



**Broadband Feasibility Study**  
for  
The City of Milwaukie, Oregon

August 2, 2022

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# STUDY OBJECTIVE & SCOPE

**OBJECTIVE:** *Identify and evaluate the financial feasibility of a range of options for the City to enhance the availability, affordability, reliability, and capacity of broadband infrastructure for residents and businesses...*

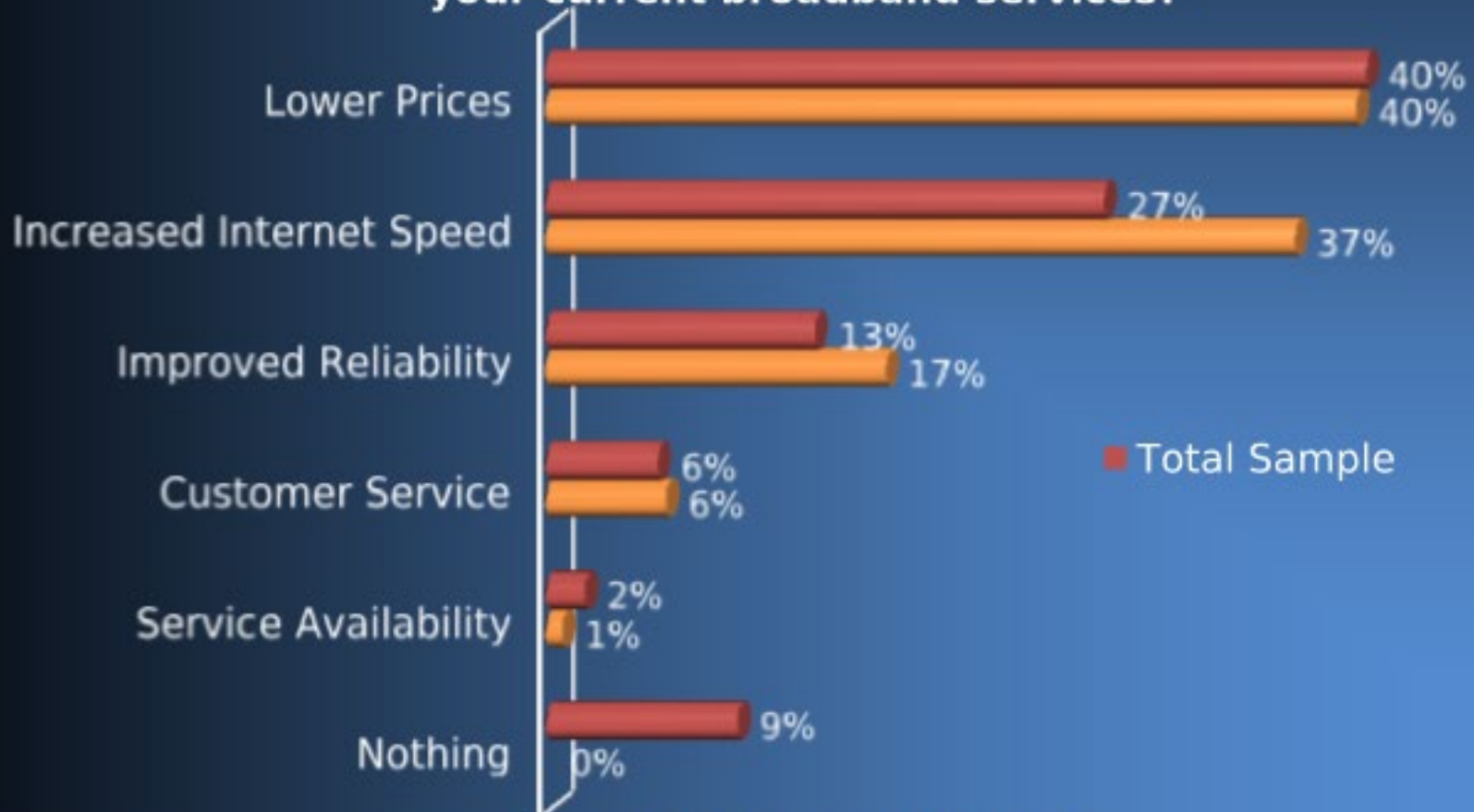
## **SCOPE:**

1. Evaluate Current Infrastructure
2. Evaluate City's Current Network
3. Local Market Assessment and Product Strategy
4. Market Research and Stakeholder Outreach
5. Potential Partnership Options
6. Map of Broadband Environment
7. Potential Business Models
8. Network Conceptual Design and Capital Budget
9. Pro Forma Financial Analysis
10. Financing and Funding Availability

# BROADBAND AREAS FOR IMPROVEMENT

Milwaukie residents see increased Internet speed and lower prices as the most important dimension for improving their broadband...

## Q33: "What would you like to see most improved from your current broadband services?"



# TESTED RESIDENTIAL INTERNET PRICE POINTS

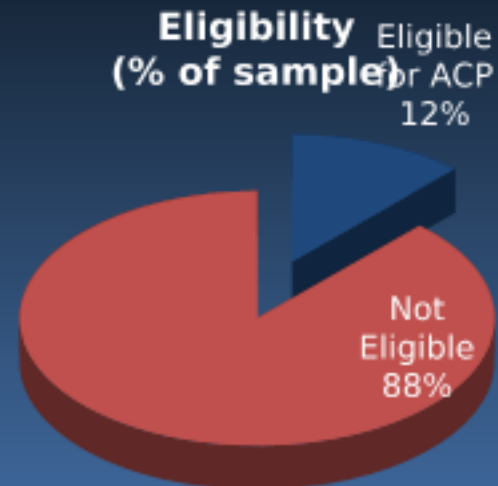
The quantitative survey evaluated household purchase intent taking into consideration a range of strategy options:

- Price elasticity of demand for 1G Internet tested at \$60 and \$70/month using a cell design so each participant was presented with one (Cell A = 370 sample and Cell B = 385 sample)
- ACP-eligible households were presented with 1G Internet including the \$30 ACP discount (still using the Cell A and B design)
- Multi-Gig tier options were presented to participants that stated they would 'definitely' or 'probably' subscribe to the 1G tier

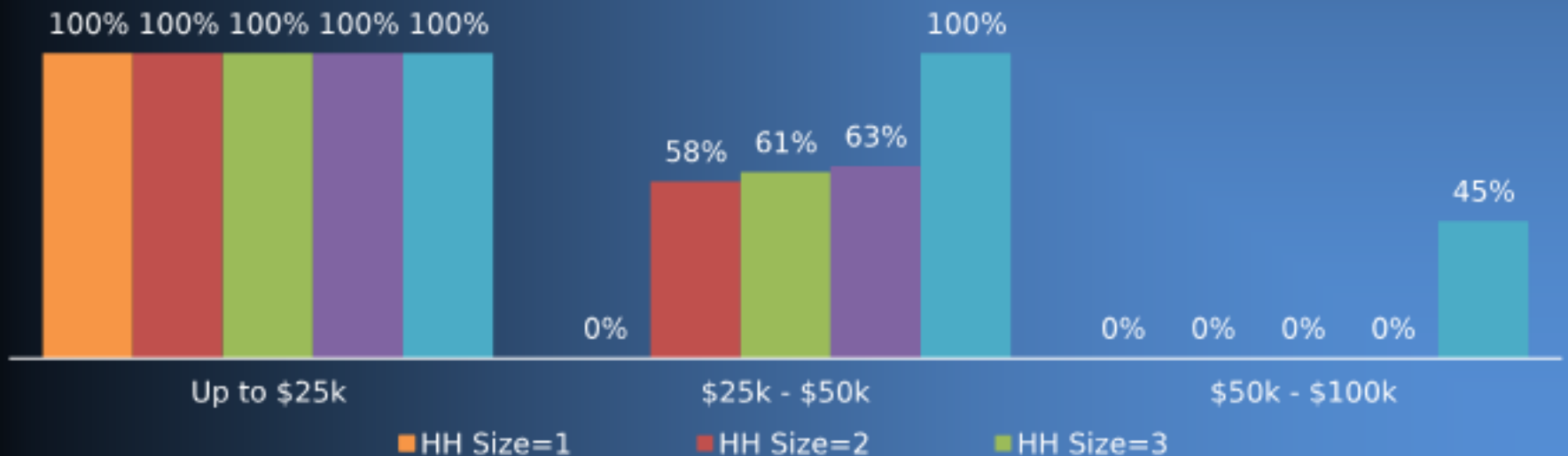
<b>Internet Tier Download / Upload</b>	<b>Monthly Price: Standard</b>	<b>Monthly Price: ACP Eligible</b>
<b>1G / 1G</b>	Cell A: \$60 Cell B: \$70	Cell A: \$30 Cell B: \$40
<b>2G / 2G</b>	\$100	\$60
<b>4G / 4G</b>	\$150	\$120

- " Eligibility set at 50% of Area Median Income currently used for Utility Assistance:
  - " HH of 1: Income up to \$33,850
  - " HH of 2: Income up to \$38,700
  - " HH of 3: Income up to \$43,550
  - " HH of 4: Income up to \$48,350
  - " HH of 5+: Income up to \$52,250

**Eligibility (% of sample)**



**Household (HH) Eligibility by Income Bracket and Size**  
*(as a % of survey sample)*

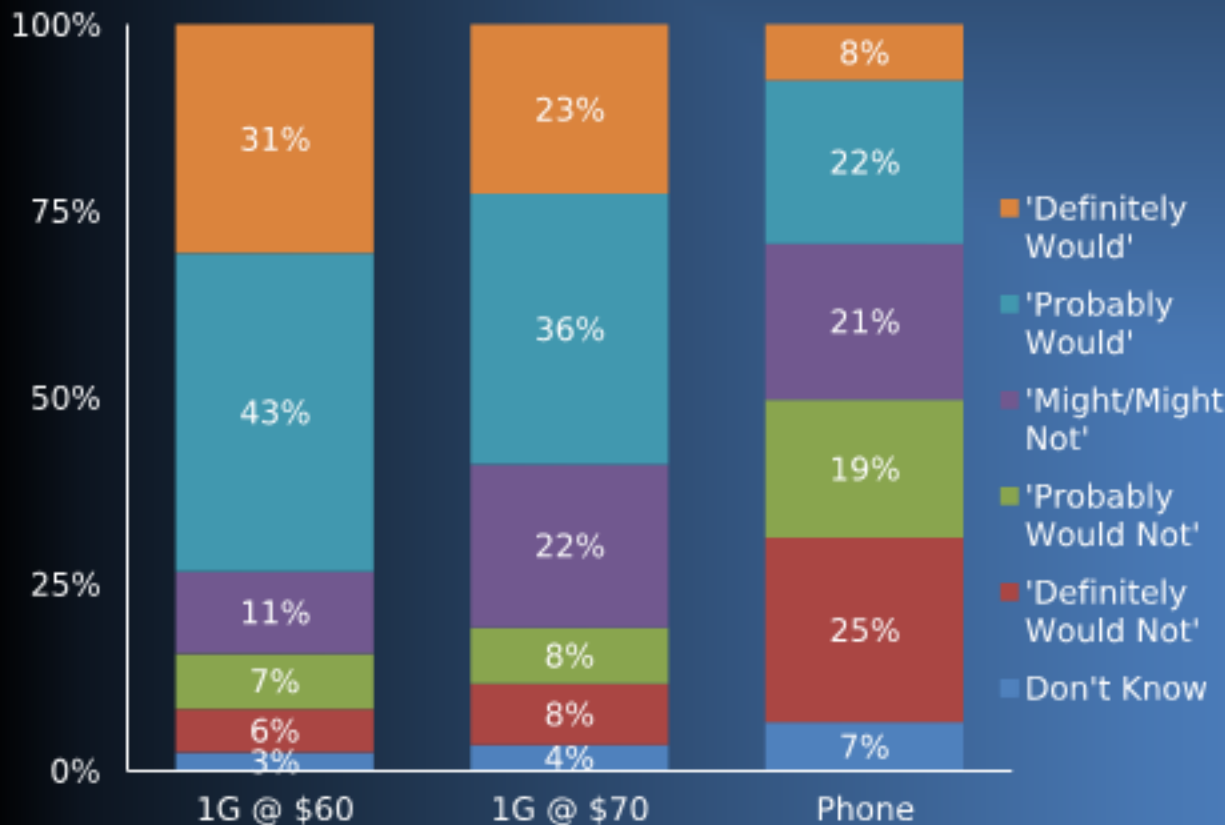


# PURCHASE INTENT: ENTIRE SAMPLE

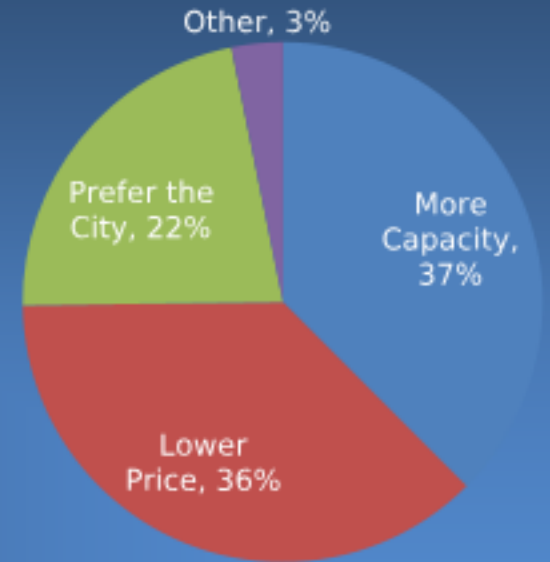
At a \$60 price for 1G, 74% of respondents indicated they would definitely or probably switch their Internet service to a fiber system installed by the City. This metric drops to 59% at the \$70 price point...

## Q26/Q27: Stated purchase intent for:

- Internet at \$60/mo. for 1Gbps
- Internet at \$70/mo. for 1Gbps
- Voice at \$35/mo.



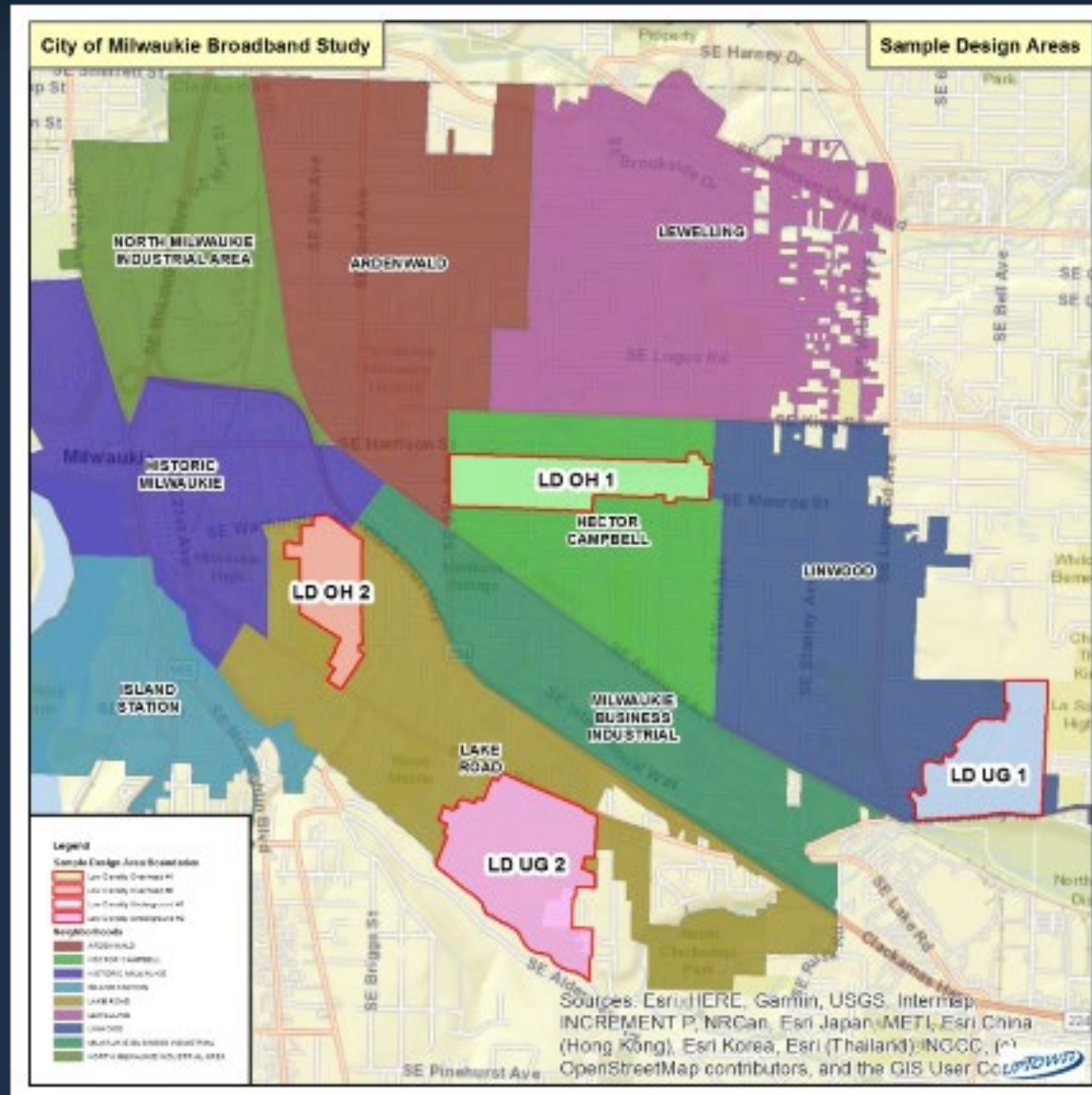
## Primary Reason to Switch (Definitely or Probably Response)



# SUMMARY OF RESIDENTIAL RESEARCH FINDINGS

- Overall, 93% of households use Internet at home with 84% using a wired connection. Comcast is the dominant provider
- Household income below \$25k reduces incidence of a wired Internet connection. For lower income households that do have Internet, subscribed speeds are significantly lower than higher income homes
- Internet and phone service satisfaction levels benchmark at average levels
- Improved Internet speed and lower prices are the predominant need for improvement with current Internet service
- 36% of households state their ideal Internet speed would be 1G or higher. This increases to 51% among those who would definitely subscribe.
- 50-55% of working-age households are working at home (WAH) at least part time, with expectations this will continue
- 12% of Milwaukie households would be eligible for the ACP program. These households currently are under-utilizing Internet capacity due to affordability issues but have higher incidence of WAH and online schooling than non-eligible households.
- Significant price elasticity with a forecasted take rate increase from 29% to 36% by lowering the 1G price from \$70 to \$60/month
- Strong interest in multi-Gig tiers at higher price points resulting in ARPU of >\$80
- The City is the preferred provider with the Comcast a close second

# SAMPLE DESIGN AREA OVERVIEW

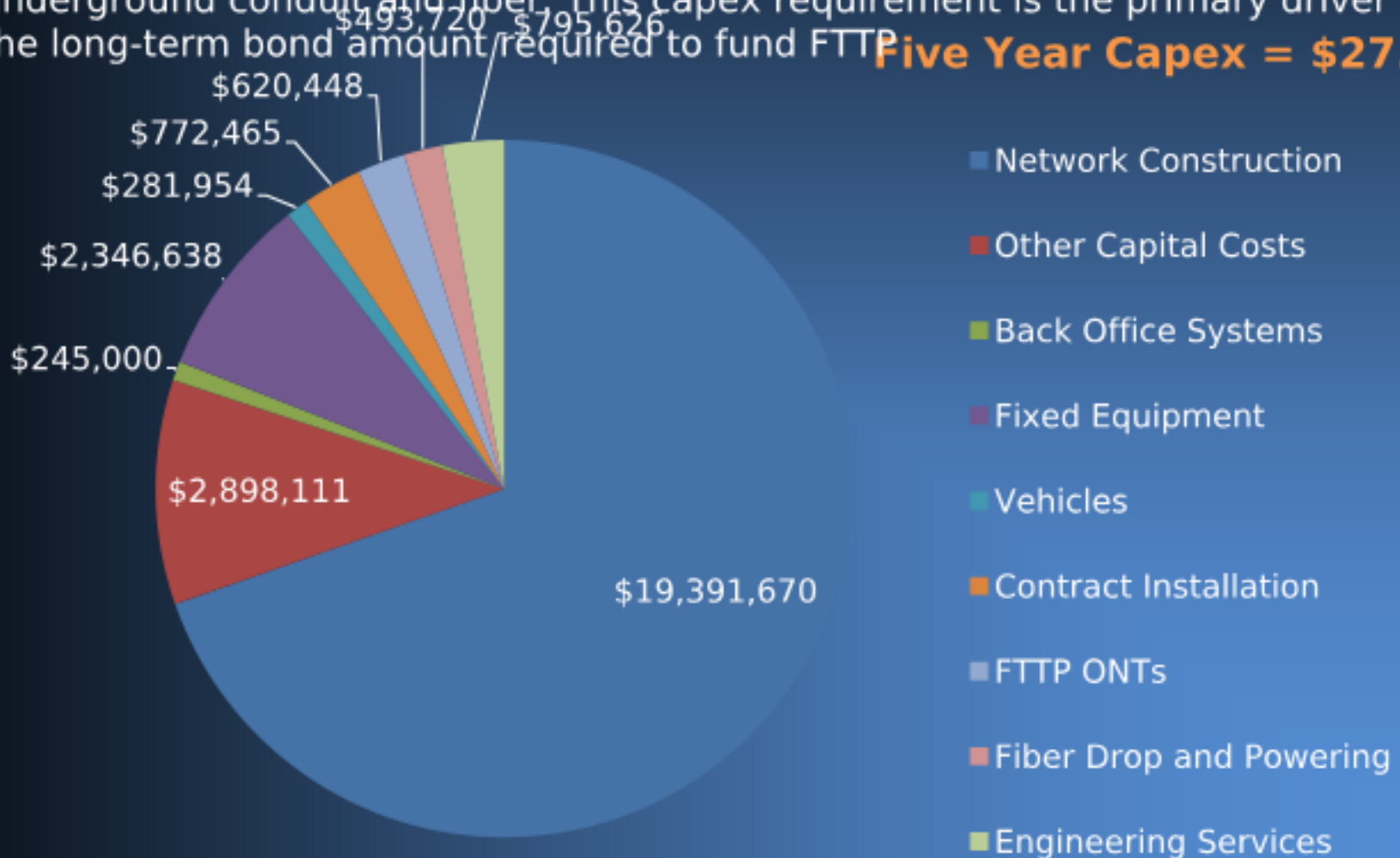






# CAPEX BY TYPE: YEARS 1-5

Fully two-thirds of the 5 year capex requirement is due to outside plant construction, primarily composed of the labor cost to install aerial and underground conduit and fiber. This capex requirement is the primary driver of the long-term bond amount required to fund FTTP. **Five Year Capex = \$27.8M**



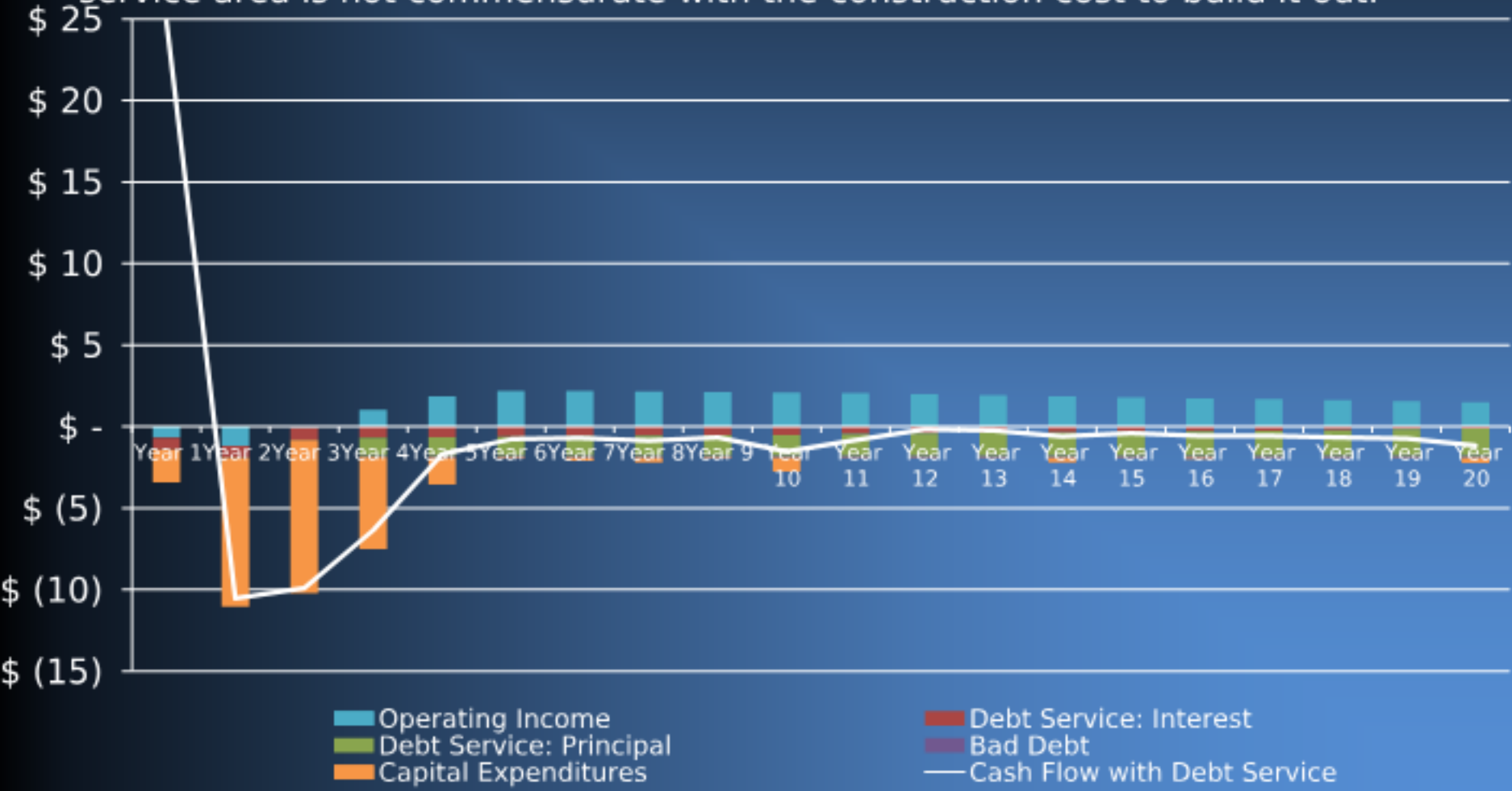


# RANGE OF BUSINESS MODELS

	WHOLESALE		RETAIL	
	Status Quo Dark Fiber	Public-Public or Public-Private Partnership*	Own & Operate with Operating Partner	Own & Operate
Ownership Role of City	City owns fiber backbone and funds fiber laterals via one-time connection fees	City funds capex for fiber build (FTTC) and owns backbone & distribution fiber	City funds capex for fiber build (FTTP), working capital, and <u>some</u> operating expenses	City funds capex for fiber build (FTTP), working capital, and <u>all</u> operating expenses
Operating Role of City	City constructs & maintains fiber plant (excluding electronics)	Partner is the service provider. City only co-brands & maintains fiber plant (excluding electronics)	City is service provider. Partner provides customer care, help desk, fiber maintenance/outage response, and network management/administration	City is service provider and provides all operating roles (excluding providing voice service)
Services Offered	Dark fiber transport to CAls, dark fiber transport to commercial accounts, and local loop ISP wholesale	Standard Internet and voice package offerings to the residential and commercial segments.		
Revenue	*Commonly abbreviated as PPP or 3P All revenue retained by City	All revenue retained by the Partner. City compensated with	All revenue retained by City. Partner compensated with	All revenue retained by City

# CASH FLOW AFTER DEBT SERVICE (\$M)

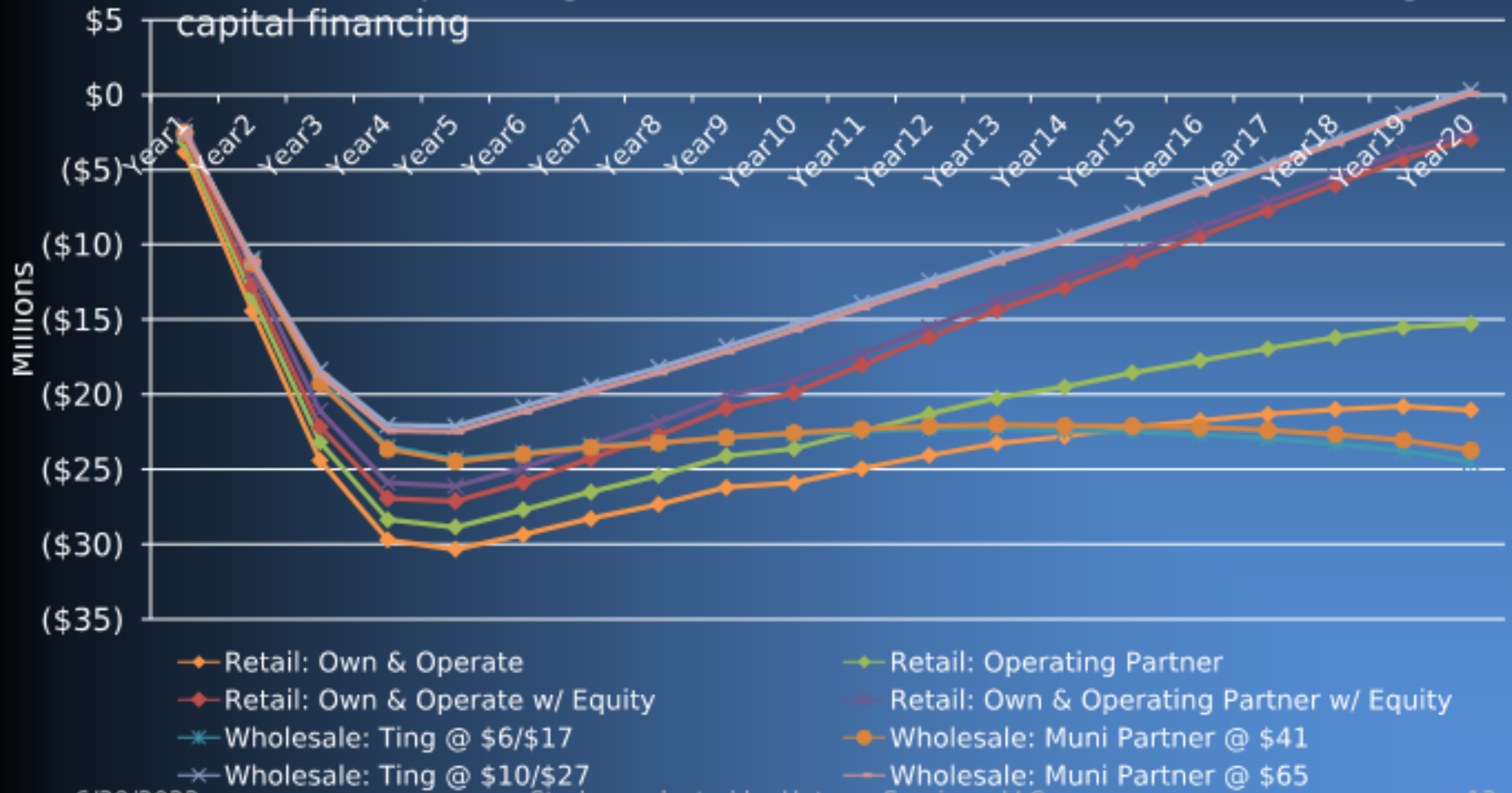
Over the 20 year forecast, operating income is not sufficient to service annual debt service, meaning that the revenue opportunity within the proposed service area is not commensurate with the construction cost to build it out.



# NET CASH: ALL MODELS

Due to a very high capex requirement, both business retail and wholesale business models require extraordinary funding measures to attain viability:

- Retail requires equity investment to reduced debt service costs
- Wholesale requires higher wholesale fees to avoid short term working capital financing



1. A last-mile build out of the proposed service area requires significant capital expense due to high cost-per-passing of  $\approx$ \$1,800. This is required across all business models.
2. A range of funding options were evaluated including contributed equity, long term debt (e.g. a 20 year bond), short term working capital loan, and wholesale fees. We note that federal infrastructure grant dollars, while significant and timely, are not likely to be obtained due to a lack of eligibility based on incumbent service offerings
3. Under both retail and wholesale business models, typical financing and partnership terms are insufficient to generate the cash flow to cover debt service and achieve financial self-sufficiency
4. To improve financial outcomes and reach feasibility, enhanced funding was evaluated to understand both the retail and wholesale terms revisions necessary:
  - 2 Retail Model: Equity funding of \$18.5M is required
  - 2 Wholesale Model: "Above-market" wholesale fees are required
5. Additionally, in an effort to understand the sensitivity of financial feasibility to key performance metrics, Uptown identified the feasibility threshold of the following variables:
  - 2 Services Pricing: Residential 1G would need to be increased from \$60 to \$90/month
  - 2 Construction Cost: The outside plant construction cost per passing would need to drop from \$1,800 to \$780
  - 2 Take Rate: The residential take rate would need to increase from 35.6% to 46.0%

# POTENTIAL NEXT STEPS & STUDY REFRESH TIMING

## Potential next steps:

- 2 Monitor state broadband office guidelines for BEAD grant eligibility
- 2 Monitor construction cost changes potentially driven by macroeconomic factors and grant funding winddown in 2026 and beyond
- 2 Explore operating partnership interest via RFI or direct negotiations
- 2 Explore wholesale partnership interest via RFI or direct negotiations

## Study Validity and Refresh Timeframes:

- 2 Market Research: Estimated at 2 years, or through 2023 as a common 'shelf-life' timeframe for mass market research
- 2 Supplier Side Factors: Estimated at 4 years, as that is the timeframe for grant-funded projects to complete construction, at which time the activity level would be expected to drop, and likely improve construction costs compared to today's environment