Community-Wide Fiber Discussion

(Market Research Analysis)

for

The City of Hudson

April 24, 2018

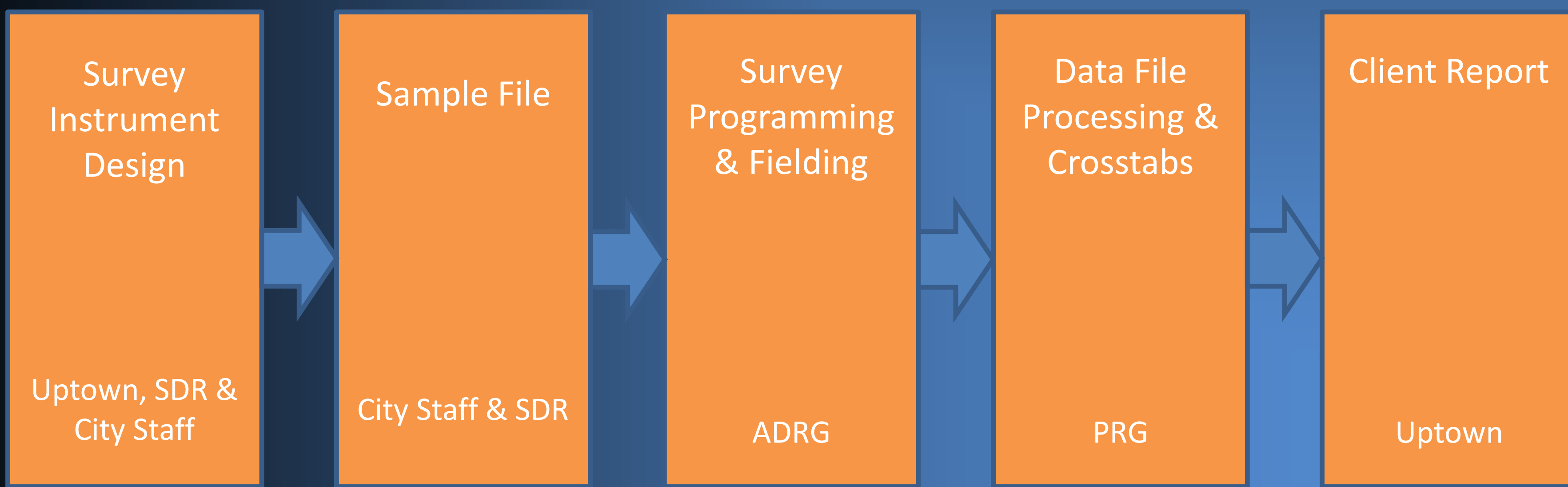
Uptown Services, LLC
Dave Stockton & Neil Shaw, Principals

DESIGN FRAMEWORK

- Phone survey to eliminate voluntary response bias
  - Total sample size of 400 respondents (± 4.8 sample error at 95% confidence interval)
  - List includes wireline and wireless numbers
- Age quotas used to ensure robust sample across all age groups. Results weighted to reflect actual age distribution from 2010 Census data
- Respondents screened to ensure
  - Decision-maker for telecommunications and entertainment services in the home
  - Reside within city limits
  - Respondents with immediate family members employed by any of the following were excluded:
    - The City of Hudson
    - Windstream
    - Spectrum

RESEARCH OVERSIGHT BY EXPERT FIRMS

- Research process utilized both subject matter and functional expertise across multiple contractors by specialty:
  - **Uptown Services**: Subject expertise and study data needs
  - **SDR Consulting (Rick Hunter)**: Research expert overseeing design and execution (23 years experience with 200k completed research projects)
  - **American Directions Research Group**: Survey fielding and data collection (7 US-based call centers with capacity to complete 85k person-hours of call interviews per month)
  - **Prairie Research Group (James Wolken)**: Crosstab analysis and production of output banners (25 years experience)

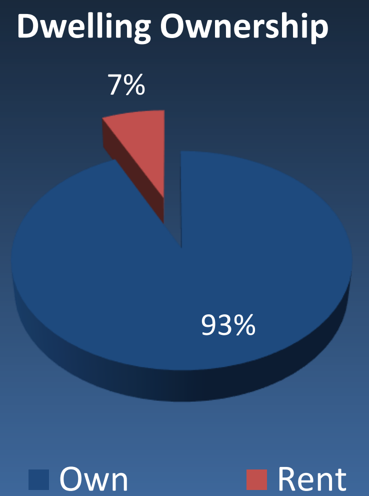


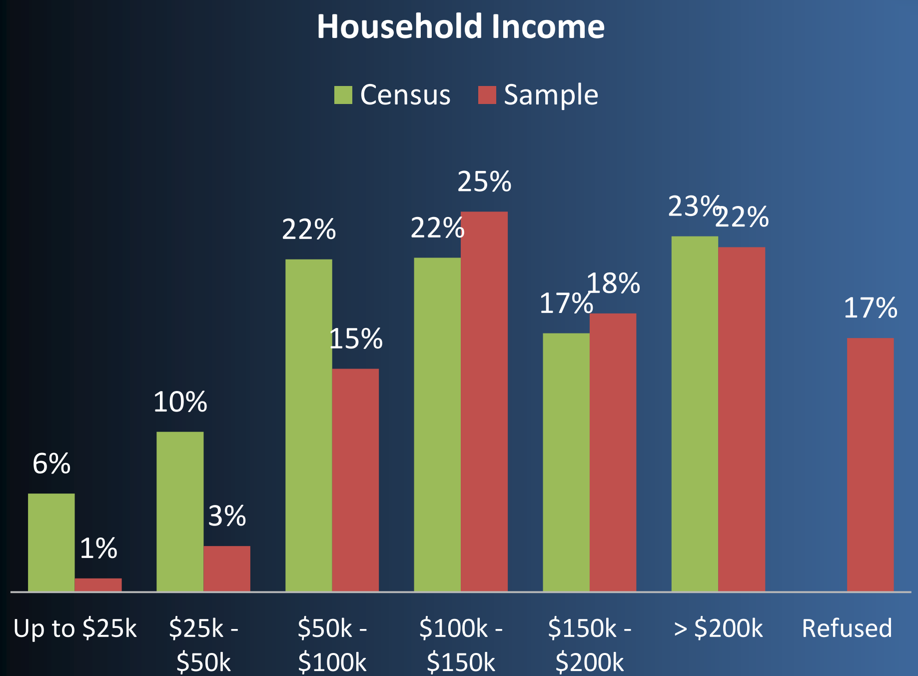
Community-Wide Quantitative Survey

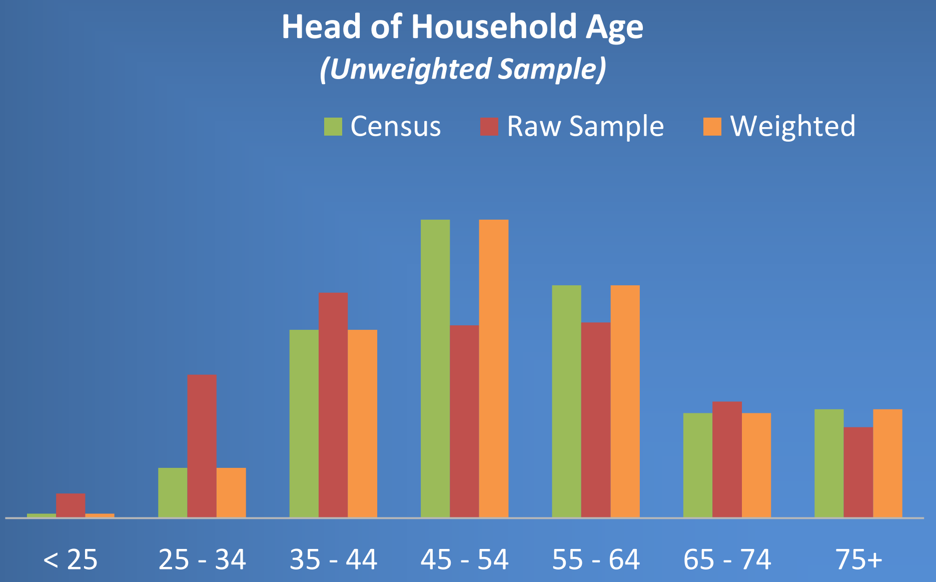
Current Broadband Services Usage

DEMOGRAPHICS: AGE & INCOME

- Survey results are weighted to reflect the actual age distribution (by age decile) per the 2010 Census of Hudson.

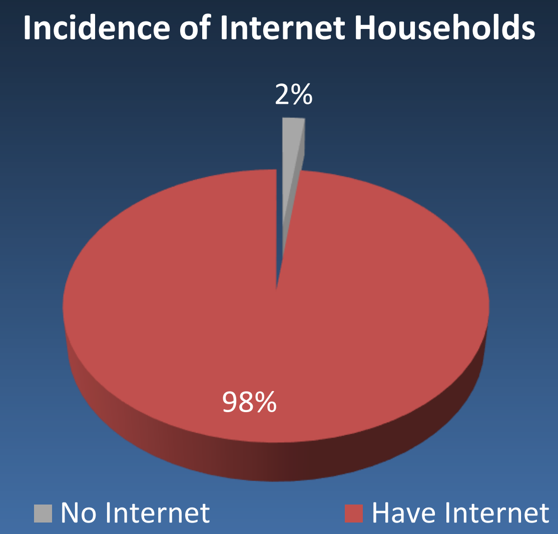


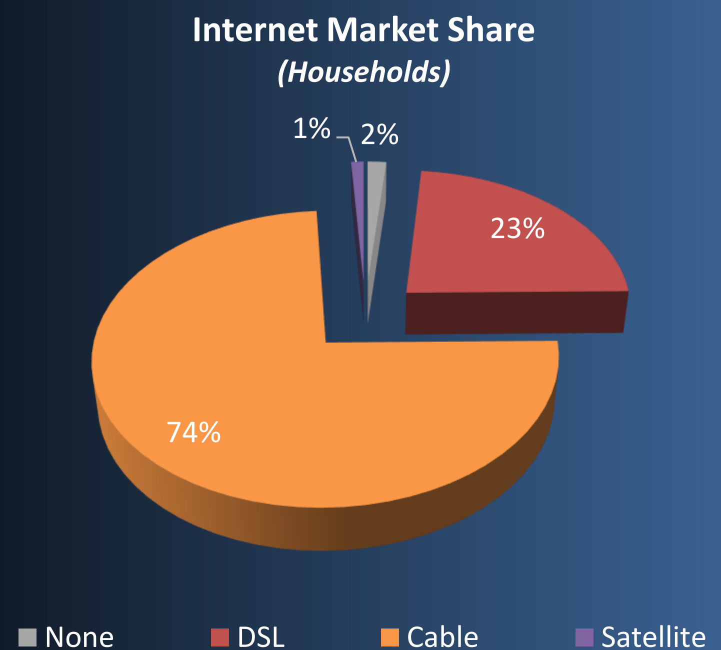


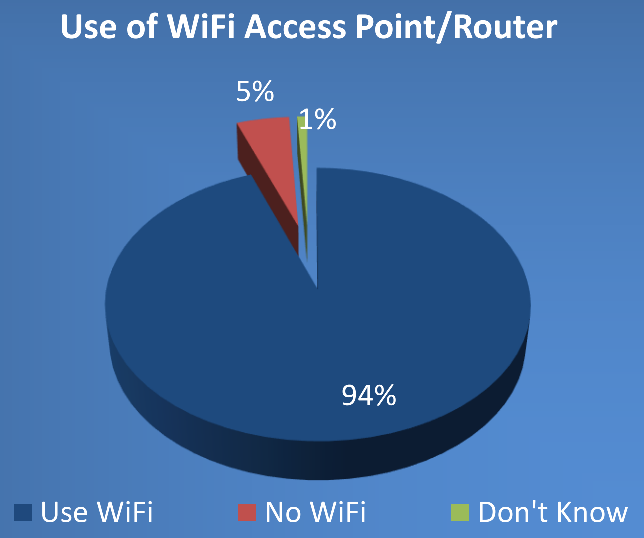


INTERNET SERVICE PURCHASING BEHAVIOR

- 98% of Hudson households use the Internet at home
- Cable Modem has the majority of market penetration at 74%
- 94% of Internet households use a wireless access point

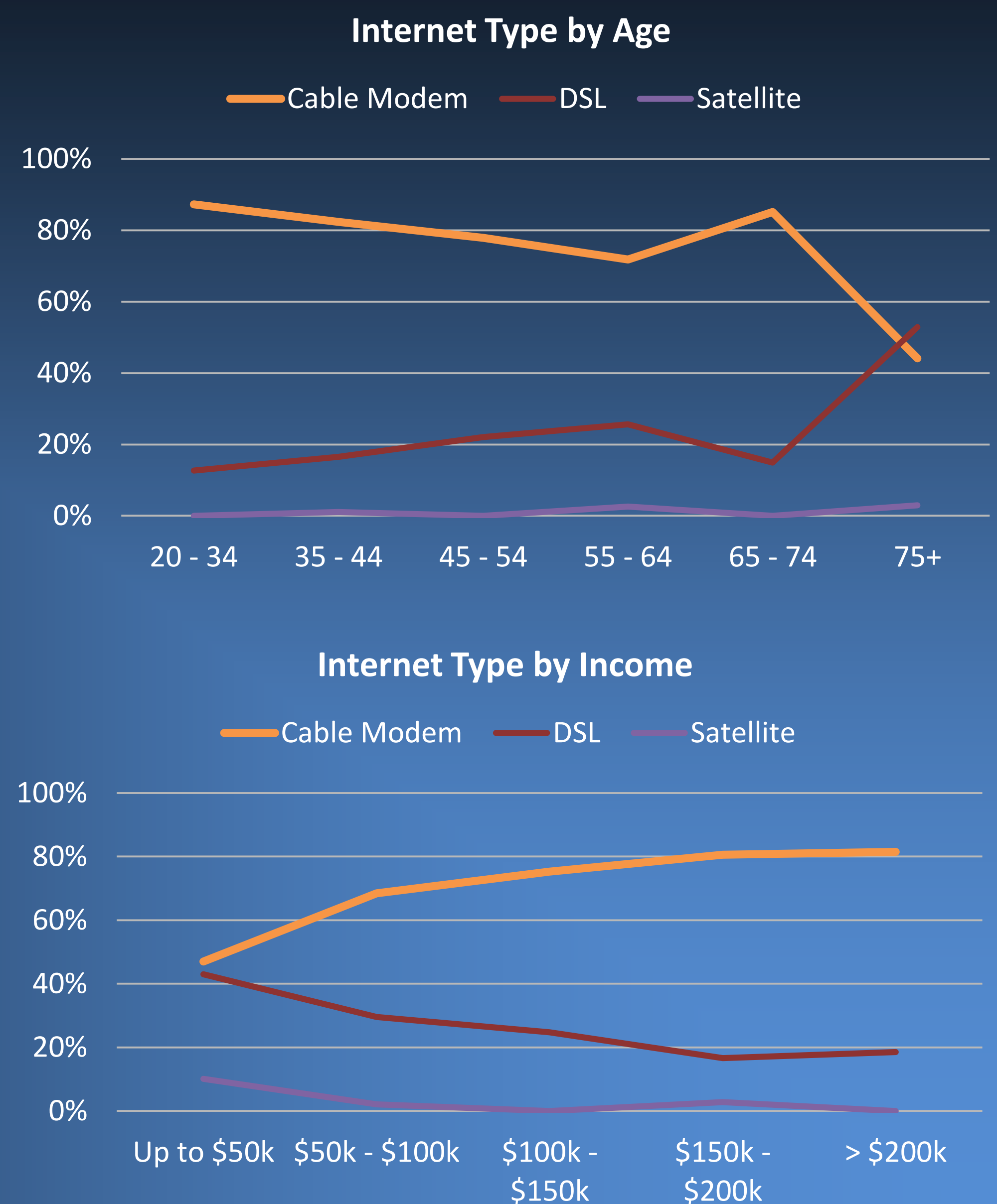






INTERNET USAGE BY HOUSEHOLD DEMOGRAPHIC

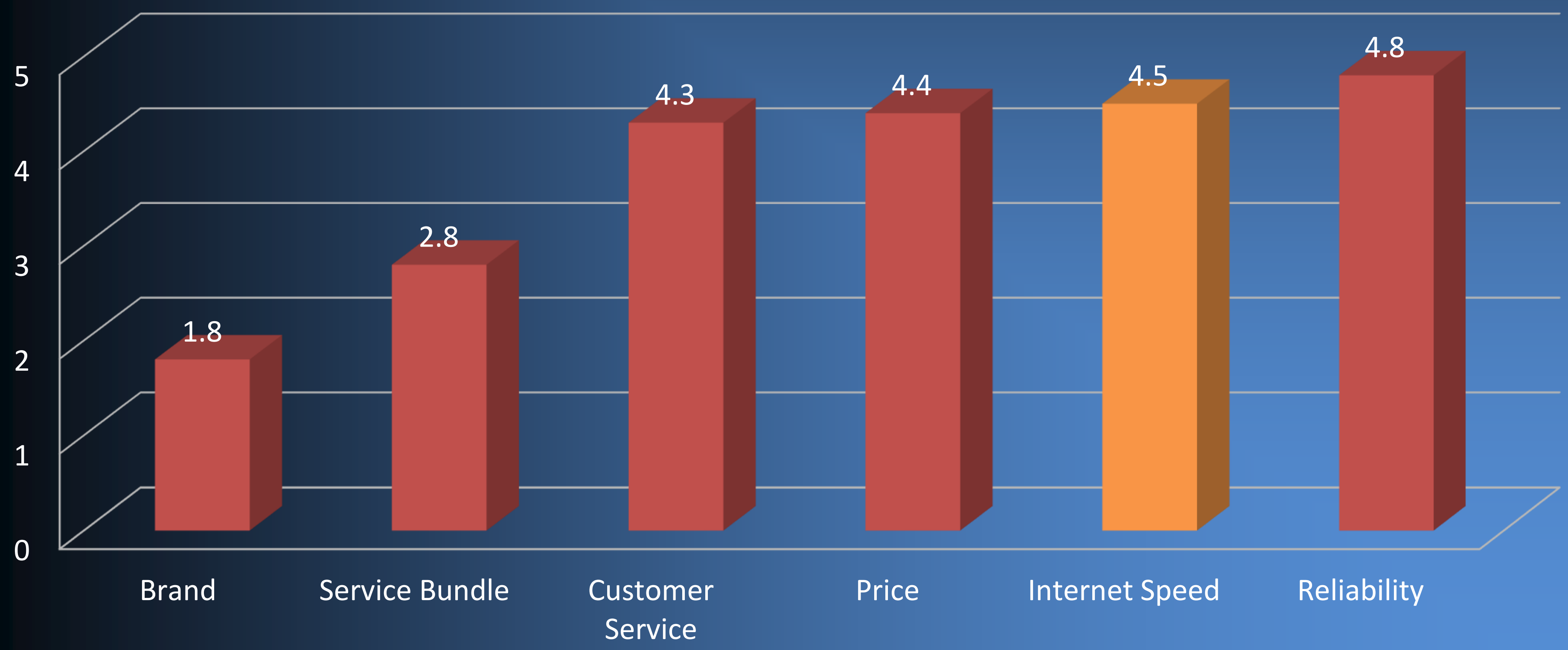
- Cable modem Internet is more prevalent among younger and high earning households
- DSL Internet is at market share parity with cable only for household with income below $50k or aged 75+
- Influencing factors are likely lower incidence of wireline phone and greater emphasis on Internet speed in younger households



ATTRIBUTE IMPORTANCE

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

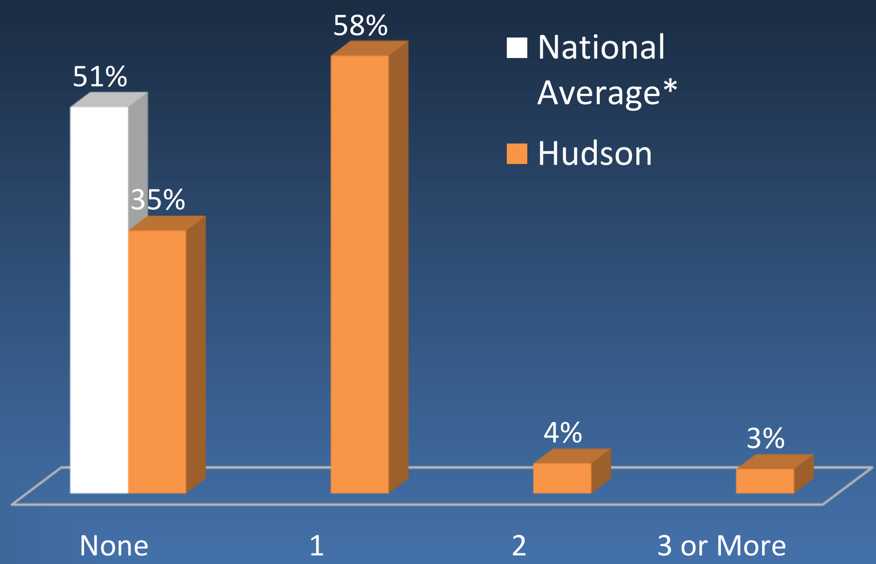
Importance Rating of Select Broadband Service Attributes
(Mean Rating on a 1-5 Scale)



WIRELINE VOICE SERVICE

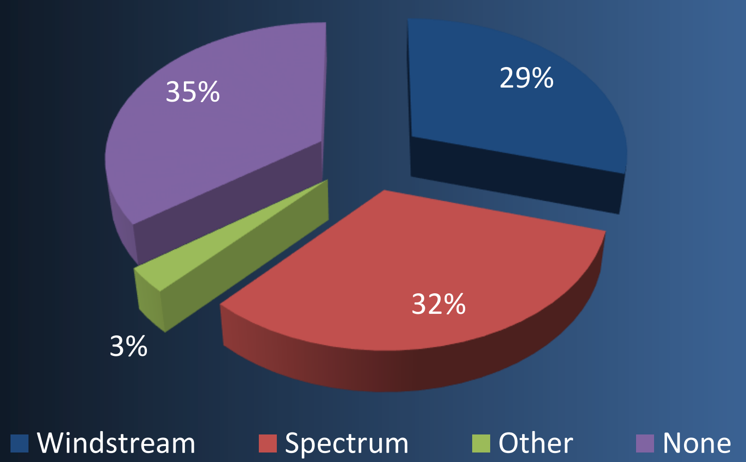
- Wireless substitution is lower than the national average at 35% of HHs
- A further 13% of wireline phone users will drop for wireless in the next 12 months
- The average number of lines is:
  - All Households: 0.8
  - Wireline Households: 1.2

Number of Phone Lines in the Home

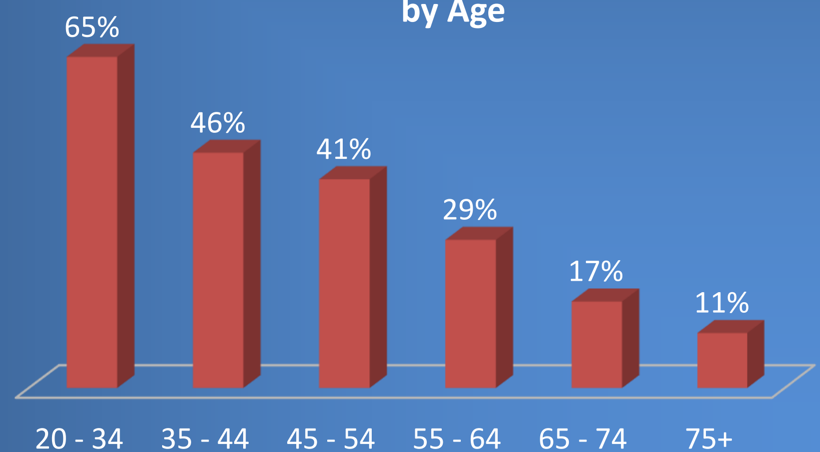


*Source: National Health Interview Survey, 2016

Q6: *"Who is your local phone service provider?"*



Households Without Wireline Phone Service by Age

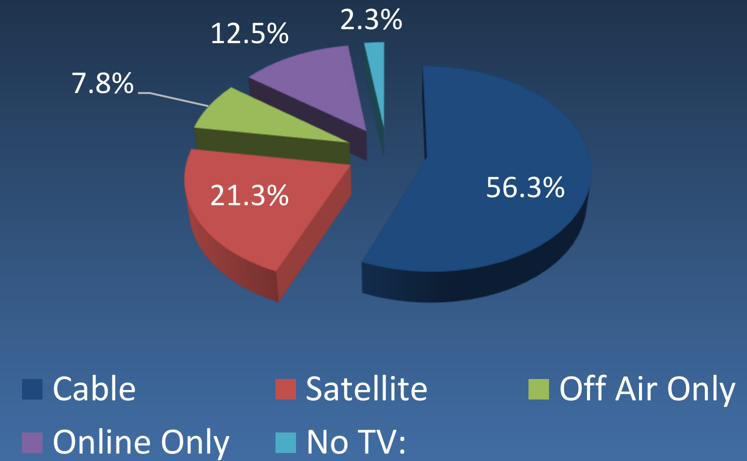


VIDEO SERVICES PURCHASING BEHAVIOR

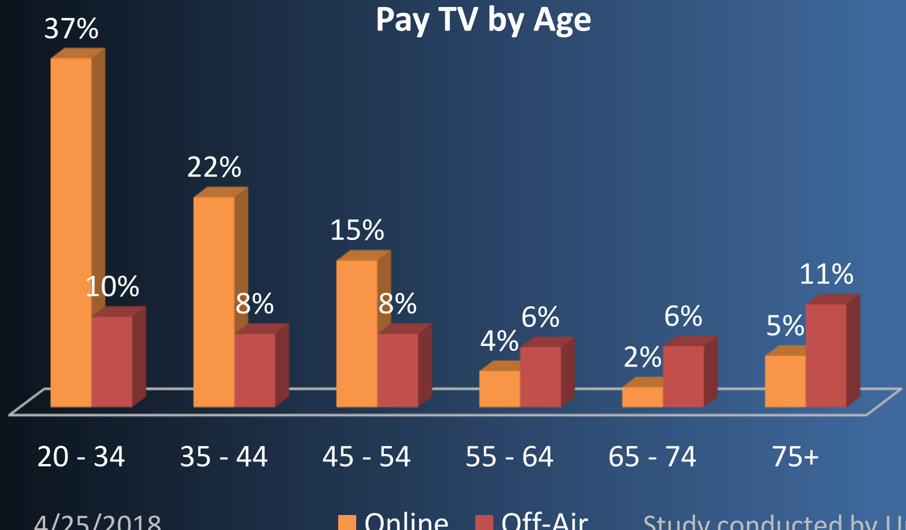
- Across Hudson today, 23% of households do not have traditional Pay TV, compared to the national average of 22%*
- Among younger households, up to 47% are using OTT (stream) or Off Air as a substitute service
- Uptown estimates a further 12% of pay TV users in Hudson will 'cut the cord' in the next 12 months

*Source: The Diffusion Group, 2017

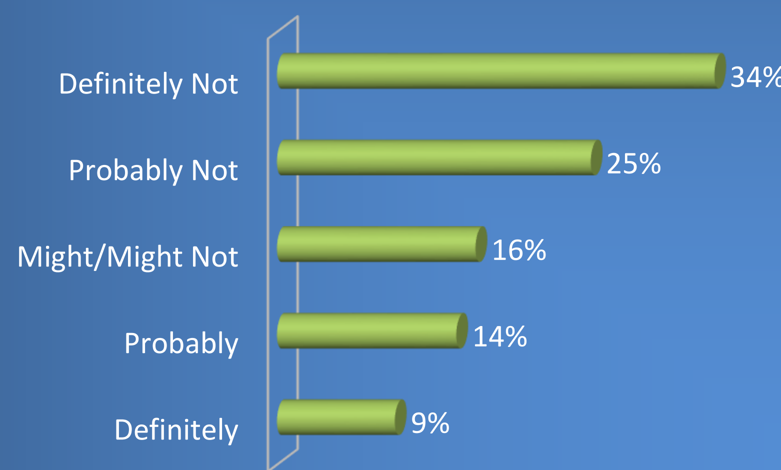
Q2: *"For TV service, do you have…"*



Households Using Substitute Service In Place of Pay TV by Age



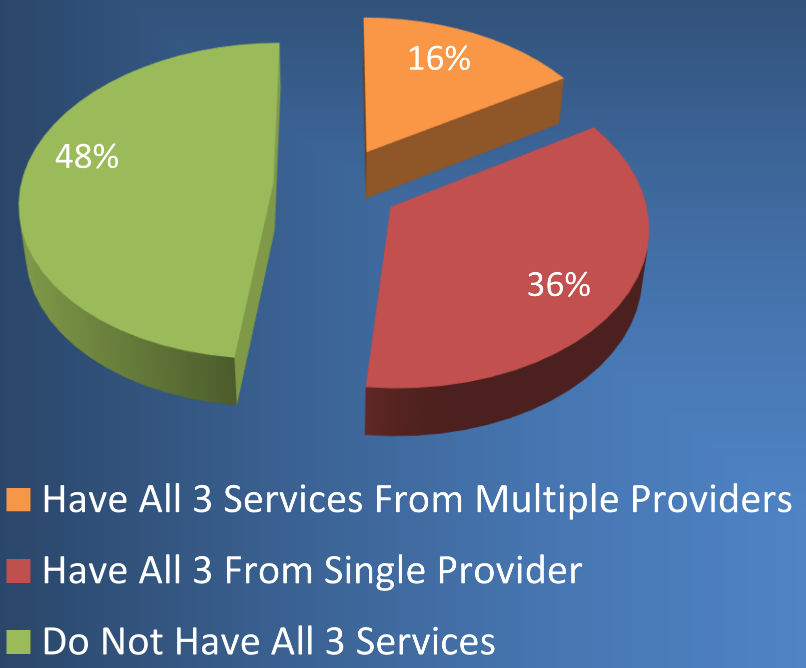
Likelihood of Cancelling Pay TV for OTT
(among all pay TV users)



BUNDLING

Across all of Hudson households, 36% have all 3 services from a single provider…

Incidence of Triple Play Bundle

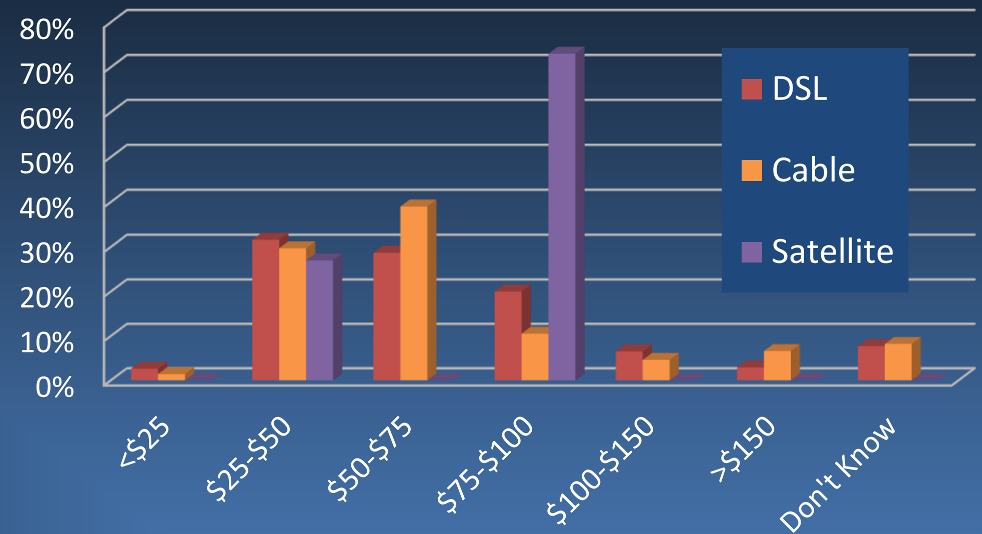


MONTHLY SPENDING BY SERVICE

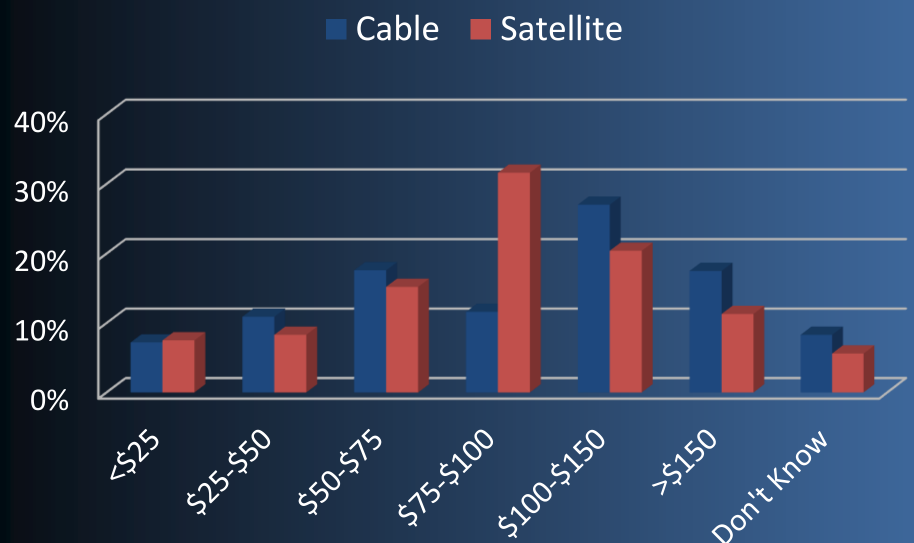
Stated average monthly spend per household:

- Cable TV: $90
- Satellite TV: $87
- DSL Internet: $61
- Cable Modem Internet: $62
- Satellite Internet: $75
- Wireline Phone: $50

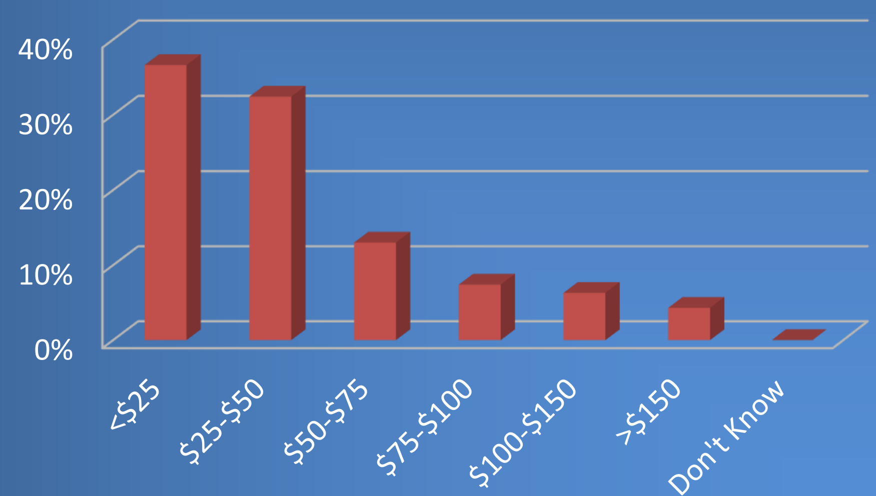
Monthly Internet Spending



Monthly Pay TV Spending

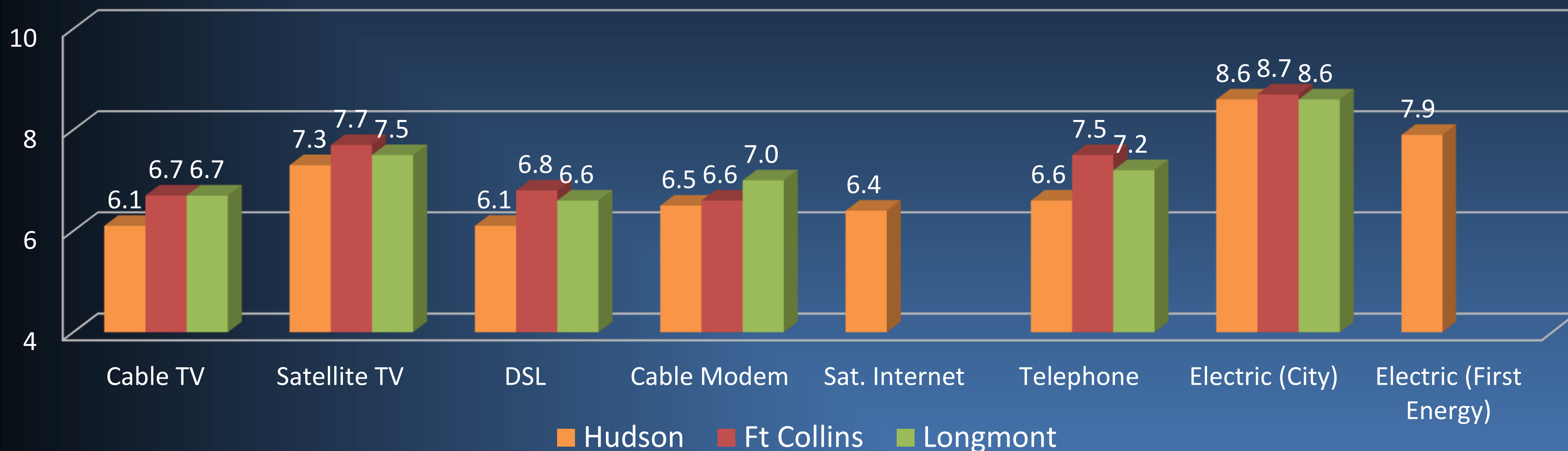


Monthly Voice Spending

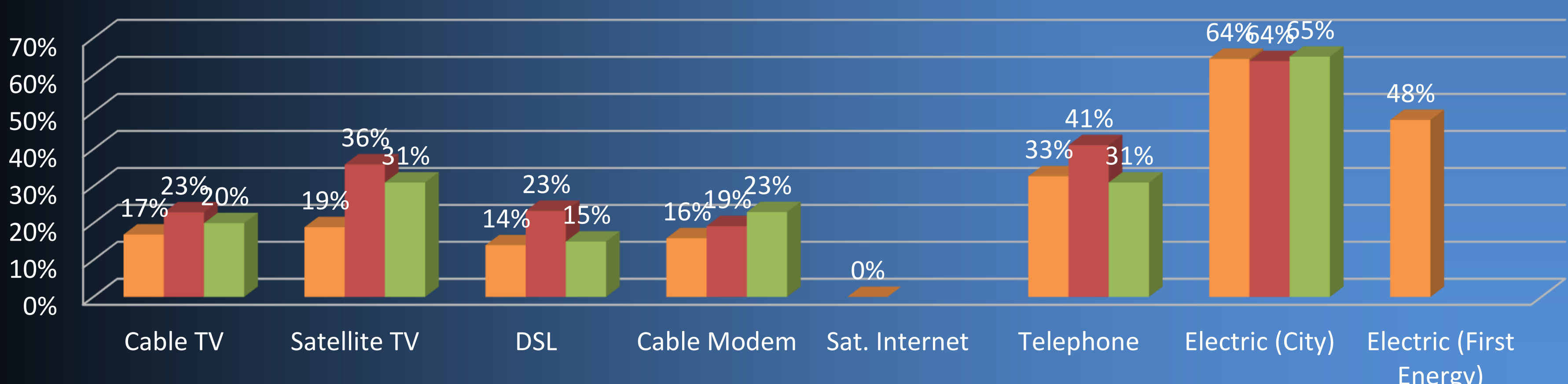


SATISFACTION RATINGS

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



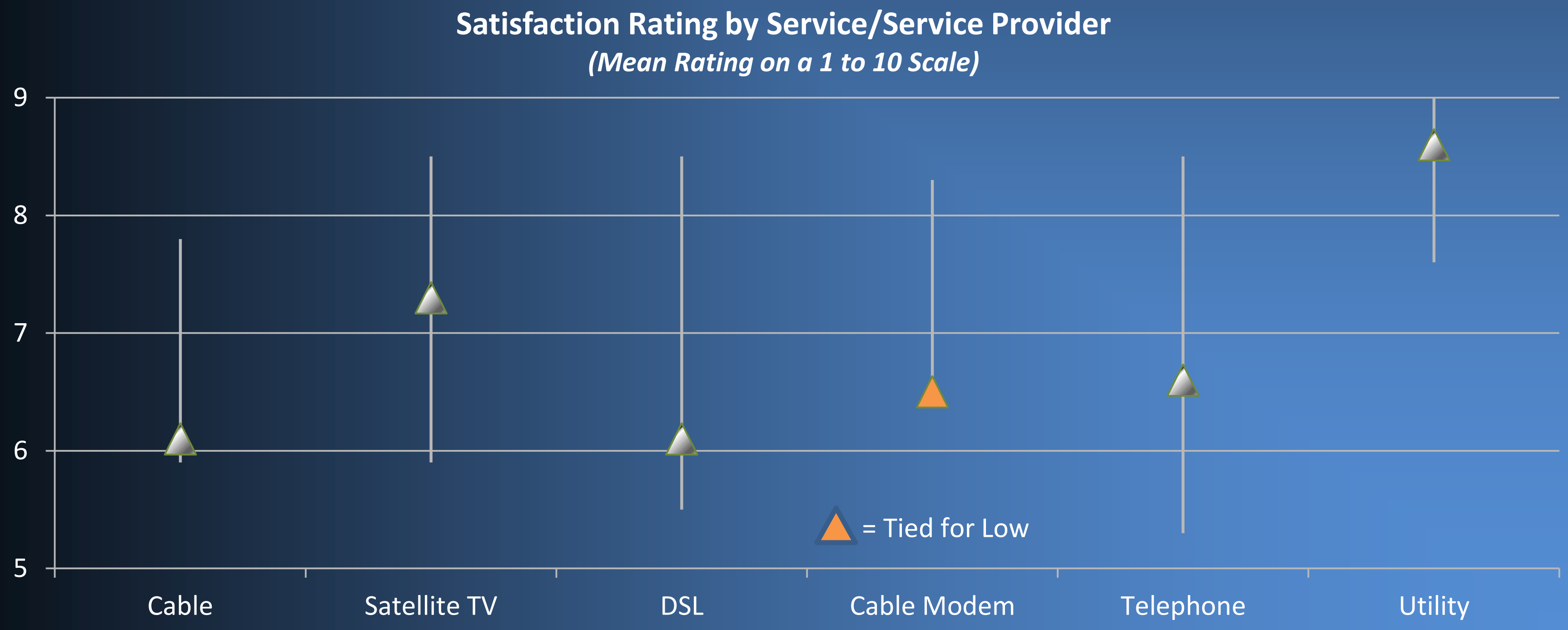
Satisfaction Rating by Service/Service Provider
(Percent Rating a '9' or '10')



SATISFACTION RATING BENCHMARKS

The chart below compares the results of this study with 30 other markets where Uptown has completed similar quantitative research:

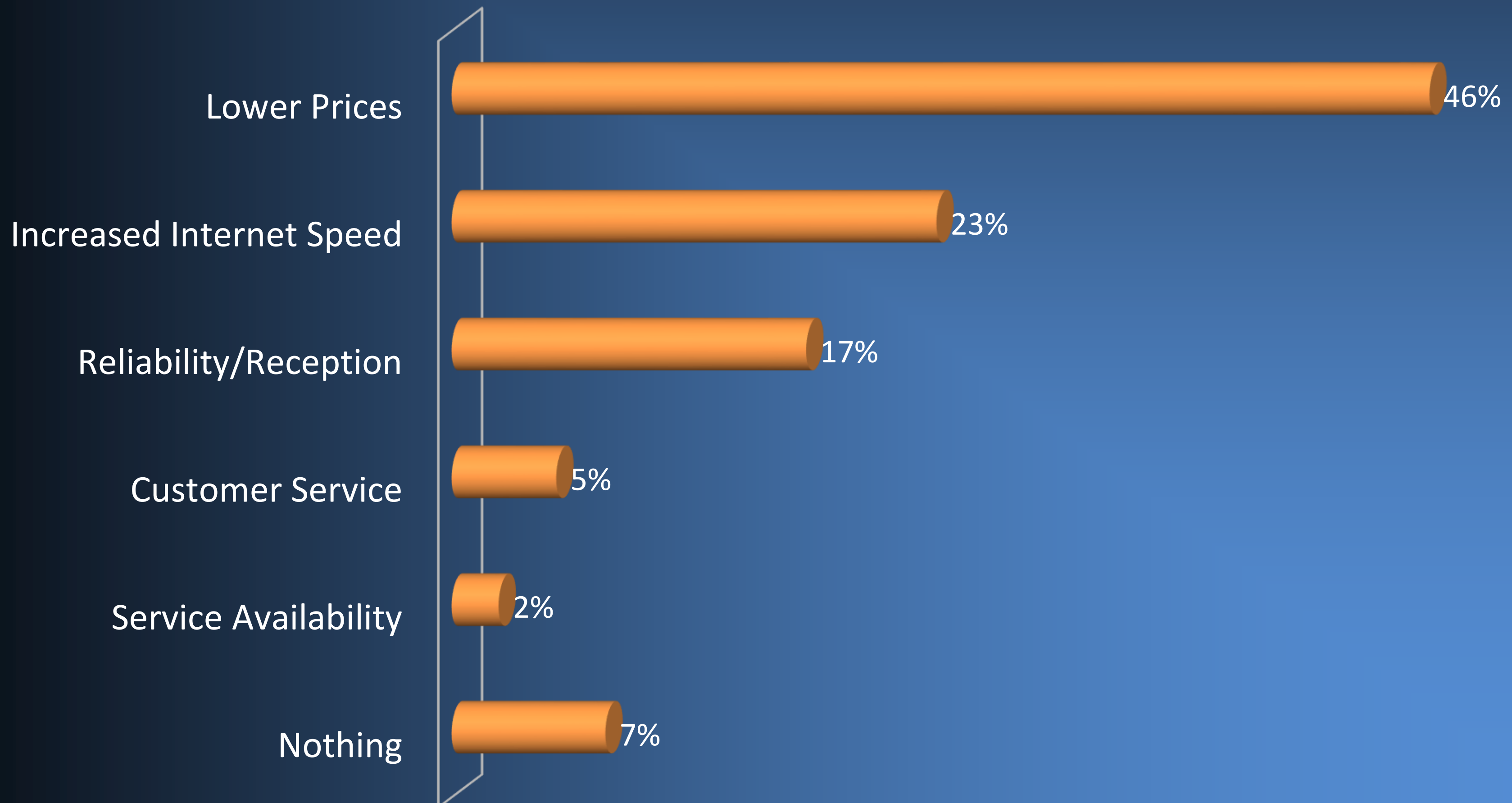
Ohio (3)	*Washington*	*North Carolina*	*Oregon (2)*
Iowa	*Wisconsin*	*Kansas (2)*	*Alabama*
Georgia	*Oklahoma (2)*	*New York*	*Arkansas*
Tennessee (4)	*Michigan*	*Kentucky*	*Colorado (7)*



CUSTOMER NEEDS

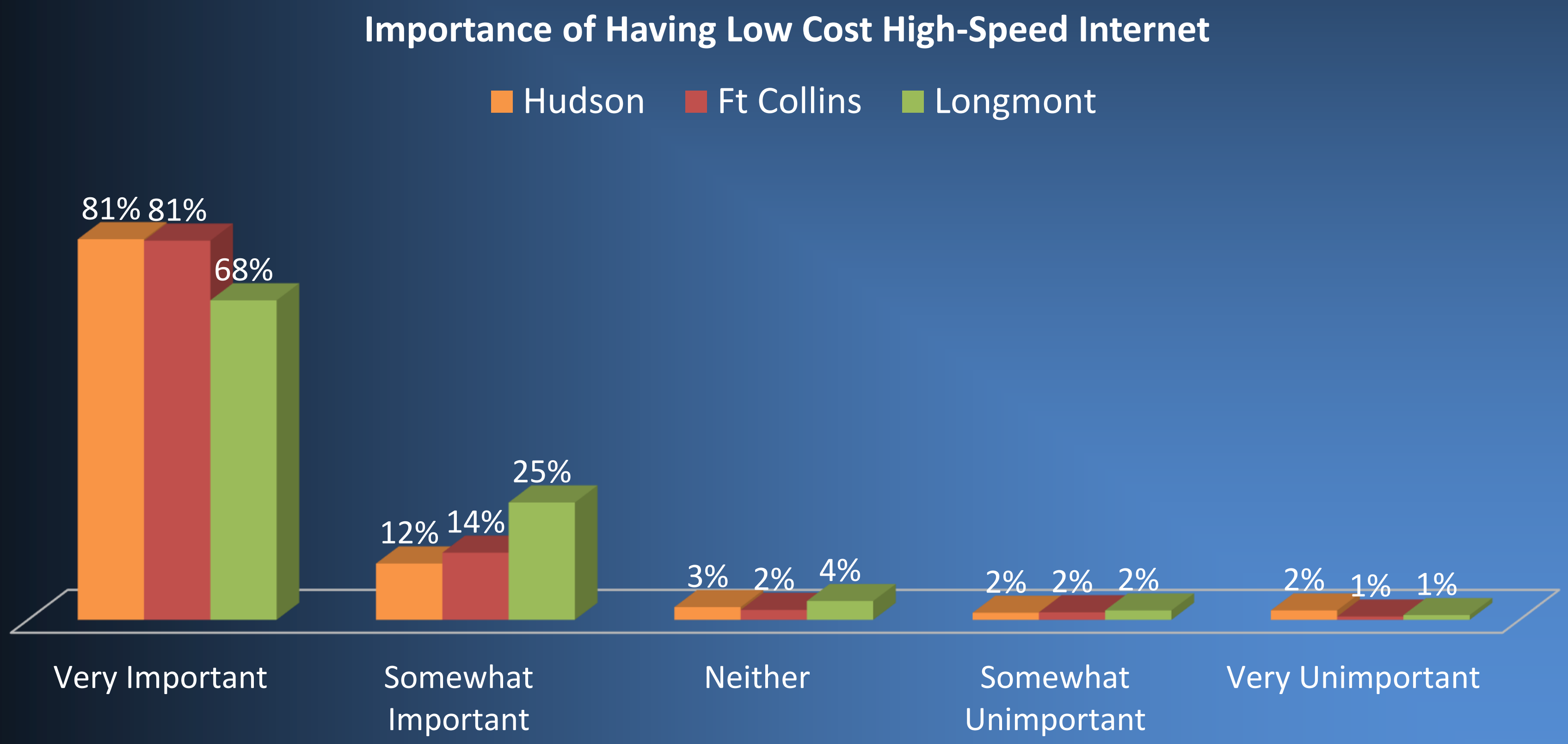
Hudson households place importance on lower prices and Internet speed…

Q29: *"What would you like to see most improved from your current broadband services?"*



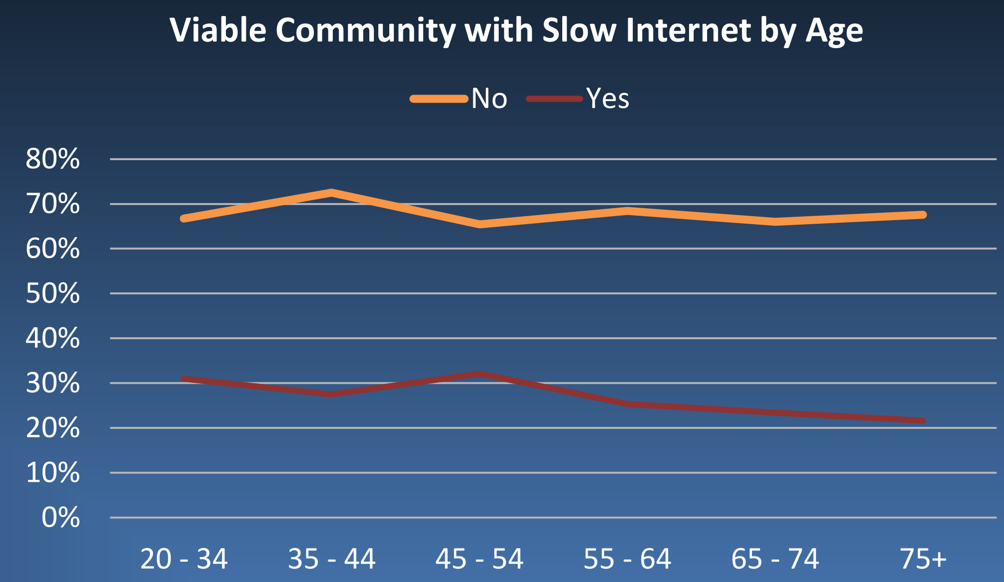
IMPORTANCE OF LOW COST HIGH-SPEED INTERNET

Question 25: "In your opinion, is the availability of low-cost, high-speed Internet important to the future local community?"

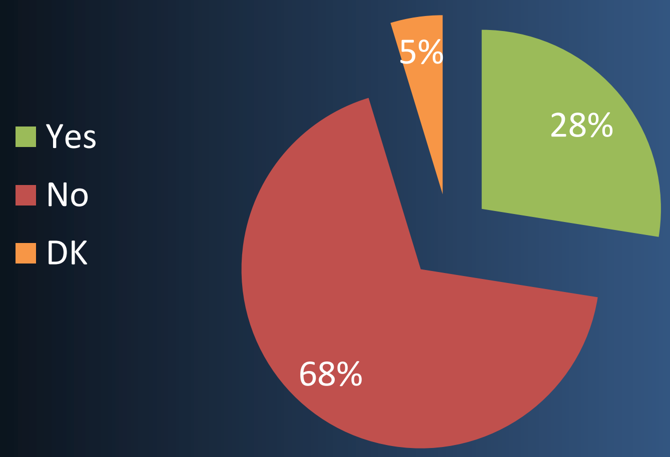


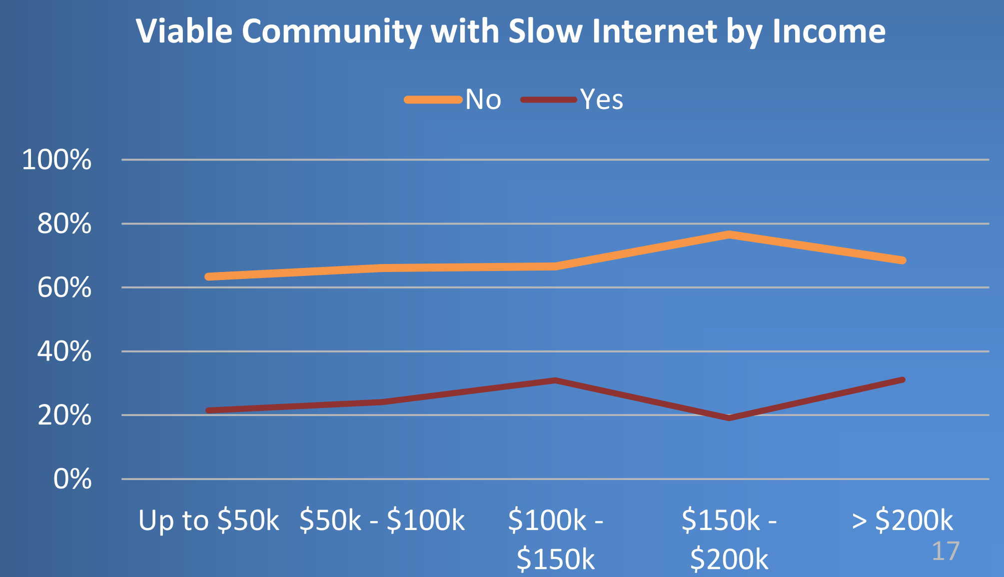
INTERNET ROLE IN COMMUNITY VIABILITY

- 7 out of 10 households believe that communities need fast Internet to remain viable
- This perception does not vary across age or income demographics



Q26: *"Would you consider Hudson a viable community if there were slow Internet service?"*

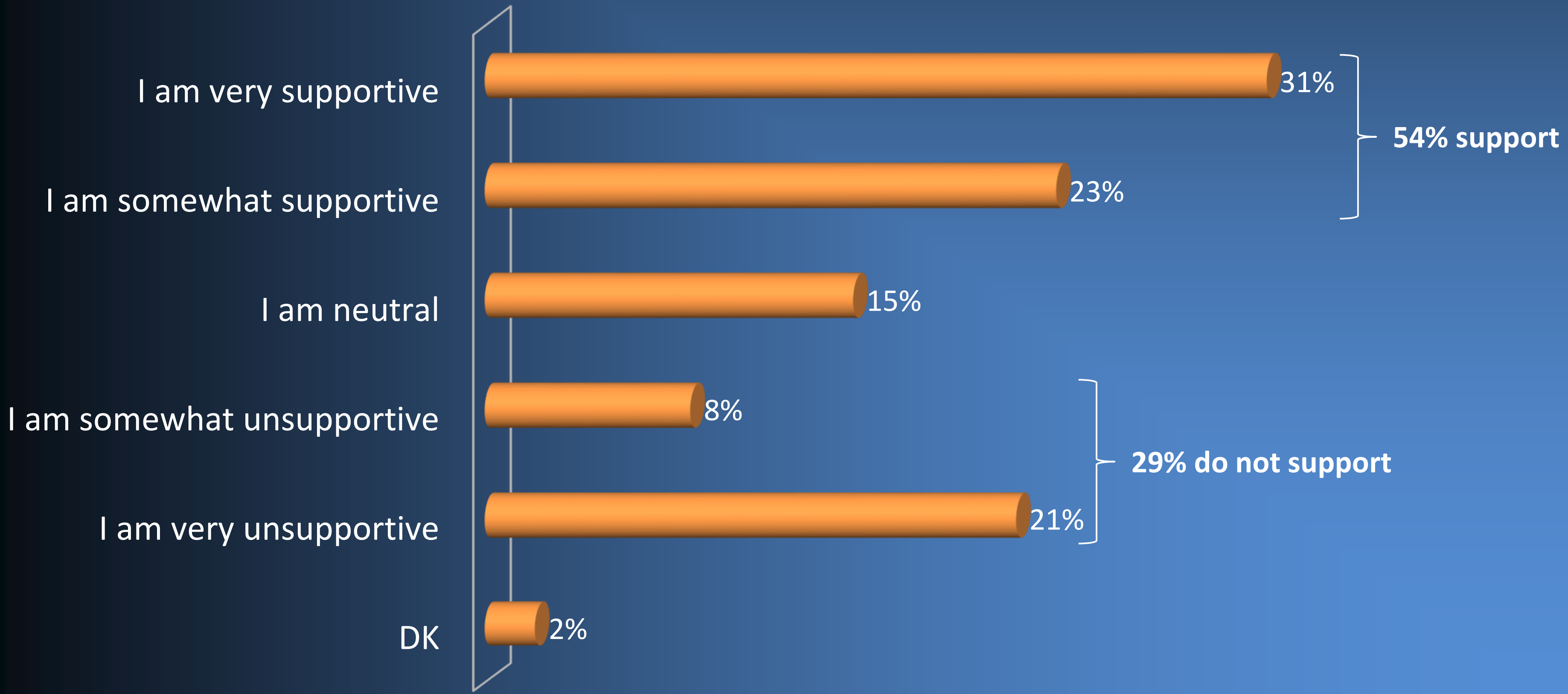




PROPERTY TAX LEVY

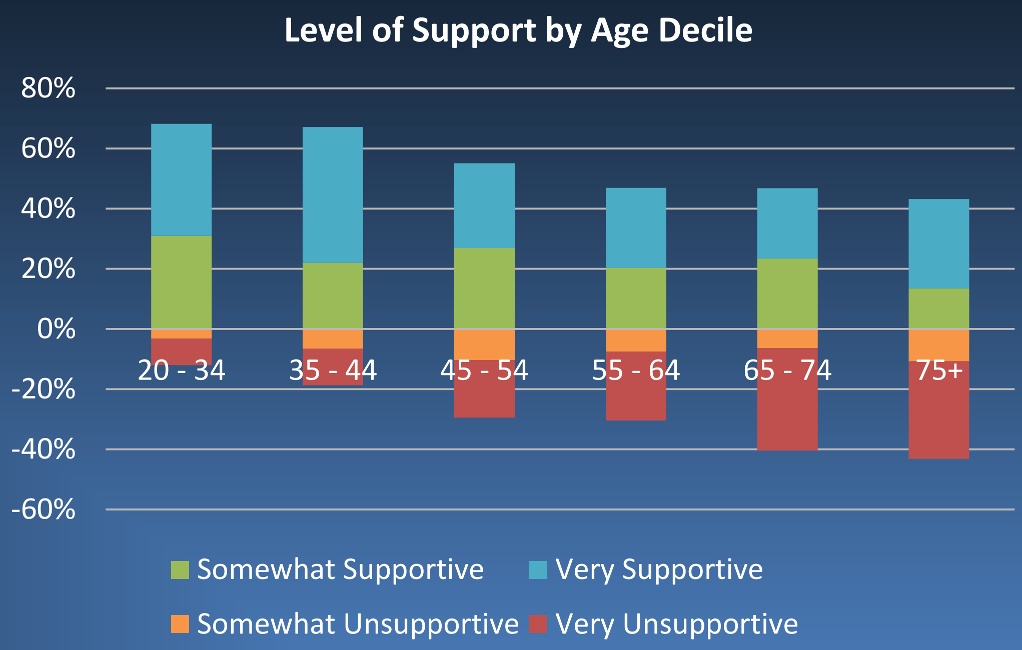
54% of Hudson households support the payment of a monthly property tax levy to help fund the new fiber network…

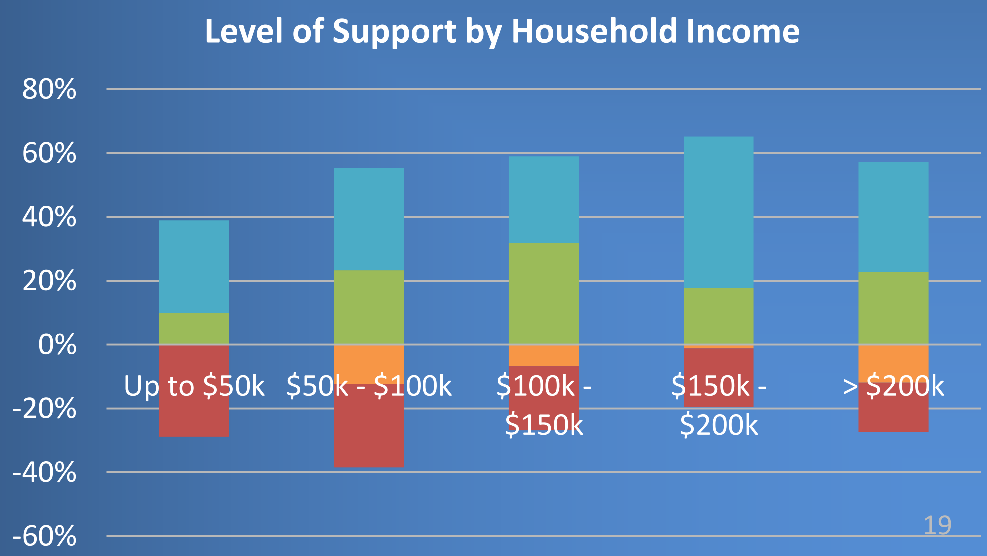
Q30: "The City is considering a property tax levy to offset some of the costs of constructing the fiber network. The monthly cost of this levy would be $8 per $100,000 of the appraised value of your home. To what extent do you support using this levy to offset some of the costs of providing 1 gigabit Internet for $30 per month?"



PROPERTY TAX LEVY DEMOGRAPHICS

- Support of the property tax levy varies primarily by age:
  - Younger households very supportive (3:1 margin under age 45)
  - 65+ households split at about 40% each for and against the levy
- Support of the property tax levy varies secondarily by income:
  - Higher income households very supportive (2:1 margin over $100k)
  - Lower income households have more supporters than non-supporters, but have higher incidence of being very unsupportive





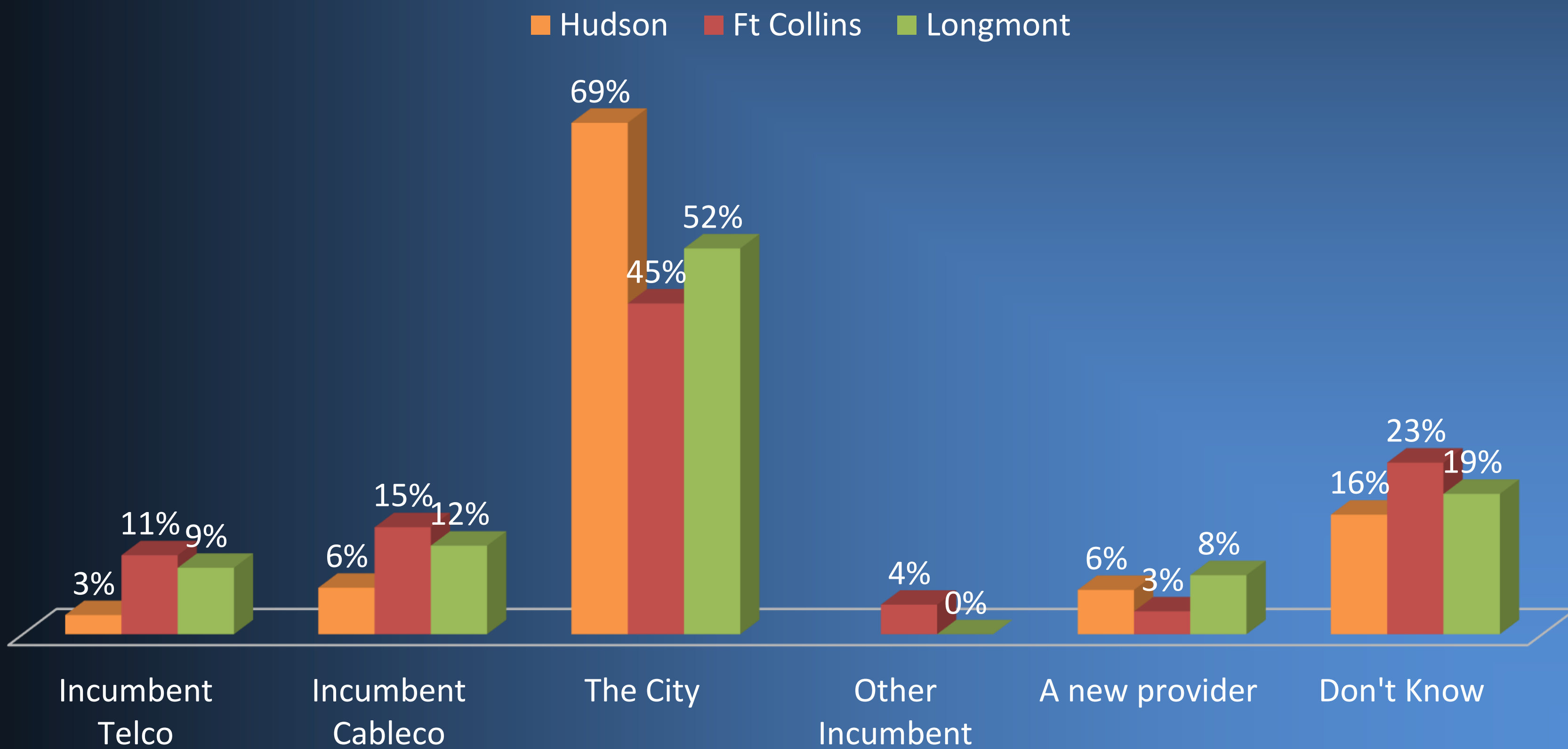
Community-Wide Quantitative Survey

Fiber Broadband Market Potential

PROVIDER PREFERENCE

- The majority of respondents, when given the choice, would prefer to receive high speed Internet from the City…

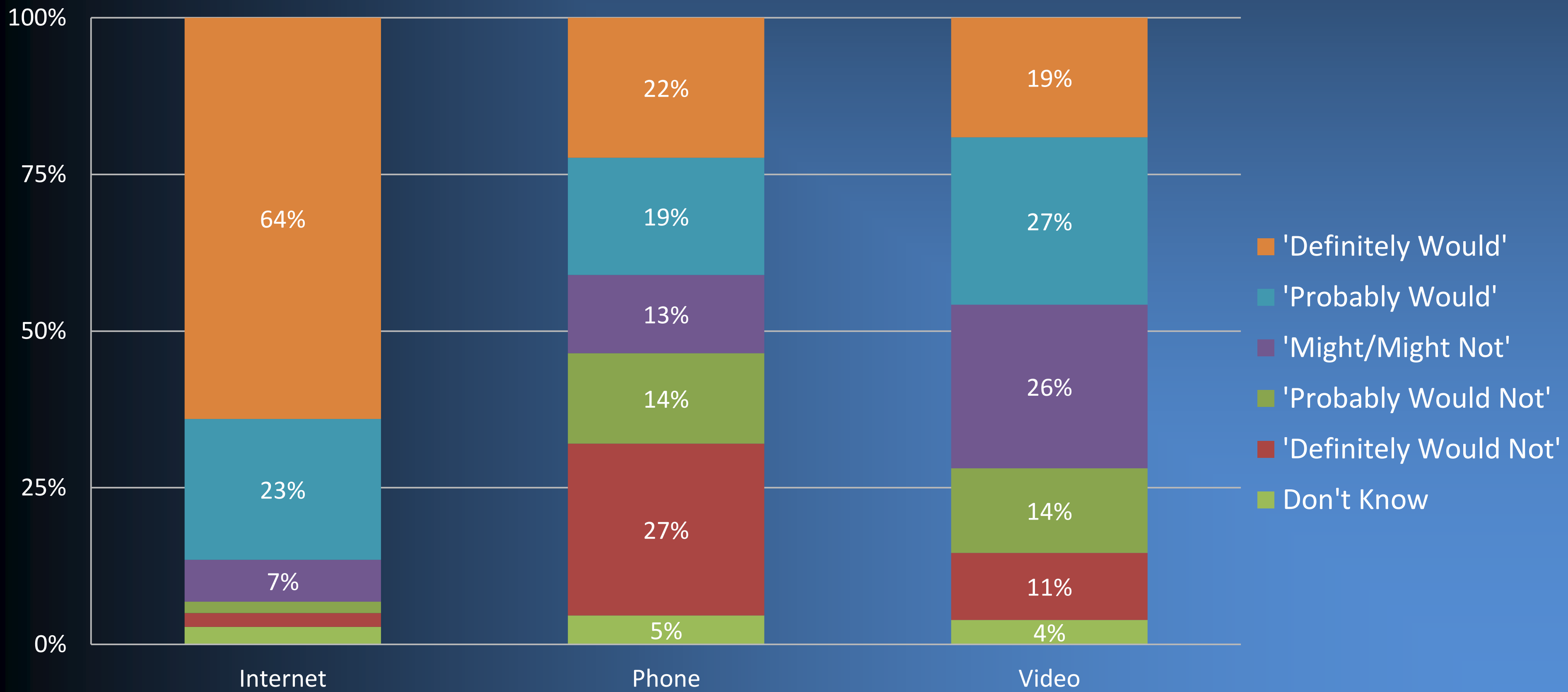
Q24: ***"Among the following list of potential providers, who would you prefer to receive high-speed Internet service from?"***



PURCHASE INTENT

- 87% of respondents indicated they would definitely or probably switch to the Fiber system for Internet service…

Q20/22/23: *Stated purchase intent for:*
- Internet at $30/mo. for 1Gbps
- Voice at 10% Less than Windstream
- Video at price parity to Spectrum



UPTOWN SERVICES, LLC

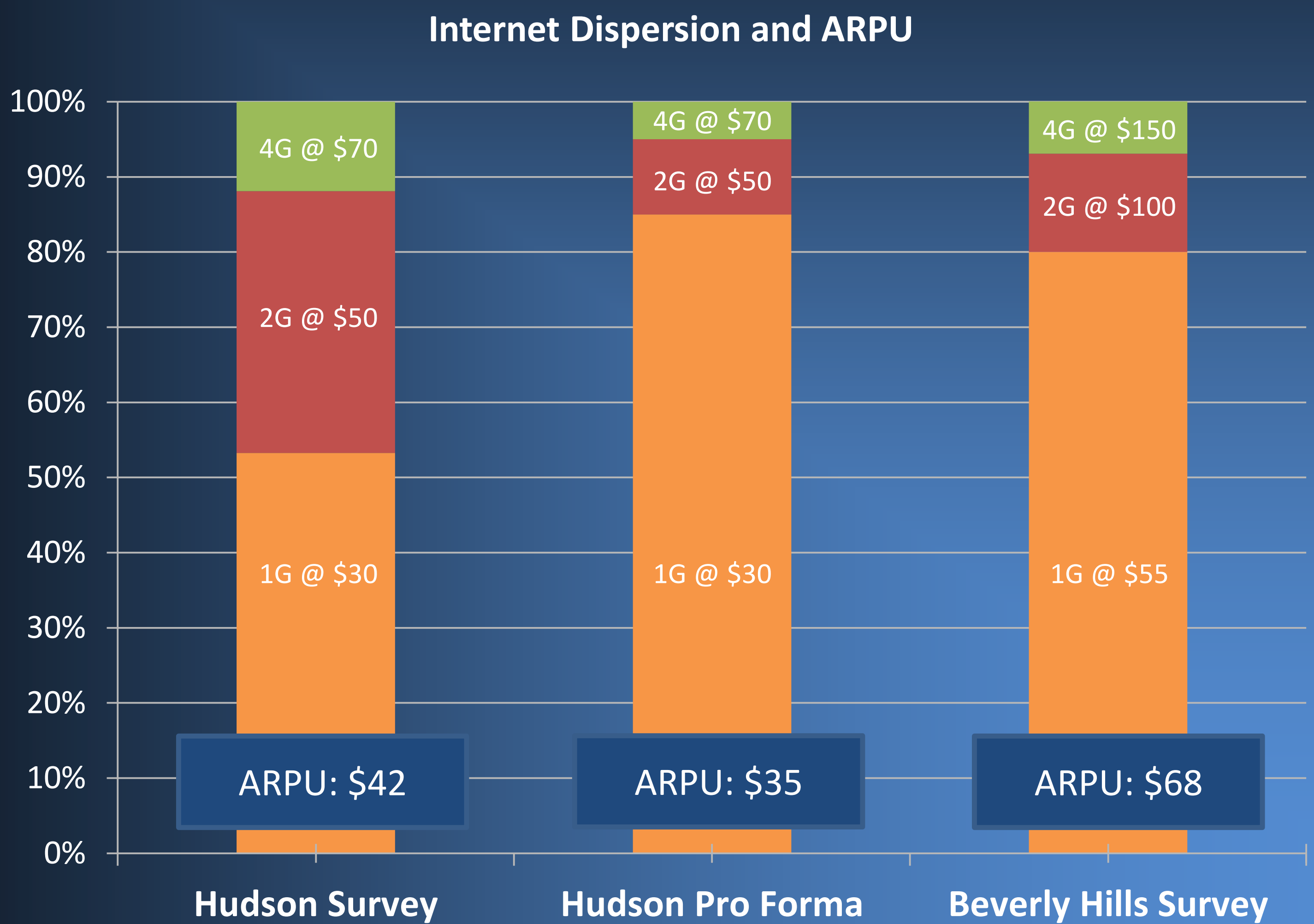
PENETRATION CALCULATIONS

- 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%
  - Don't Know 8.1%

	Residential Phase 1 Pro Forma (Terminal / Year 5 Eroded)	Residential Research (Terminal / Year 5 Eroded)	Small Business (Terminal)
Video	*Not Included*	**24.0% / 20.4%**	-
Internet	40.0%	**52.3%**	51.0%
Telephone	15.0% / 10.5%	**22.5% / 15.7%**	30.0%

INTERNET DISPERSION & ARPU

The survey results indicate strong interest in the multi-Gig tiers at tested price points....

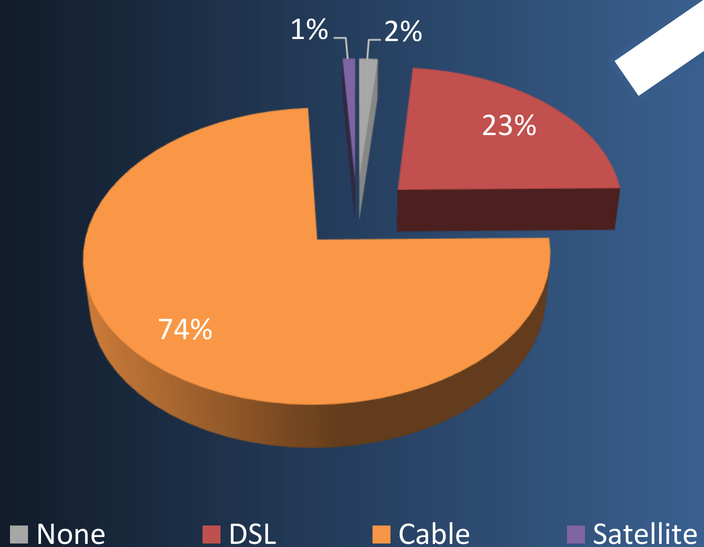


MARKET IMPACT OF SPECTRUM GIG SERVICE

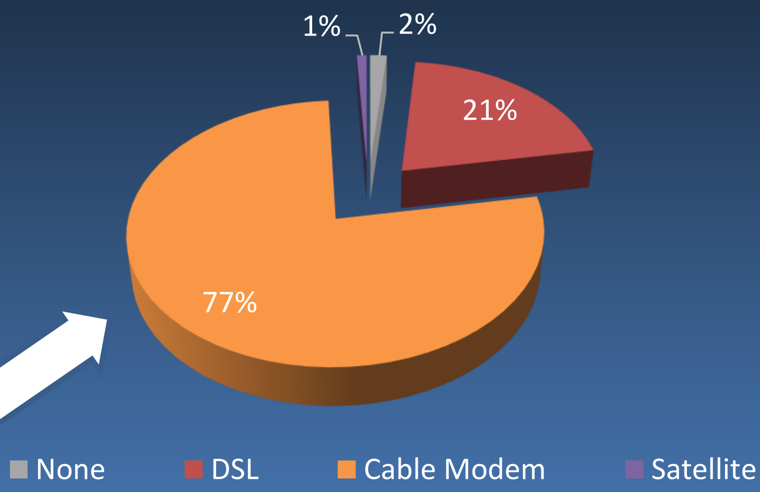
Market share impact if Spectrum implements DOCSIS3.1 and is the sole provider of residential Gig service priced at $105/month:

- ◈ Adds 2.7 points to Internet penetration
- ◈ Upsell 10% of subscribers to 1Gig

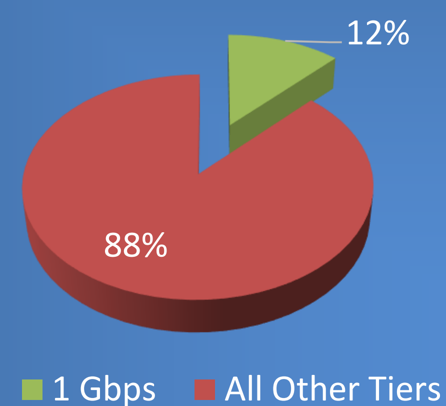
Internet Market Share
(Households)



Internet Market Share Post DOCSIS3.1
(Spectrum 1G @ $105)



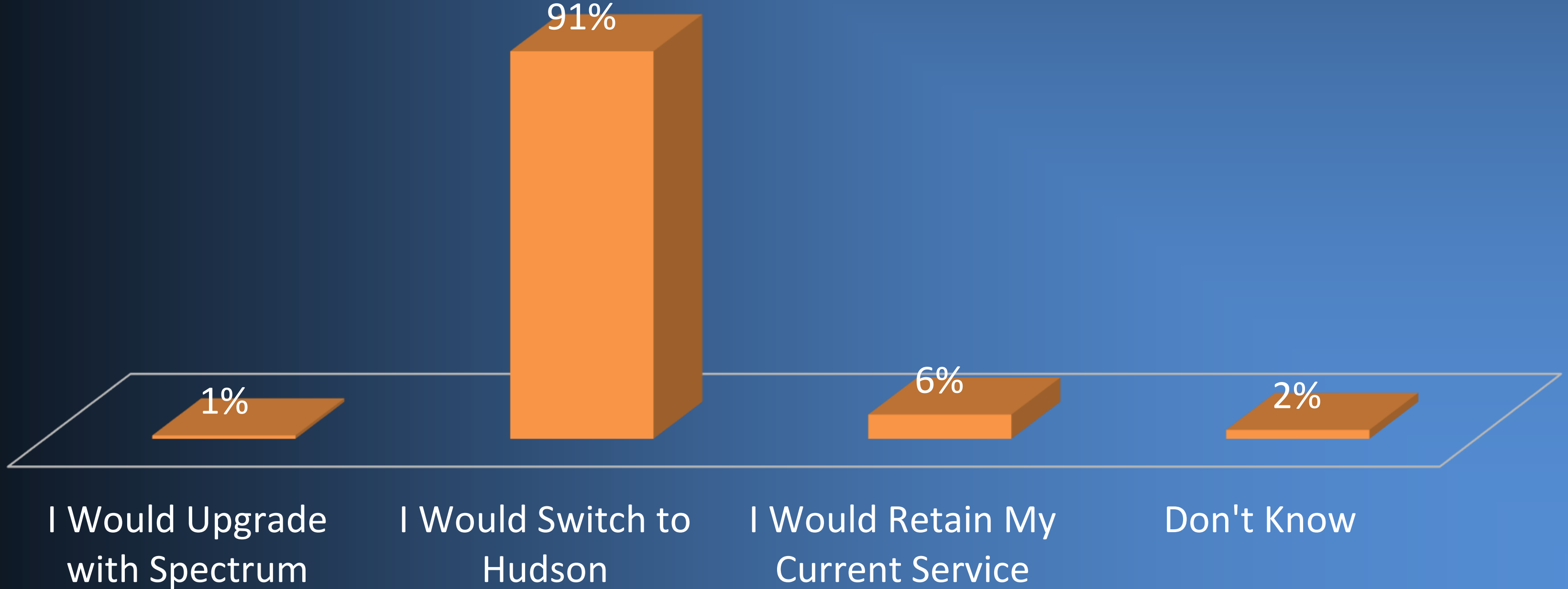
Spectrum Internet Dispersion
(Spectrum 1G @ $105)



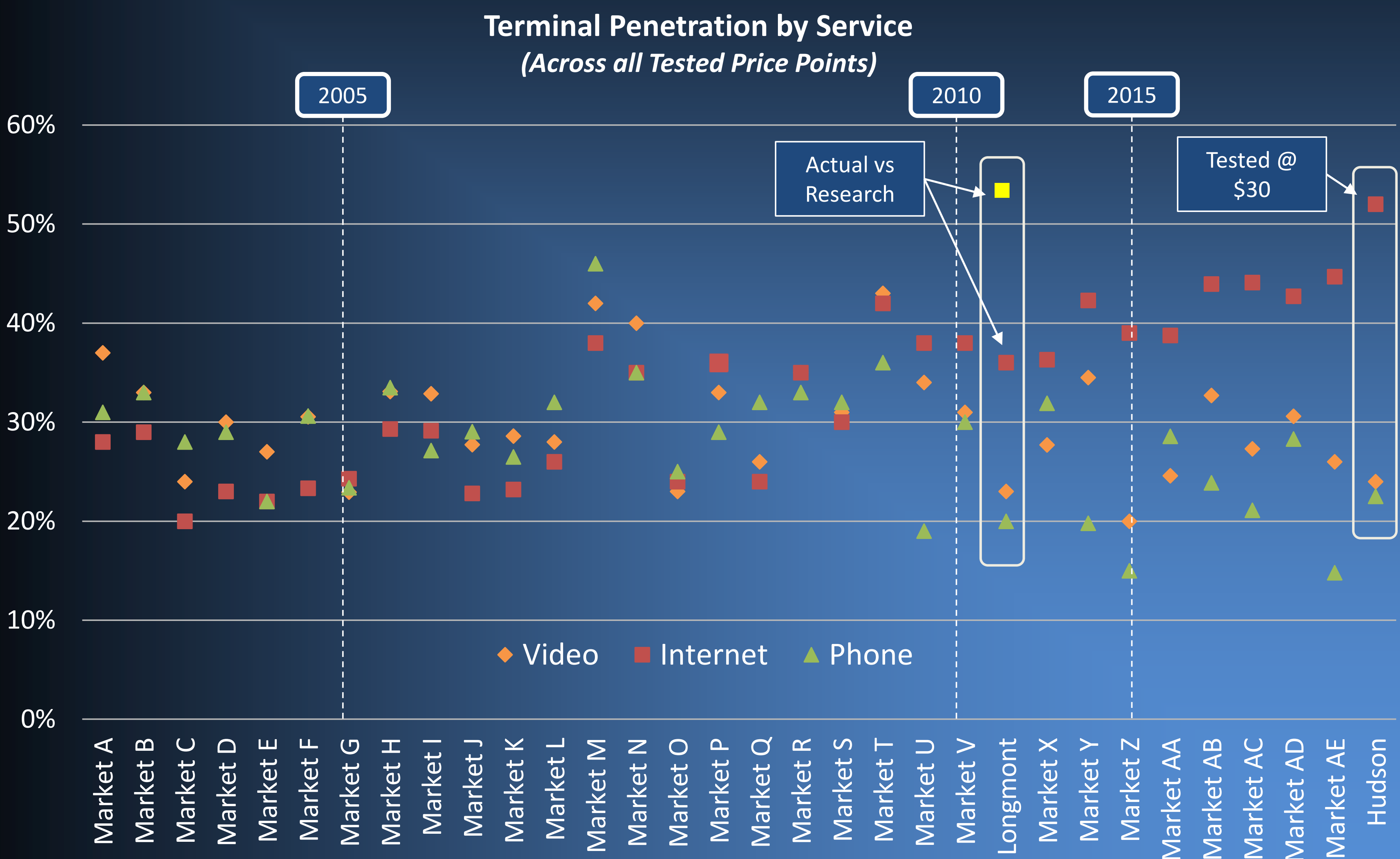
COMPETITIVE OUTLOOK WITH SPECTRUM

Participants were asked if they would – or would not – switch to a different Internet service if both of the following services were provided in the future. The new service options would be the following two Internet services, both offering 1 Gbps speed…

Q28: "If both Spectrum (formerly Time Warner Cable) and the City of Hudson were to offer 1 gigabit Internet to your home and your service options were:
- 1 gigabit Internet from Spectrum for $105 per month, or
- 1 gigabit Internet from the City of



PURCHASE INTENT BENCHMARKING



SUMMARY OF RESEARCH FINDINGS

- Spectrum is the dominant Internet provider at 74% penetration. 98% of households use Internet at home.
- Internet service satisfaction levels benchmark below average. Cable Internet satisfaction is very low. Top market needs are lower prices and enhanced Internet speed
- Residential Internet purchase intent at 52% and residential voice at 23% validate the pro forma metrics of 40% and 15% respectively. Very strong provider preference for the City versus other incumbent options
- Stronger than anticipated interest in multi-Gig tiers with minimal incremental buy-ups at $20 resulting in ARPU of $42 versus $35
- Minimal market risk from DOCSIS3.1 at a Spectrum price point of $105/mo.
- Households support the use of a property tax levy of $8/$100k home value to partially fund the project