

City of Santa Ana, CA: Internet Survey Analysis

To gain insight into the current state of broadband and need for future connectivity, Magellan Advisors and the City of Santa Ana conducted a broadband survey among businesses and residents. The survey was open for approximately five months between September 2021 and March 2022 and received a total of 362 valid unique responses. As shown in the table below, most responses came from households in Santa Ana.

Table 1. Survey Responses by Type

Response Type	
Household: Location is primarily a residence	340
Organization: Location is a business, government, non-profit, etc.	22
Total	362

Among residential respondents, the average household size was 3.65 people, somewhat lower than the 4.55 average size according to Census data. The median age of the youngest person in respondent households was 20 and the median of the oldest was 55, compared to the median age of 31.8 years as indicated in Census data.

Twenty one percent (40) of residential respondents indicated that they were retired or otherwise out of the workforce, which is somewhat lower than Census data estimates that 32.3% of Santa Ana residents ages 16+ are no longer in the workforce. About 24% of respondents (45) worked in Arts, Business, Management, or Science, about 19% (35) worked in Service, and about 15% (29) worked in Construction, Maintenance, or Natural Resources. Other occupations included Office and Sales (13%, or 25 respondents) and Production or Transportation (8%, or 14 respondents). Nearly half of residential respondents (49%, or 94 respondents) had at least a Bachelor's degree indicating that respondents had relatively higher levels of educational attainment than would be anticipated according to Census data¹.

Survey respondents from organizations were asked to identify their industry sectors. Among the eleven respondents who answered this question, there were

¹ According to Census data, 16.8% of residents in Santa Ana over the age of 25 have a Bachelor's degree or higher. (Source: <https://www.census.gov/quickfacts/santaanacitycalifornia>)

three responses from Professional, Scientific, and Technical Services, two responses from Manufacturing, and one response each from Educational Services, Healthcare and Social Assistance, Retail Trade, Arts, Entertainment, and Recreation, Public Administration, and Other Services. Due to the low number of responses, it is difficult to draw conclusions about how well Santa Ana’s industries are represented.

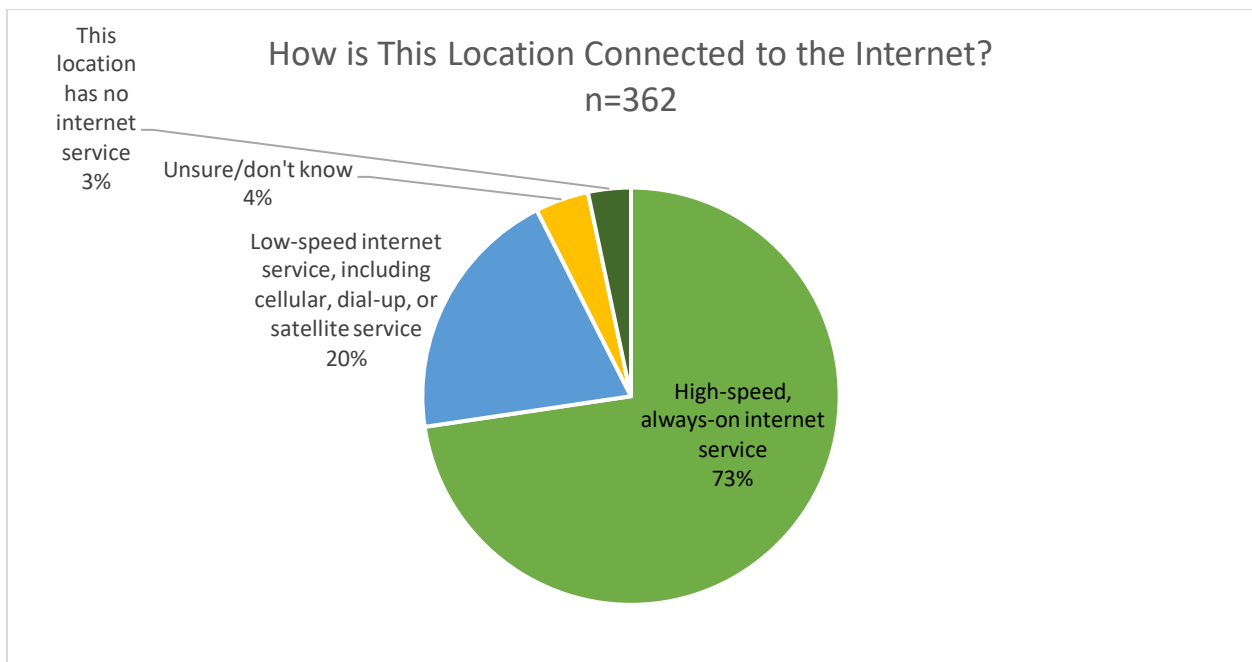
Given the distribution methods, number of responses and respondent demographics, we cannot say that the survey results are statistically reliable. We can say that the survey results document the experience and perspective of more than 350 households and organizations in Santa Ana.

The survey yielded useful empirical indicators of broadband in the City. Recognizing results of survey analysis as indicators, we report statistics but use approximate language in discussing the findings. Generally, these results should be considered the “best case” for the more affluent and informed residents of the community. Additional effort will be required to determine the situation for younger, less educated residents. The same applies to large, multi-location service and wholesale companies.

Broadband Adoption

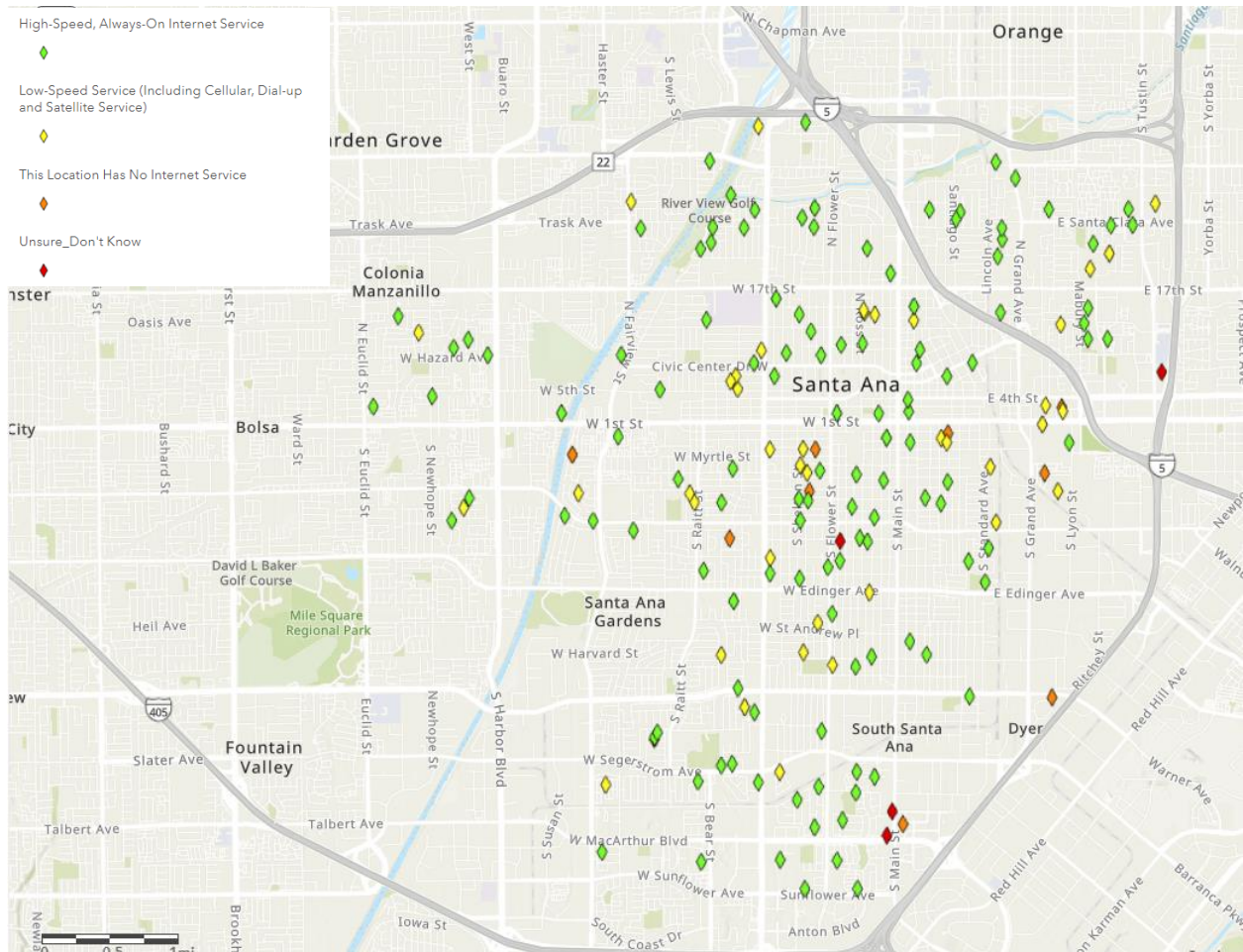
Most of the respondents (73%) had broadband connections, defined as high-speed, always on service. However, one-fifth (20%) of respondents had low-speed service including cellular, dial-up, or satellite, and another 3% reported not having internet service at all.

Figure 1. Respondents’ Type of Connection



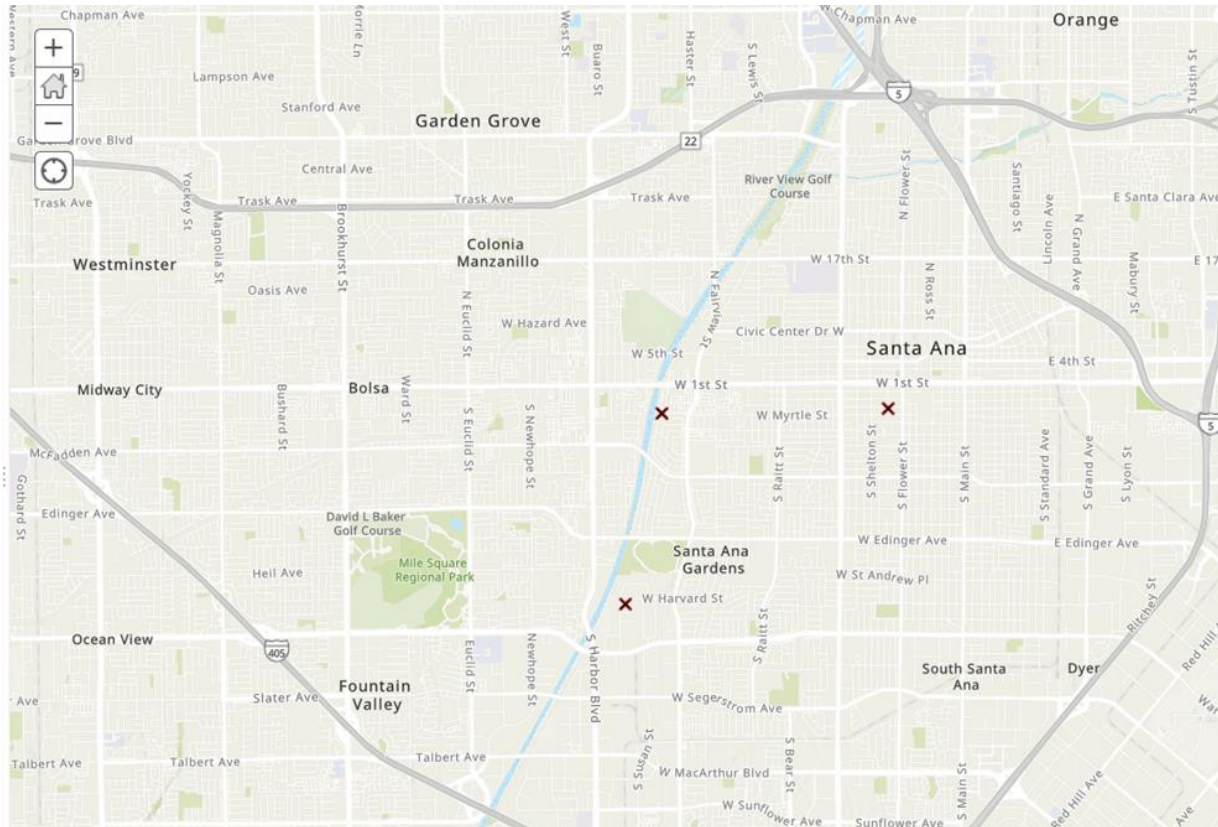
The map below displays the locations of respondents according to whether they had broadband connections. Low-speed connections were spread throughout the City, as indicated by the yellow diamonds. Locations that did not have access to internet at all, indicated by orange diamonds, appear to be concentrated primarily in the central areas of Santa Ana.

Figure 2. Broadband Adoption by Location



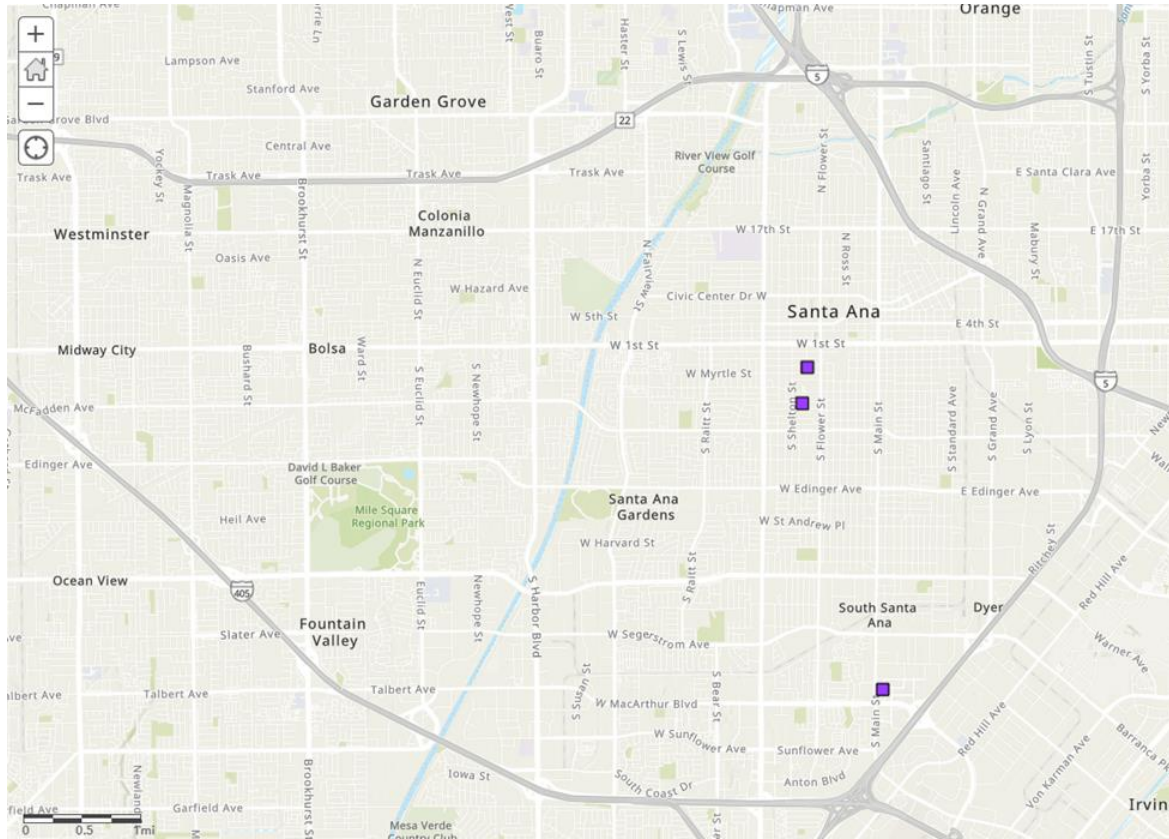
To gain additional insight into where broadband service is not available, we created a map of the locations of respondents who said that broadband was not available at their locations, displayed below. These three locations were distributed in various neighborhoods throughout the City.

Figure 3. Map of Locations Where Respondents Indicate Not Having Broadband Available



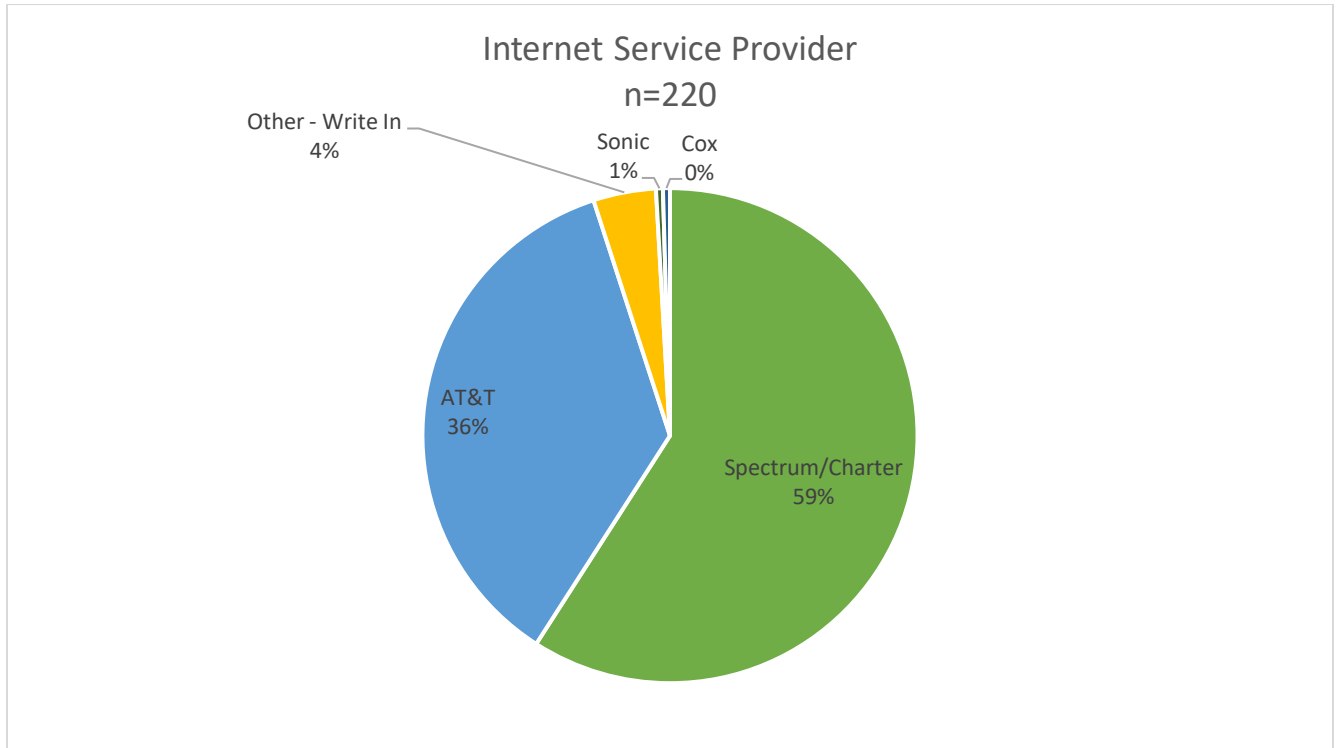
We also mapped locations where respondents reported that their primary reason for not having broadband was that service was too expensive. These locations are shown on the map below.

Figure 4. Map of Locations Where Available Broadband Services Are Too Expensive



The majority (59%) of respondents had service through Spectrum/Charter, followed by AT&T (36%). A handful of respondents had service through other providers including Sonic (1%) and Cox (1 respondent representing less than 1%), and other write-ins including as T-Mobile and Verizon.

Figure 5. Respondents' Internet Service Provider



Performance

Respondents were asked how much they paid for broadband and related services and what contracted speeds they paid for. These were “best guesses” by the person responsible for choosing and paying for the service. Variance would diminish with more responses but should be assumed high in this situation. Actual performance was recorded automatically via a speed test integrated into the survey. But performance will vary over time based on network congestion and other factors. Therefore, we report a full set of descriptive statistics, including average, maximum, median, and minimum speeds.

On average, survey respondents reported contracted to receive speeds of approximately 236 mbps download and 141 mbps upload. To get a better understanding of actual performance, the survey contained an embedded speed test that respondents ran from their locations. The actual speed test results were much lower than contracted speeds, with an average download speed of 123 mbps and an upload speed of 155 mbps.

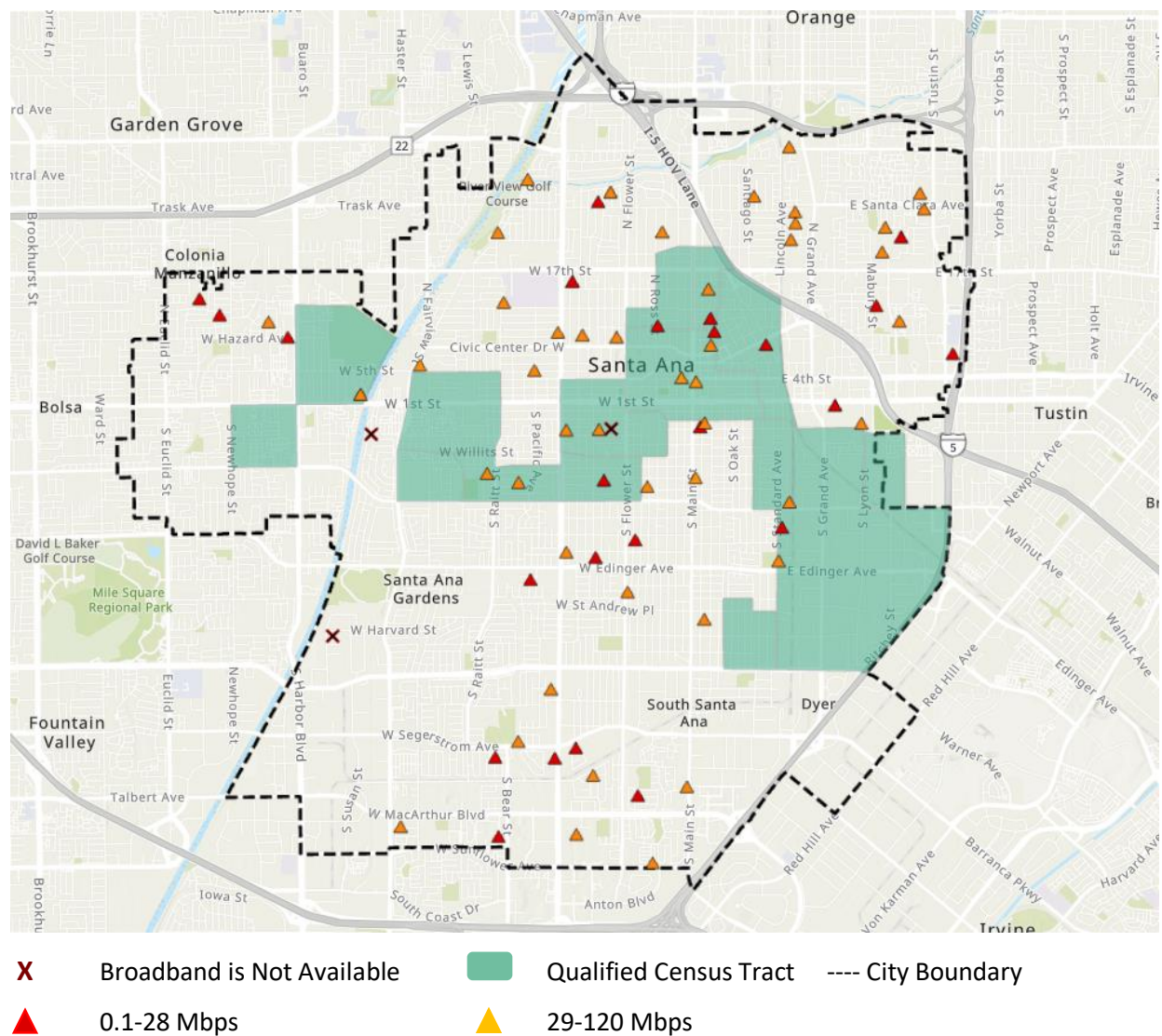
Table 2. Descriptive Statistics for Broadband Cost and Performance Among Survey Respondents

	Contracted		Actual		MRC	Cost Per Mbps
	Download	Upload	Download	Upload		
Average	235.73	141.06	122.69	154.82	\$73.70	\$0.27
Median	200	30	109.93	12.03	\$70.00	
Mode	200	10	1.18	11.33	\$80.00	
Max	2000	1315	925.69	1438	\$1300.00	
Min	1.5	1	0.22	0.61	\$1.00	
Averages By Provider						
Spectrum/Charter - Average	222.23	66.43	143.70	75.17	\$76.96	\$0.35
AT&T - Average	276.00	259.46	154.30	109.59	\$85.48	\$0.32

On average, respondents who subscribed to services through Spectrum/Charter were paying slightly more per mbps than AT&T customers.

Speed test results were mapped to indicate locations where respondents were receiving low speeds. The map below displays the locations of respondents whose total throughput (download speed plus upload speed) was under 28 mbps (representing the federal threshold of 25/3 mbps for broadband) and between 29 and 120 mbps (representing emerging guidelines for 100/20 mbps minimum speeds for broadband funding). There are more locations than expected with low speeds; however, they are not concentrated in any specific neighborhood, but are spread throughout the City. As shown below, several of the low-speed locations are within the qualified census tracts (QCTs) in Santa Ana, but a fairly equal amount are outside of the QCTs.

Figure 6. Locations of Respondents With Less Than 120 Mbps Total Throughput



The survey also asked respondents to rank their current internet service on a variety of factors, as shown below. More than half of respondents ranked their services as Good or Excellent overall, but there was some dissatisfaction with price.

Figure 7. Respondents' Assessment of Current Internet Service Performance

11. How well does the current internet service perform for this location?

	Terrible	Bad	Neither/Not sure	Good	Excellent	Responses
Overall						
Count	7	31	39	93	27	197
Row %	3.6%	15.7%	19.8%	47.2%	13.7%	
Performance/speed						
Count	8	42	27	91	23	191
Row %	4.2%	22.0%	14.1%	47.6%	12.0%	
Price						
Count	31	63	47	37	13	191
Row %	16.2%	33.0%	24.6%	19.4%	6.8%	
Reliability						
Count	12	35	35	82	25	189
Row %	6.3%	18.5%	18.5%	43.4%	13.2%	
Customer service and support						
Count	20	28	60	68	15	191
Row %	10.5%	14.7%	31.4%	35.6%	7.9%	
Totals						
Total Responses						197

Most respondents reported slowdowns and service outages, although they were relatively infrequent, as shown in the figure below. Slowdowns appear to occur daily for about 20% of respondents and but outages are relatively infrequent with service going out for an hour or two every few months to about once a year.

Figure 8. Respondents' Assessment of Internet Service Outages and Slow Downs

8. How often is the internet service to this location out or slow?

	Never	Once a year or less	Every few months	Every few weeks	Every few days	Daily, every day	Responses
The service slows down. Count Row %	27 12.3%	26 11.8%	46 20.9%	32 14.5%	44 20.0%	45 20.5%	220
The service is out briefly. Count Row %	22 10.0%	59 26.9%	54 24.7%	29 13.2%	30 13.7%	25 11.4%	219
The service is out for less than an hour. Count Row %	47 21.6%	59 27.1%	46 21.1%	27 12.4%	22 10.1%	17 7.8%	218
The service is out for an hour or two. Count Row %	75 34.7%	64 29.6%	36 16.7%	19 8.8%	13 6.0%	9 4.2%	216
The service is out for several hours. Count Row %	89 42.2%	60 28.4%	28 13.3%	15 7.1%	12 5.7%	7 3.3%	211
The service is out for a day or more. Count Row %	122 58.7%	44 21.2%	20 9.6%	8 3.8%	8 3.8%	6 2.9%	208
Totals Total Responses							220

Use

To better understand how internet is being used, we asked household respondents to identify how essential it is for a variety of common uses. Most respondents found internet to be extremely useful or essential across all tasks, except generating income or selling things and streaming games or video, for which just under half of respondents found it to be essential.

Figure 9. Household Use of Broadband

19. How important or useful is the internet in your household the following purposes?

	Extremely or essential	Very but not essential	Helpful but not really important	Minimally useful	Of no use	Responses
Finding and/or buying products or services Count Row %	122 70.1%	39 22.4%	5 2.9%	5 2.9%	3 1.7%	174
Generating income or selling things Count Row %	58 33.7%	20 11.6%	33 19.2%	21 12.2%	40 23.3%	172
Getting information for general purposes Count Row %	138 79.3%	21 12.1%	6 3.4%	5 2.9%	4 2.3%	174
Getting information for special interests or hobbies Count Row %	115 65.0%	42 23.7%	13 7.3%	3 1.7%	4 2.3%	177
Learning, making money, or staying healthy Count Row %	109 61.6%	41 23.2%	15 8.5%	5 2.8%	7 4.0%	177
Playing games, watching video, or other recreation Count Row %	81 46.3%	44 25.1%	30 17.1%	15 8.6%	5 2.9%	175
Staying in touch with family and friends Count Row %	116 65.9%	41 23.3%	10 5.7%	7 4.0%	2 1.1%	176
Totals Total Responses						177

We also asked respondents how often someone in their household was using internet for critical services such as schoolwork or training, telecommuting, operating a home-based business, or health monitoring. The most common of these uses was online learning, with more than half of respondents indicating that someone in their household used internet for this purpose more than once a week. Almost half (42.1%) of respondents had someone who telecommuted more than once a week, and just over a quarter (36.2%) used it for home-based business or gig work. Very few respondents (0.8%) had someone in their household who used it more than once a week for consulting a healthcare professional, although many respondents did use it a few times a year for this purpose.

Figure 10. Critical Uses by Household Respondents

18. How often do members of your household do the following?

	Once a year or less	A few times a year	About once a month	About once a week	More than once a week	Responses
Consult a healthcare professional Count Row %	33 17.3%	94 49.2%	45 23.6%	8 4.2%	11 5.8%	191
Do online schoolwork or training at home Count Row %	50 26.2%	24 12.6%	10 5.2%	8 4.2%	99 51.8%	191
Do home-based business, contract or "gig" work Count Row %	83 45.9%	19 10.5%	15 8.3%	11 6.1%	53 29.3%	181
Telecommute, work from home as an employee Count Row %	61 33.3%	14 7.7%	15 8.2%	16 8.7%	77 42.1%	183
Totals Total Responses						191

Among organizational respondents, digital technologies were absolutely essential or very useful for all uses including management and administration, production, outbound logistics, and sales and marketing, as shown in the figure below.

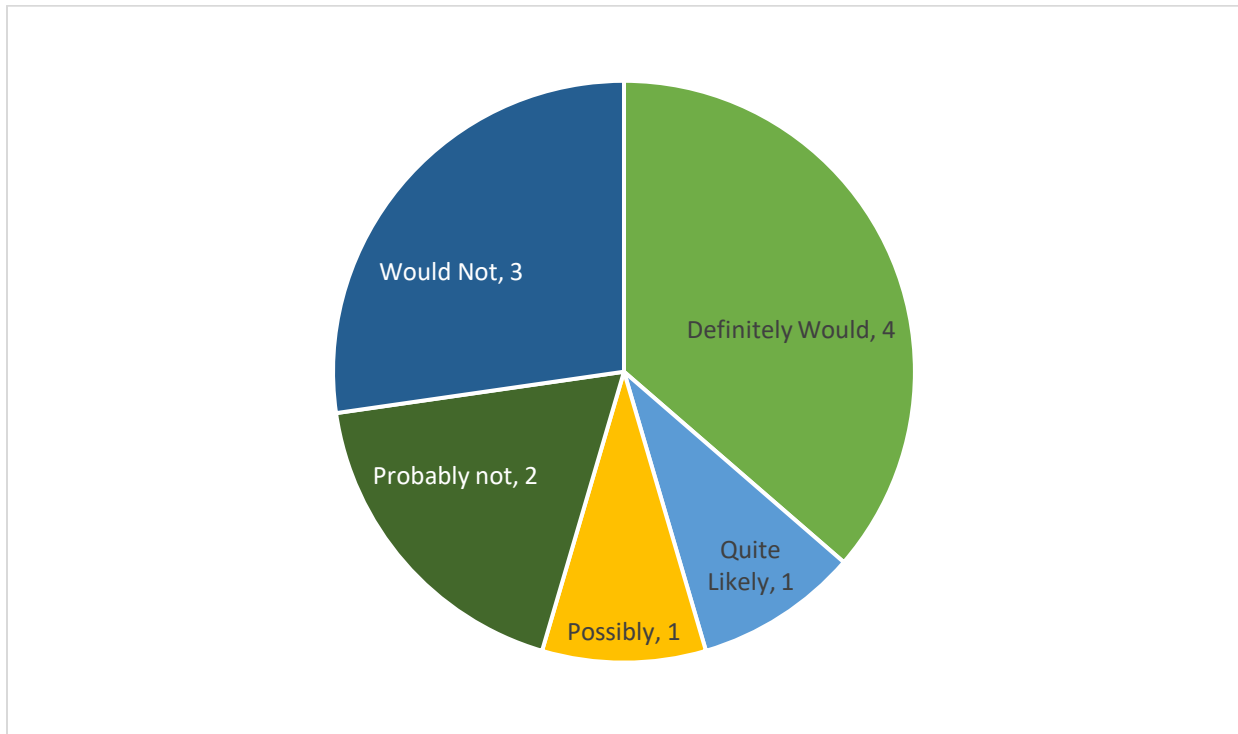
Figure 11. Usefulness of Digital Technologies for Organizational Respondents

24. How important or useful are digital technologies for the following activities?

	Extremely useful or essential	Very useful but not essential	Helpful or somewhat important	Minimally useful, not important	Of no use	Responses
Buying materials or equipment and hiring employees Count Row %	9 64.3%	3 21.4%	2 14.3%	0 0.0%	0 0.0%	14
Managing or operating the organization Count Row %	10 76.9%	1 7.7%	2 15.4%	0 0.0%	0 0.0%	13
Tracking inventory, materials, and work activities Count Row %	10 76.9%	2 15.4%	0 0.0%	1 7.7%	0 0.0%	13
Producing goods or providing services for customers Count Row %	10 76.9%	0 0.0%	0 0.0%	3 23.1%	0 0.0%	13
Tracking orders, fulfillment, and delivery Count Row %	10 76.9%	0 0.0%	2 15.4%	1 7.7%	0 0.0%	13
Selling, marketing, and getting customers to buy Count Row %	8 61.5%	2 15.4%	1 7.7%	2 15.4%	0 0.0%	13
Supporting customers, providing customer service Count Row %	10 76.9%	1 7.7%	2 15.4%	0 0.0%	0 0.0%	13
Totals Total Responses						14

To understand just how critical broadband is, we asked organizational respondents whether they would be willing to move their business for much faster, less expensive internet services. Of the 14 responses, organizations were relatively split about whether they would move, as shown in the figure below.

Figure 12. Organizational Respondents' Willingness to Move for Broadband if Able to Get Much Faster and Less Expensive Internet Services Elsewhere with Comparable Business Characteristics



CONCLUSIONS

Generally, consumers in Santa are relatively satisfied with their broadband, although many expressed dissatisfaction with prices. Spectrum/Charter appears to dominate the market, although there is some competition from others including AT&T.

Speed test data revealed that many locations are not getting adequate speeds that meet the emerging guidance for broadband to meet thresholds of at least 100/20 mbps, and some are not even getting the minimum Federal threshold of 25/3 mbps. Many of these locations are in the qualified Census tract zones, indicating that these neighborhoods face barriers to adopting high-speed broadband.

Households recognize the importance of robust broadband, especially to do online learning, telecommute, operate home-based businesses, and do online schoolwork.

Connectivity was a critical issue for many organizational respondents, particularly for buying materials and management and operations.

Overall, survey results indicate that demand for bandwidth in Santa Ana may be outpacing current service offerings, meaning that residents and businesses would benefit from a cost-effective or free high-speed broadband service offering that would enable the entire community to work, learn, and thrive.