Community-Wide Fiber Discussion

(Phase 1 Analysis)

for

The City of Hudson

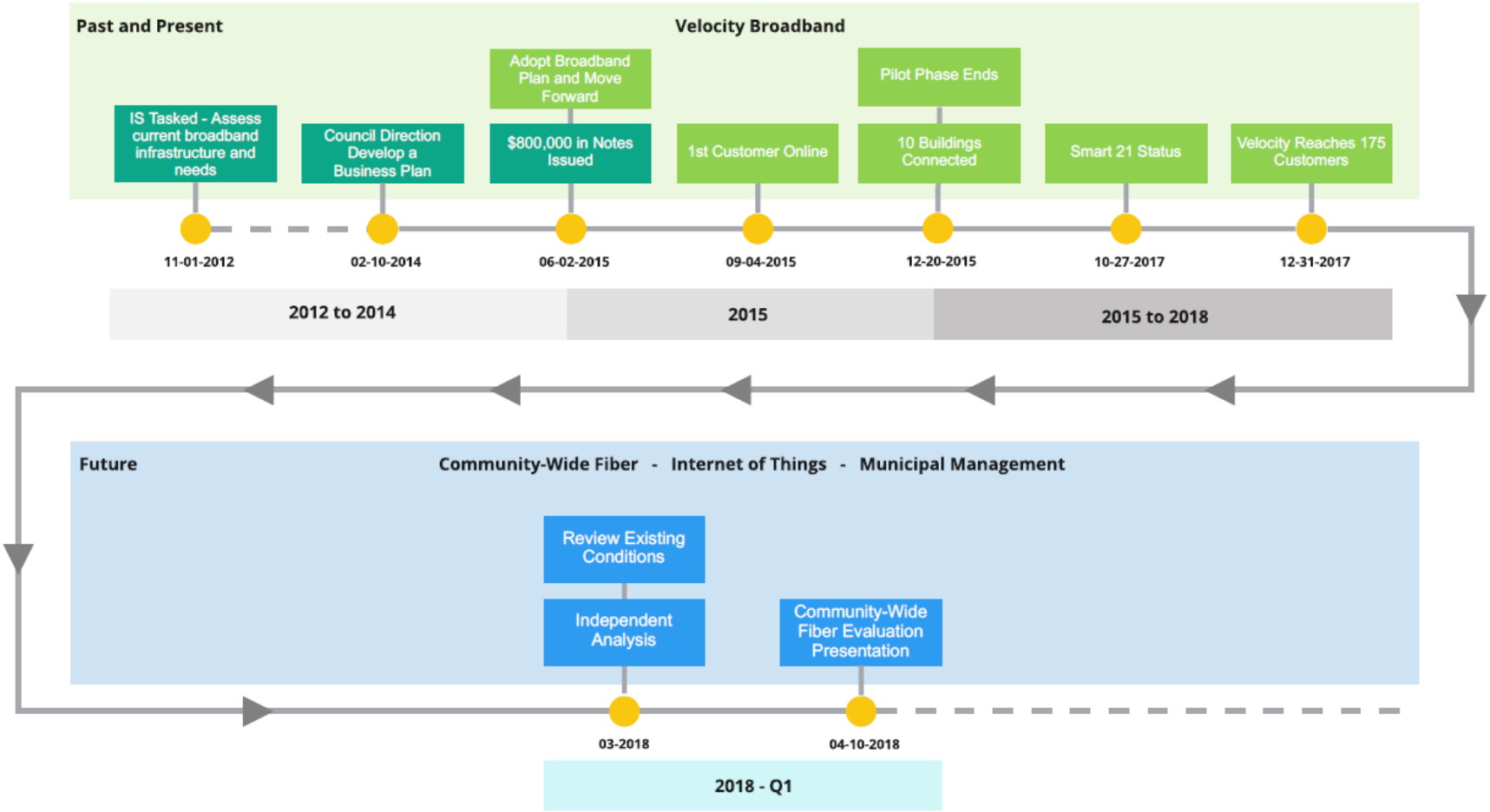
April, 10 2018

Uptown Services, LLC
Dave Stockton & Neil Shaw, Principals

AGENDA

1. Broadband History, Opportunity & Service Offering
2. Technology, Design, and Capital Budget
   - Architecture
   - Sample designs
   - Network Cost
3. Pro Forma Financial Analysis
   - Revenue, Opex, and Capex
   - Baseline 20 year pro forma results
4. Next Step - Market Research
   - Quantitative market research
   - Demand estimation

Hudson's Broadband History



UPTOWN SERVICES, LLC

THE OPPORTUNITY

- The Network: Expand to a Community–wide, 100% fiber data and voice network serving all Hudson businesses, homes, schools, and city operations

- Community Value: Dramatic improvement in quality and price of residential broadband
  - Speeds of 1G, 2G, and 4G
  - Pricing as low as $30/mo. for 1G residential Internet

- Project Timing: Build would commence in late 2018 with a goal of substantial completion by end of 2020

BASE MODEL NON-BUSINESS INTERNET OFFER

	Download	Upload	Price	Technology
Spectrum	60M 100M 120M	5M 10M 10M	$64.99 $79.95 $94.95	Cable Modem
Windstream	3M – 100M*	-	$39.99 - $69.99	DSL
Hudson Community-Wide Fiber VELOCITY	1Gb 2Gb 4Gb	1Gb 2Gb 4Gb	Early Adopter - $30 ($40) $50 ($70) $70 ($100)	FIBER OPTIC

Prices reflect subscription to Internet service at non-promotional rates. Windstream pricing per windstream.com and City staff knowledge. Spectrum pricing from 'Residential Broadband Services & Pricing' as of November 2017.

* DSL speed varies by CO distance

UPTOWN SERVICES, LLC

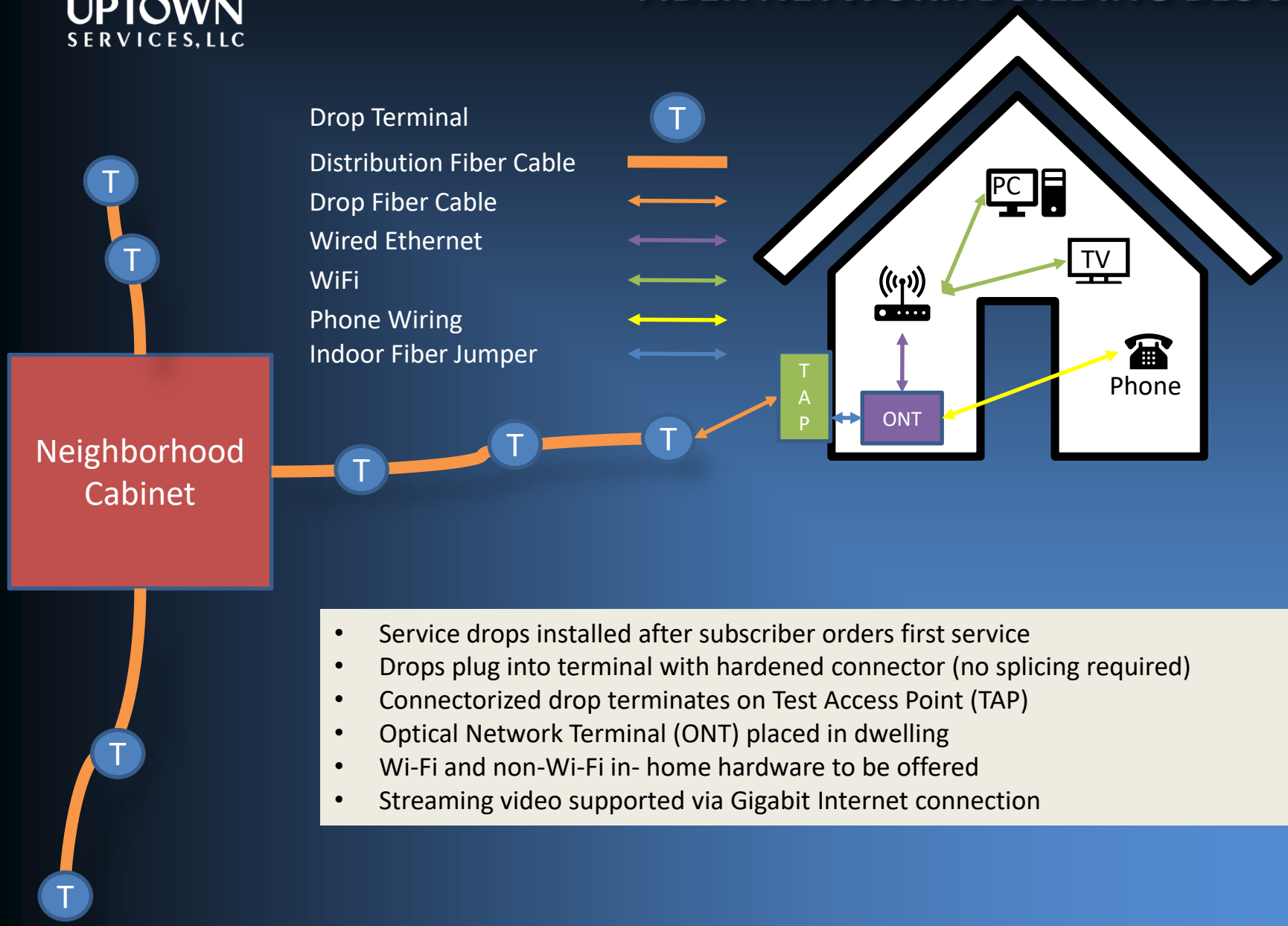
RESIDENTIAL VOICE SERVICES

		Windstream	Spectrum	Hudson Velocity
Packages	Voice Package with Features & Unlimited & LD	$44.99	$44.99	$35.00
Access Lines	Additional Line		$23.99**	$30.00

* Taxes are additional. ** Limited to one line.

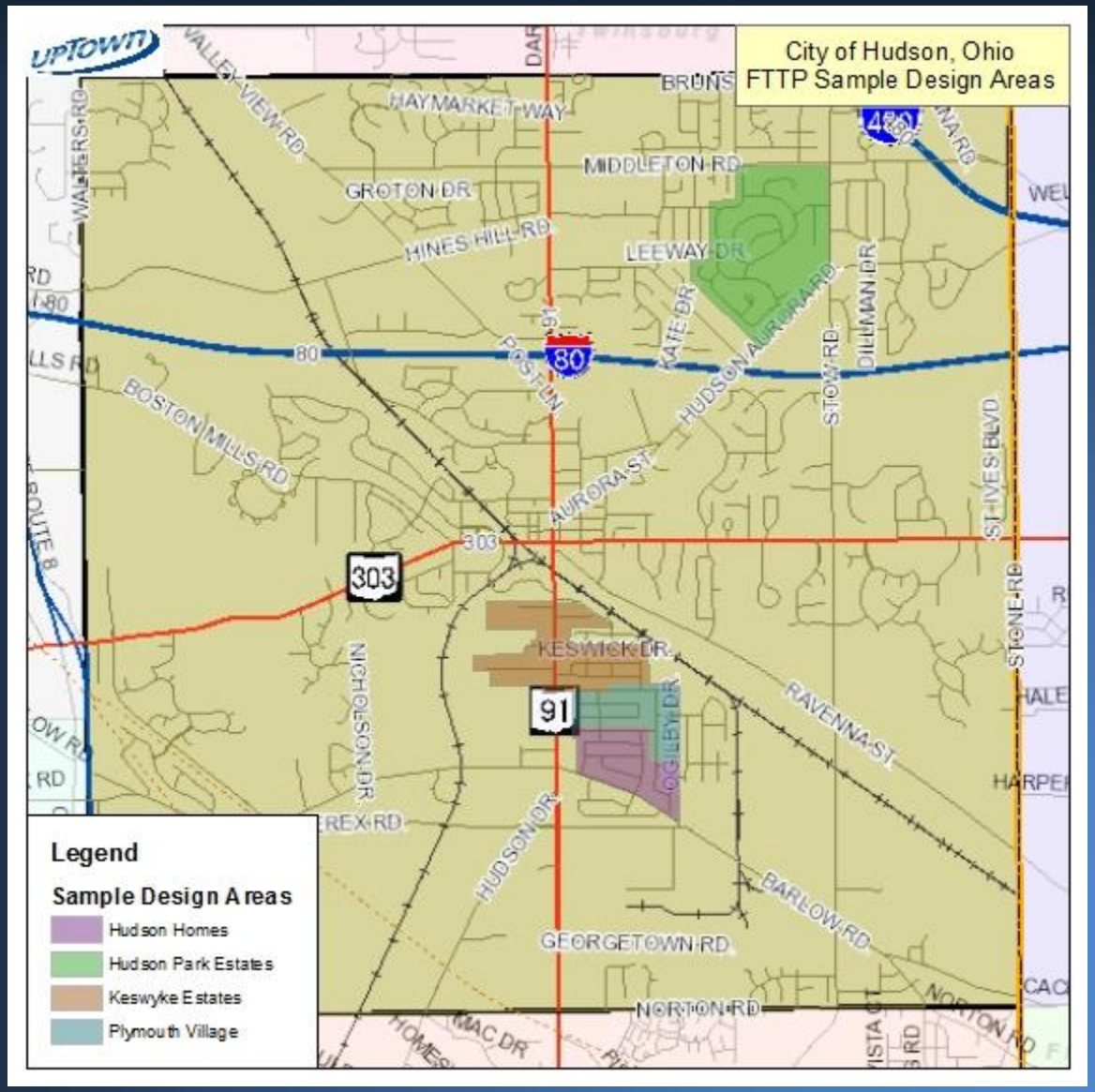
Building The Network

FIBER NETWORK BUILDING BLOCKS



- Service drops installed after subscriber orders first service
- Drops plug into terminal with hardened connector (no splicing required)
- Connectorized drop terminates on Test Access Point (TAP)
- Optical Network Terminal (ONT) placed in dwelling
- Wi-Fi and non-Wi-Fi in- home hardware to be offered
- Streaming video supported via Gigabit Internet connection

SAMPLE DESIGN AREAS



SAMPLE DESIGN SUMMARY

Sample Design Area	NewOH Miles	NewUG Miles	Passings	Passings per New Mile of Plant	Weight	Materials per Passing	Labor per Passing	Total per Passing
Keswyke Estates	3.8	-	216	56	29%	$190	$348	$537
Plymouth Village	-	2.7	179	66	24%	$300	$1,501	$1,801
Hudson Homes	-	3.0	194	65	24%	$314	$1,534	$1,847
Hudson Park Estates	-	6.0	367	61	23%	$313	$1,615	$1,928
Overall Weighted Average / Total			**956**	**N/A**	**100%**	**$275**	**$1,206**	**$1,481**

- Weighting based on estimated number of passings in each category
- Total plant mileage estimated to be 99.2 miles based on housing density
- Timeframe to build-out entire community = 24 months

The Cost

PROJECT FINANCING

- Financing Terms
  - A 10 year G. O. bond @ 4% rate repaid with a property tax levy
  - Issue includes $17.5M NEW BUILD, $3.4M to retire EXISTING notes, $100,000 issuance cost = $21M issue
  - Annual debt service paid through the tax levy
- Short term financing
  - Working capital in Years 1-3 funded via General Fund contribution totaling $2.5M
  - Repaid within 9 years
- Start-up period included as Year 1 of the business case
  - Only business internet and voice revenue assumed during first year
  - Residential Pilot underway at the end of 2018
- Other assumptions
  - Bad debt = 3% of gross revenues
  - Monthly service fees would pay for on-going operating costs

UPTOWN SERVICES, LLC

THE MATH

How much will Community-Wide Fiber cost and how will we pay for it?

Cost of Community-Wide Fiber

Additional New Build Cost	$17,500,000
Existing Commercial Build Cost	$3,400,000
Bond Issue Cost	$100,000
Total Community-Wide Build Cost	**$21,000,000**

Bond Information

Principal	$21,000,000
Term	10 Years
Rate	4.0%
Annual Principal & Interest	**$2,589,110**

Property Tax Levy

Hudson Assessed Property Value	$984,741,130
Mills Needed	2.7
Revenue Generated	**$2,658,801**

UPTOWN SERVICES, LLC

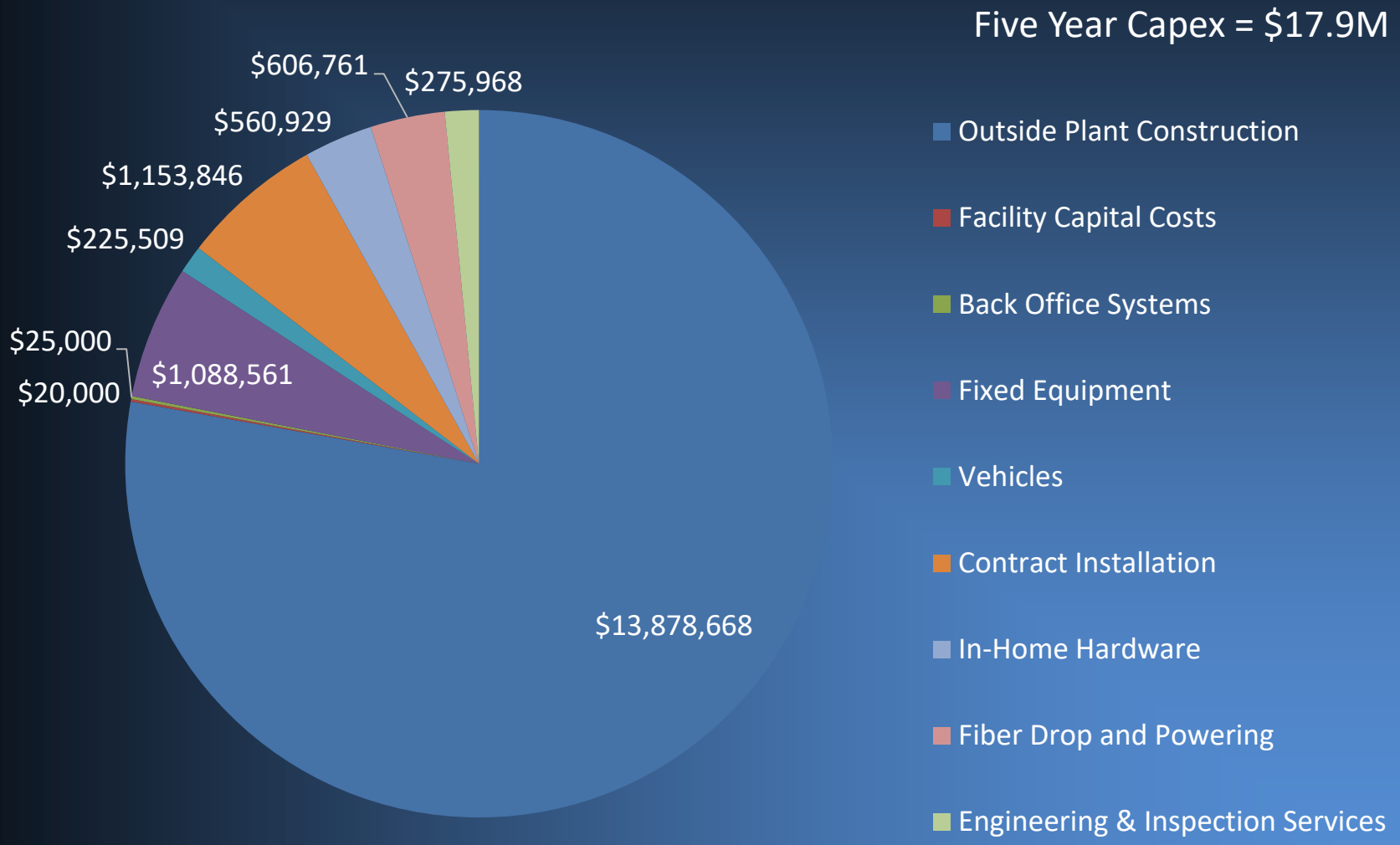
HOMEOWNER MATH

Community-Wide Fiber - Cost to the homeowner?

Monthly Cost of Levy per $100,000 of Appraised Value	**$7.88**
Cost of Levy & Service to Residents with $324,600 Home (median value)	
1 Gig Monthly Service	$30.00
Monthly Levy Cost	$25.56
Total Monthly Cost	**$55.56**

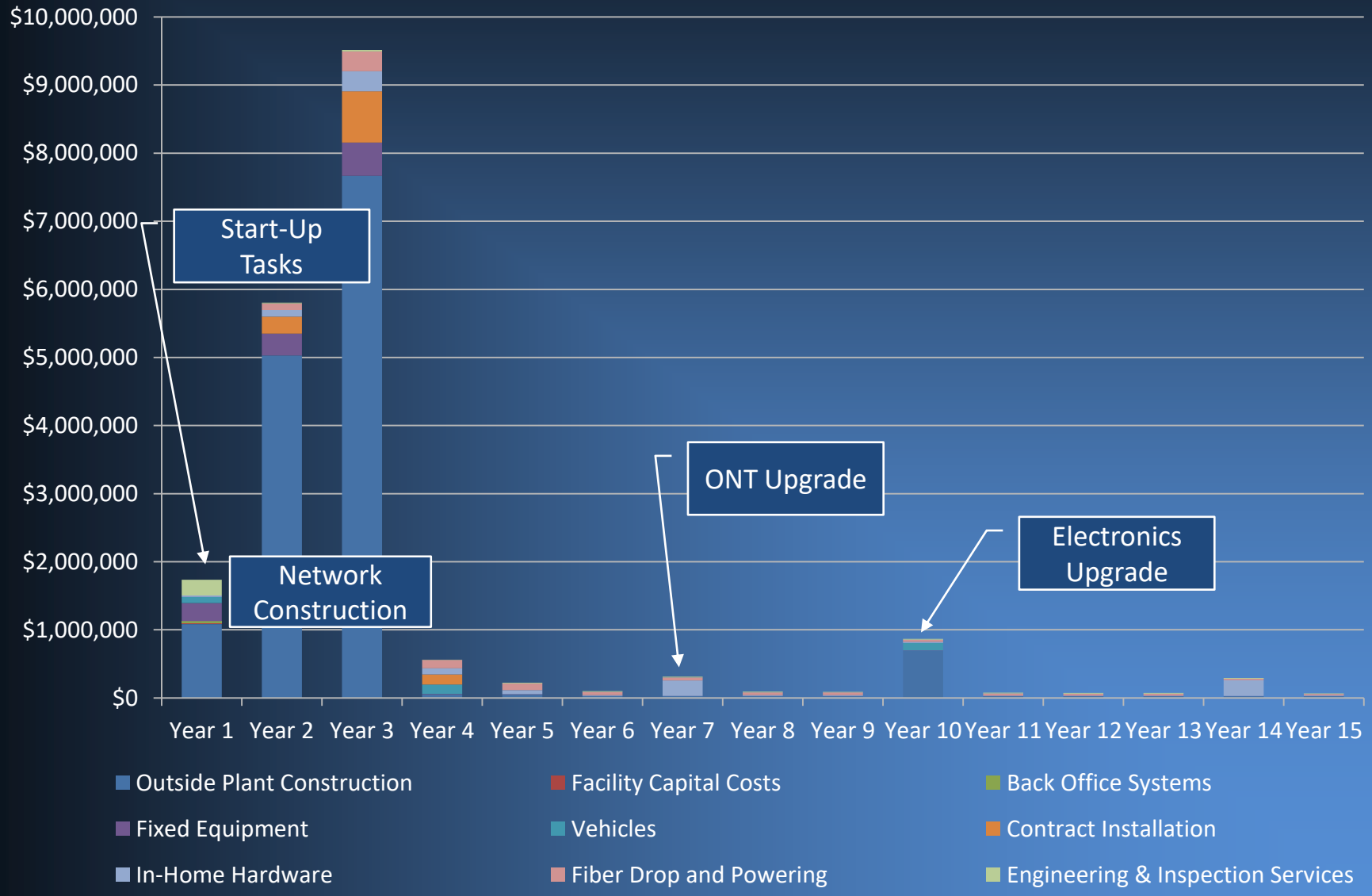
Capital Budget

BASELINE CAPEX – YEARS 1-5



UPTOWN SERVICES, LLC

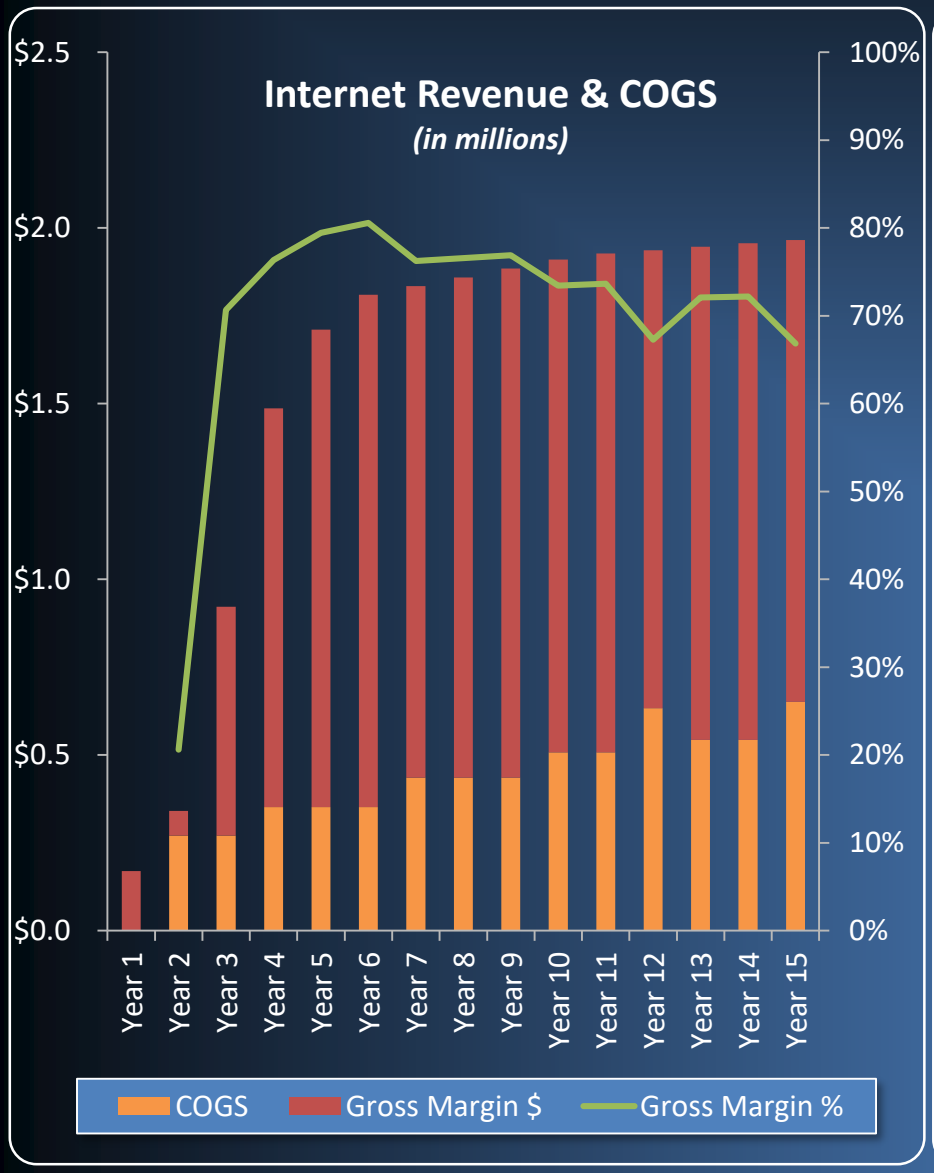
BASELINE CAPEX BY YEAR

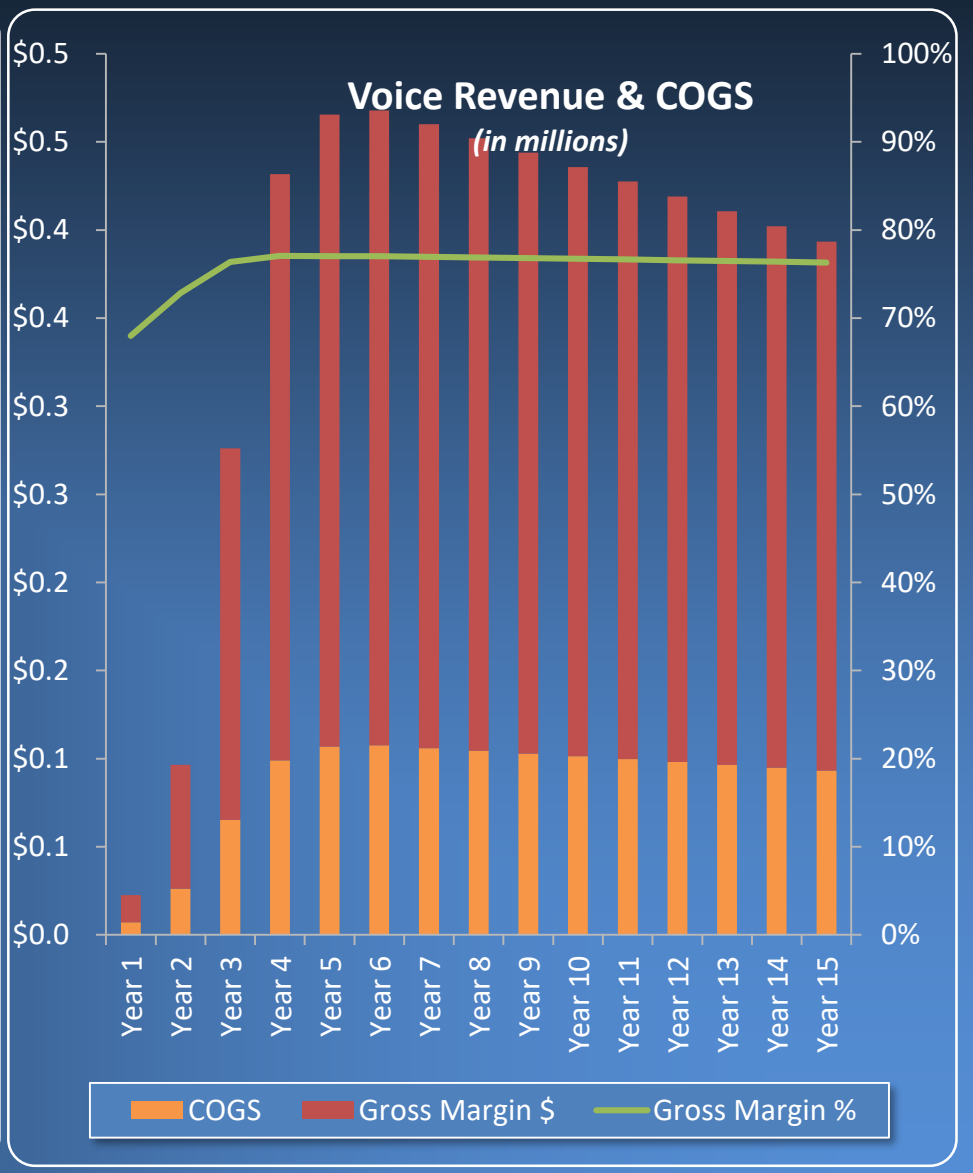


Operating Budget

UPTOWN SERVICES, LLC

COST OF GOODS SOLD & GROSS MARGIN



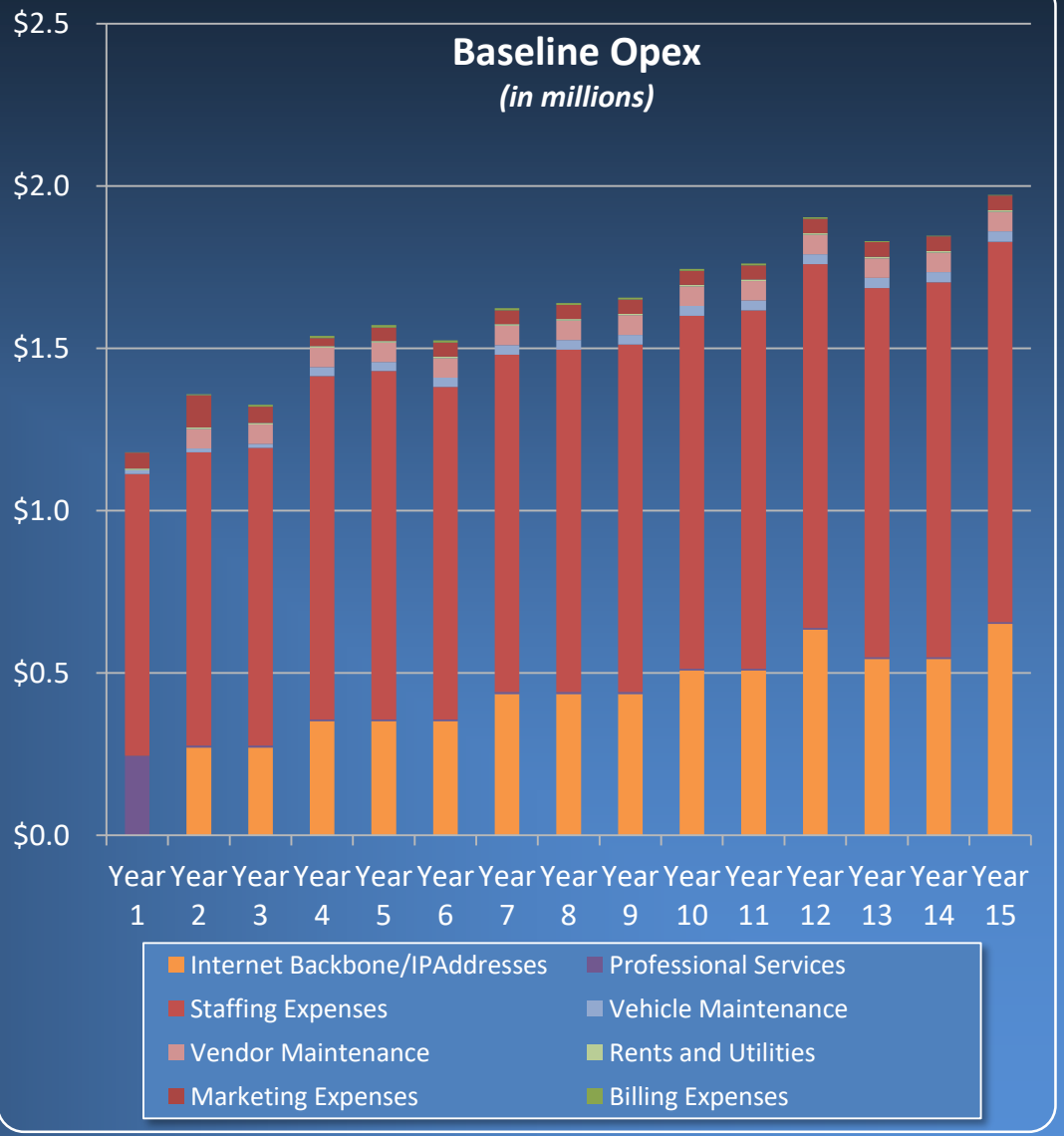


UPTOWN SERVICES, LLC

OPERATING EXPENSE

KEY INPUTS

- Bandwidth/IP Addresses
  - Fees and usage per detail slide
- Staffing
  - Headcount per detail slide
  - 1.5% annual wage increase
  - 51% benefits loading
- Vehicle Maintenance
  - 10k miles annually per vehicle
  - $.75/mile growing at 1.5%
- Professional Services
  - Implementation Support: $240k
  - Legal/Acct: $5k/year
- Other Opex
  - Vendor maintenance of $60k/year for OSS/BSS and FTTP electronics
  - Utilities: $4.8k/year
- Marketing
  - Year 1: $50k
  - Year 2: $100k
  - Year 3: $50k
  - Year 4: $25k
  - Year 5+: 1% of revenues
- Billing
  - 80% of residential and 50% of commercial using paperless billing
  - Paper bill cost of $.75/each/month and growing 3% annually



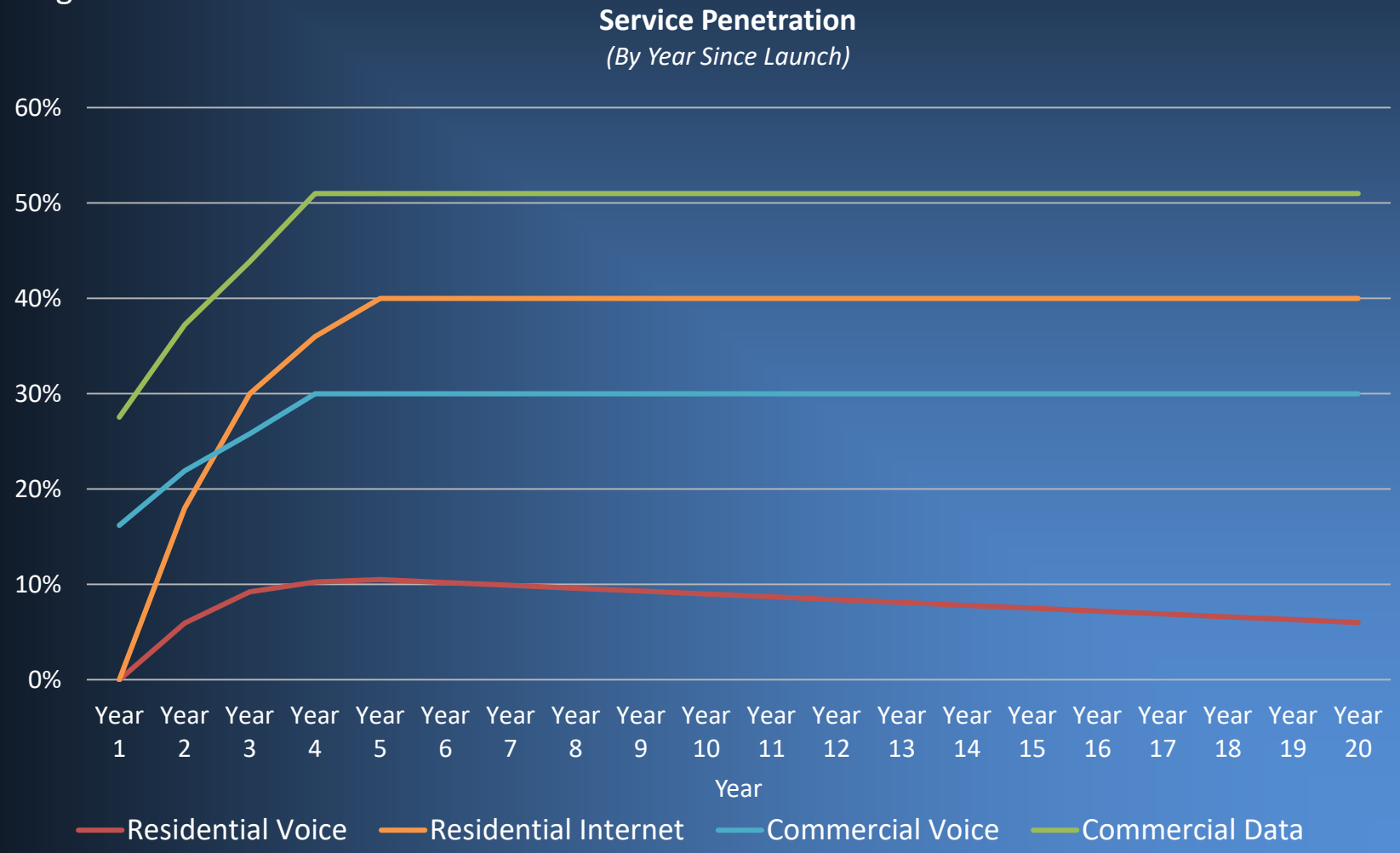
STAFFING – FTE'S REQUIRED

Position Title	Salary (unloaded)	Year1	Year2	Year3	Year4	Year5	Year6	Year7
System GM	$90,000	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Marketing Coordinator	$30,000	0.5	1.0	1.0	1.0	1.0	1.0	1.0
Comm. Acct Rep	$70,000	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Network Engineer	$70,000	1.0	1.0	1.0	1.0	1.0	1.0	1.0
CSRs	$40,000	3.0	3.0	3.0	3.0	3.0	3.0	3.0
TSRs	$50,000	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Install Techs	$40,000	-	-	-	2.0	2.0	1.0	1.0
Maintenance Techs	$65,000	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Service Techs	$45,000	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Total Headcount		**10.5**	**11.0**	**11.0**	**13.0**	**13.0**	**12.0**	**12.0**

Revenue Forecast

PENETRATION FORECAST

- Pro forma take-rate projections are estimated in Phase 1 (to be refined by quantitative market research) and reflect ongoing phone and streaming video substitution within the residential segment…

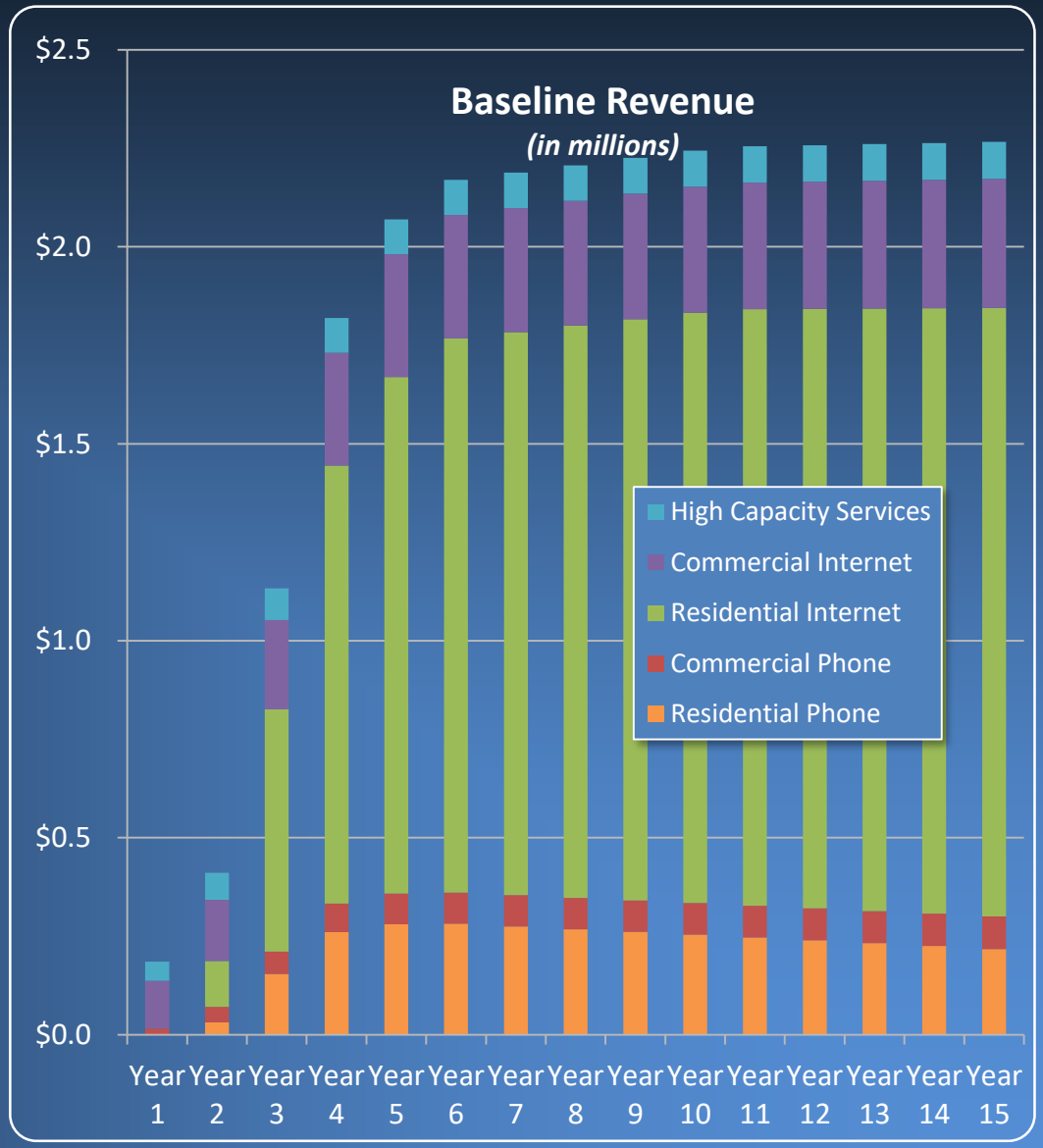


UPTOWN SERVICES, LLC

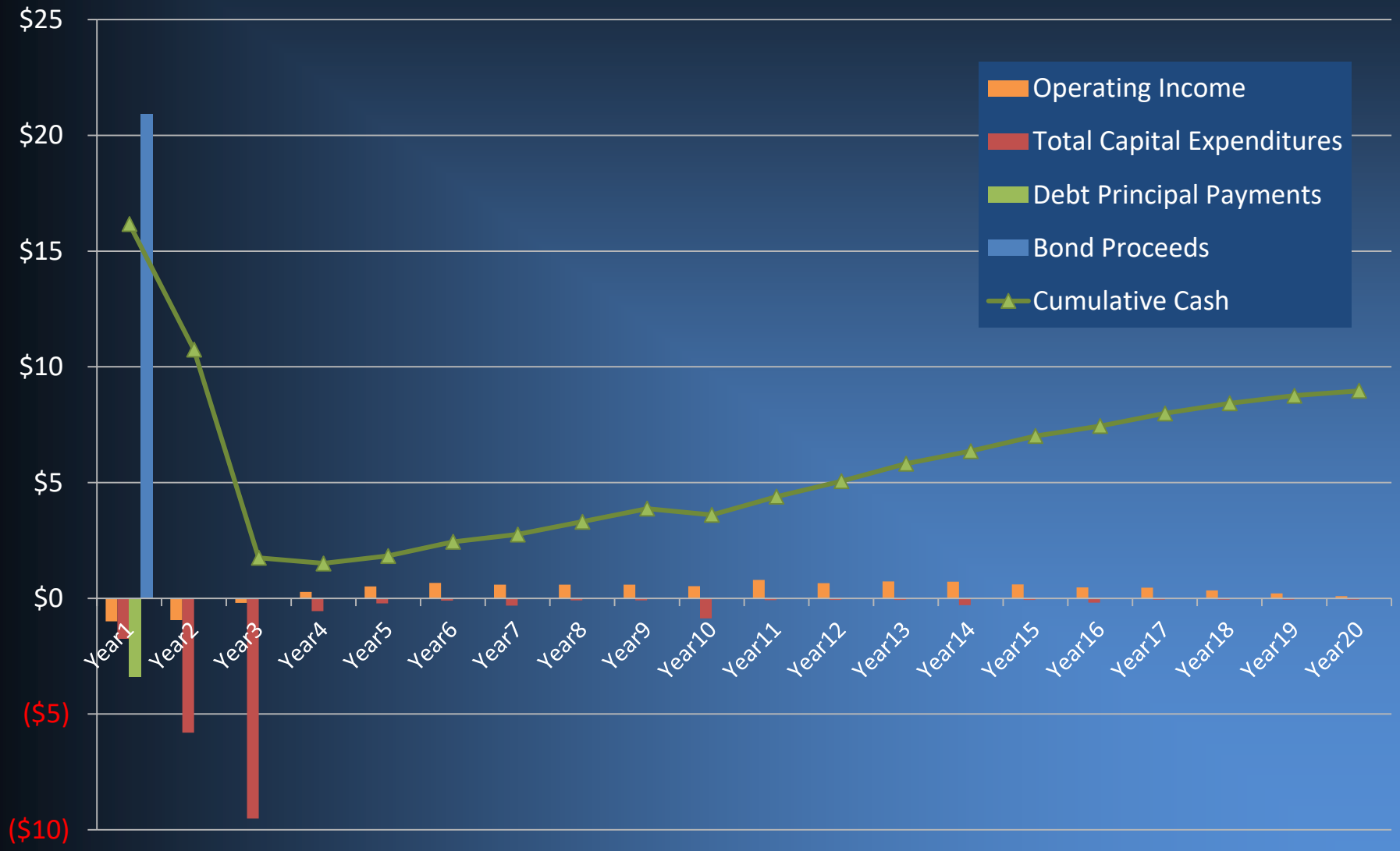
REVENUES

KEY INPUTS

- Premises
  - Residential: 7,761
  - Commercial: 650
  - Household Growth: 1.0%
  - Commercial Growth: 1.0%
  - % Complex: 2.5% of commercial
- Year 5 Penetration
  - Internet: 40%
  - Voice (eroded): 10.5%
- Residential Internet
  - 1Gbps Tier: $30
  - 2Gbps Tier: $50
  - 4Gbps Tier: $70
  - WiFi: Included
- Commercial Internet
  - 100Mbps Tier: $59
  - 250Mbps Tier: $99
  - 500Mbps Tier: $249
  - 1Gbps Tier: $399
  - WiFi: Included
- Voice
  - Residential: $28 net wholesale
  - Commercial: $17 net per line
- Install Fees
  - Residential: $0
  - Commercial: $0



UNLEVERED KEY FINANCIAL METRICS ($M)



Summary/Next Steps

FINDINGS & NEXT STEPS

- Expansion to a Community-wide Fiber System appears feasible under reasonable market penetration estimates
  - Requires bond proceeds of $20.9M to initially fund the expansion and retire debt
  - General Fund working capital totaling $2.5M over Years 1-3
  - Positive operating income in Year 4
  - Debt service paid via property tax levy
- Phase 2- Market Research is next step
  - Quantitative phone survey to refine penetration estimates for voice and data
  - Pro forma sensitivity analysis
  - Confirm financing terms and service fees (City staff)

UPTOWN SERVICES, LLC

APPENDIX

UPTOWN SERVICES, LLC

ABOUT UPTOWN

- 19 Years of Municipal Broadband Consulting
  - Former telecom/cable executives (Neil has 31 years industry experience and Dave has 33)
  - 9 fulltime employees
  - 90 clients ranging from 3,000 to 250,000 household–size markets
  - Over 40 broadband feasibility studies since 1999
  - 12 fiber design projects totaling 3,000 fiber outside plant miles
  - Our studies have secured $390M in funding for municipal fiber deployments
- Implementation Consultant on 6 Fiber System Start-Ups
  - Sallisaw, OK; Morristown, TN; Pulaski, TN; Tullahoma, TN; Wilson, NC; Longmont, CO
  - Beverly Hills, CA in 3rd quarter 2018
  - These projects provide an invaluable feedback loop for our feasibility studies
- Consulting Approach
  - Fee-only firm providing unbiased direction and advice to clients
  - Data-driven guidance based on financial analysis versus conceptual preference
  - Detailed understanding of technology and operating requirements

UPTOWN SERVICES, LLC

CLIENTS

Silicon Valley Power – City of Santa Clara, California
Traverse City Light & Power, Michigan
Concord Municipal Light Plant, Massachusetts
Belmont Municipal Light Department, Massachusetts
Taunton Municipal Light Plant, Massachusetts
City of Palo Alto Utilities, California
City of Pasadena, California
City of St. George, Utah
Spanish Fork City, Utah
City of Longmont, Colorado
City of Corona, California
Fairhope, Alabama
Riviera Utilities, Alabama
Westfield Gas & Electric Light Department, Massachusetts
City of Franklin, Virginia
Milton-Freewater, Oregon
City of Sallisaw, Oklahoma
Alameda Power & Telecom, California
City of Hamilton and Butler County, Ohio
Los Alamos County, New Mexico
City of Valdosta, Georgia
City of Oconomowoc, Wisconsin
Benton PUD, Washington
City of Dover, Ohio
City of Holland, Michigan
Lenoir City, Tennessee
City of Cuyahoga Falls, Ohio
Bristol Tennessee Essential Services, Tennessee
Morristown Utility Systems, Tennessee
Morrisville Water and Light Department, Vermont
City of Chanute, Kansas
City of Salisbury, North Carolina
City of Wilson, North Carolina
Pulaski Electric Services, Tennessee
City of Poteau, Oklahoma
Tullahoma Utilities Board, Tennessee
Russellville Electric Plant Board, Kentucky
Cleveland Utilities, Tennessee
Trinity Public Utilities District, California
Paducah Power Systems, Kentucky
The City of Portland, Oregon
Electric Power Board of Chattanooga, Tennessee
Tennessee Valley Authority
Nash County, North Carolina
Cedar Falls Utilities, Iowa
Fayetteville Public Utilities, Tennessee
Jackson Energy Authority, Tennessee
Kansas City Board of Public Utilities, Kansas
Town of Ludlow, Vermont
North Kansas City, Kansas
Omaha Public Power District, Nebraska
City of Opelika, Alabama
Princeton Electric Plant Board, Kentucky
City of Provo, Utah
City of Tipp City, Ohio
Truckee Donner Public Utility District, California
Murray Electric System, Kentucky
Mayfield Electric & Water Systems, Kentucky
Bowling Green Municipal Utilities, Kentucky
Lincoln Electric System, Nebraska
Hopkinsville Electric System, Kentucky
Village of Freeport, New York
City of Laurinburg, North Carolina
Chicopee Electric Light Department, Massachusetts
Glasgow Electric Plant Board, Kentucky
Kentucky Municipal Power Agency
Farmington Electric Utility System, New Mexico
Chelan County Public Utility District, Washington
City of Hartsville, South Carolina
Iowa Health Systems, Iowa
Marblehead Municipal Light District, Massachusetts
Shrewsbury Electric and Cable operations, Massachusetts
Bristol Virginia Utilities, Virginia
Columbia Power & Water System, Tennessee
Northeast Oklahoma Rural Electric Coop
Siloam Springs, Arkansas
MI Connect, North Carolina
Delta Montrose Electric Association
San Luis Valley Rural Electric Cooperative
Longmont Power & Communications
City of Fort Collins, Colorado
City of Beverly Hills, California
U.S. Department of Justice
City of Morganton, North Carolina
Mountain Parks Electric, Colorado
Estes Park, Colorado