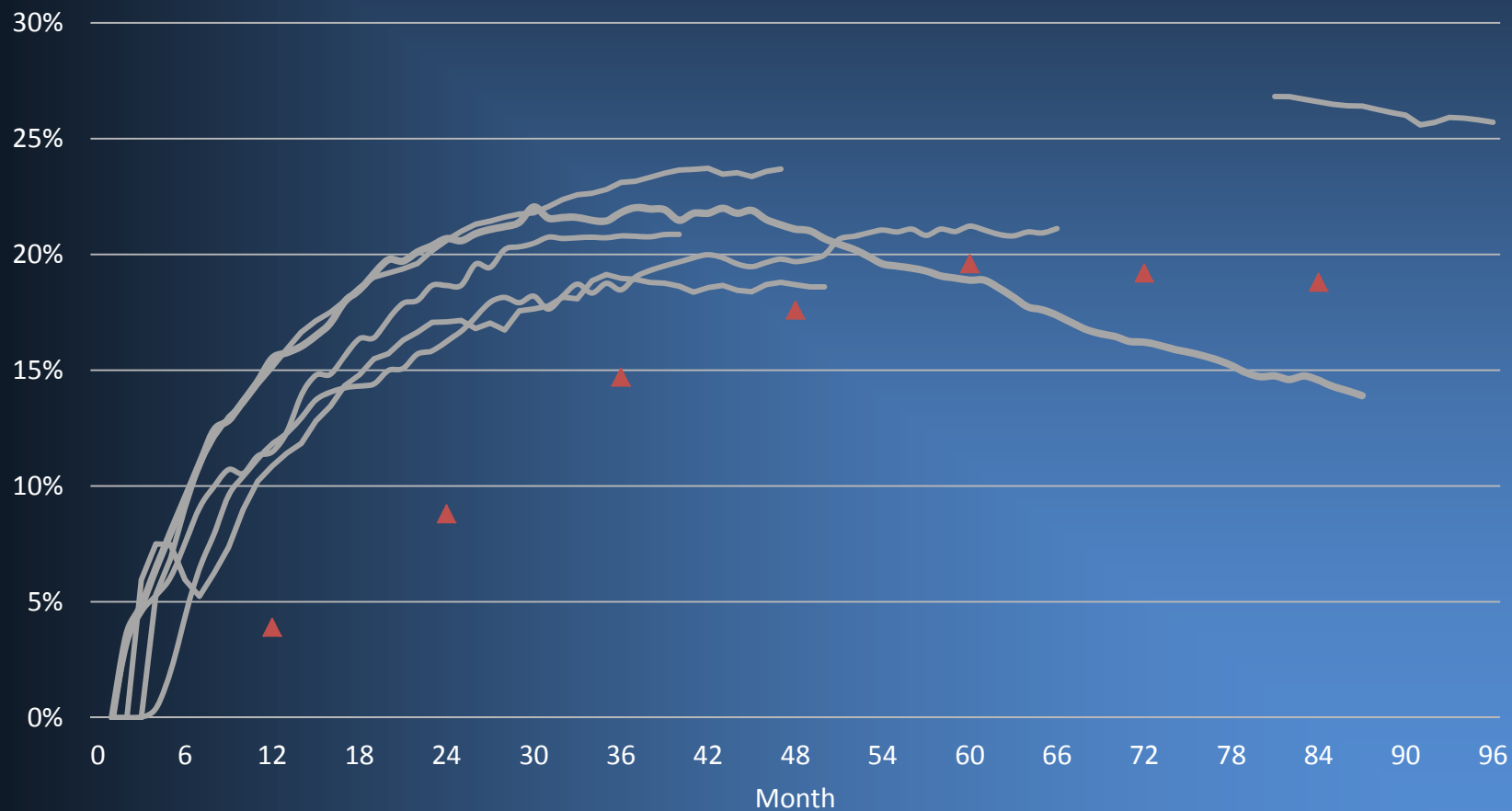
Internet Penetration
(By Month Since Launch)





VOICE PENETRATION OF MUNI OVERBUILDERS

Phone Penetration
(By Month Since Launch)





SURVEY FINDINGS / KEY TAKEAWAYS

- ◆ Bandwidth – including the upstream – is viewed as important at the household and local economy levels
- ◆ Excluding video is a viable service strategy
 - ❖ Video is undergoing rapid change with new substitute services
 - ❖ Only 20% of households have all 3 services from a single provider
 - ❖ Bundling is much lower in attribute importance
- ◆ Solid base of community support
 - ❖ LPC leads in satisfaction
 - ❖ Provider preference for LPC
- ◆ Penetration outcomes are achievable compared to actual deployed systems

Services Strategy &
Competitive Assessment



INCUMBENT RESIDENTIAL INTERNET PRICING

	Download	Upload	Price (1-Play / 2-Play+)	Technology
Comcast	3M	768K	\$39.95 / \$29.95	Cable Modem (DOCSIS 3.0)
	6M	1M	\$49.95 / \$49.95	
	20M	4M	\$62.95 / \$48.95	
	30M	6M	\$72.95 / \$58.95	
	50M	10M	\$114.95 / \$99.95	
	105M	20M	\$199.95 / \$199.95	
CenturyLink	Up to 1.5M	896K	\$40 / \$30	DSL
	Up to 7M	896K	\$45 / \$35	
	Up to 12M	896K	\$50 / \$40	
	Up to 20M	896K	\$60 / \$50	
	Up to 40M	5M	\$70 / \$60	
WildBlue	12M (7.5G Cap)	3M	\$49.99	Satellite
	12M (15G Cap)	3M	\$79.99	
	12M (25G Cap)	3M	\$129.99	

Comcast prices per xfinity brochure effective July 1, 2012 for Longmont. CenturyLink rates per centurylink.com effective October 2012. WildBlue rates per wildblue.com effective October 2012.



LPC RESIDENTIAL INTERNET PRICING

- ◆ Comcast, as the cable modem service provider, will have the majority market share and is the competitive benchmark. Target discount level is 20%...

LPC Download / Upload	LPC Price	Comcast Download / Upload	Comcast Price	LPC Discount
10M / 10M	\$39.95	6M / 1M	\$49.95	20%
25M / 25M	\$59.95	20M / 4M	\$62.95	5%
50M / 50M	\$74.95	50M / 10M	\$114.95	35%
100M / 100M	\$99.95	105M / 20M	\$199.95	50%

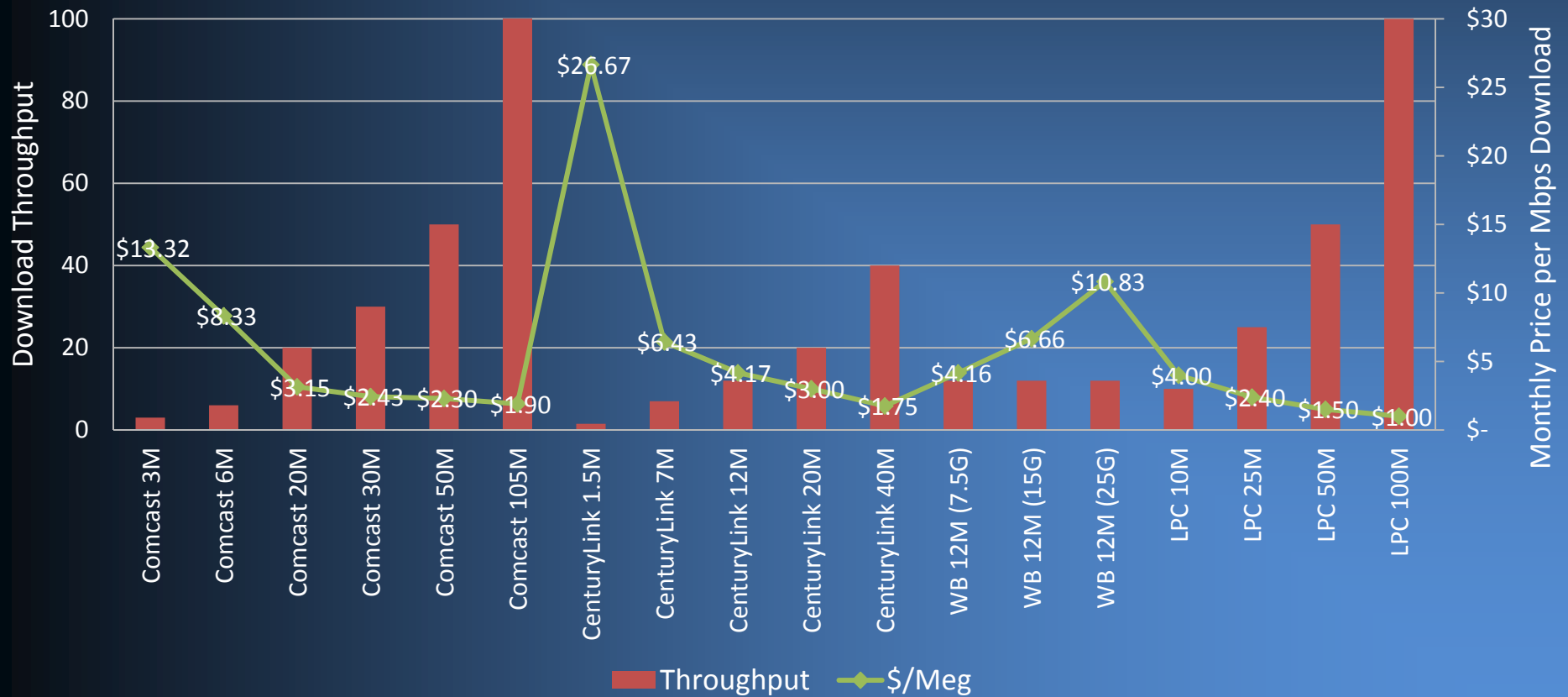
Note: Prices reflect providers single-service Internet rate card pricing.



RESIDENTIAL INTERNET VALUE

- ◆ Current providers are pricing from \$2-\$27 per Meg for typical residential Internet service. Uptown believes Longmont could provide retail service in the \$1-\$4 range...

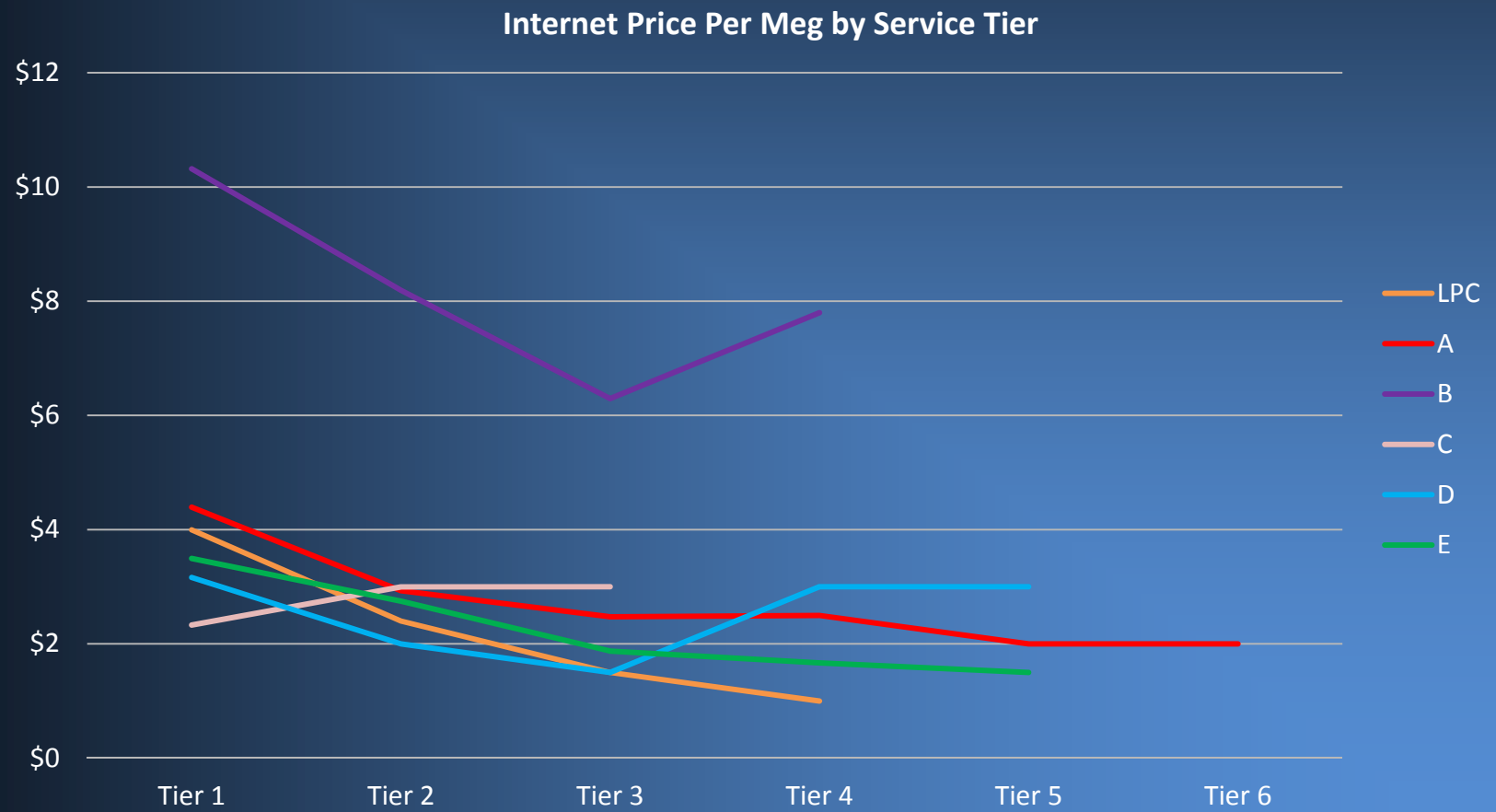
Internet Downstream Throughput and Price per Mbps
(Incumbents and Proposed LPC Tiers)





INTERNET VALUE AMONG PEERS

LPC would be one of the best Per-Meg Internet values among the municipal peer group...





COMMERCIAL INTERNET COMPETITION

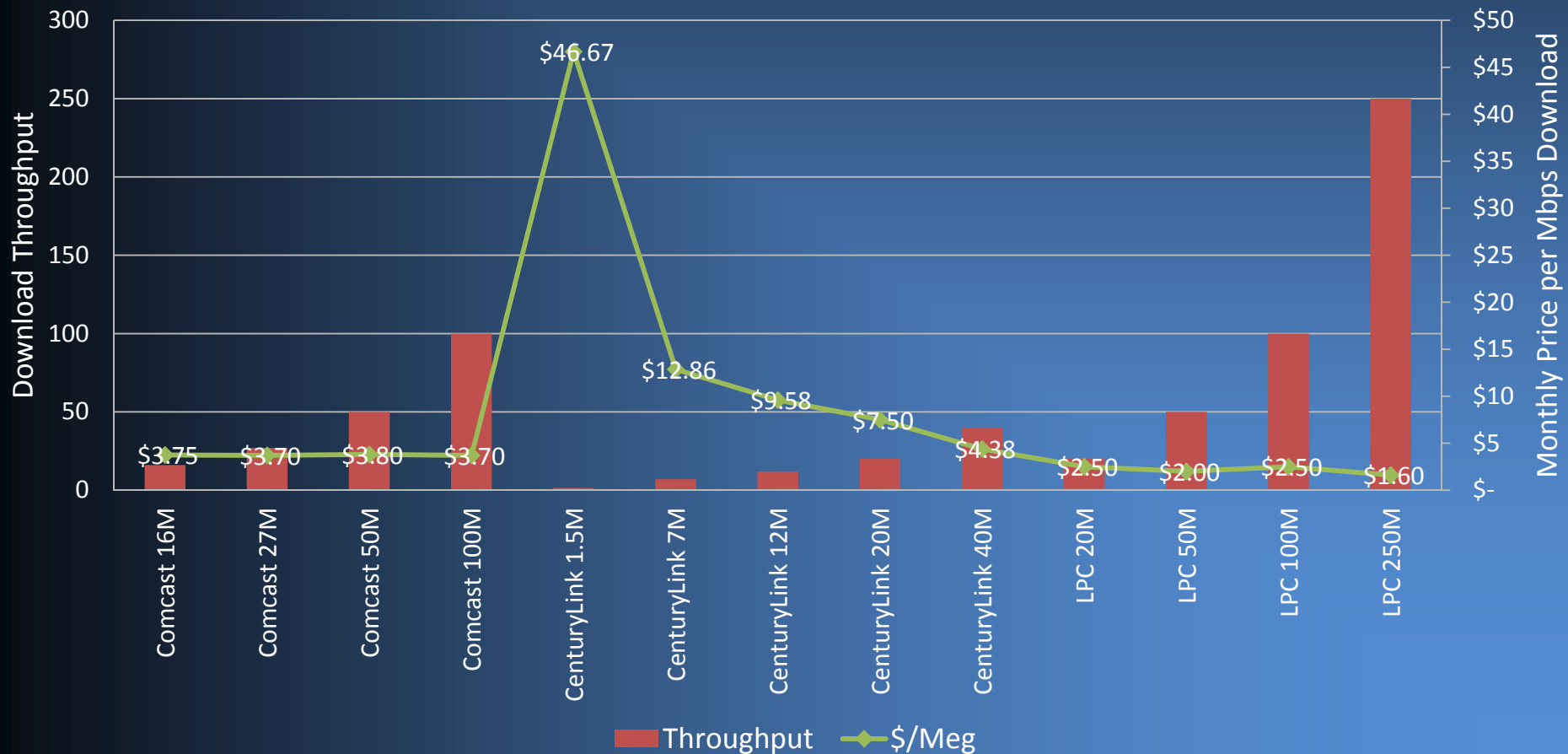
<i>Downstream Speed</i>	<i>LPC</i>	<i>Comcast</i>	<i>CenturyLink¹</i>
1.5M			\$70.00 (896k Up)
7M			\$90.00 (896k Up) \$95.00 (2M Up)
12M			\$115.00 (896k Up) \$120.00 (2M Up)
16M		\$59.95 (3M Up)	-
20M	\$49.95 (5M Up) \$59.95 (20M Up)		\$150.00 (896k Up) \$155.00 (2M Up)
27M		\$99.95 (7M Up)	-
40M			\$175.00 (2M Up)
50M	\$99.95 (10M Up) \$129.95 (50M Up)	\$189.95 (10M Up)	-
100M	\$249.95 (20M Up) \$299.95 (100M Up)	\$369.95 (10M Up)	-
250M	\$399.95 (50M Up) \$499.95 (250M Up)		



COMMERCIAL INTERNET VALUE

- ◆ Current providers are pricing from just under \$4 to \$46 per Meg for commercial Internet service. Uptown believes Longmont could provide retail service in the \$1.50 to \$2.50 range...

Internet Downstream Throughput and Price per Mbps
(Incumbents and Proposed LPC Tiers)





COMMERCIAL DATA NETWORK SERVICES

- ◆ High capacity network services should be offered by LPC to address the point-to-point transport and access needs of the large business segment...

	Service Description	Tiers
Metro Ethernet (Transport)	A private circuit with dedicated capacity between 2 or more client locations	100M 500M 1G 2G 3G 4G 5G 10G
Dedicated Internet (Access)	Dedicated, symmetrical bandwidth for end user or service provider access needs	20M 30M 40M 50M 100M 200M 300M 400M 500M 1G



COMMERCIAL DATA NETWORK SERVICES MARKET

	Internet Access	Metro Ethernet (Transport)	Dedicated Internet (Access)
Proposed LPC Service	Standard Internet tiers up to 250M	Point-to-point transport from 100M to 10G	Dedicated access bandwidth from 20M to 1G
Market Segment	Small Medium Businesses with 1-49 Employees	Large Business with 50+ Employees	
LPC Service Area Prospects	3,554 (96% of Commercial)	152 (4% of Commercial)	
Percent of Segment	100%	25%	75%
Penetration	30% (Year 5)	25% (Year 8)	

Financial Feasibility Analysis

FTTP Business Case



STAFFING ASSUMPTIONS

- ◇ Customer Service Representatives (CSRs)
 - ❖ CSRs handle inbound/office sales, order entry and first tier support
 - ❖ Subset of CSRs will act as Technical Service Representatives (TSRs)
 - ❖ TSRs handle all second tier customer support and service provisioning
- ◇ Install Technicians
 - ❖ Each install technician can complete two new customer installs per day
 - ❖ LPC to hire internal installers given the high cost of contractors
 - ❖ Requires the use of 3-9 temporary contract employees in peak years
- ◇ Service Technicians
 - ❖ Service techs fix subscriber problems
 - ❖ FTE based on the number of truck rolls related to service and churn
- ◇ Network Technicians
 - ❖ Network techs maintain the fiber system from the backbone to the NAP
 - ❖ One network tech for every 150 miles of new fiber optic plant
 - ❖ New hire(s) will augment splicing and technical services expertise



BROADBAND HEADCOUNT REQUIRED

Staff Position	Year1	Year2	Year3	Year4	Year5
Broadband Manager	1.0	1.0	1.0	1.0	1.0
Marketing / PR Coordinator	0.5	0.5	0.5	0.5	0.5
MDU Account Manager	0.7	1.0	1.0	1.0	1.0
Commercial Account Rep	0.7	1.0	1.0	1.0	1.0
Sales Engineer	0.7	1.0	1.0	1.0	1.0
Data Technician	1.7	2.0	2.0	2.0	2.0
Field Service Supervisor	0.0	1.0	2.0	1.0	1.0
Customer Service Rep	1.0	4.0	8.0	8.0	8.0
Install Technician	1.0	7.0	14.0	5.0	4.0
Network Technician	2.0	3.0	3.0	3.0	3.0
Service Technician	1.0	2.0	3.0	3.0	3.0
Total Headcount	10.3	23.5	36.5	26.5	25.5



BENCHMARKING ANALYSIS - STAFFING

Staff Position	A	B	C	D	E	F	LPC*
Residential Connections	4,867	1,934	2,239	2,563	5,998	13,500	15,297
CSRs - Shared	4.0	1.0	6.0	1.5	0.0	7.0	12.0
CSRs - Dedicated/TSR	0.0	2.0	2.0	3.0	10.0	8.0	8.0
Techs	3.0	5.0	6.0	3.0	8.0	12.0	7.0
Other	3.0	1.0	1.0	3.0	13.0	6.0	6.5
Total Staff	10.0	9.0	15.0	10.5	31.0	33.0	33.5

Connections Per FTE	A	B	C	D	E	F	LPC*
CSRs - Shared	1,217	1,934	373	1,709	0	1,929	1,275
CSRs - Dedicated/TSR	0	967	1,120	854	600	1,688	1,912
Total CSRs	1,217	645	280	570	600	900	765
Techs	1,622	387	373	854	750	1,125	2,185
Other	1,622	1,934	2,239	854	461	2,250	2,353
All Head Count	487	215	149	244	193	409	457



ADMINISTRATIVE OVERHEADS AND MARKETING

Category	Key Assumptions	Source / Justification
City Services	<ul style="list-style-type: none"> •Modeled as 2.5% of total revenue •Assumed to cover general services including legal, payroll and accounting •Also covers billing and collections •Assumed to grow by 3% per year 	<ul style="list-style-type: none"> •Current City allocation is \$40,000 for broadband •Electric department pays approximately 2.8% of total revenue •Some level of efficiency assumed as justification for not using the full 2.8%
Miscellaneous Office Supplies and Training	<ul style="list-style-type: none"> •\$12,500 per year assumed •Assumed to grow by 3% per year 	<ul style="list-style-type: none"> •Broadband currently spends minimal amounts on office supplies
General LPC Staff Allocation	<ul style="list-style-type: none"> •\$105,027 assumed in the plan •Includes time spent by leadership and support team within LPC •Assumed to grow by 3% per year 	<ul style="list-style-type: none"> •All make ready work completed by the LPC electric department.
Marketing and Sales Expenses	<ul style="list-style-type: none"> •Budget included to support launch and support of comprehensive marketing strategy <ul style="list-style-type: none"> ➢ Year1 - \$100,000 ➢ Year2 – Year5 - \$350,000 ➢ Year6 + - 1% of gross revenues 	<ul style="list-style-type: none"> •Based on Uptown implementation of several FTTP marketing and advertising strategies •Includes all creative services, materials and ad buys •Commissions included as required
Billing Expenses	<ul style="list-style-type: none"> •Billing expenses covered under City services fees 	



OTHER EXPENSE ASSUMPTIONS

Category	Key Assumptions	Source / Justification
Vehicle Maintenance	<ul style="list-style-type: none"> •\$13.00 per hour per service vehicle •\$42.00 per hour per bucket truck •1,000 hours per vehicle •Covers operation, maintenance and replacement costs 	<ul style="list-style-type: none"> •Expense allocated to Fleet Services •Only applies to new personnel vehicles
Vendor Maintenance	<ul style="list-style-type: none"> •Billing system = \$30,000 per year •FTTP system = \$25,000 per year •Middleware / conditional access systems = \$75,000 per year •Middleware per Sub = \$2.63 per year 	<ul style="list-style-type: none"> •Based on actual vendor quotes and recently completed RFP processes for FTTP clients •Annual maintenance costs have come down dramatically given fierce competition in the FTTP market
Rents and Utilities	<ul style="list-style-type: none"> •No incremental rents and utilities included in the plan •New office space for broadband unit assumed to be included in other allocations 	<ul style="list-style-type: none"> •Needs to be confirmed by LPC leadership
Professional Services	<ul style="list-style-type: none"> •Legal and accounting <ul style="list-style-type: none"> ➢ Year1 - \$50,000 ➢ Year2 - \$25,000 ➢ Year3+ - \$10,000 	<ul style="list-style-type: none"> •Specific services to establish larger broadband enterprise



CAPITAL BUDGETING ASSUMPTIONS

Category	Key Assumptions	Source / Justification
Build Schedule	<ul style="list-style-type: none"> ➤ Year1 = 15% premises passed ➤ Year2 = 60% premises passed ➤ Year3 = 100% premises passed ➤ Year4 = 100% premises passed ➤ Year5 = 100% premises passed 	<ul style="list-style-type: none"> • Assumes the use of contract construction crews
Outside Plant Construction Costs	<ul style="list-style-type: none"> • OSP cost per passing = \$656 • Feeder network = \$976,350 	<ul style="list-style-type: none"> • Estimate based on Uptown sample designs • Feeder estimate assumes use of some existing laterals and back feeding through new FTTP distribution facilities • Includes 10% contingency
Network Upgrades	<ul style="list-style-type: none"> • Outside plant - \$75 in Year 10 • Subscriber equipment - \$100 in Year 7 	<ul style="list-style-type: none"> • Upgrades limited to electronics / optics • \$4,509,115 allocated for these upgrades in the double play plan
Building Construction	<ul style="list-style-type: none"> • \$150,000 for general renovations 	<ul style="list-style-type: none"> • Renovations to existing building to house new broadband staff
Systems Costs	<ul style="list-style-type: none"> • Broadband Back Office = \$150,000 • Fiber management = \$5,000 	<ul style="list-style-type: none"> • Estimate based on actual FTTP client experience
Middleware and Conditional Access	<ul style="list-style-type: none"> • Initial Middleware = \$250,000 • Middleware per Sub = \$50.00 • Conditional Access initial = \$150,000 • Conditional Access per Sub = \$8.50 	<ul style="list-style-type: none"> • Only applies to Triple Play scenario • Estimate based on actual FTTP client experience • Market changing rapidly and costs will change depending on approach taken for deployment
Vehicle Capital	<ul style="list-style-type: none"> • Bucket Truck = \$135K (Two Maximum) • Service / install vehicle = \$30K • Install rigs = \$40K 	<ul style="list-style-type: none"> • Specialized machinery assumed to be available from electric department • Maintenance = heavy bucket, service = pickup/van • Install rigs purchased for each installer (mole/boring)



CAPITAL BUDGETING ASSUMPTIONS

Category	Key Assumptions	Source / Justification
Fixed Equipment	<ul style="list-style-type: none"> •FTTP OLT Chassis and Base Kits = \$100K •OLT PON SFPs = \$35 per passing •Primary video head end = \$1.5M •RF overlay = \$25 per passing •Core Internet Routers = \$250,000 •DWDM transport to Denver = \$200,000 •Internet systems = \$125,000 •Test equipment = \$150,000 •Splice trailer = \$15,000 •Fixed splicer = \$15,000 •Hand held splicer = \$7,500 per installer 	<ul style="list-style-type: none"> •Most estimates based on recent RFP processes for FTTP clients
Contract Installation	<ul style="list-style-type: none"> •Pre-install = \$350 •Premises install = \$200 	<ul style="list-style-type: none"> •Based on actual FTTP client experience •Year2 – 0% contract installs •Year3 – 0% contract installs
Subscriber Capital	<ul style="list-style-type: none"> •Indoor ONT(video) = \$248 •Indoor ONT (non-video) = \$198 •Indoor Power supply with battery = \$51 •Fiber drop and materials = \$75 •SD/HD Set Top Box = \$145 •HD/DVR Set Top Box = \$225 	<ul style="list-style-type: none"> •Based on recent quotes received for FTTP ONTs
Engineering and Implementation Support	<ul style="list-style-type: none"> •Engineering and Design Services = \$605,154 •Implementation Support Services <ul style="list-style-type: none"> ➤ Triple Play - \$360,000 ➤ Double Play - \$270,000 	<ul style="list-style-type: none"> •Full range of engineering services •Highly specialized implementation tasks that should be managed by FTTP deployment experts



FINANCIAL / FINANCING INPUTS

- ◇ Long term financing
 - ❖ Two rounds of financing assumed over the first two years
 - ❖ Two years interest only
 - ❖ 12 years of level payments
 - ❖ 2% issuance, \$0 reserve requirement
 - ❖ Interest rate – 3% for Round One and 4% for Round Two
- ◇ Short term financing
 - ❖ Provides for cash needs not covered by long term financing
 - ❖ Balance accumulates over first five years including interest
 - ❖ Level payments begin in year six over ten year payment plan
- ◇ Start-up period included as Year 1 of the business case
 - ❖ No revenues assumed during first year of the plan
 - ❖ Technical trial underway at the end of the first year with 100 testers
- ◇ Other assumptions
 - ❖ Bad debt = 3% of gross revenues
 - ❖ Overhead loading of 35%
 - ❖ 1%/2%/3% interest on cash reserves in year1/year5/year10 respectively
 - ❖ Discount rate = 5% for present value calculations
 - ❖ \$900,000 in cash reserves EOY2012
 - ❖ 10 billable months in year2



BASELINE FINANCIAL OUTCOMES

Outcome	Triple Play	Double Play
Long Term Capital Funding	\$45,466,669	\$38,767,236
Operating Losses (Working Capital)	\$2,178,911	\$2,339,360
Total Funding	\$47,645,581	\$41,106,596
Cash Flow with Debt Service - Year10	\$2,178,573	\$452,622
Cash Reserves - Year10	\$29,837,042	\$18,442,195
Total Outstanding Debt - Year10	\$24,698,555	\$21,378,735
Total Outstanding Equity - Year10	\$0	\$0
Net Cash - Year10	\$5,138,487	(\$2,936,540)
Project Break Even	10 Years	11 Years

- ◇ Traditional video business is in decline which introduces more forward looking risk to the triple play business case
- ◇ Adding video only trims one year from the Double Play payback

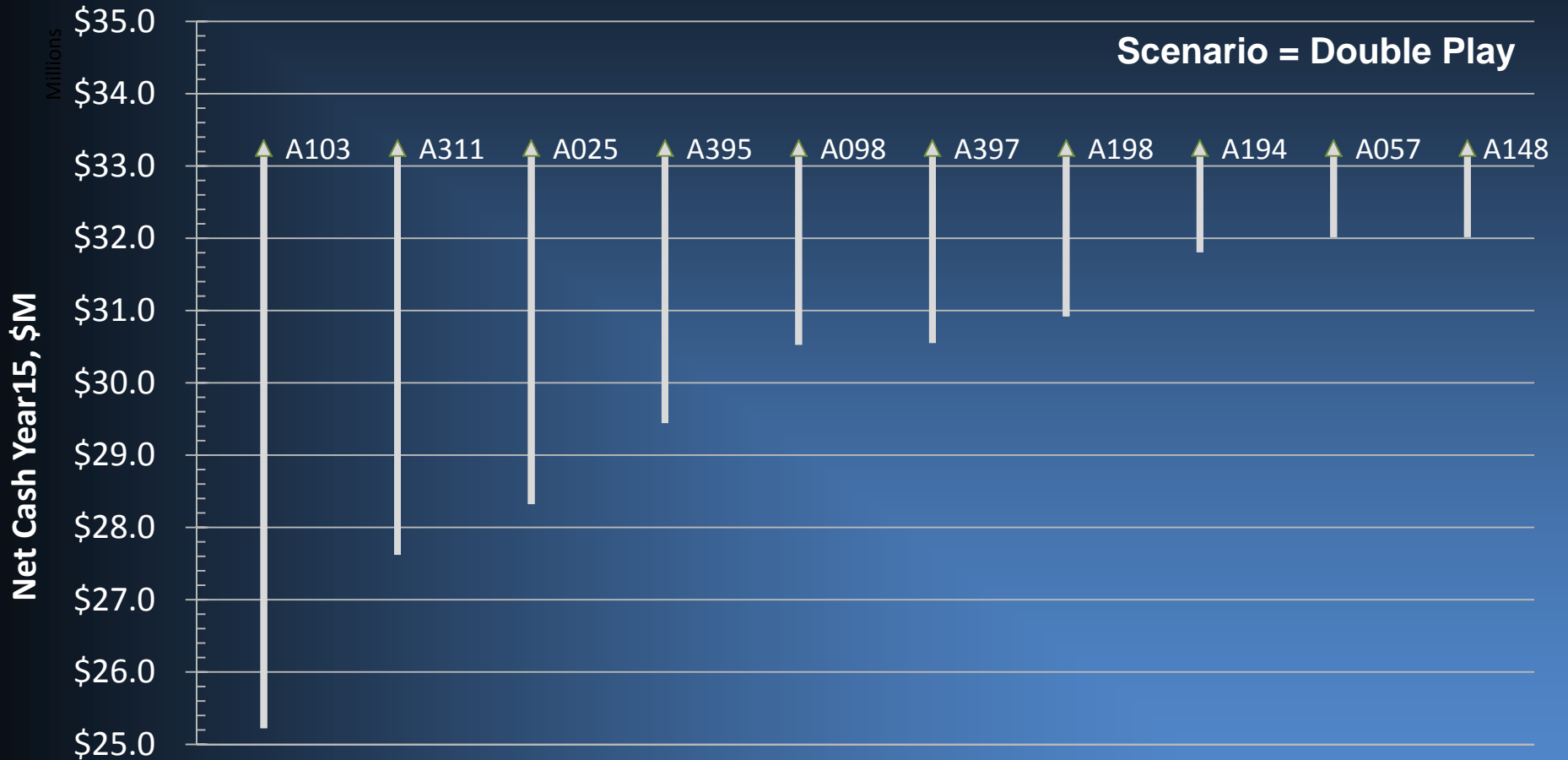
- ◇ Video capital premium
 - ❖ \$3.7M additional fixed cost
 - ❖ \$3.8M in additional subscriber capital
- ◇ Cash contribution from video can be attractive
 - ❖ Benchmarked video contribution benchmarking data shows \$18.86 average for municipal systems
 - ❖ LPC Plan Expanded Basic - \$17.95 contribution margin
 - ❖ LPC Plan Digital Basic - \$21.95 contribution margin
- ◇ Future considerations
 - ❖ Video might make sense if it could look more like the phone model
 - ❖ Optimal solution would allow for compelling video offering with limited fixed capital outlay
- ◇ Uptown recommends that LPC pursue a double play strategy

Sensitivity Analysis

Double Play Scenario – Three Year Build



SENSITIVITY ANALYSIS – NET CASH YEAR15



<u>Input</u>	<u>Description</u>	<u>Model</u>	<u>Worst</u>	<u>Input</u>	<u>Description</u>	<u>Model</u>	<u>Worst</u>
A103	Residential Internet Tier1 Price - Year1	\$39.95	\$35.96	A397	Bond Rate - Series 2	4.0%	5.0%
A311	Blended Construction Cost per Meter Passed Year2	\$656	\$756	A198	Plant Feet per Passing	56	62
A025	Residential Internet Access Penetration	36.4%	32.8%	A194	Internet backbone cost per Mbps per month Year3	\$1.75	\$2.32
A395	Bond Rate - Series 1	3.0%	5.0%	A057	Commercial Basic Telephone Penetration	25.0%	22.5%
A098	Residential Phone ARPU - Year1	\$25.00	\$22.50	A148	Business Package 1 Per Line - Year1	\$30.95	\$27.86

May 14, 2013



TOP FOUR SENSITIVITY SCENARIOS

Outcome	Baseline	Variation On Baseline Scenario			
		Res Internet Price 10% Less	OSP Construction 15% More	Bond Rate of 5% Series 1 and Series 2	Res Internet Pen 10% Less
Long Term Capital Funding	\$38,767,236	\$38,767,236	\$43,017,453	\$39,348,278	\$38,286,451
Operating	\$2,339,360	\$2,408,848	\$2,339,360	\$2,339,360	\$2,350,962
Total Funding	\$41,106,596	\$41,176,084	\$45,356,813	\$41,687,638	\$40,637,413
Cash Flow w/ Debt Service - Year15	\$3,619,308	\$2,836,533	\$3,005,890	\$3,108,902	\$3,166,046
Cash Reserves - Year15	\$35,642,888	\$27,620,269	\$29,382,727	\$29,260,397	\$30,762,151
Total Outstanding Debt - Year15	\$2,394,311	\$2,394,311	\$2,663,264	\$2,511,131	\$2,352,937
Total Outstanding Equity - Year15	\$0	\$0	\$0	\$0	\$0
Net Cash - Year15	\$33,248,576	\$25,225,958	\$26,719,462	\$26,749,266	\$28,409,214
Project Break Even	11 Years	12 Years	12 Years	12 Years	11 Years

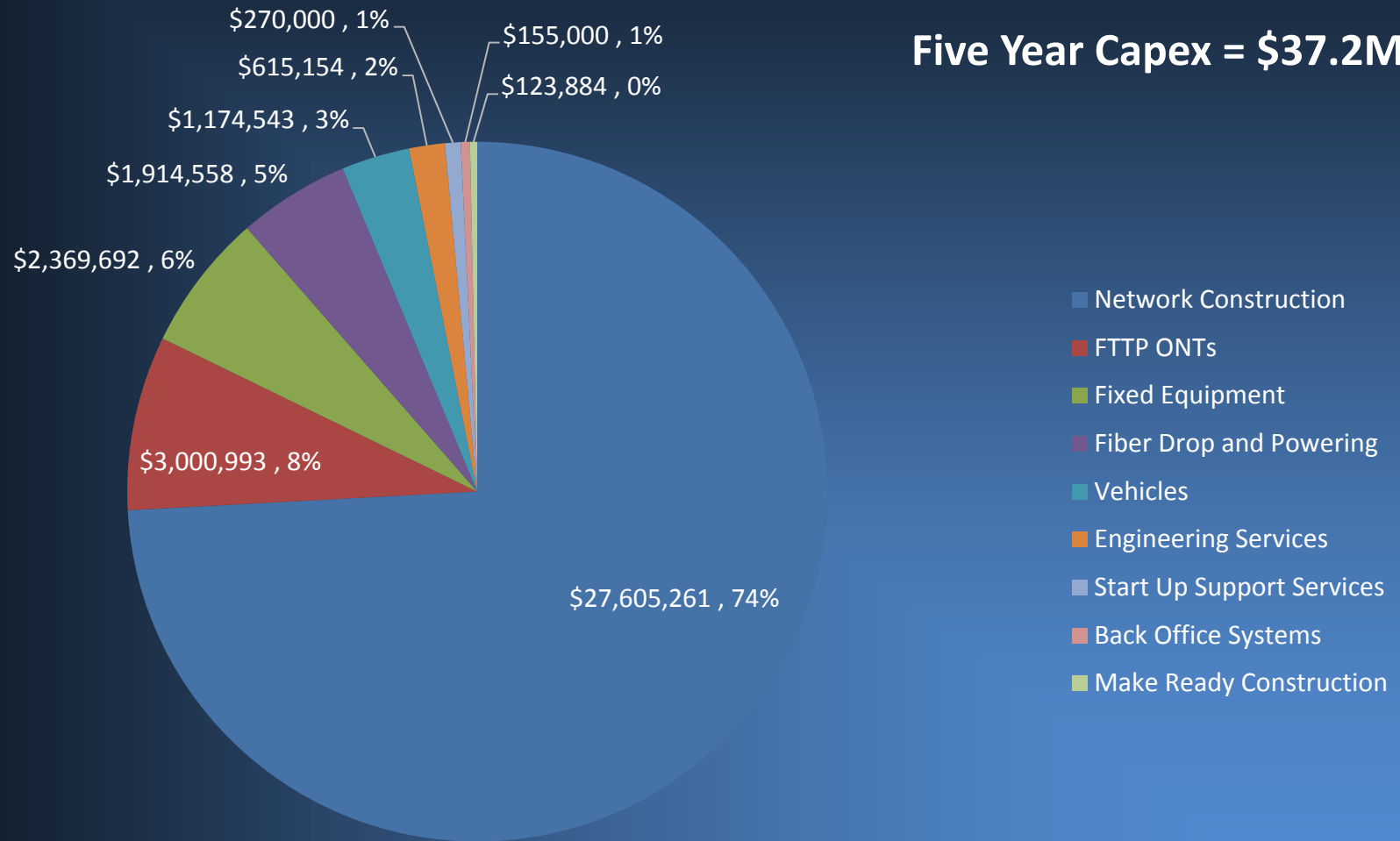
Summary Financials

Double Play Scenario – Three Year Build



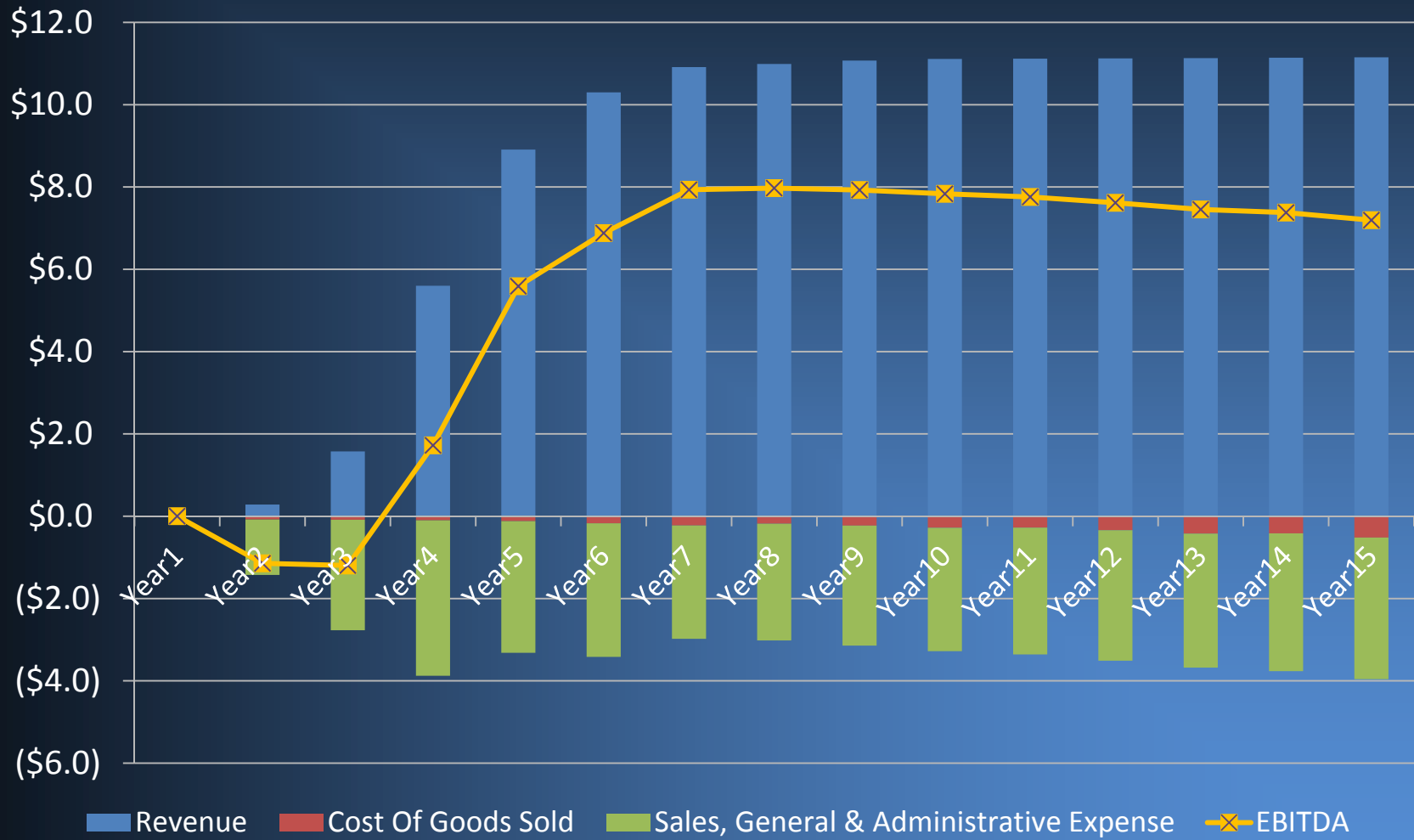
CAPITAL EXPENDITURES – FIRST FIVE YEARS

Five Year Capex = \$37.2M



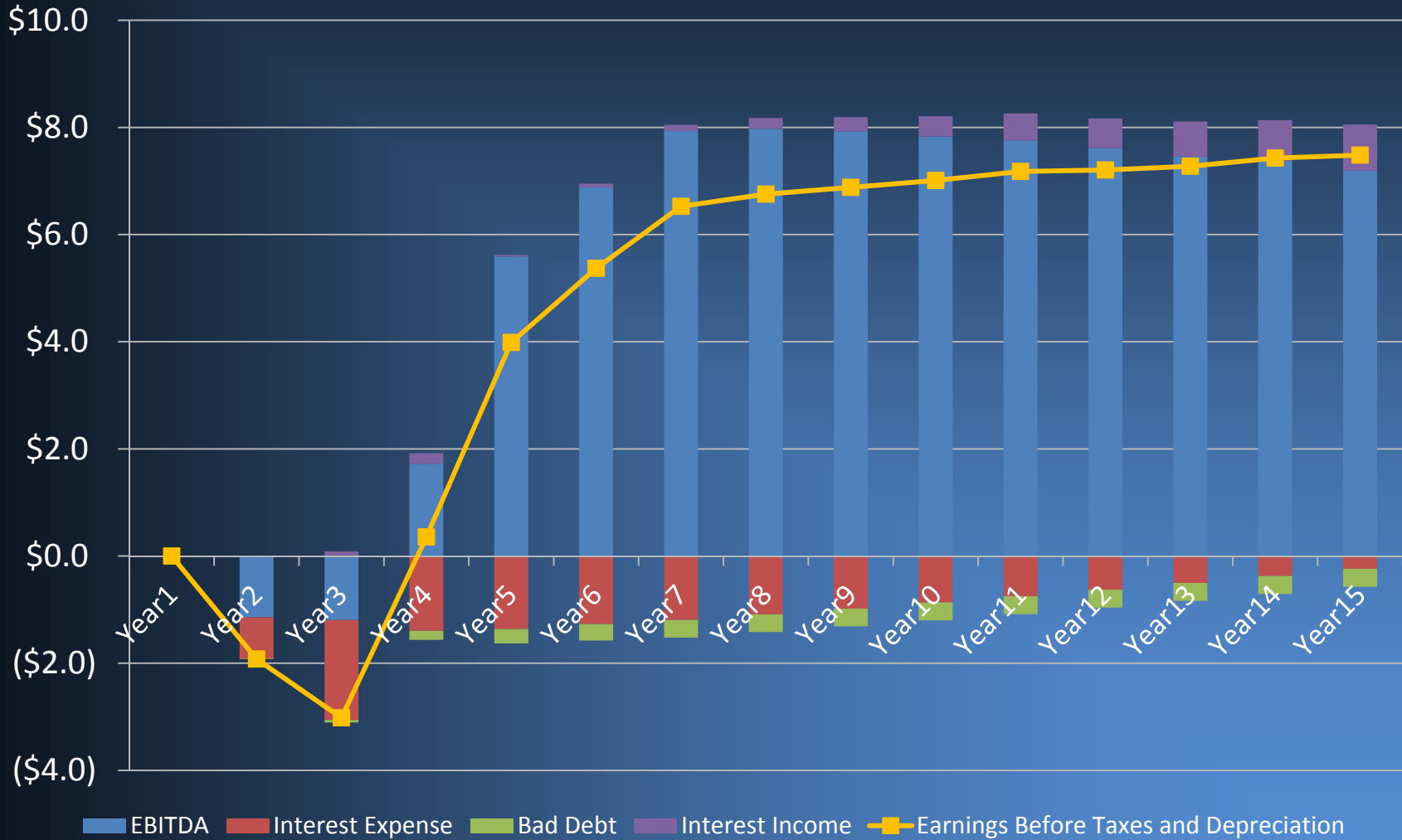


OPERATING INCOME (\$M)





EARNINGS BEFORE TAXES AND DEPRECIATION(\$M)





CASH FLOW WITH DEBT SERVICE (\$M)





NET CASH – CASH LESS DEBT & EQUITY (\$M)

