



BROADBAND OVERVIEW

COMPETITIVE OVERVIEW

1. Who are the local service providers / incumbent providers of significance?



Comcast



Biznet



Verizon



Citizens



GoGig



Allpoints
Broadband



Access
Media 3



Wide Open
Networks



Shentel



2. What is the local reach / what are the service zones for each competing provider?

All providers listed above are providing service within town limits. The extent of each provider's existing service varies from full coverage in some neighborhoods to none in others.

Refer to ([Appendix A](#) and [Appendix B](#)) for internet upload and download speed results.

3. What services are offered by each provider, and at what price?



COMCAST*

Internet with speeds from 25MB download (\$40) with phone and HDTV available (\$45 bundled) Xfinity internet package offering speeds up to 150 MB.



BIZNET

Business internet with custom solutions (pricing dependent on services) and bulk internet for residential communities/ multi-dwelling buildings.



VERIZON*

Internet with speeds up to 15MB download (\$30) with phone and HDTV available (\$80 bundled).



CITIZENS

Business internet with custom solutions (pricing dependent on services) and bulk internet for residential communities/ multi-dwelling buildings.



GOGIG

Internet with speeds up to 10MB download (\$55).



ALLPOINTS BROADBAND

Uses a hybrid fiber and fixed-wireless network. Internet with speeds up to 10MB download(\$59).



ACCESS MEDIA 3

This company provides voice, internet, and TV in tenant based properties.



WIDE OPEN NETWORKS

Provides one GB fiber and 100mb internet to the home in two Blacksburg neighborhoods (\$70)



SHENTEL

Provides internet service to some Blacksburg businesses.

* Comcast and Verizon are the only two providers offering consistent town-wide residential service. The others are providing services in limited areas or within private complexes.

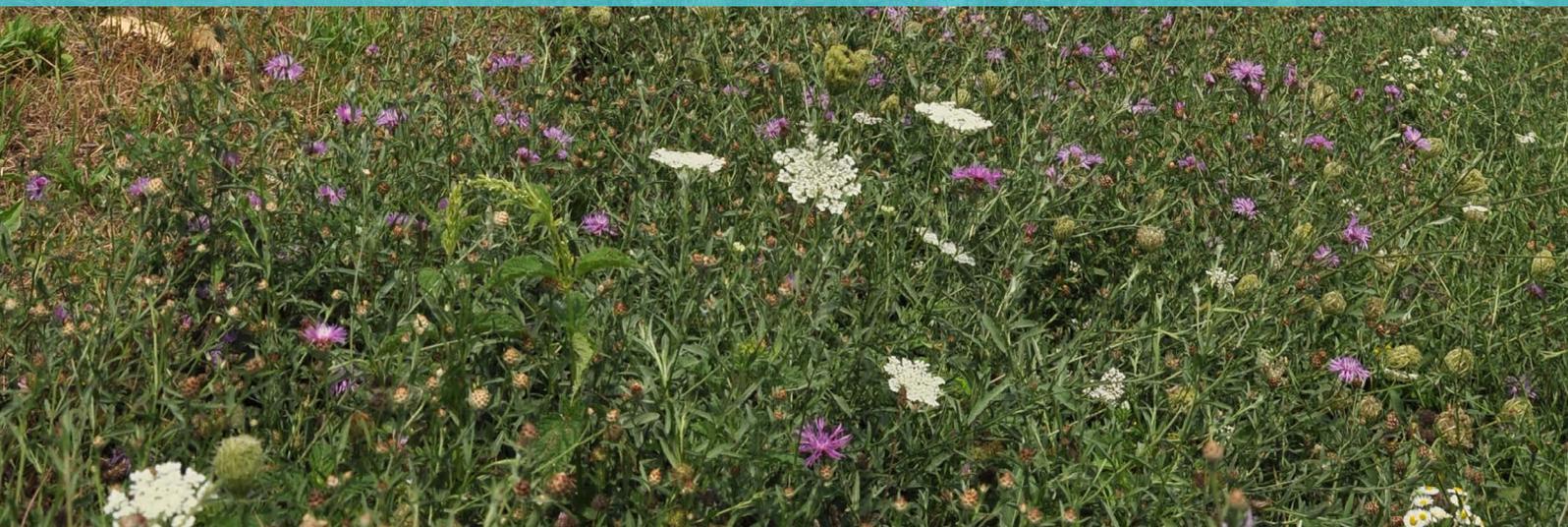


4. What is the general perception locally of these companies as service providers? (e.g. frustration due to outages, deep local roots, etc.)

Biznet, GoGig, and Wide Open Networks are “locally grown” providers. Citizens is the ILEC for Floyd County. They entered the Blacksburg market with the installation of the middle-mile backbone; their approach is to provide services under contract at a business’ initiation rather than market expansion given the fact that they are a cooperative owned by Floyd County residents and focused on their owner-market. These providers are generally perceived as offering decent service at typical prices.

National providers Comcast, Verizon, and Shentel operate in the Blacksburg market much as they do elsewhere. The high-speed services offered in other markets around the country are not available in Blacksburg and the companies apparently do not intend to offer these services locally in the near future, unless a customer pays the full cost of upgrades and installation. The general perception could be compared to that found elsewhere – value of speed and service is not equal to the cost; speeds are typically lower than the optimum suggested in a package; customers are obligated to term contracts and expensive connection costs.

Outages are not commonly identified as a source of frustration. Slow speeds and lack of available high-speed, (15 MB is the typical maximum download speed available), service are common complaints of existing service. Areas of new residential development cannot get fiber service choices and some can only rely a wireless service.



MUNICIPAL ASSETS

1. What, if any, municipal fiber assets are available for use?

The town is currently evaluating the extent to which its fiber assets would be available for use by providers. As mentioned previously, middle-mile backbone is available for lease from Citizens. An agreement with Virginia Tech and/or Mid-Atlantic Broadband to lease their fiber may be available.



What, if any, municipal fiber assets are available for use?

There are about 34 route miles of fiber available within the town's boundaries. See the Blacksburg Fiber and Other Assets map ([Appendix C](#)) for specific locations.



If lit, what services and capacities are available?

Services and capacities vary due to specific strand counts in specific locations, franchising agreements, aerial use, etc.



If dark, what are the available strand counts?

According to the calculations, there would be about 542 strands of available fiber within the town's boundaries.



Please provide relevant maps detailing routes and possible splice points.

The Fiber and Other Assets map ([Appendix C](#)) identifies the town's fiber assets, the middle-mile backbone operated and brokered by Citizens Cooperative, POPs, and potential data centers, as well as town properties that may be available to lease space for fiber equipment.

2. What existing municipal conduit is available for use? Please provide any pertinent maps and access details/terms.

Please refer to the Fiber and Other Assets map ([Appendix C](#)) for illustration of available conduit.

3. What, if any, existing municipal network facilities (e.g. data center[s]) are available for use?

Citizen's Cooperative has middle-mile fiber available within the town. There are possible data centers that could be available to use, please see the Fiber and Other Assets map ([Appendix C](#)) for specific locations.

4. What existing municipal properties or facilities are available for network components (cabinets/pedestals/electronics), equipment storage, and vehicle storage? Please provide any relevant maps and access details (leases, RFPs required, etc.).

Please refer to the Fiber and Other Assets map ([Appendix C](#)) for illustration of town properties that could be available for network components.

5. Has any fiber engineering work for network segments not yet completed been conducted to date? If so, please provide existing work and diagrams that may be of relevance.

The Fiber and Other Assets map ([Appendix C](#)) details two miles of future fiber the town is planning to develop.

The town is building fiber to the traffic signals in the town. This is to improve the communications network for our transit bus fleet. Five signals are connected and nine more are anticipated in the next 12 months; final build out will cover 26 signals.

One new building will be added add to the town fiber network, at our public cemetery.

Most of the fiber network for the town is single path with no diverse path. The town is in the process of planning diverse path fiber to give the network fiber diversity and business continuity. Conduit is being added to some of the town's public road, sidewalk and other projects as they are built.

6. Please describe how you might provide up to date information regarding homes/businesses/other locations that can be serviced with fiber (e.g. land parcel/address data).

The Town of Blacksburg has resources indicating homes, businesses, and other locations that can be serviced with fiber. Please see the attached Land Use Maps ([Appendix D](#) and [Appendix E](#)) for current land use in the town. Information is updated twice a year on the town's GIS site. <https://www.webgis.net/va/Blacksburg>.

When seeking more current information in between updates, providers are encouraged to contact the GIS Manager, Katherine Smith, for GIS data files at ksmith@blacksburg.gov.



7. Please list any known middle mile/connections to POPs and data centers within the municipality.

Data centers within the municipality include the Blacksburg Municipal Building, Virginia Tech Computer Network Services, Blacksburg Transit and Brush Mountain (private). Please see the Fiber and Other Assets map ([Appendix C](#)) for details.

DEMOGRAPHICS AND POPULATION

1. Please provide any available density, population and economic data (e.g. income, home value) by street/neighborhood.

Blacksburg's total population is estimated at 43,000 within 19.7 square miles of town limits, part of the 94,000 residents in Montgomery County. Virginia Tech's combined undergraduate and graduate student enrollment on the Blacksburg campus is 29,000 with approximately 9,000 living on campus and 20,000 living off campus. Population counts include students identifying Blacksburg as their primary residence, but it isn't possible to estimate how many do so. This can skew data when determining household income. The US Census median household income is \$29,271; but the family median household income is \$78,832. The percent of residents with a bachelor's degree or higher is 69%; 96% have a high school diploma or better.

The town has over 15,000 housing units. One-third are single-family and one-third are apartment buildings of 10-19 units. Over half of the owner-occupied residences (2,500) are valued between \$200,000 and \$500,000.



Please see demographics chart for home value and density and the Density by Block Group map. ([Appendix F](#) and [Appendix G](#)).

2. Please provide any available data on population and age trends that may be available.

Blacksburg has experienced a more than 7% growth in population from 2000 to 2010. This growth, at a positive rate in all age brackets, is expected to continue. Virginia Tech's presence ensures a stable population of four-year college students along with a robust graduate and post-graduate population. In the next five to six years Virginia Tech plans to grow its enrollment an additional 5,000 undergraduate students. The graduating class of 2019 is already slated to be the largest in Virginia Tech's history.



3. Please provide a general map detailing town and neighborhood boundaries.

The Blacksburg Land Use Maps ([Appendix D](#) and [Appendix E](#)) show the general distribution of the neighborhood types throughout the town as well as employment and commercial areas.

REGULATORY INFORMATION



1. Policies/plans for permitting: please describe your anticipated process and turnaround time if faced with a large number of permit applications. How would the process work?

Service providers typically sign a licensing or franchise agreement with the town before submitting applications for a large number of permits. Details on this process are addressed in question #3. All street closures and excavation permits must be approved five days before work begins.

a) for microtrenching / is it allowed?

The town allows micro-trenching. Once a franchise or licensing agreement is in place with the town (see question #3), review time for permits would be significantly reduced – turnaround time is measured in days (currently about 3 to 5 days with existing providers). This process requires a completed application with an illustration of work to be done and staff review before approval. To have a permit in place before work begins, it is recommended that an application be submitted no less than 10 days before your scheduled start date.

b) for installing conduit

Once a franchise or licensing agreement is in place with the town, review time for permits would be significantly reduced – turnaround time is measured in days (currently about 3 to 5 days with existing providers). This process requires a completed application with an illustration of work to be done and staff review before approval. To have a permit in place before work begins, it is recommended that an application be submitted no less than 10 days before your scheduled start date.

c) for poles

The Town of Blacksburg does not own or control any telecommunications or utility poles. Most of the telephone poles in the center of town are owned and controlled by Virginia Tech Electric, a subsidiary of Virginia Tech. The majority of poles not owned by Virginia Tech Electric are owned and controlled by Appalachian Power Company.





2. Pole stock information: please outline:

a) What utility/communication poles are available for use

We recommend contacting the pole owners - Virginia Tech Electric and Appalachian Power Company - to determine what poles may be available for use.

b) Maps/details on the location of each

See the attached Light Poles map ([Appendix H](#)) for locations.

b) Details regarding the condition of each

The town does not have information on the condition of each pole.



3. What franchise agreement(s) are anticipated to be necessary to:

a) Offer telecommunication services within municipal boundaries?

A franchise agreement is the most likely arrangement to offer telecommunication service within municipal boundaries. This agreement will address the work anticipated for the project, including any preliminary plans, right-of-way, street closures, excavations. Town staff will work with a provider to draft a franchise or licensing agreement which will require Town Council's approval. This process takes about three months to complete.

b) Offer IPTV video services within municipal boundaries?

A franchise or license agreement is likely required to offer IPTV video service within municipal boundaries, under the discretion of the Town Attorney. Additionally, the scope of services provided will likely have an impact on whether a franchise agreement or license agreement will be required. Licenses are typically dealt with services that include a smaller scope, while franchise agreements typically deal with more comprehensive scope. Town staff will work with a provider to draft a franchise or licensing agreement which will require Town Council's approval. This agreement will address the work anticipated for the project including any preliminary plans, right-of-way, street closures, excavations. Franchise agreements take about three months to complete; licensing agreements require less time.





4. Is there any existing infrastructure within the town that is not under control of the municipality, but might still be available for use?

Existing infrastructure that might be available for use includes, but is not limited to, Citizen's Telephone, Shentel, Zayo, Comcast, Verizon, Level 3 Communication, Mid Atlantic Broadband, nTelos/Lumos.



5. Please provide encroachment agreements for:

a) Town streets

Encroachment on town streets would be addressed in the franchise/licensing agreement. Requirements for work impacting local streets can be found within the Blacksburg Municipal Code found here Blacksburg Town Code, starting at Section 21-301. Any code requirements would be addressed in the franchise/licensing agreement.

b) State streets (if applicable)

The town does not maintain any state roads. Those within town limits include Route 460 and Virginia Tech's campus roads; these are maintained by VDOT and would be subject to their regulations.



6. Please detail any state laws that may have an impact on buildout.

None to note



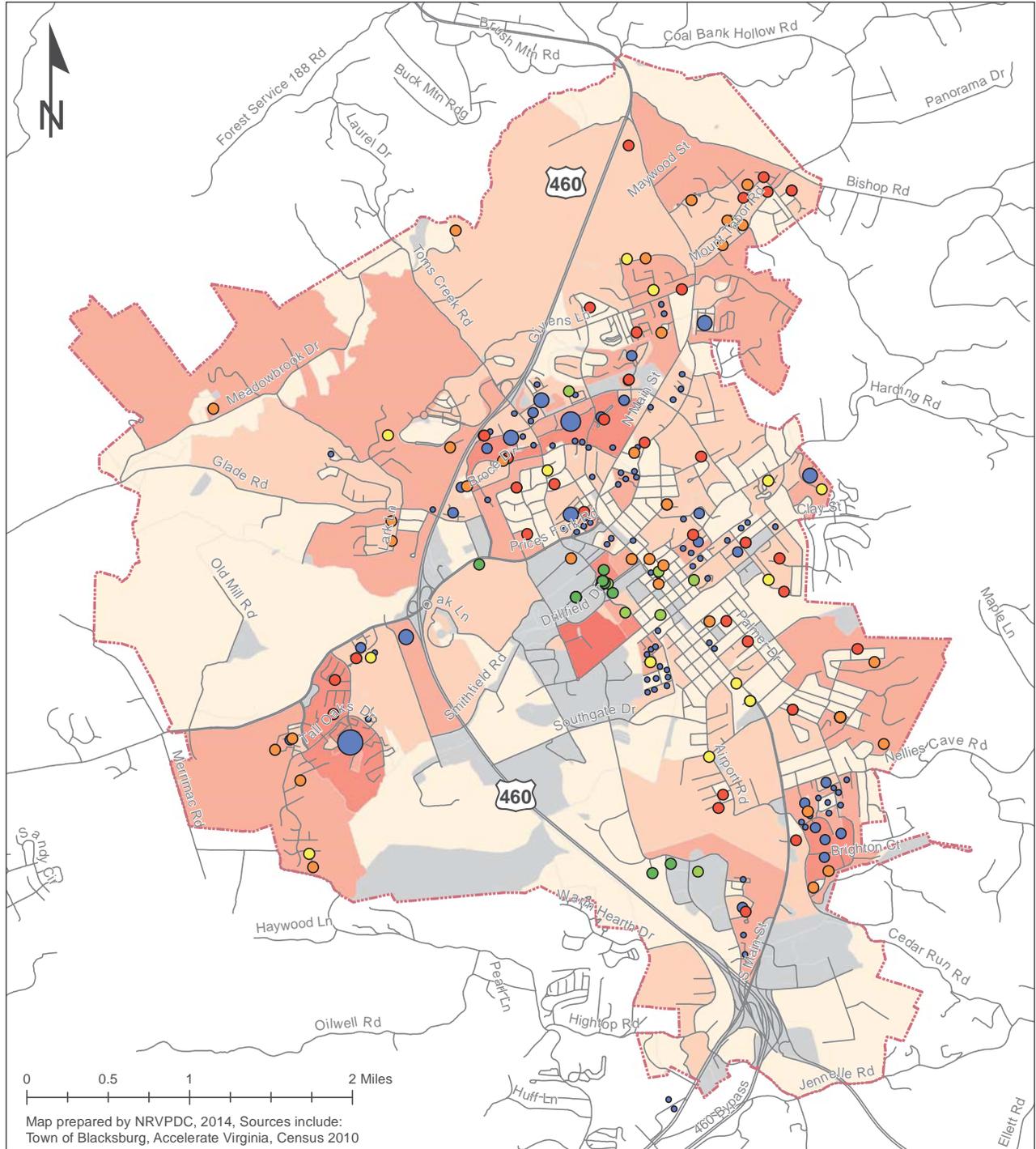
A joint survey between the towns of Blacksburg and Christiansburg, Montgomery County, New River Regional Commission, Montgomery County Chamber of Commerce, and the Blacksburg Partnership was created to determine how residents and businesses feel about their current internet service. The localities are considering how they can create efficiencies and reduce costs for providers as well as determining local broadband need. To review the survey results please see [Appendix I](#).



APPENDICES

APPENDIX A - INTERNET UPLOAD SPEED RESULTS

Town of Blacksburg Internet Upload Speed Test



Legend

— Road Center Line

⬡ Town Boundary

Units Per Apartment

• 0 - 72

• 73 - 173

• 174 - 302

• 303 - 812

• 813 - 1728

Upload Speed (Mbps)

• 0.13 - 2.84

• 2.85 - 6.37

• 6.38 - 11.49

• 11.50 - 32.94

• 32.95 - 94.91

Population by Census Blocks

■ 0

■ 1 - 67

■ 68 - 221

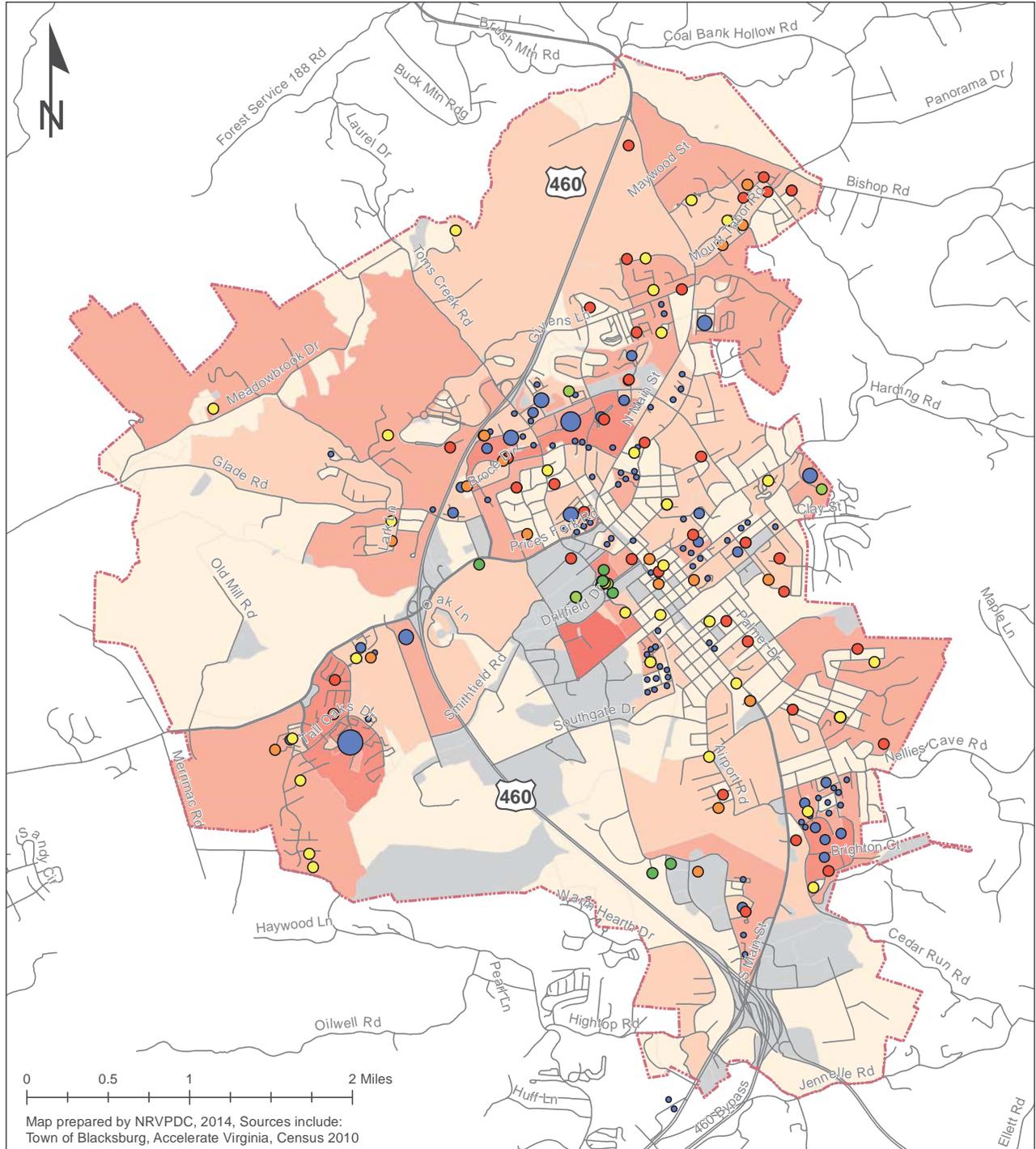
■ 222 - 611

■ 612 - 1153

■ 1154 - 5322

APPENDIX B - INTERNET DOWNLOAD SPEED RESULTS

Town of Blacksburg Internet Download Speed Test



Legend

— Road Center Line

▭ Town Boundary

Units Per Apartment

• 0 - 72

• 73 - 173

• 174 - 302

• 303 - 812

• 813 - 1728

Download Speed (Mbps)

• 0.29 - 5.60

• 5.61 - 13.04

• 13.05 - 30.91

• 30.92 - 60.77

• 60.78 - 94.93

Population by Census Blocks

■ 0

■ 1 - 67

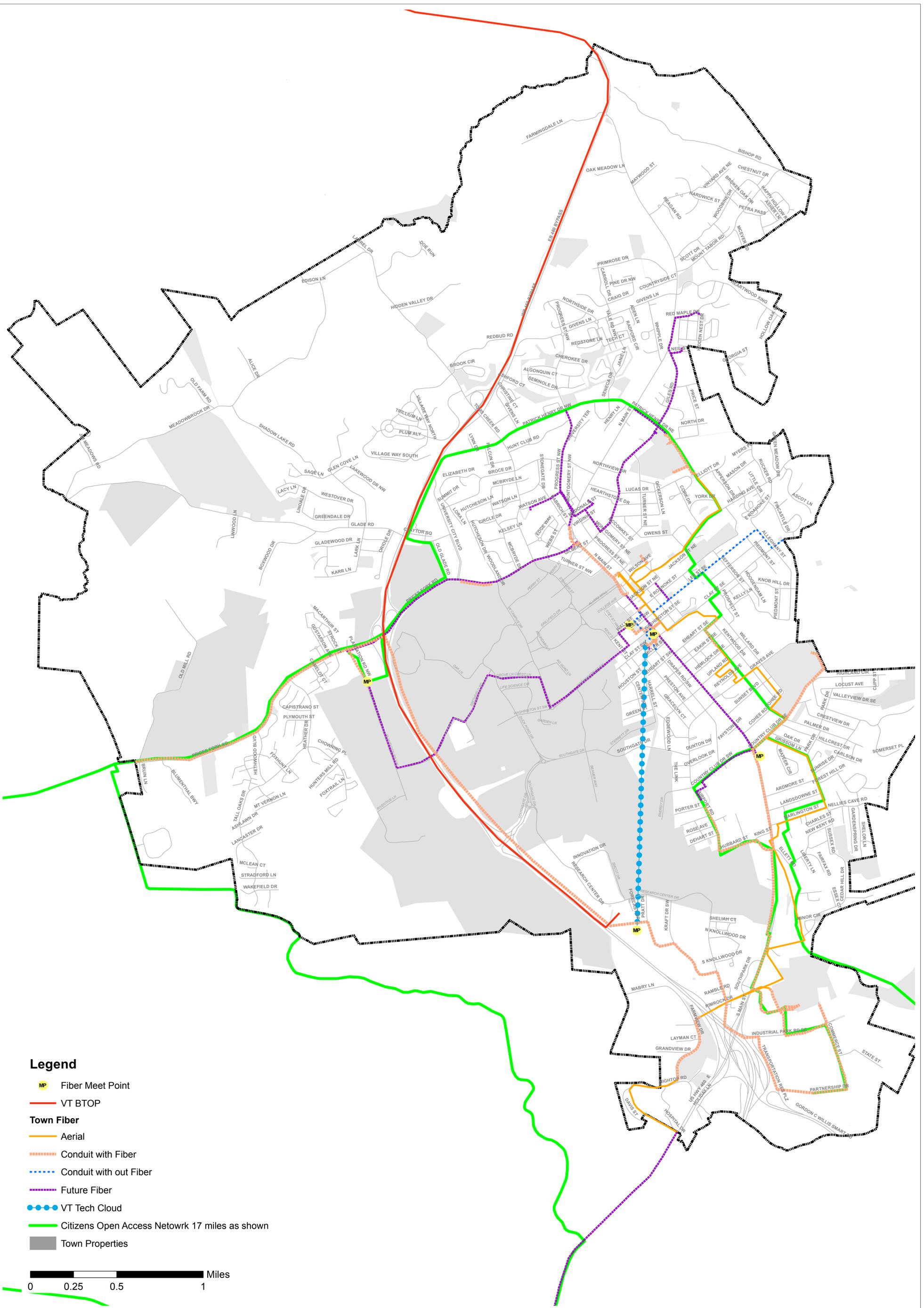
■ 68 - 221

■ 222 - 611

■ 612 - 1153

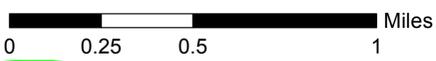
■ 1154 - 5322

APPENDIX C - BLACKSBURG FIBER AND OTHER ASSETS MAP



Legend

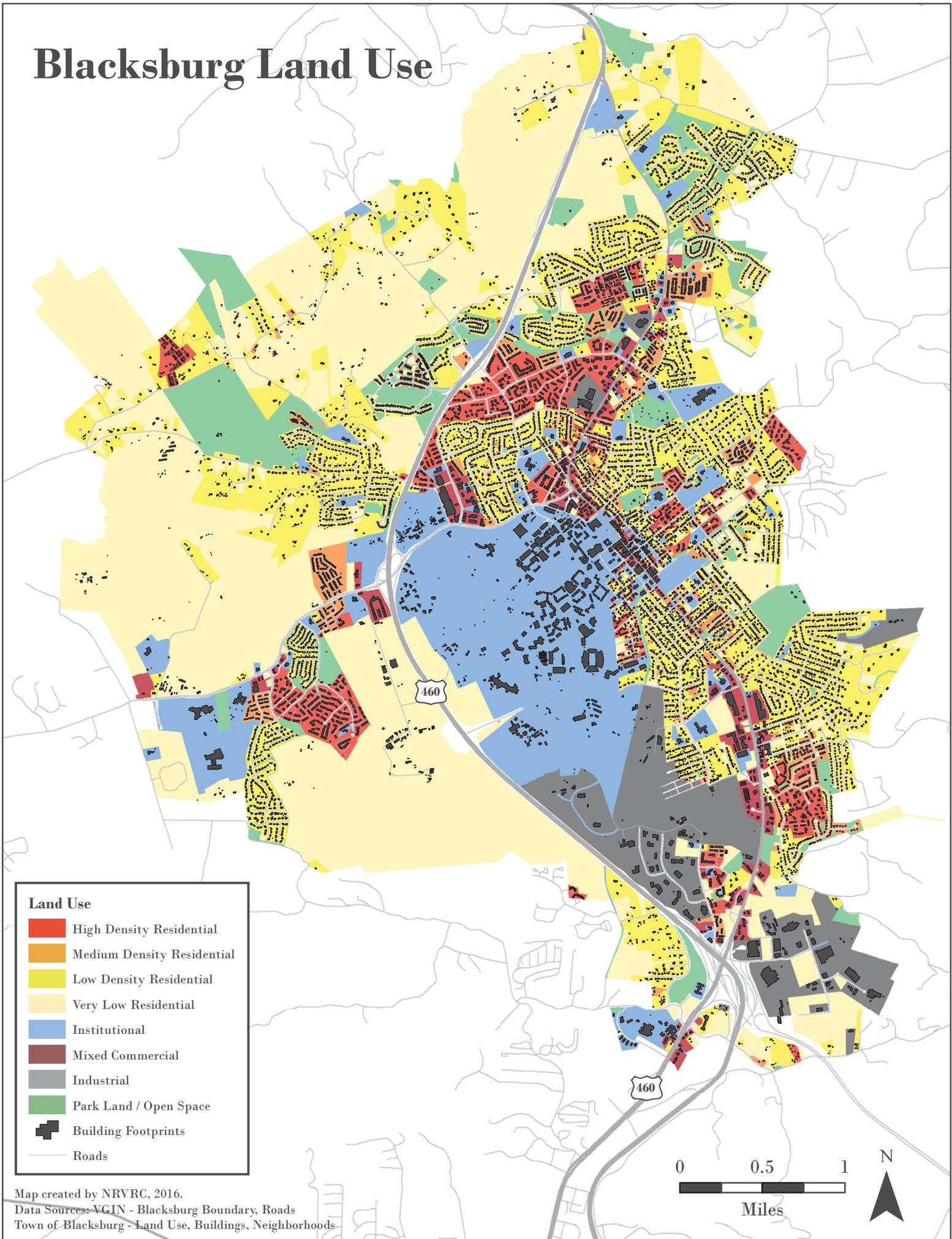
- Fiber Meet Point
- VT BTOP
- Town Fiber**
- Aerial
- ⋯ Conduit with Fiber
- ⋯ Conduit with out Fiber
- Future Fiber
- VT Tech Cloud
- Citizens Open Access Network 17 miles as shown
- Town Properties



Town of Blacksburg, Va Fiber

APPENDIX D - LAND USE MAPS

Blacksburg Land Use



Land Use

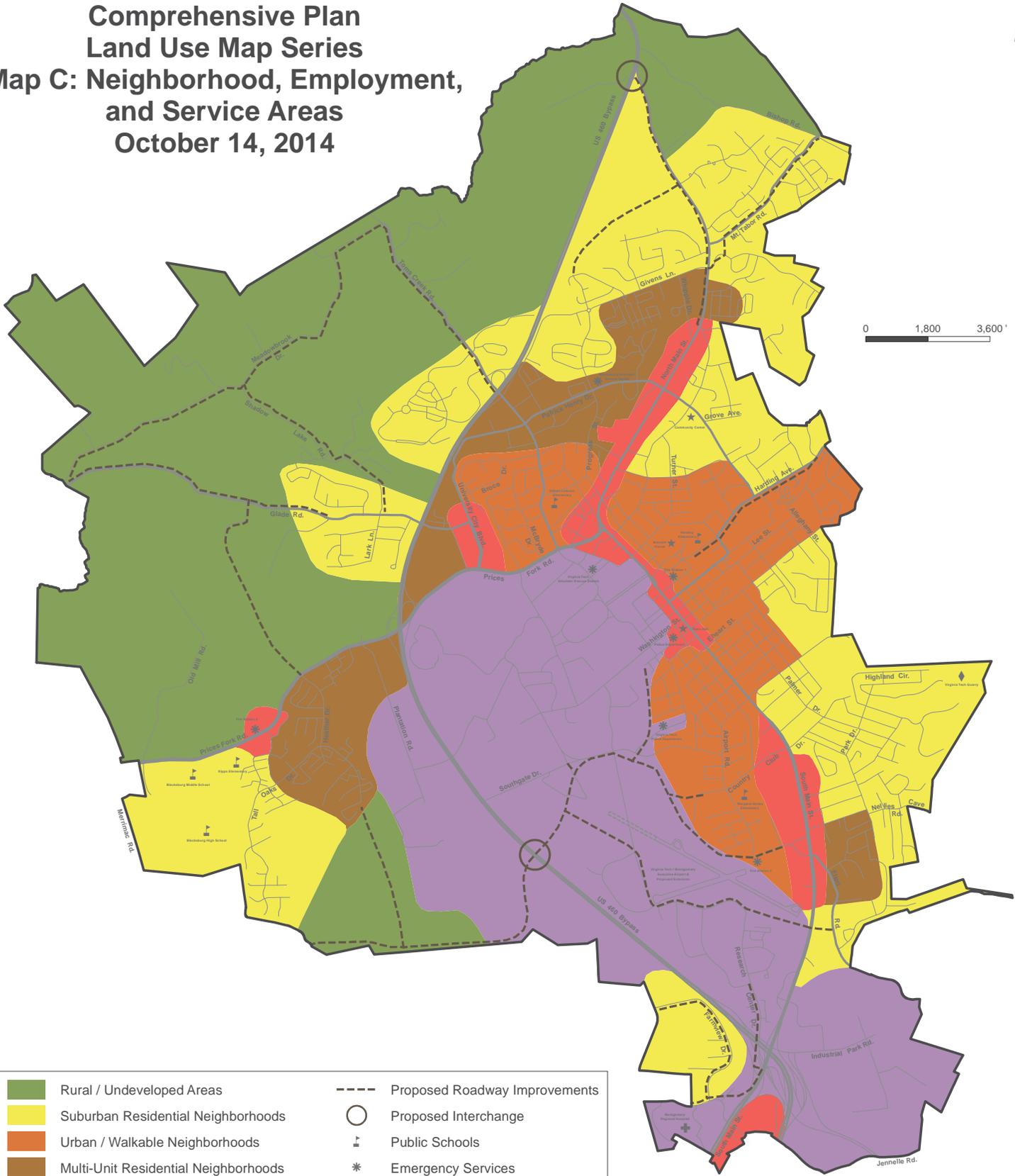
- High Density Residential
- Medium Density Residential
- Low Density Residential
- Very Low Residential
- Institutional
- Mixed Commercial
- Industrial
- Park Land / Open Space
- Building Footprints
- Roads

Map created by NRVRC, 2016.
Data Sources: VGIN - Blacksburg Boundary, Roads
Town of Blacksburg - Land Use, Buildings, Neighborhoods



APPENDIX E - LAND USE MAPS

2014
Town of Blacksburg
Comprehensive Plan
Land Use Map Series
Map C: Neighborhood, Employment,
and Service Areas
October 14, 2014



- | | | | |
|---|--------------------------------------|---|-------------------------------|
|  | Rural / Undeveloped Areas |  | Proposed Roadway Improvements |
|  | Suburban Residential Neighborhoods |  | Proposed Interchange |
|  | Urban / Walkable Neighborhoods |  | Public Schools |
|  | Multi-Unit Residential Neighborhoods |  | Emergency Services |
|  | Commercial Areas |  | Public Buildings |
|  | Employment Areas |  | Hospital |
|  | Blacksburg Town Limits |  | Quarry |

APPENDIX F - HOME VALUE AND DENSITY

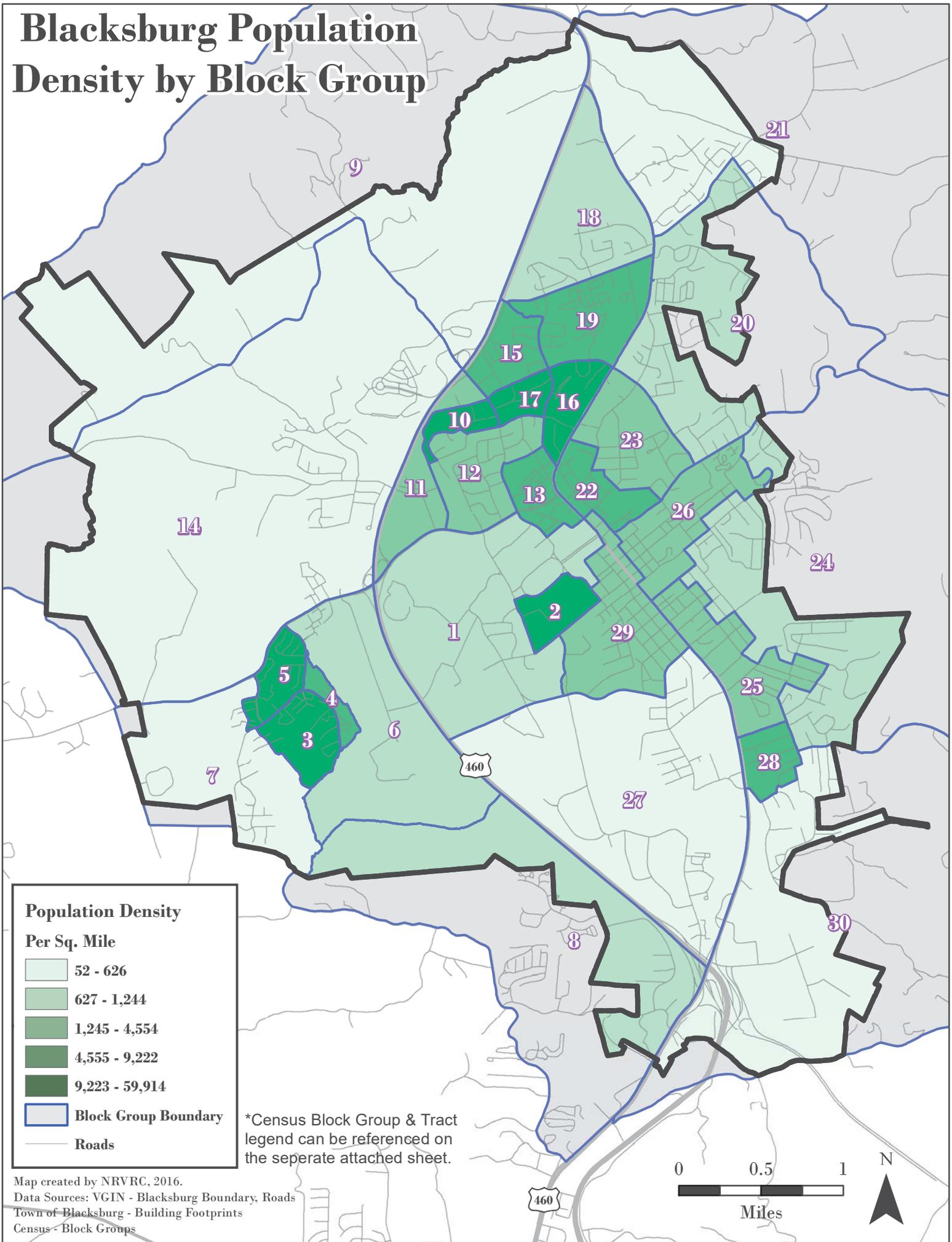
#	Census Tract	Block Group	Total Population	Total Housing Units	Total Occupied Housing Units	Median Household Income	Median Home Value	Population Density	Housing Unit Density	Area SQMI
1	Tract 201	Block Group 1	1215	4	0	0	0	1047	3	1.1604
2	Tract 202.01	Block Group 1	484	0	0	0	0	266	0	1.8183
3	Tract 202.02	Block Group 1	2140	196	196	99113	289900	11856	1086	0.1805
4	Tract 203	Block Group 1	826	874	756	62742	224000	4811	5090	0.1717
5	Tract 204	Block Group 1	536	1051	954	9940	0	348	682	1.5401
6	Tract 205	Block Group 1	1114	181	181	53403	0	8806	1431	0.1265
7	Tract 206	Block Group 1	3162	326	277	19479	0	55571	5729	0.0569
8	Tract 207	Block Group 1	1364	1147	1019	25781	116700	9552	8032	0.1428
9	Tract 201	Block Group 2	7581	465	327	88295	281700	252	15	30.1213
10	Tract 202.01	Block Group 2	1370	745	655	106438	338800	217	118	6.3252
11	Tract 203	Block Group 2	2240	442	347	17891	0	32	6	69.9823
12	Tract 204	Block Group 2	2126	526	446	12100	0	541	134	3.9284
13	Tract 205	Block Group 2	1452	429	335	117411	267100	178	53	8.1429
14	Tract 206	Block Group 2	921	399	399	12212	0	6946	3009	0.1326
15	Tract 207	Block Group 2	1032	252	204	138824	349600	12949	3162	0.0797
16	Tract 202.01	Block Group 3	2596	678	566	22071	115400	36461	9522	0.0712
17	Tract 203	Block Group 3	925	519	519	10969	182700	7312	4103	0.1265
18	Tract 204	Block Group 3	1431	720	622	11229	0	6010	3024	0.2381
19	Tract 205	Block Group 3	1916	617	511	9838	233300	6229	2006	0.3076
20	Tract 206	Block Group 3	1507	371	371	27721	210000	10643	2620	0.1416
21	Tract 207	Block Group 3	1167	707	707	16411	282800	1959	1187	0.5958
22	Tract 202.01	Block Group 4	283	816	717	34648	274200	858	2474	0.3298
23	Tract 203	Block Group 4	737	817	817	114141	304500	4366	4840	0.1688
24	Tract 204	Block Group 4	1368	1337	1161	85341	311400	4290	4193	0.3189
25	Tract 205	Block Group 4	2034	518	506	38370	278800	5652	1439	0.3599
26	Tract 207	Block Group 4	2426	609	557	22356	215600	7063	1773	0.3435
27	Tract 202.01	Block Group 5	702	655	545	25977	478600	1529	1427	0.4591
28	Tract 203	Block Group 5	903	596	507	32156	239800	233	154	3.8724
29	Tract 204	Block Group 5	1638	500	422	38556	171400	1773	541	0.9238
30	Tract 203	Block Group 6	932	1140	1101	37587	207900	207	253	4.5095

*Reflects demographic data from block groups that do not perfectly correspond with the Town of Blacksburg boundary. Some block groups only shared a small portion of the Town of Blacksburg boundary, but demographic data was counted for the entire block group. This will result in slight inflation of demographic statistics.

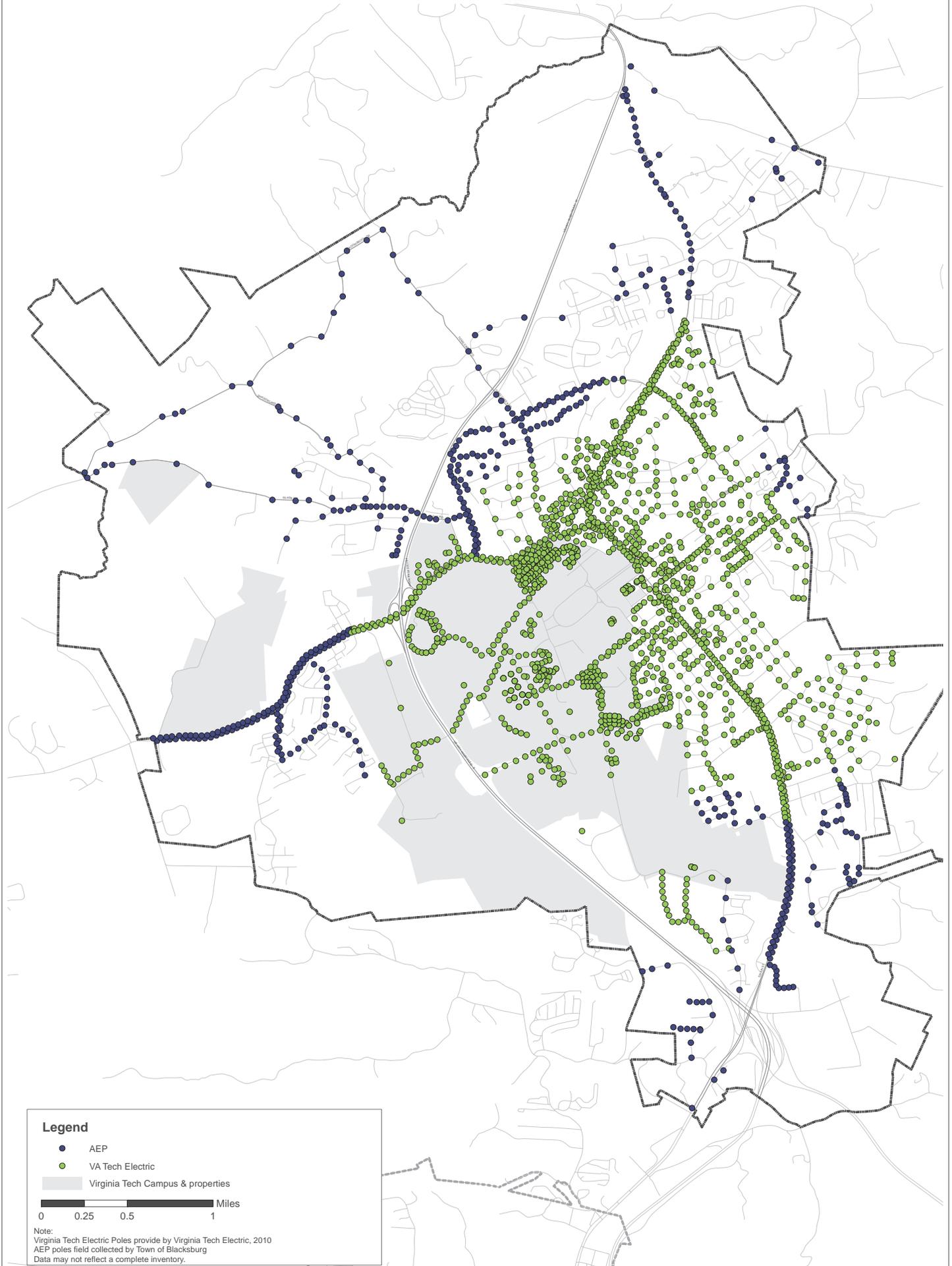
*Density calculations per square mile.

APPENDIX G - DENSITY BY BLOCK GROUP MAP

Blacksburg Population Density by Block Group



APPENDIX H - LIGHT POLES MAP



Legend

- AEP
- VA Tech Electric
- Virginia Tech Campus & properties

0 0.25 0.5 1 Miles

Note:
Virginia Tech Electric Poles provide by Virginia Tech Electric, 2010
AEP poles field collected by Town of Blacksburg
Data may not reflect a complete inventory.



Light Pole Locations

APPENDIX I - SURVEY RESULTS



Broadband Consumer Survey Results

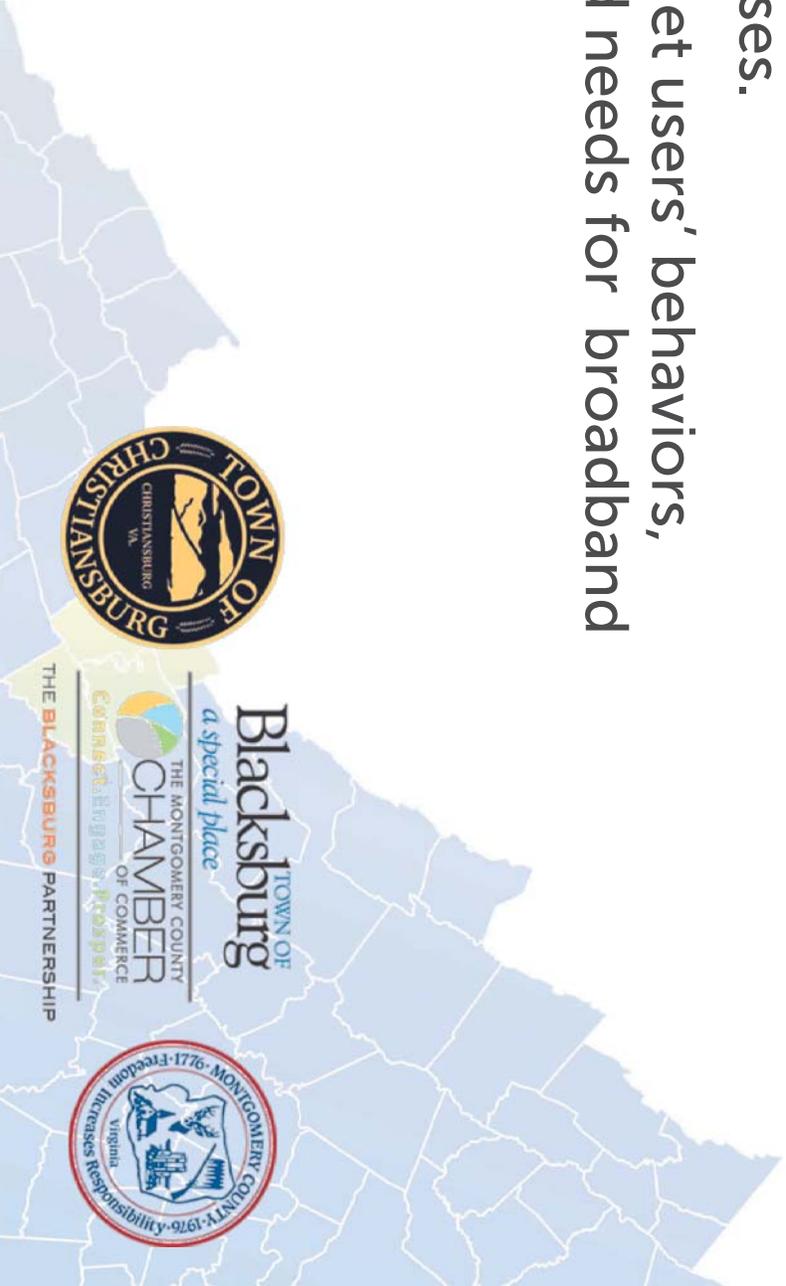
February 21, 2017

N R V R C . O R G



Survey Goals

- Understand broadband needs as identified by residents and businesses.
- Collect data on internet users' behaviors, challenges, wants and needs for broadband access and speeds

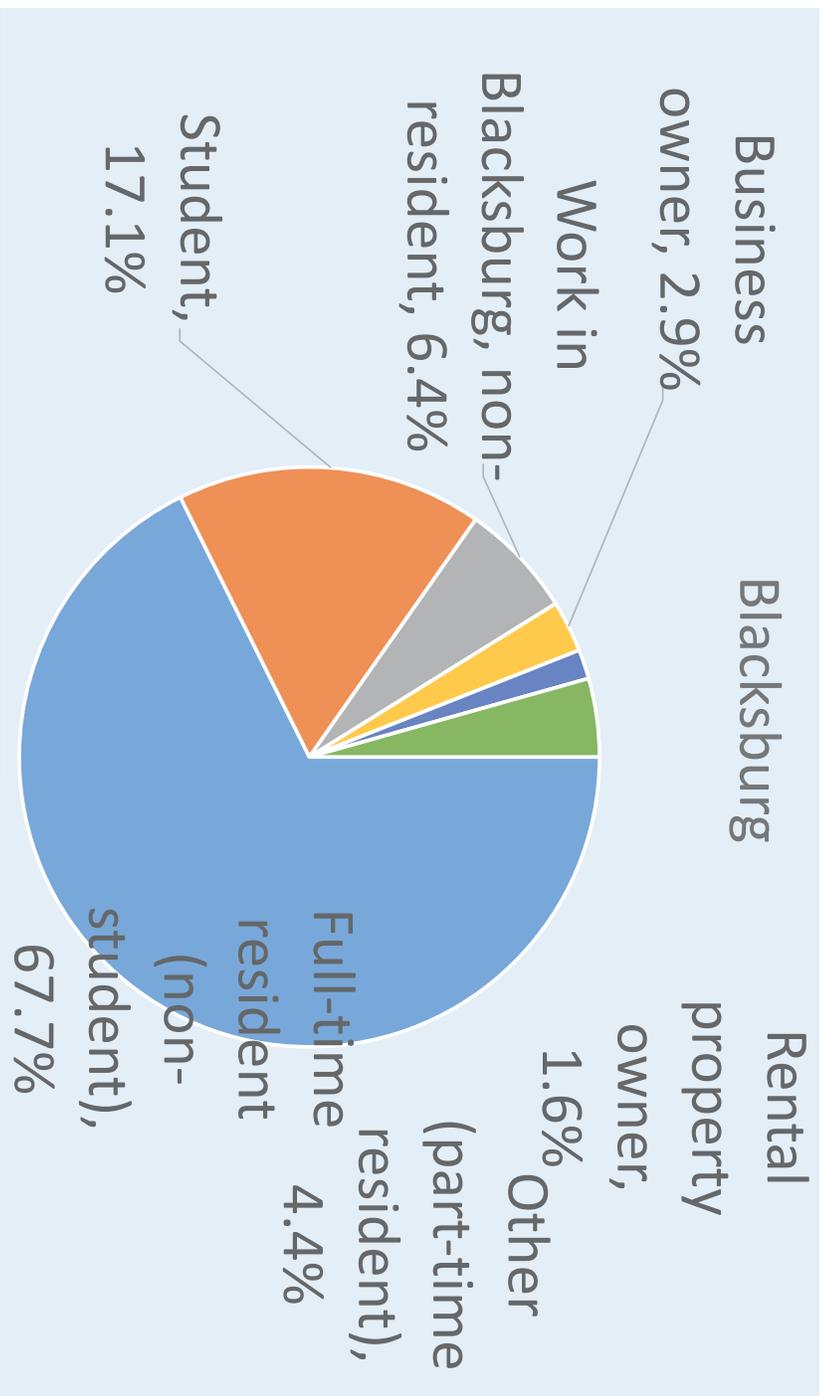


Participation Across the Localities

- Survey responses
 - Blacksburg n=755
 - Christiansburg n=852
 - Montgomery County n=207
- Survey opened on October 21, 2016
 - Press coverage that same day in the Roanoke Times
- Closed survey December 30, 2016
- Publicized through stakeholders' social media and communication outlets



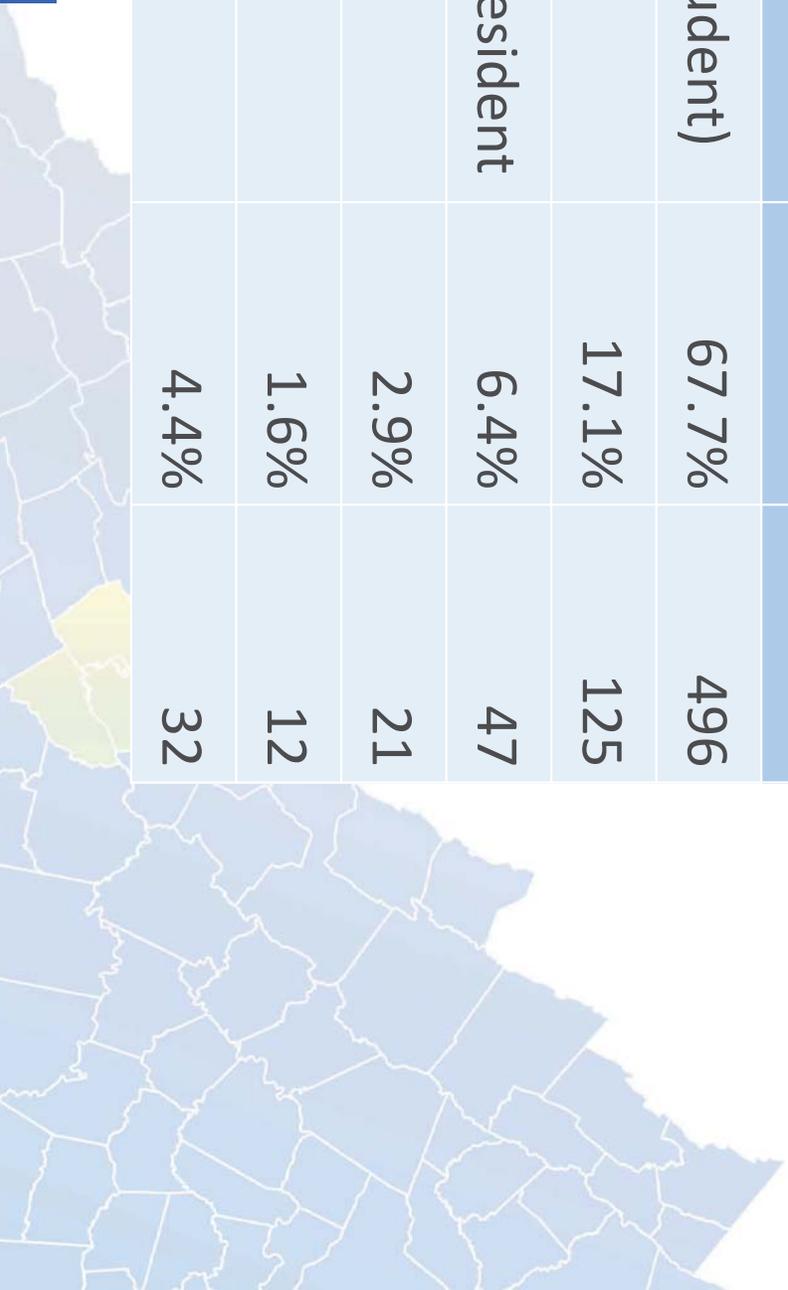
Respondent Profile



Respondent Profile

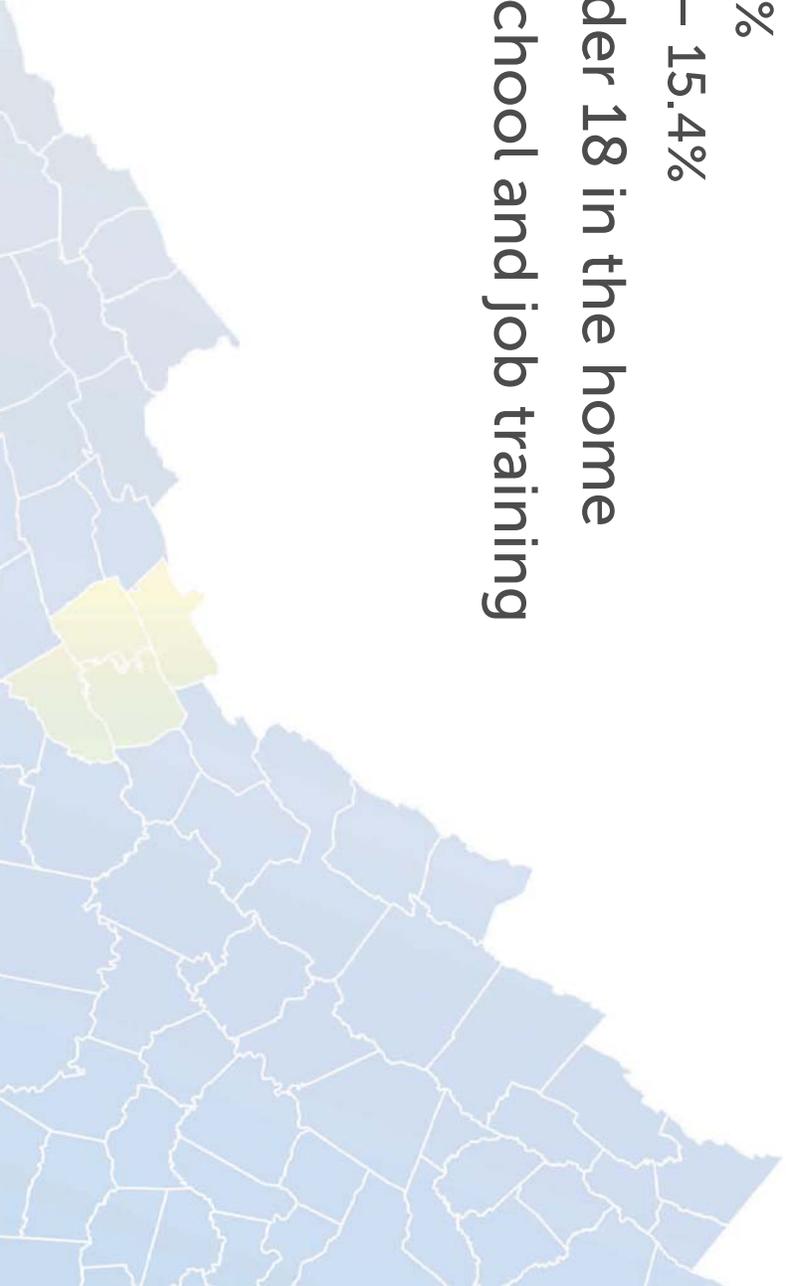


Respondent		
Full-time resident (non-student)	67.7%	496
Student	17.1%	125
Work in Blacksburg, non-resident	6.4%	47
Business owner	2.9%	21
Rental property owner	1.6%	12
Other (part-time resident)	4.4%	32



Respondent Profile

- How important is internet access?
 - Very important – 83.4%
 - Somewhat important – 15.4%
- 38% have children under 18 in the home
- 43% use internet for school and job training



Top 10 Uses of an Internet Connection

Blacksburg - Current

E-mail	427
Shopping	409
News	409
Accounting/Banking	394
Video/ music streaming	372
Social media	367
Education	358
Transferring data files	338
Research	319
Work at home	317

Blacksburg - Emerging

Voice over Internet (VOIP)	78
Hosting your web site	78
Telemedicine	66
Video-conferencing	65
Training	56
VPN connections	50
Online collaboration	49
Work at home	45
Providing on-line sales	36
Gaming	31



NRVRC
new river valley regional commission



Top 10 Uses of an Internet Connection

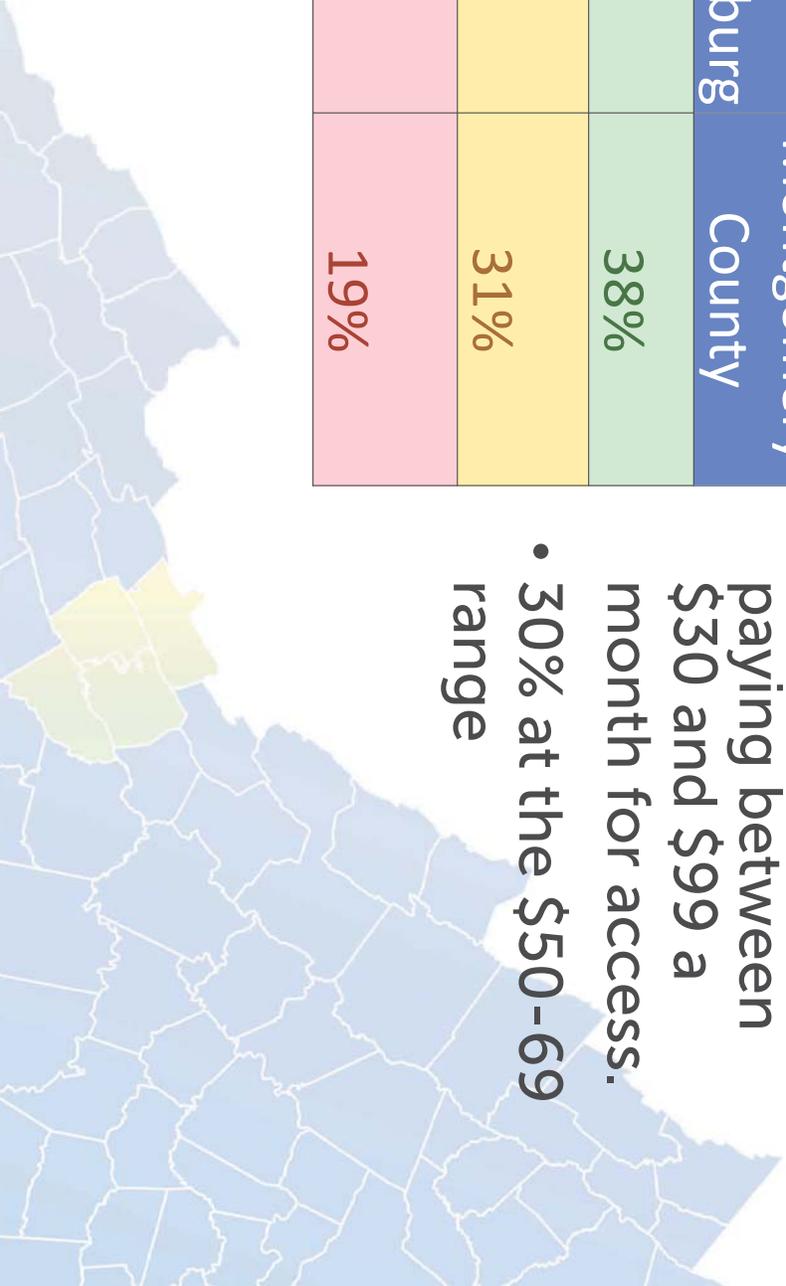


	Blacksburg	Christiansburg	Montgomery County
E-mail	427	402	96
Shopping	409	393	94
News	409	388	92
Accounting/Banking	394	379	84
Video and/or music streaming	372	363	74
Social media	367	374	79
Education	358	310	76
Transferring data files	338	297	65
Research	319	295	57
Work at home	317	272	64

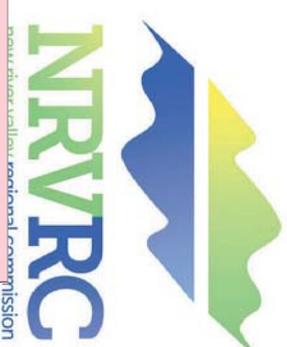
How many devices? Internet at what cost?

No. of Devices	Montgomery County		
	Blacksburg	Christiansburg	Montgomery County
6 – 9	35%	44%	38%
1 – 5	29%	28%	31%
10 – 15	27%	20%	19%

- Respondents are paying between \$30 and \$99 a month for access.
- 30% at the \$50-69 range



Access, Providers

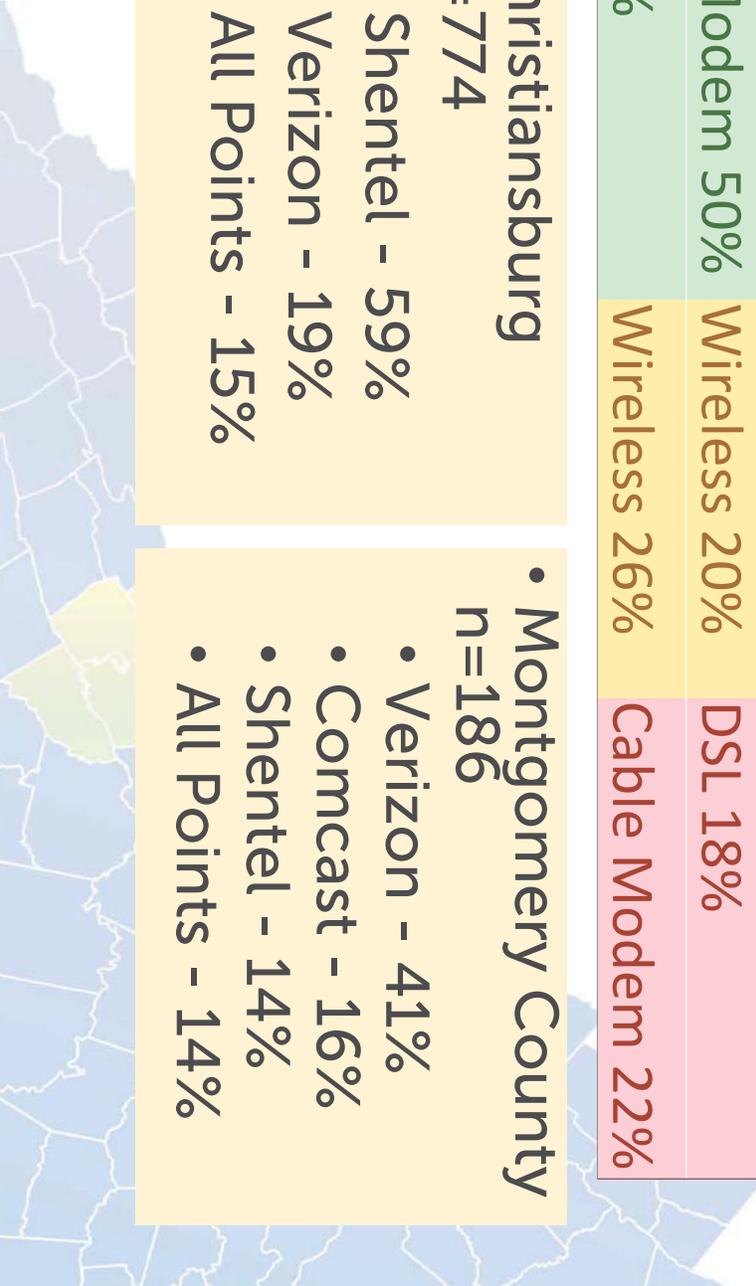


Blacksburg	Cable Modem 63%	DSL 16%	Wireless 12%
Christiansburg	Cable Modem 50%	Wireless 20%	DSL 18%
Montgomery County	DSL 27%	Wireless 26%	Cable Modem 22%

- Blacksburg n=658
 - Comcast – 68%
 - Verizon – 18%

- Christiansburg n=774
 - Shentel - 59%
 - Verizon - 19%
 - All Points - 15%

- Montgomery County n=186
 - Verizon - 41%
 - Comcast - 16%
 - Shentel - 14%
 - All Points - 14%





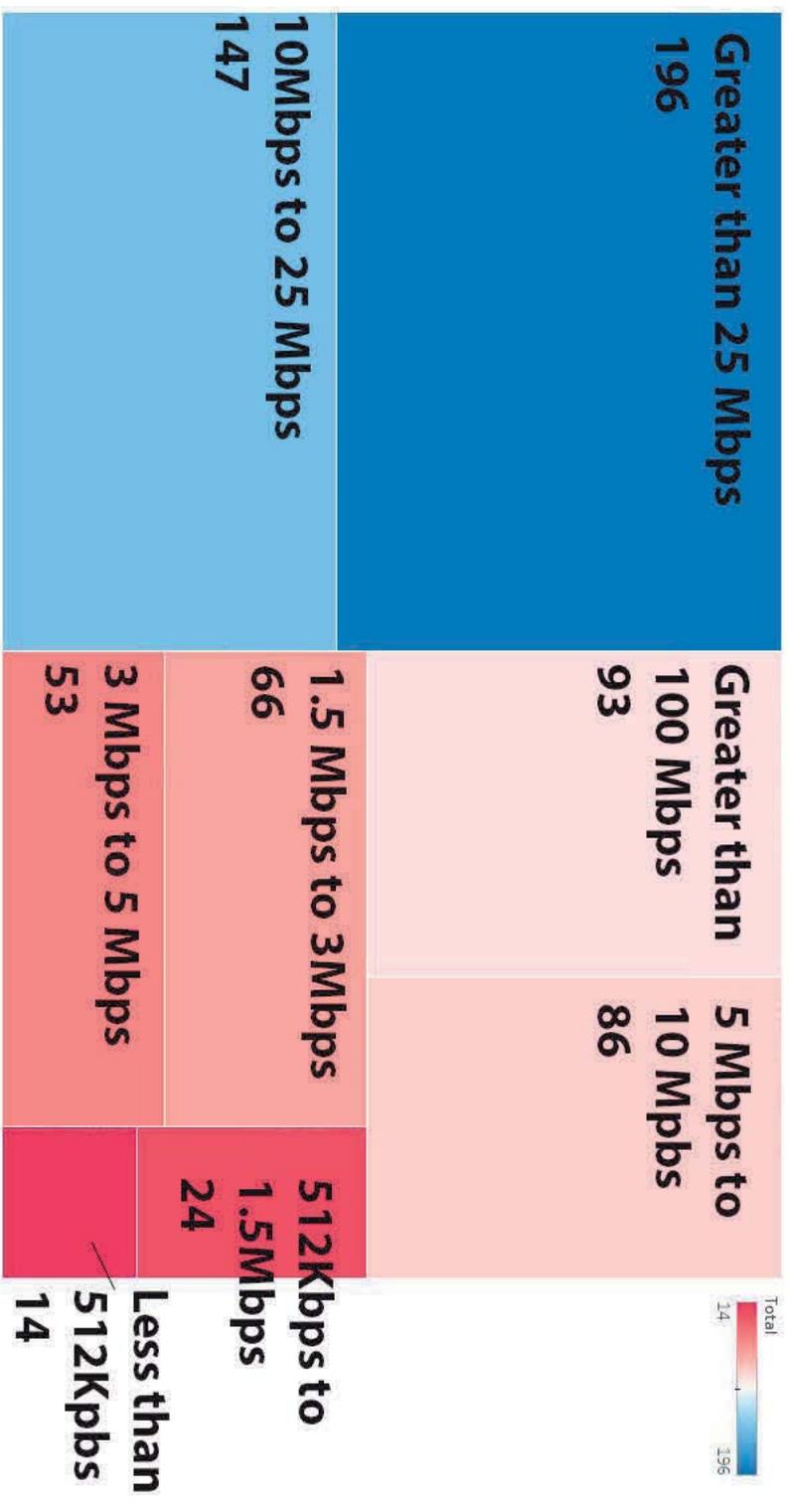
Provider services satisfaction/dissatisfaction

- Majority of customers are somewhat to very satisfied with speed and reliability, but not with service and support
- Dissatisfied customers identify specific reasons for dissatisfaction...

Connection too slow/not enough bandwidth	29.7%
Price too high	21.8%
Service is unreliable	20.8%
Poor customer service	15.8%
Lack of technical support	6.6%
Problems with Email	3.7%
Not dissatisfied	1.5%

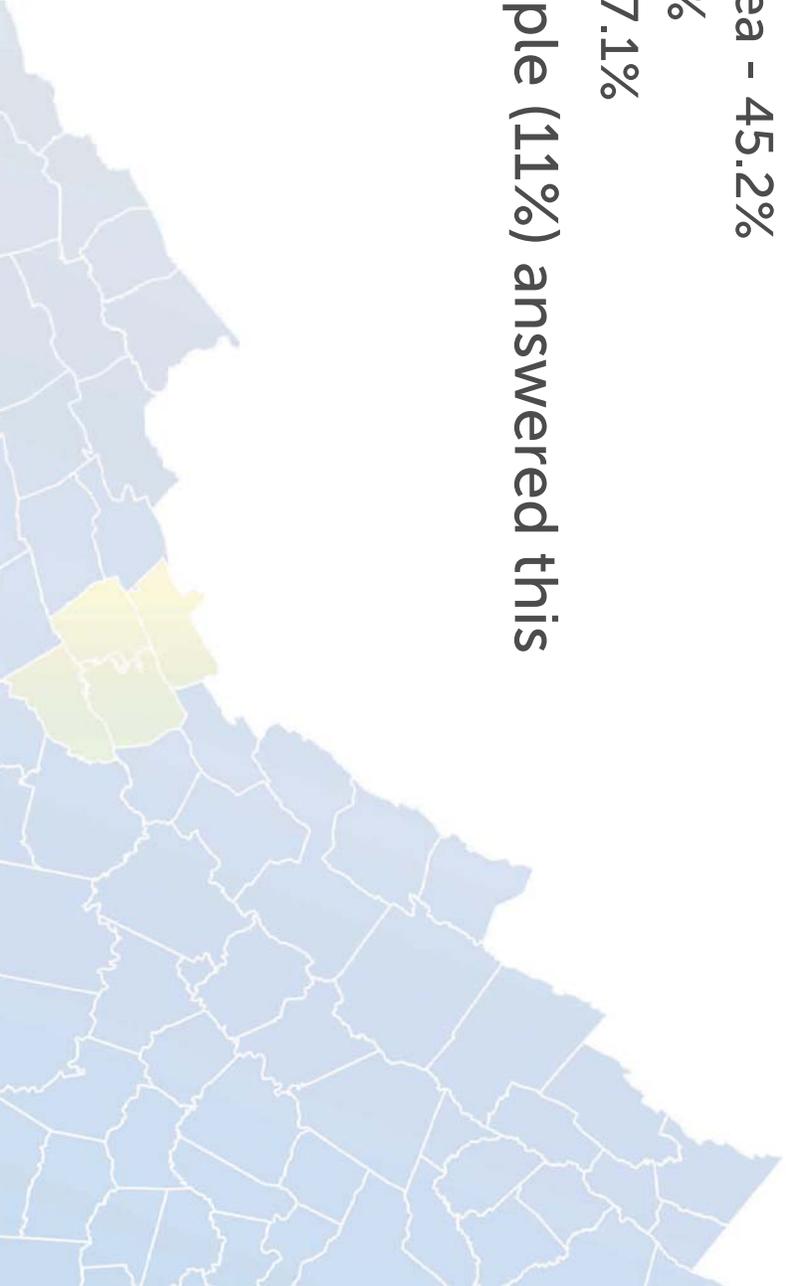


How fast are we going?

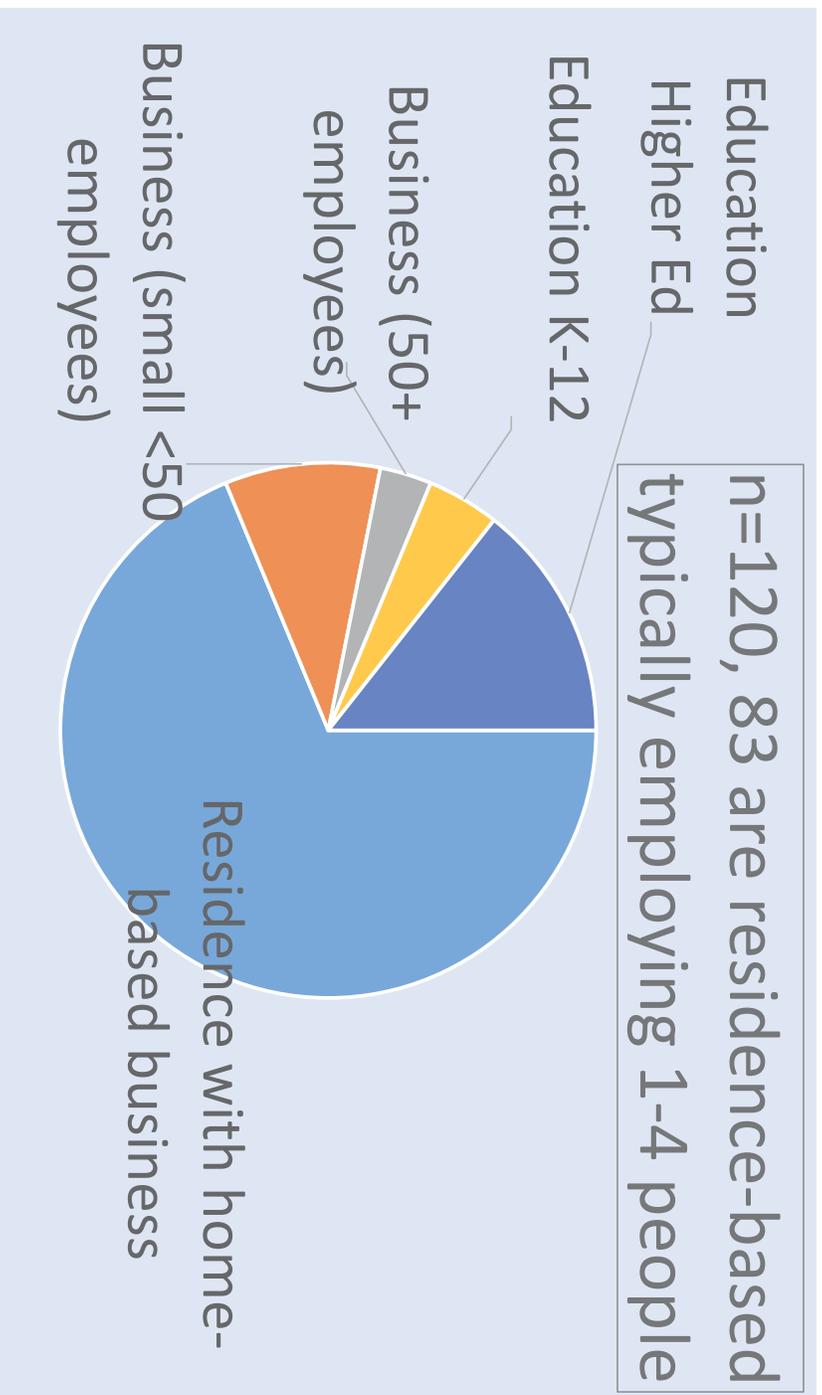


Not going faster than 3 MBps? Why?

- Top 3 Reasons
 - Not available in my area - 45.2%
 - Too expensive – 33.3%
 - Not reliable/secure – 7.1%
- In Blacksburg, 84 people (11%) answered this question.



Business responses

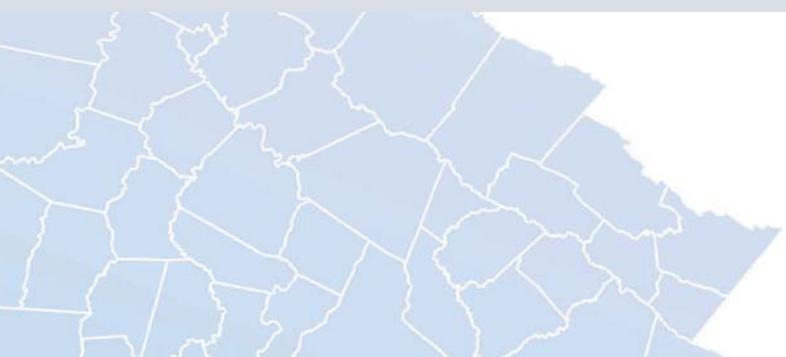
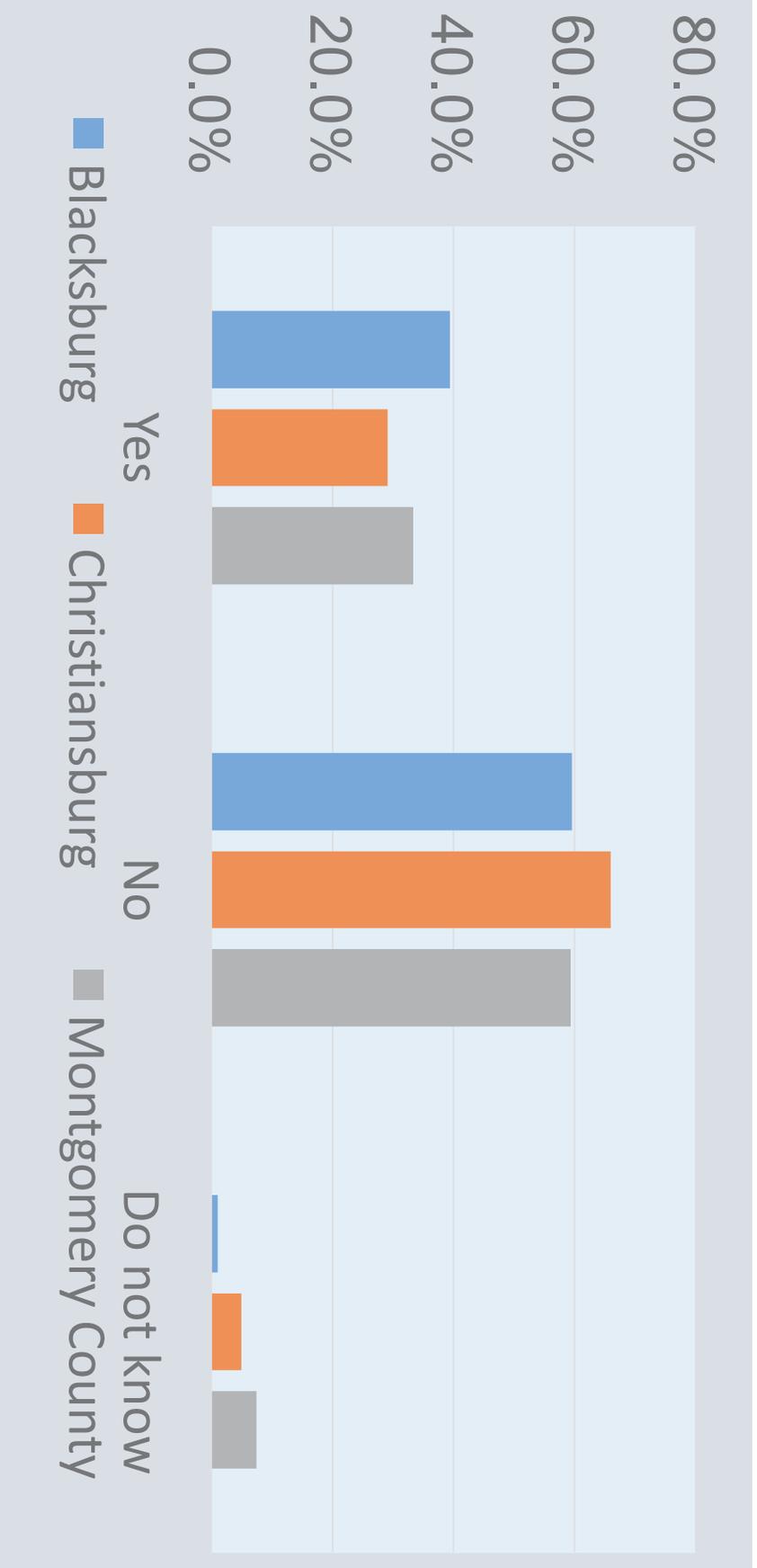




NRVRC
new river valley regional commission

Business responses

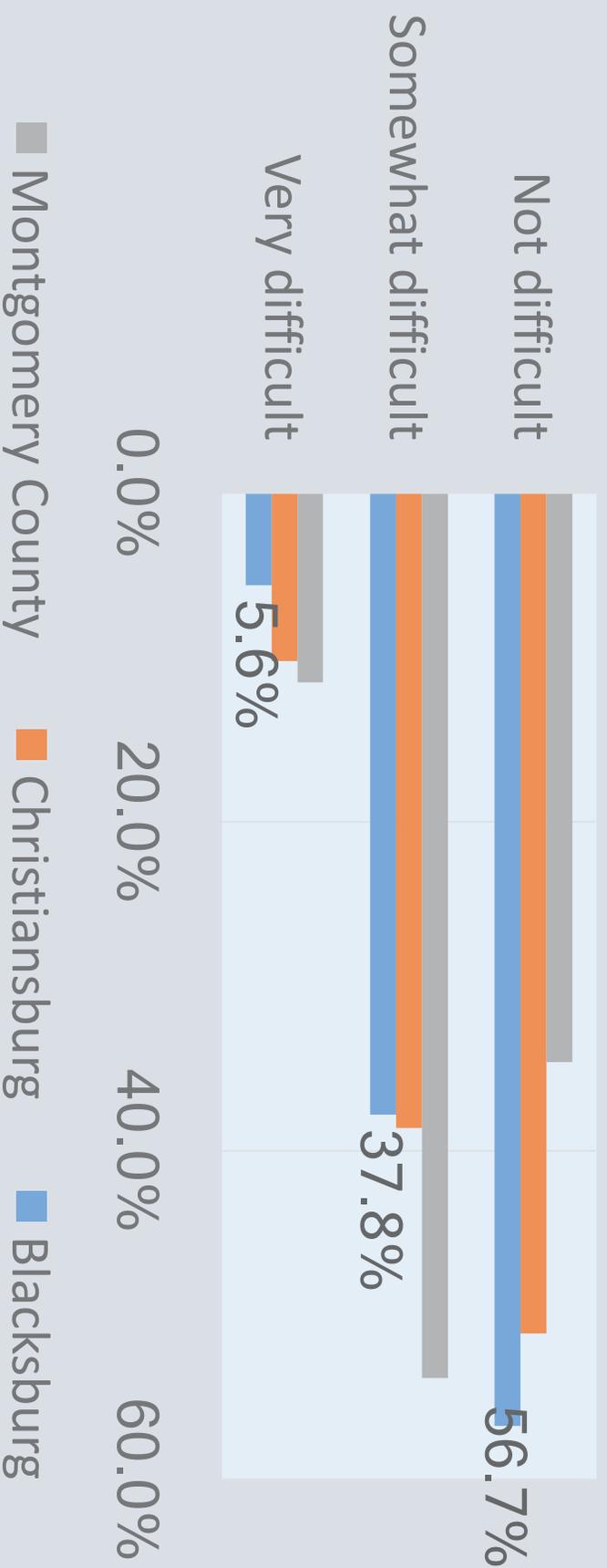
Do you utilize a Virtual Private Network (VPN) for employees to work from home?



Business responses: Finding skilled employees

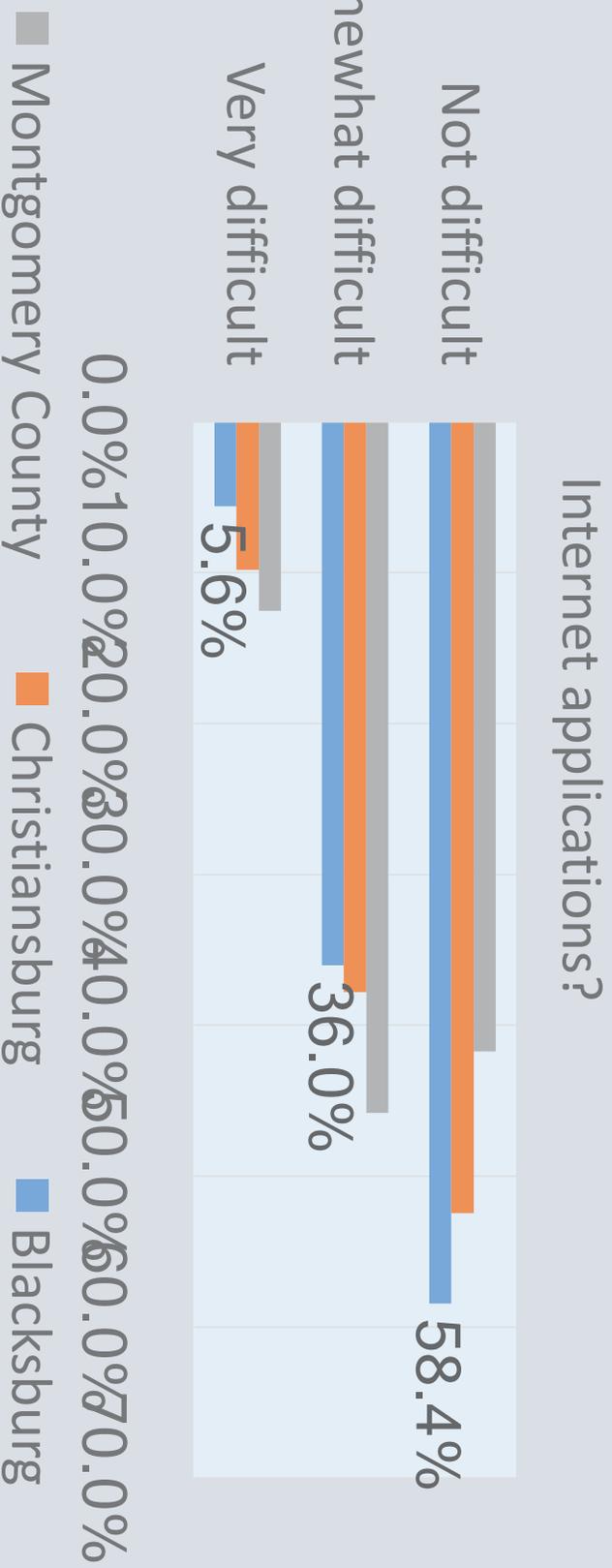


How difficult is it to find employees with computer, software, and Internet skills from the local area?



Business responses: Training employees

How difficult is it to find and provide the appropriate training for employees in computer, software, and Internet applications?



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What role for the Town? What changes are needed?

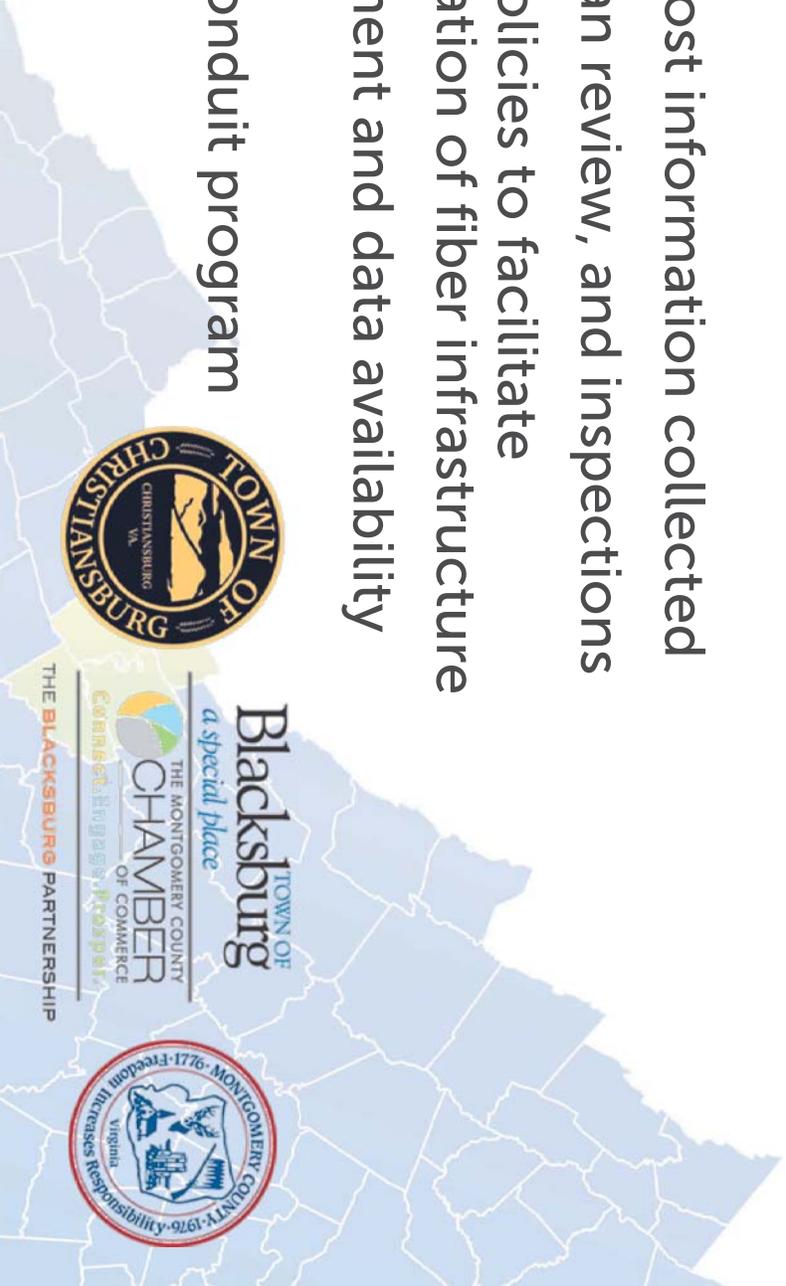


- Question allowed open-ended responses
- Most common themes

287	Encourage more competition and choice for high-speed broadband among providers
40	Don't know/no opinion
37	Be competition for current providers/public utility/public-private partnerships

Fostering better broadband

- Provider engagement to promote corridors for higher bandwidth
- Creating a website to host information collected
- Expedite permitting, plan review, and inspections
- Develop make-ready policies to facilitate deployment and installation of fiber infrastructure
- Right-of-way management and data availability (parcels, etc.)
- Evaluate viability of a conduit program



Fostering better broadband



- Town Role
 - Public fiber lease program
 - Monitor and capture demand within the town
 - Communicate needs to providers
- Internet Service Provider Role
 - Advising the Town on needs for and barriers to expansion and upgraded service
 - Service delivery to business and residential customers



Next Steps

- Sharing results with stakeholders
 - Town of Blacksburg (February 21)
 - Chamber of Commerce (February 22)
 - Blacksburg Partnership (February 27)
 - Montgomery County (February 27)
 - Town of Christiansburg (February 28)
- Providers meeting
 - To be scheduled in March



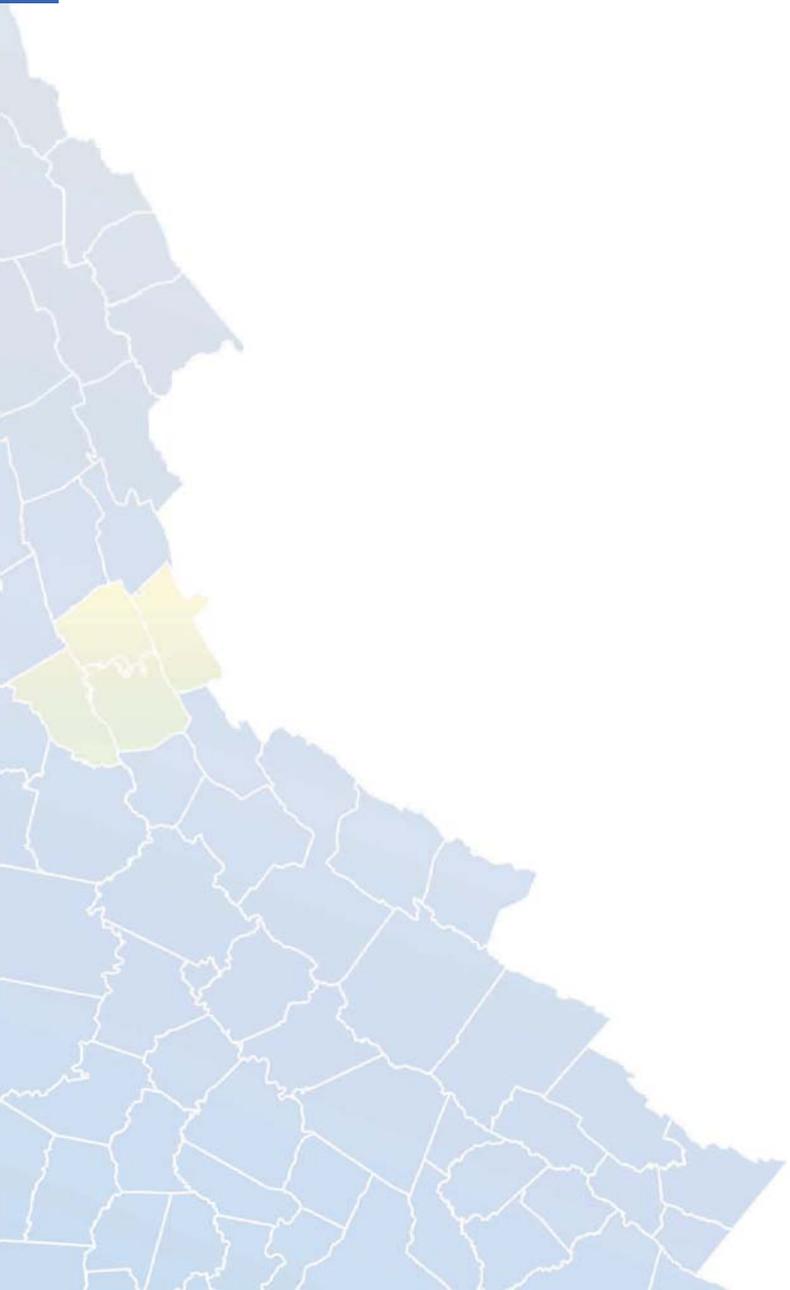
Accessing the Survey



- Blacksburg's survey available at
- <https://www.surveymonkey.com/r/BlacksburgBroadband>



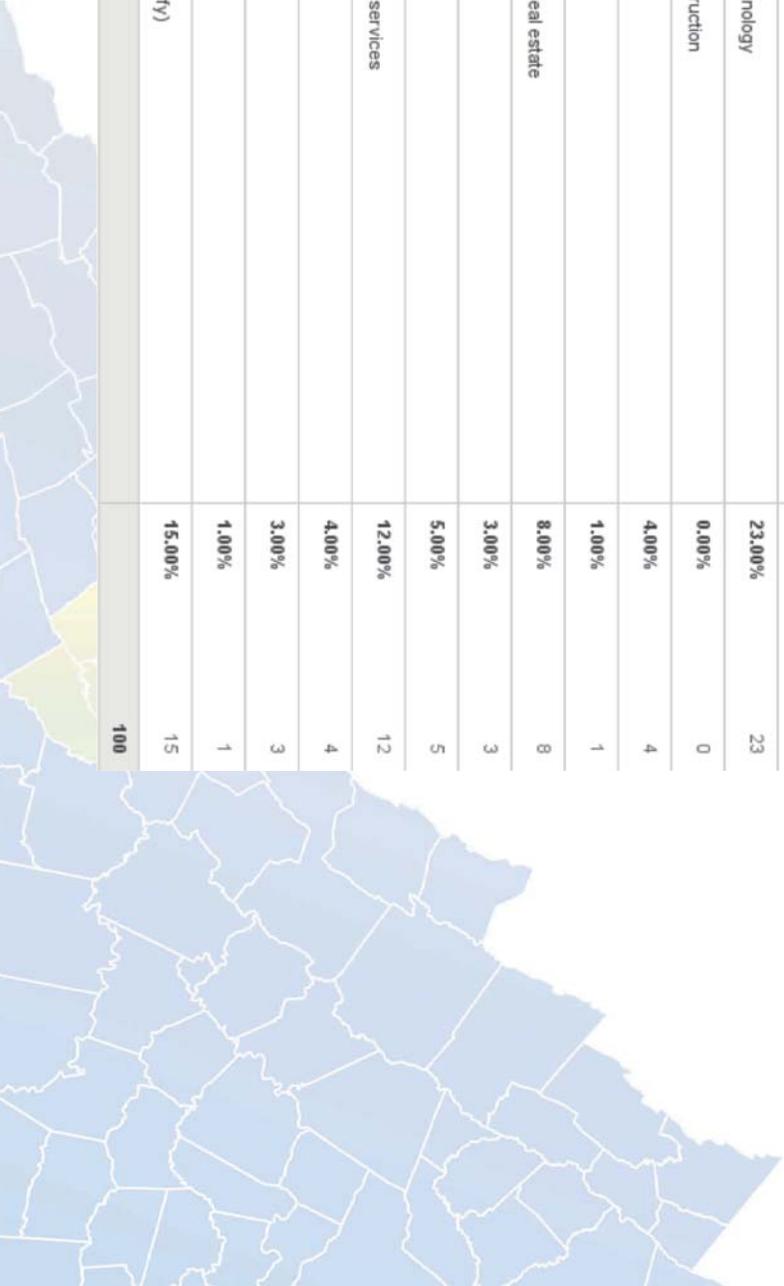
Discussion



Q5: Which of the following best describes the type of business conducted at your primary, local location? Check one.

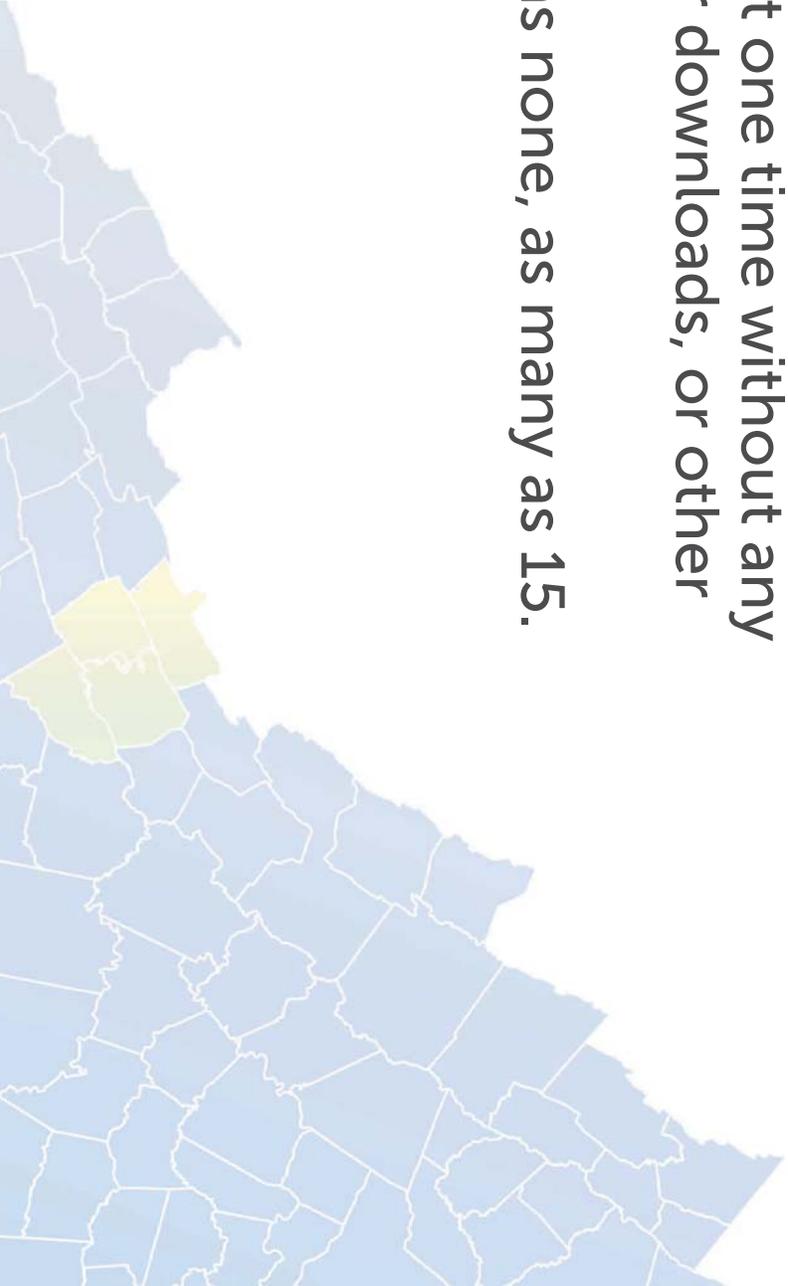
• Answered: 100

Answer Choices	Responses	
Accounting/Architectural/Engineering	11.00%	11
Agricultural/Forestry/Mining	3.00%	3
Business and personal services	7.00%	7
Communication/technology	23.00%	23
Contractor or construction	0.00%	0
Education	4.00%	4
Entertainment	1.00%	1
Finance/insurance/real estate	8.00%	8
Government	3.00%	3
Healthcare	5.00%	5
Online professional services	12.00%	12
Online retail	4.00%	4
Retail trade	3.00%	3
Wholesale trade	1.00%	1
Other (please specify)	15.00%	15
Total		100



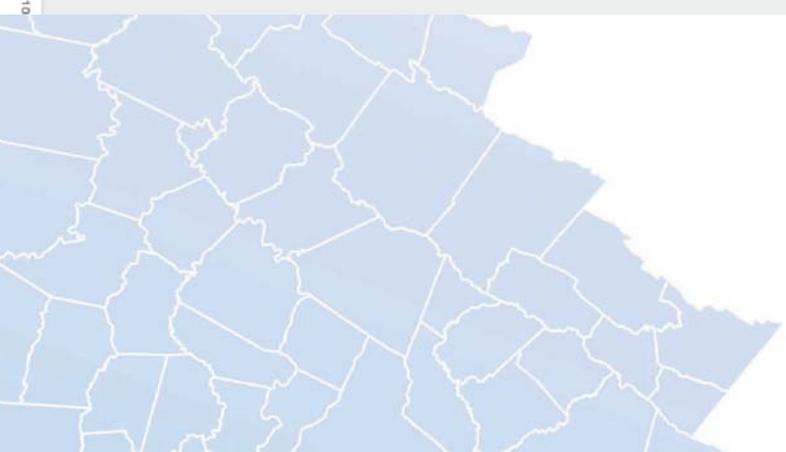
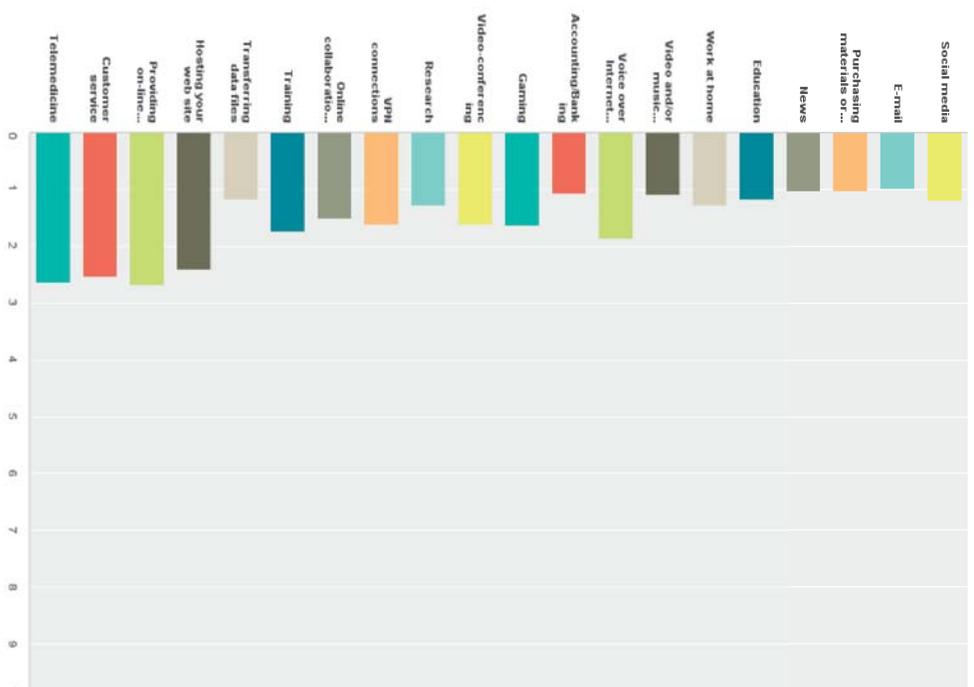
Q19

- How many people can use your current internet connection at one time without any stalling, long waits for downloads, or other delays?
- Average of 3. As few as none, as many as 15.



Q26: For what purpose(s) do you currently use or plan to use an Internet connection? Check all that apply.

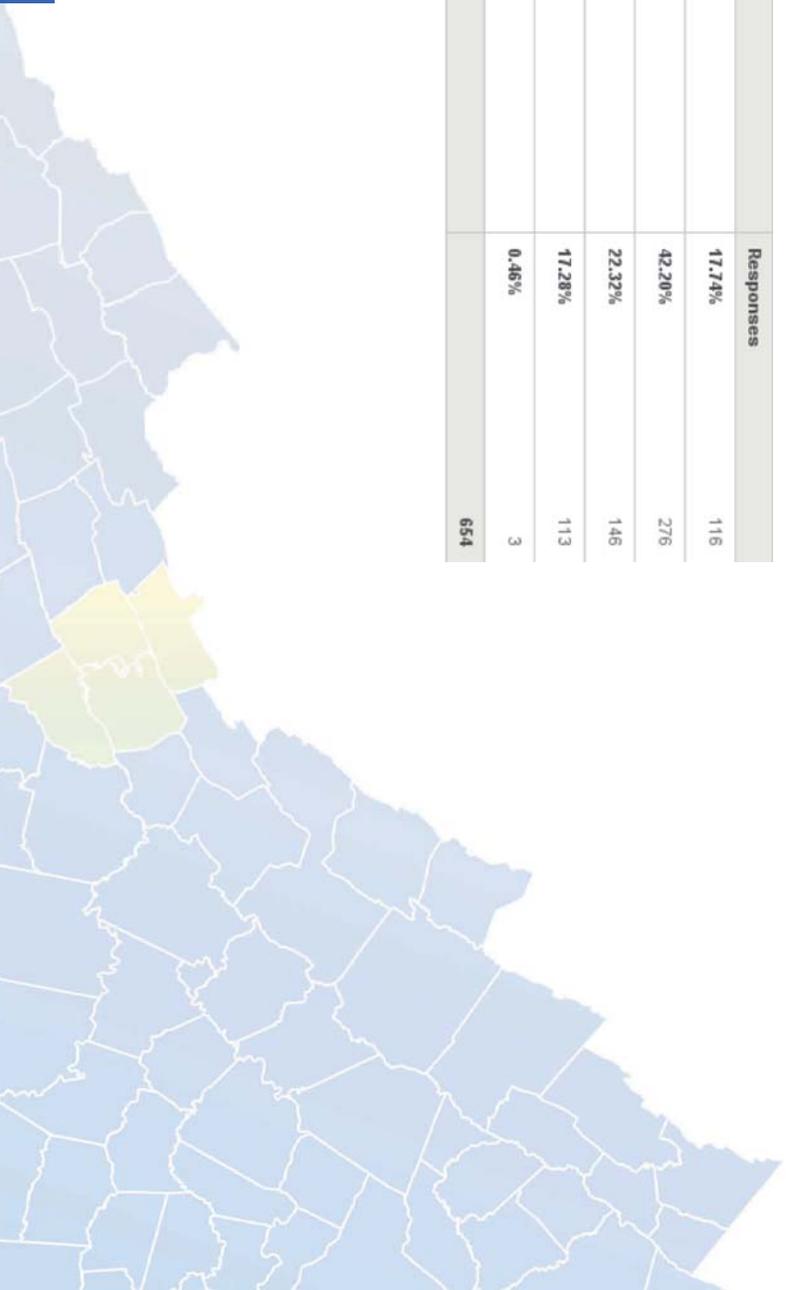
- Answered: 428 Skipped: 312



Q20: Speed of Connection (bandwidth)?

- Answered: 654 Skipped: 86

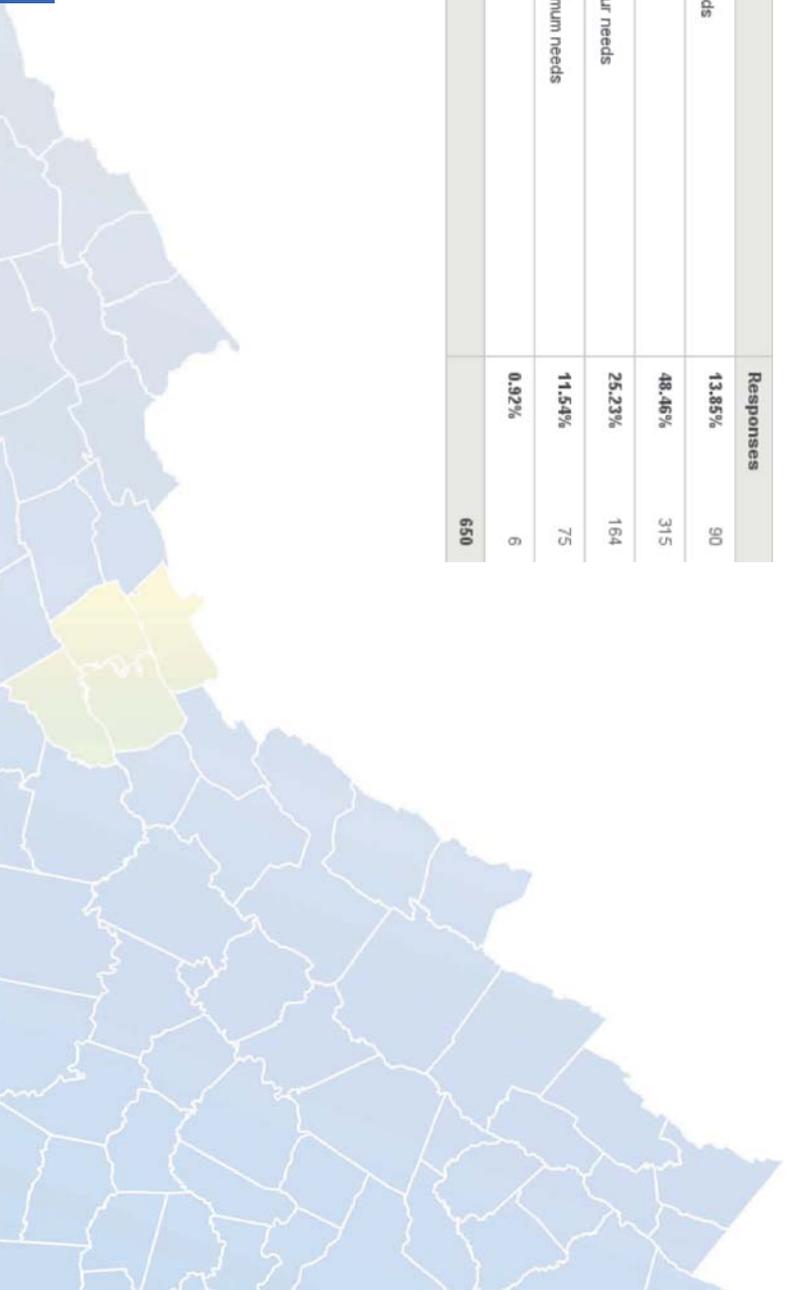
Answer Choices	Responses	
Very satisfied	17.74%	116
Somewhat satisfied	42.20%	276
Somewhat dissatisfied	22.32%	146
Very dissatisfied	17.29%	113
No opinion	0.46%	3
Total		654



Q21: Reliability?

- Answered: 650 Skipped: 90

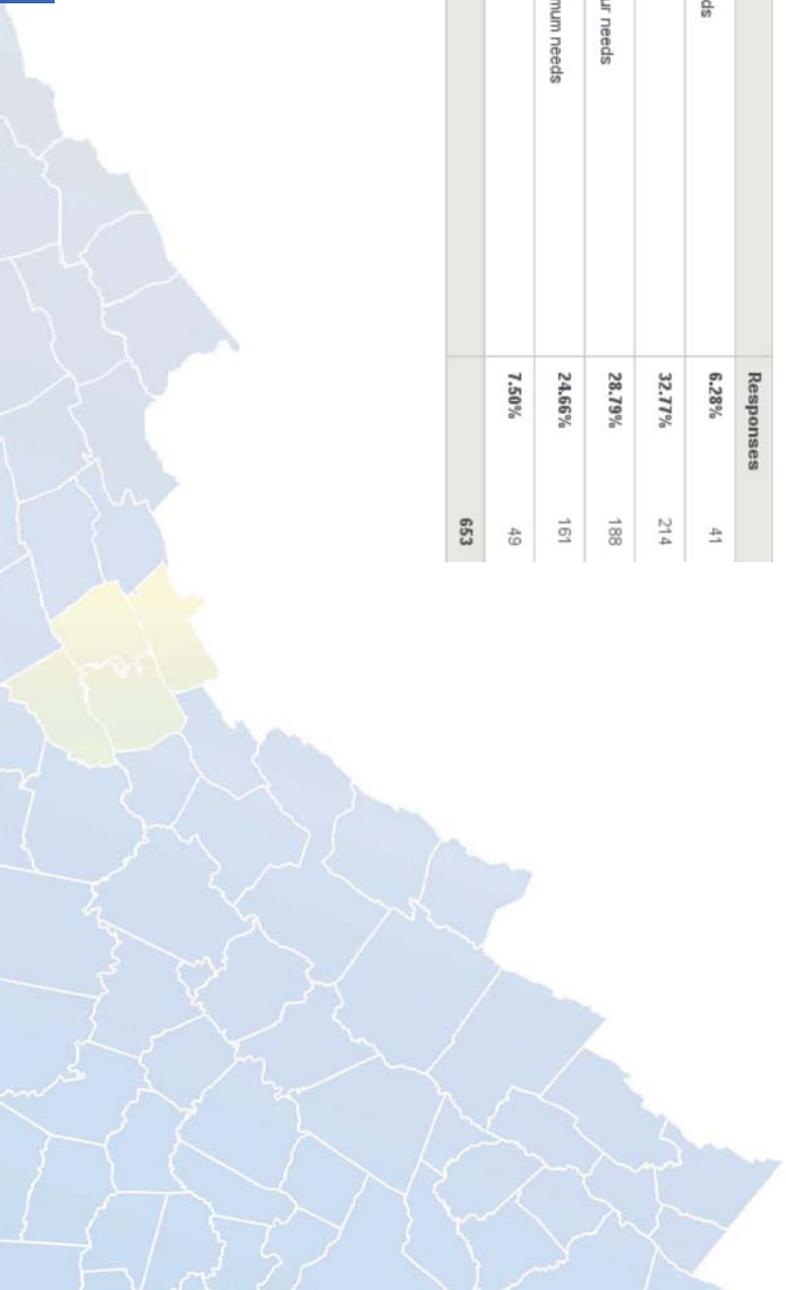
Answer Choices	Responses
Very satisfied – more than meets our needs	13.85% 90
Somewhat satisfied – meets our needs	48.46% 315
Somewhat dissatisfied – does not meet our needs	25.23% 164
Very dissatisfied – does not meet our minimum needs	11.54% 75
No opinion	0.92% 6
Total	650



Q22: Service and support?

- Answered: 653 Skipped: 87

Answer Choices	Responses
Very satisfied – more than meets our needs	6.28% 41
Somewhat satisfied – meets our needs	32.77% 214
Somewhat dissatisfied – does not meet our needs	28.79% 188
Very dissatisfied – does not meet our minimum needs	24.66% 161
No opinion	7.50% 49
Total	653



Q23: How would you describe your overall satisfaction with you current Internet service?

- Answered: 654 Skipped: 86

Answer Choices	Responses	
Very satisfied—more than meets our needs	7.03%	46
Somewhat satisfied — meets our needs	40.21%	263
Somewhat dissatisfied — does not meet our needs	33.64%	220
Very dissatisfied—does not meet our minimum needs	18.20%	119
No opinion	0.92%	6
Total		654

