Tucker County, West Virginia
Cool & Connected Workshop
Report and Suggested Next Steps
USDA Rural Development Rural Community Development Initiative (RCDI)

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Executive Summary
Pursuant to our technical assistance award with Tucker County, this Memorandum constitutes Smart Growth America's final report summarizing the recent *Cool & Connected* workshop, and suggesting possible Next Steps the county could take to craft a vision for the future development of the focus areas addressed during the workshop.

John Robert Smith and Brian Lutenegger—representing Smart Growth America (SGA)—and Deborah Watts, representing Broadband Catalysts, met with local leaders and residents on June 11th and 12th, 2019 to provide assistance via the *Cool & Connected* tool, supported by a grant SGA received under USDA Rural Development's Rural Community Development Initiative (RCDI) program.

Following productive interviews and discussions with various stakeholders — including residents, advocates, city and local agency representatives, business owners and elected officials — the following Next Steps are recommended:

Overall Recommendations
1. **Create an inclusive working group representing the interests present at the workshop to implement these action items**
2. **Work to unify the county around its story and shared vision**

Downtown Recommendations
3. **Focus on placemaking and streetscapes in the town centers to make them unique destinations where people want to visit and to linger**
4. **Seek new development projects to fill in the "missing teeth" while paying careful attention to building and site design**

5. **Adopt a Complete Streets policy and implementation strategy**

Broadband Internet Recommendations
6. **Organize for action around broadband Internet**
7. **Acquire the information needed to become a 21st century connected community**
8. **Conduct structured discussions with providers currently active in Tucker County**
9. **Explore creative options for bringing public lands into the broadband solution set**
10. **Explore models of success to understand your options**
11. **Inventory regional and local approaches**
12. **Achieve reliable, redundant telecommunications**

Need for assistance

The *Cool & Connected workshop* that Tucker County received from Smart Growth America was extremely timely for the community and region.

Tucker County seeks to position itself as a recreational destination for vacationers from Northern Virginia. However, the county's population as a whole has decreased more than 20 percent since 1980. The county wants to turn that trend around, but to do so needs to offer the types of amenities required to attract new residents, including Millennials and Baby Boomers. Young workers in particular often seek jobs that require reliable Internet access so that they can work remotely or open online businesses and choose to live where they want. But these new residents will be seeking robust, reliable, and affordable broadband Internet access to enable them to perform their job duties. Unfortunately, existing broadband Internet and mobile phone services are limited in the county, with many areas having few service options or without service entirely.

For all of these reasons, a focus on broadband Internet access across the county—but particularly in its several historic downtowns—is a critical next step to bring in the new businesses and residents the county seeks. It will also help create new amenities for those visiting from Virginia and beyond.

This workshop was SGA's second in Tucker County and the SGA team is impressed by the progress the community has made since SGA's first workshop in 2015. That workshop, funded under SGA's EPA Building Blocks grant, focused on regional planning for small communities and was the first such effort that engaged wide ranging public involvement in the discussion of regional planning.[1] From that initial workshop, results have been seen not only in creating new planning and regulation guidelines for the county and its communities, but also in the acquisition of professional staff capacity to continue to shape and lead sustainable planning efforts for the future. Tucker County was anxious to focus on broadband Internet access as it works towards downtown revitalization.

Review of SGA's Visit to Tucker County

SGA's technical assistance visit occurred over two full days, June 11-12, 2019. The visit included the following components:

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[1] To learn more about the previous workshop and read the next steps memo written following it, see
https://smartgrowthamerica.org/tucker-county-communities-work-toward-creating-a-collaborative-vision-for-

A driving tour of major points of interest in Tucker County
The tour followed a route throughout much of the county over several hours. It included stops in Davis, Thomas, and Parsons. It also provided the SGA team with the opportunity to scope out opportunities for new broadband and mobile phone infrastructure to help improve the quality of service throughout the county.

Five group interviews with invited community stakeholders
Each interview group lasted at least 30 minutes. The following stakeholder groups were represented:

- Local elected officials
- Business & Industry
- Recreation
- Education
- Health Care

The interviews provided the SGA team with additional perspectives on Tucker County's existing and future broadband needs as well as on the community's overall economic and fiscal health, deepening the conversation beyond those at the next day's workshop.

Interview questions asked of each group included:

- What are Tucker County's strengths and what are its obstacles?
- How has the county dealt with and put major losses (the 1985 flooding, loss of major employers, etc.) behind it?
- How well do the towns work together?
- What is the relationship between existing residents and visitors?
- How is the Internet service quality in the library and schools?

For the names of those interviewed, refer to Appendix A.

A day-long workshop open to invited stakeholders
The workshop's opening presentation provided an overview of emerging national demographic and economic trends at play across the American landscape. Former Meridian, Mississippi Mayor John Robert Smith examined the economic impact of 20th century suburban development patterns, discussing the trend of migration by both Baby Boomers and Millennials to vibrant city and town centers. The presentation established the emergence of the Millennial generation as the predominant driver of economic demand and the workforce sought by today's job creators, emphasizing that generation's interest in walkable, bikeable, vibrantly social towns and cities. A longer discussion of these critical issues Tucker County faces is included below.

Recognizing that communities are now in a ferocious competition over creating a sense of place, former Meridian, Mississippi Mayor Smith presented his city's story of downtown revitalization and economic development through the renovation and celebration of historic structures.

Deborah Watts, the broadband consultant, presented on the connection between broadband Internet and economic development. She also provided case studies of communities similar to

Tucker County and the towns it contains that have successfully leveraged broadband Internet access as a tool for downtown revitalization and economic development, including Haleyville, Alabama; Rutherford County, North Carolina and Erwin, Tennessee. Deb also presented the results to date of the survey provided by the workshop team to gauge how well Tucker County's existing Internet and mobile phone services work for both Tucker County's businesses and residents.

Two speakers representing the community also spoke:

- Dennis Filler, Tucker County Planner
- Lowell Moore, Tucker County Commission President

The remainder of the workshop was devoted to small group discussions and presentations back to the larger group. The participants broke up into four groups, two groups discussing each of the following topics:

1. None of the broadband case studies presented this morning fit Tucker County perfectly. How can Tucker County create a broadband plan for the entire county that fits the unique needs of each community?
2. How can the three principal towns of Tucker County work together to develop a cohesive story of Tucker County? What visual changes to each community need to be made to accomplish this?

Each group received a large paper map of the city and surrounding area as well as an oversized worksheet for identifying a goal for their focus area and actions to achieve it.

The instructions for completing the worksheet were as follows:

On the worksheet, participants identified each action and a path for achieving it. They could also draw changes visually on their map.

For a list of participants at the workshop, refer to Appendix A and for a summary of the workshop discussions, see Appendix B.

Note: The intent of these workshops is neither for Smart Growth America to create a plan nor bind the communities to any particular course of action, but to assist ongoing regional efforts to create a more vibrant, successful region, consistent with the goals of their envisioned plans.

Lessons from the workshop

The Cool & Connected workshop helps small towns and rural communities leverage broadband to revitalize their downtowns and promote sustainable economic development. The workshop was designed to facilitate a discussion of how the city might effectively partner with neighborhoods, local businesses, institutions, broadband providers, and other entities to increase and improve the community's access to broadband Internet access. It provided an opportunity for Tucker County community members to evaluate current and potential local policies and practices by measure of how they might foster economic development.

Communities around the nation are always concerned about their fiscal and economic health. This is especially true of small towns and rural regions.

Fiscal health means a local government's bottom line: *Does the life cycle cost of a project's investment—upfront infrastructure, ongoing service provision and eventual repair and maintenance—cost more than what it produces in tax revenue?*

Economic health includes the general economic well-being of the community and its region: *How does new investment and development add to or detract from the creation of economic competitiveness, fiscal efficiency and sustainability, jobs, jobs access, retention of local talent, cultural identity and wealth?*

In approaching these questions for Tucker County and its municipalities, as in any part of the country today, it is important to bear four trends in mind:

Our nation's demographics are changing in a way that profoundly affects the housing market in large cities and rural areas alike.
Demographic trends are moving the housing market strongly away from conventional suburban housing.[2] That presents a significant opportunity for rural communities to compete for new growth. The two biggest demographic groups in the nation—retiring Baby Boomers and Millennials (18-39 year-olds) — both express strong preferences for a more walkable, urban/village lifestyle.

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[2] See "The Changing Shape of American Cities," Luke J. Juday, Weldon Cooper Center for Public Service, University of Virginia, March 2015.

Data tells us that ten percent of all city-dwelling Americans would prefer to live in rural locales if those places are walkable, connected to the larger region and possess a strong sense of character and place. That represents a pool of 26 million potential transplants that the area could compete to attract. Indeed, forty percent of Millennials prefer to live in rural places, provided those places have a vibrant rural fabric. The vast majority of net new households formed have no children at home, and most of them are one- and two-person households, which are much more likely to prefer a walking lifestyle. These trends depart from those characterizing the latter half of the 20th century.

The formula for economic growth is changing. Business growth used to be driven by large corporations that operated in a fashion that was both private in ownership structure and linear in manufacturing and production. In the past, new research breakthroughs occurred in sealed research laboratories controlled by the companies that owned them. Manufacturing and other business processes occurred in assembly-line situations, with little interaction across or inside industries. These conditions led to communities that featured large, sealed-off campuses that tended to be linear in their arrangements.

Today, business growth is driven by collaboration among many types of entities — private companies, research institutions, universities, and others — that must interact frequently and work together creatively. This trend requires cities and communities that encourage interaction and collaboration — the opposite of the older model described above. How communities are designed directly impacts their ability to create interactive and collaborative environments. Physical proximity may carry less premium as vital information exchanges and materials transfer are conducted on digital platforms.

Most significantly, the innovation economy, as it is sometimes called, depends heavily on skilled workers. The companies that are driving innovation are pursuing highly educated talent, especially among Millennials. Increasingly, companies find it necessary to locate in places where their target workforce wants to live. Today, that means walkable communities.

People on the move are looking to relocate to places with a high quality of life. In fact, they are willing to sacrifice salary for location. High quality of life is defined more and more by the character of the town center than by the size of a front yard or square footage of a home.

Every region, small or large, has ubiquitous "big box" retailers that are successful and generate major sales tax receipts. However, because they are ubiquitous and the same in every community, they do not create a shopping experience that is unique to a particular community. With online buying playing a bigger role for consumers (especially for bargain hunters), many are looking for a more authentic experience when they shop in person. This type of retail occurs most readily in downtowns along walkable city blocks.

There are distinctive niches in the downtowns of Tucker County for additional unique and small specialty retail, restaurants, and coffee shops that will attract visitors and locals alike. These types of establishments should make no effort to compete with major retail. Rather, they should seek out niches that those other areas cannot offer or have no interest in filling.

Major retailers that once developed in suburban locations only are now adopting a retail presence and footprint suitable for a storefront in a downtown. This is especially true in, for example, Franklin, TN. In addition, we are experiencing more online buying and some retailers are already

imagining a downtown presence that is more cost effective because it has limited staff and no stock. Customers select their item locally and it is shipped to their home.

Consumers are demonstrating strong preferences for shopping locally at unique establishments that offer handcrafted, regional products. They prefer this experience to be a short distance from their homes and offices and within a comfortably walkable town center. This design has an inherent charm that appeals to residents and visitors alike, bringing new value to traditional walkable main streets. Tucker County's towns are well suited to take advantage of this shift in consumer choice.

More recently, Smart Growth America's (SGA) *Core Values: Why American Companies are Moving Downtown*[3] examines the characteristics, motives, and preferences of companies that have either relocated, opened new offices, or expanded into walkable downtowns between 2010 and 2015. SGA partnered with global real estate advisors Cushman & Wakefield to identify nearly 500 companies that have made such a move in the past five years. Of those, SGA interviewed representatives from more than 40 companies to gain a better understanding of this emerging trend. These companies' new locations are in areas that are dramatically more walkable than

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[3] The report is available for download from https://smartgrowthamerica.org/resources/core-values-why-american-companies-are-moving-downtown/

previous sites. The average Walk Score of companies' previous locations was 52; the average Walk Score of the new locations is 88. Similarly, Transit Scores grew from an average of 52 to 79 and Bike Scores bumped from an average of 66 to 78.

This trend is visible across the country, in big cities and small ones alike and should be a factor in the economic development strategy of all communities, including those of Tucker County.

Reliable high speed Internet access can be a critical tool for pursuing downtown revitalization and economic development in the 21st century.

Rural cities and towns are looking for new ways to attract and retain workforce talent and compete for new businesses. Tucker County, like many rural areas that have traditionally relied on industries such as manufacturing, will need to reposition to benefit from an increasingly information- and technology-based economy.

Communities like Tucker County and its municipalities are seeking new opportunities to drive job growth but inadequate broadband access will inhibit economic development and the attraction of new businesses and residents. Businesses need fast connection speeds to move and manage information efficiently and to stay competitive in an increasingly tech-oriented economy. If the service is too slow, unreliable, or unaffordable, it can hinder these efforts and discourage the new residents—particularly Millennials and Baby Boomers—from moving to them.

Schools, hospitals, and public safety providers represent other critical entities that must be connected via reliable Internet access. Teachers and students need reliable Internet access, both at school and at home, for educational activities and homework. Hospitals and other medical facilities need Internet access for communicating with outside partners, transferring records, and providing telemedicine for those who might not be able to visit in person. When Internet access goes down, these activities cease.

The surge in retiring Baby Boomers and their strong preference to age in place puts a further premium on having adequate broadband access that keeps them connected with distant relatives and telehealth services.

Public safety depends on telecommunications that are fast, reliable, robust and secure. In Tucker County, where visitors and residents often engage in high adventure and extreme sports, it is essential that the networks connecting first responders meet the highest standards. Severe weather and the too real possibility of flood events place a further premium on making sure that telecommunications in Tucker County meets the needs of its first responders.
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For all of these reasons—economic, educational, public health and safety—Tucker County needs to address its increasingly inadequate telecommunications infrastructure, seriously and now.

Note: *Not all of these trends will be completely relevant in every situation. Rural communities are more reliant on private automobile ownership, and transit is often less feasible in these situations. But it is important to bear all three in mind in considering the fiscal and economic health of any community.*

What SGA Saw and Heard in Tucker County

The following list represents the themes that the SGA and Broadband Catalysts team saw and heard during its visit to Tucker County:

1. Citizens recognize the value of Tucker County including its natural environment and recreational access:
   a. Tucker County residents want to grow without negatively impacting these qualities.
   b. Residents see federally owned lands as an important reason for being here, but also a hindrance to progress.

2. There is a tightly defined sense of Tucker County having a good community that you can count on but...

3. There is an internal conflict of us versus them, including:
   a. Visitors versus residents
   b. On mountain versus off mountain
   c. Town versus town
   d. Lack of a shared vision for the county as a whole.

   This carries over into differing perspectives of how broadband Internet access might be used.

4. Residents struggle to release past losses and look to the future by creating successes that move the county forward.

5. There is grave concern over population loss, particularly youth who leave after graduating high school and do not return.
6. Existing broadband Internet access is wholly inadequate:
   a. Citizens don't have a grasp of the specific broadband issue - some see problem as last mile, some as the backbone
   b. Hindrance to educational process
   c. The business community is engaged on this issue and expressed an interest in helping move it forward

7. The libraries are underfunded in terms of availability of technology and other resources as well as their hours of operation.

8. Our driving tour pointed to a growing variety of businesses, with evidence of investments such as coffee shops and brew pubs.
   a. People who can, will work across sectors—often for the benefit of the community.
   b. In certain sectors, the county plays to its strengths like expanding skiing infrastructure.

9. Volunteers can be the ones who move the action items that come out of this workshop forward!

Participant viewpoints

Appendix B summarizes each group's discussion, numbered in the order of verbal presentation at the workshop.

Actions for Success

Overall Recommendations

1. **Create an inclusive working group representing the interests present at the workshop to implement these action items**
The workshop hosted by Smart Growth America and Tucker County was a great first step towards planning for downtown revitalization by leveraging broadband Internet and other assets. The county and region should be proud of its local history, natural resources, culture, architecture, and amenities. Those present at the workshop were enthusiastic about the future of the community in terms of its vision and opportunities—and may form the basis for a working group if a suitable body does not already exist.

   However Tucker County chooses to implement it, building local leadership capacity is vital to move these next steps forward. Smart Growth America recommends establishing a working group to take responsibility for implementing the next steps recommendations that follow.

   This working group should begin meeting as soon as possible and those who attended the workshop or group interviews should be invited to participate. Other members of the working group should come from, but not necessarily be limited to, the following sectors of the community – representing diverse stakeholders:

   - Representatives and leaders of local governments (staff, appointed, and elected) – Tucker County and the five incorporated towns
   - Major employers such as Kingsford Charcoal
   - Small and downtown business owners
   - Representatives of the state and federally owned lands
   - Tucker County Chamber of Commerce and business organizations
   - Tucker County Development Authority
   - Tucker County Convention and Visitors Bureau
   - Tucker County Cultural District Authority
   - Region VII Planning and Development Council
   - Recreation providers
   - Historical organizations
   - Artists
   - Healthcare providers
   - Tucker County Schools, including the Discovery Center of the Eastern West Virginia Technical and Community College
   - Libraries
   - West Virginia University's Tucker County Extension Service
   - Representatives of existing broadband Internet providers

- Other community representatives

To maximize the chances for success, it is important that this working group designate both a chair responsible for the overall effort and a subgroup for each action item. Each subgroup should ideally begin meeting soon after the initial meeting of the working group to keep the effort moving forward. The entire working group could meet once per month with the subgroups meeting at a convenient time for members between meetings of the whole body. Attention should be given to identifying and assessing progress towards specified milestones.

As described below under action item #6, the working group should include a broadband and telecommunications subgroup to focus on implementation of the broadband Internet and cell phone recommendations included in this report.

The SGA team recommends that the community implement the remaining action steps below under the working group's leadership and guidance. The action items provided in the remainder of this document are intended to be comprehensive.

Short-term Actions (1-6 months)
- Provide a copy of this next steps memo to each working group member and urge them to read it as they begin their work
- Hold the first meeting of this working group soon after receiving this finalized memo and establish a regular meeting schedule (at least monthly)
- Elect a chair and designate a lead for each of the recommended action items
- Seek written commitment of members to participate for at least six months
- Create an outward facing communication strategy to reach the community as a whole (such as the *Parsons Advocate*, an existing or new website, flyers and social media)
- Report back to the county commission, town councils, and staff on a regular basis

Medium- and Long-term Actions (6 months and longer)
- Ensure that this working group continues meeting on a regular basis and that all members are encouraged to be engaged in the process
- Keep informing the public of the working group's progress through continued implementation of the communications strategy, periodically reviewing and modifying it over time if needed to continue getting the message out
- Continue to provide reports back to county and town leaders to ensure they remain abreast of the working group's progress

2. **Work to unify the county around its story and shared vision**
The workshop identified a number of different groups within the county, often at odds with each other. For example, there are disconnects between individuals living "on mountain" versus those living "off mountain", between the incorporated communities, as well as between visitors and residents.

It is critical that county residents make a conscious effort to look at their neighbors' similarities to help unify the community. There are no true physical boundaries, only imagined boundaries that exist in people's minds. Tucker County residents should make every effort to find the gates through these invisible fences. Better broadband and cell service represents a goal that should unify existing diverse interests.

Pursue a unified council of governments for the county
The SGA team encourages the elected leaders of the incorporated municipalities and the county to join together to create a unified council of governments across the county. Parsons Mayor Dorothy Judy and County Commissioner Lowell Moore could serve as co-conveners of this council. Consider also appointing a non-voting youth representative from each of the municipalities to the council as well who reflects the perspective of Millennials or younger adults.

Create and execute a county-wide marketing plan
The Tucker County Convention & Visitors Bureau serves as a destination branding organization for the region to tourists. While the website and available printed materials from that organization are a great start, they are clearly geared toward visitors who will at some point return to their homes elsewhere. The Tucker County Chamber of Commerce and the Tucker County Development Authority are two organizations that brand the county to target those who might invest in or move to the county. These entities and other partners should jointly create a county-wide marketing plan, including a branding effort, to reach these various audiences. A county-wide marketing campaign can serve the entire county even as the individual municipalities continue to celebrate their own unique histories and cultures.

This campaign should embody the unique features the county and its towns have to offer both visitors and potential new residents. It should include components such as a unique logo and moniker. The city and all other partners should use the branding consistently for it to be most effective. If carefully planned and executed, the marketing and branding campaign can serve as a mechanism for Tucker County to succinctly tell its story to the world.

As an example, consider the Nike logo or another well known corporate logo, which does not require one to read the product name in order to recognize it. Tucker County might consider creating a logo related to its local natural amenities or outdoor activities. The logo should tell a story about the entire county with a picture and this should be echoed in the moniker.

All of the entities within the county that market to the outside world should adopt the unified branding and logo in their public facing electronic and print materials. The official county websites should also consider utilizing it. Careful design should allow elements of customization for each town while still adhering to a unifying overall presentation.

Update county websites with additional photos showing off the county's natural beauty
The Tucker County Commission website (tuckercountycommission.com) provides helpful details about the county government, history, and other information useful to residents and others. However, the site includes only two photos of Tucker County's beauty—one of a sunset and one of a highway. In addition, the official Tucker County website (https://tuckercounty.wv.gov) has only a photo of Blackwater Falls and one of the Tucker County Courthouse. Although these are two iconic landmarks in the county, by themselves they do not fully capture the county's natural beauty and history.

These official county resources offer another opportunity to celebrate Tucker County's idyllic natural beauty and small towns through the use of local photography. If this photography includes people along with the natural beauty, it will be an even stronger and more compelling marketing tool!

Both the Tucker County Convention & Visitors Bureau website (www.canaanvalley.org) and the Tucker County Cultural District Authority (www.tuckerculture.com) offer examples of excellent use of photos of the county's many amenities, both natural and cultural.

It is critical to market Tucker County's primary assets to bring in new visitors and residents. Visually, Tucker County is a stunning place, but the community is not sharing that beauty with the world. For example, the SGA team heard that, until relatively recently, ski resorts in Tucker County used stock photos from Colorado in their marketing materials until a new resident began shooting action shots at Canaan Valley. Authentic visuals are immeasurably better than any stock photos.

These photos could be used for other purposes as well beyond the county's website. A photographic consultant may be able to produce stunning visual images of the county's natural beauty for use on the website or for other marketing purposes. A small grant may be available from the state tourism agency for this purpose.

Make smart use of broadband digital platforms and applications in marketing efforts
Effective marketing campaigns today make smart use of the Internet as a tool to market to both the world and select target audiences.

Short-term Actions (1-6 months)
- Through the implementation working group identified above, coalesce around a shared vision for Tucker County as a whole and its municipalities
- Convene a meeting of local elected officials representing the county and its municipalities to discuss issues of shared importance
- Work with local businesses, and other partners to engage the services of a marketing and branding consultant to develop a joint branding and marketing campaign for the county as a whole. This should include a unique identity, informational materials, and/or an online presence. Ensure all entities (municipalities, county, chamber, and other partners) use the branding guidelines when referring about the downtown.
- Update the various county websites identified above with fresh images that show off the area's natural resources and beauty

Medium-term Actions (6-12 months)
- Determine whether the jurisdictions can commit to working together to implement select planning and development projects that benefit all of the citizens in the region.
- Continue implementing the marketing and branding campaign started earlier

Long-term Actions (12 months and longer)
- Consider whether a joint town and county government planning advisory council is viable and work together on projects of shared interest and importance
- Ensure that the branding and marketing campaign continues to represent the county as well as its downtowns and amenities by updating it from time to time.

Downtown Recommendations

3. **Focus on placemaking and streetscapes in the town centers to make them unique destinations where people want to visit and to linger**

Each of the three largest jurisdictions in Tucker County—Davis, Thomas, and Parsons—is unique. Davis, built on lumber, has breweries, restaurants, and lodging as the gateway to outdoor recreation. Thomas, a historic coal town, today has a vibrant arts community with several galleries along Front Street. Parsons is the county seat and has several historic landmarks. Each town has a lot to offer visitors who may come to Tucker County for hiking, river sports, biking, or skiing. Each community should focus on placemaking and streetscaping within their downtown to make them places where people want to explore.

Thomas, for example, is well on its way to creating a strong sense of place. It would be easy to spend an afternoon browsing its art galleries, stopping for coffee, and potentially exploring the riverfront—if it was more easily accessible from downtown.

This section includes recommendations—some general to all three and some specific to one or two communities—to create these types of amenities within each town's borders.

Pay attention to internal circulation within each town center and connections to amenities and nearby neighborhoods
Each town should ensure that all downtown roadways have clearly delineated sidewalks in good condition that are accessible by persons with disabilities and are well lighted at night. Energy efficient LED lighting could be one way to ensure pedestrians and others feel comfortable walking around downtown in the evenings. Aim for a consistent look for pedestrian-scale lighting throughout downtown. For example, Meridian, Mississippi converted its street lighting and traffic signals to energy efficient LED fixtures, saving $250,000 in electrical costs the first year.

As sidewalks are repaired or replaced, consider taking the opportunity to coordinate with broadband Internet providers to drop new conduit below them. This will reduce the cost of providing this infrastructure at a later date and future proof the value of the investment.

In addition to well-maintained sidewalks throughout downtown and nearby neighborhoods, ensure that all crosswalks are well marked to ensure pedestrians are able to cross streets safely.

Examples of rural crosswalks.

Finally, bicycle racks in several locations will also encourage residents to bike to (and within) downtown. Local merchants may be willing to contribute to their cost. Because of the compact size of each downtown and the close proximity of neighborhoods, the SGA team recommends the addition of bicycle lanes to facilitate travel between residential areas and the town centers as roadways are resurfaced or restriped. These bicycle lanes should be extended to connect to nearby recreational destinations as well. Crosswalks and bicycle lanes need not be expensive -- they can be accomplished merely with paint. Bicycle racks will encourage the use of bicycle lanes.

Examples of rural bike lanes. Image sources: Virginia and California Departments of Transportation

Seek out opportunities for placemaking and streetscaping within the downtowns
In addition to the availability of a seamless and safe pedestrian network to travel within the downtown, other factors influence the number of people who visit each downtown and how long they remain there.

Spaces for outdoor entertainment, including music and arts, as well as for community and holiday celebrations will bring additional people to downtown and encourage those already there to linger. Landscaping and streetscapes will also make the downtown more pleasant to explore. This directly influences the success of downtown businesses.

Additional trash receptacles and seating in the downtown, perhaps funded by a merchants association, local tourism tax revenues, or another entity will also encourage people to linger. These amenities would beautify the area and encourage people to explore the town center by providing comfortable places to rest. They can also reflect the marketing image or logo that is recommended elsewhere in this document.

Vacant storefronts could be cleaned up and furnished with artwork made by students in the local schools as well as by local artists. These artists could also help dress up blank walls through the creation of murals that reflect the community and its residents.

Moving water – fountains or pools – incorporates a pleasing effect that encourages one to linger. This is one reason why viewscapes and access to the rivers from each downtown is so important.

Finally, a downtown map—provided both electronically and on paper—will encourage tourists to further explore as they learn about the history of each town center. These maps should be supplemented with wayfinding signage in downtown directing visitors to major amenities and attractions, again while describing the history of the town center.

Invest in the creation of a sense of arrival to each community

Each community has several key gateways for those arriving from out of town. At the entrances to downtown a gateway monument like those shown in the photos will further heighten the sense of arrival. This artistic gateway should represent the culture and history of the area, while taking into account the downtown branding described above. The design of the monument could be decided through a community design charrette, a competition, or by soliciting proposals from local or West Virginia artists. Ensure that an overhead monument is high enough to allow all vehicles to pass freely beneath it.

Consider including elements of the branding campaign described above into the design of the monument.

Monument in Parsons, Kansas. Source: Flickr user J. Stephen Conn

Arrival gateway in Council Bluffs, Iowa. Source: Travel Iowa on Pinterest

As the above examples show, this monument differs greatly from a landscaped "Welcome to Parsons" or "Welcome to Thomas" sign that might be placed at the very edge of the community. Developed as part of a broader marketing campaign around the logo developed for the county, each gateway could carry forward common unifying design elements while also exhibiting elements customized to each particular town.

Connect Thomas and Davis via a multiuse trail for pedestrians and bicyclists

The SGA team heard that a trail between Thomas and Davis has been planned. We encourage the two communities to complete this important connection. By including a tree canopy, plants, lighting, and benches, the trail becomes not only a physical link between the two communities, but a visual one.

Add signage for both pedestrian wayfinding and trailblazing for drivers
Wayfinding presents a set of destination choices that quickly orient the reader to where they are and how to get where they are going. Trailblazing points to a specific destination and assumes the user won't have the time to stop and read. Each town in Tucker County needs both types of consistently designed signage leading people both to downtown and to specific destinations within it.

These types of destinations may include, but certainly not be limited to, town halls, the post office, parks, historic landmarks, the river, and other destinations. For drivers, this additional signage should make them aware that they are heading towards the downtowns and encourage them to slow down and observe their surroundings as they drive through it. Signage directing drivers to existing off street parking located behind buildings will also encourage them to stop and explore the downtowns.

The signage should be a consistent theme throughout each town and ideally the county as a whole. Its design should be artistic and easy to follow.

Once drivers are out of their cars, additional markers providing a self-guided walking tour of the downtowns that tells each one's history and describes their regional culture will encourage visitors to further explore Tucker County's downtowns as they move from one marker to the next. The new markers will also help the towns recognize and celebrate their local history. All of the above signage and wayfinding should be designed around a consistent graphical theme as part of a larger branding effort for Tucker County's downtowns.
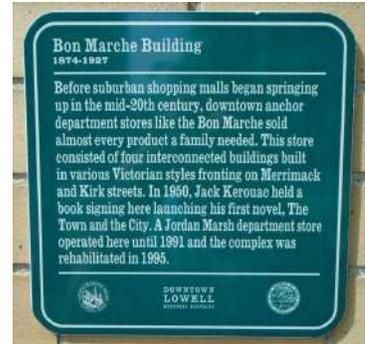
Examples of trailblazing signs (left two photos), wayfinding sign (center right photo), and historical marker (far right photo). Sources: Seymour Tribune; Pinterest user Cloud Gehshan; Town of Leesburg, VA; Historical Marker Database

Encourage outdoor dining on sidewalks and other spaces
Restaurant patrons enjoy dining outside in nice weather. By bringing alleys to life and allowing dining tables on the sidewalks where they are unobtrusive will encourage more people to try downtown's existing and new restaurants.

Outdoor dining is another mechanism that attracts visitors. A restaurant need only put a single table out on the sidewalk—or dress up an adjacent alleyway with tables, planters, and murals—and passersby know the restaurant is open for business. This encourages them to sit down and have something to eat or drink. New sidewalks should be designed with this functionality in mind.

If Tucker County or its towns have not already adopted a sidewalk dining ordinance, we encourage them to do so. Examples of communities with outdoor dining ordinances include Alexandria, Virginia[4]; Covina, California[5]; and Winfield, Illinois[6].

Engage and celebrate the rivers as downtown amenities
Davis, Thomas, and Parsons are each built along a river. Each river has contributed to the economic and cultural history of each community that should be celebrated. Today, the communities should still actively engage with the rivers, especially by making them more accessible to residents and visitors. Existing festivals—and new ones the communities create—should center on the rivers, in addition to each community's unique downtown.

In particular in Parsons, where the Cheat River has been seen as an impediment in the past, the water should now be viewed as a major asset for the community's future. The town should seek to bring more venues that open to the river as well as other recreational opportunities and special events that take advantage of it. Rather than just being a bad memory, the opportunity exists to make the history of the flood serve as a launch pad for telling the story of a resilient, forward-looking community that has emerged stronger from their past experience.

Duck race
Source: www.geograph.org.uk

As an example, the annual rubber duck and raft races near Meridian, Mississippi helps the community celebrate the Chunky River. This day of events gets the community to the water, helps children see the river as a fun amenity in their community, and raises money for charity.[7]

In Thomas, the river is not readily visible from Front Street beyond the Blackwater Canyon Trail, including from the overlook with the historical signage. By clearing a viewscape in front of the river—preserving as much of the natural landscape as possible—the river can come into view. There should also be a way to easily get down to the river itself—not just the trail—from Front Street. A terrace with benches will make the walk more comfortable. The existing overlook platform could become the entrance to this pathway. Finally, picnic tables would be another amenity that will encourage people to stop and linger in Thomas, taking advantage of restaurants and browsing in art galleries afterwards.

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[4] https://www.alexandriava.gov/uploadedFiles/planning/outdoor_dining_ordinance.pdf
[5] https://www.codepublishing.com/CA/Covina/html/Covina17/Covina1757.html
[6] http://www.villageofwinfield.com/documentcenter/view/8042
[7] More information: http://chunkyshoalsfishcamp.com/raft-race-2019.html

Finally, Davis can also make similar efforts to those described above to get visitors and residents down to the Blackwater River from downtown or other parts of town.

Ensure that wayfinding signage (see below) is provided to direct downtown visitors in each community to reach the water by foot.

Short-term Actions (1-6 months)
- Paint / repaint crosswalks in the city center as required and review the condition of existing sidewalks
- Identify the major gateways to each downtown and develop themes for downtown gateway monuments that celebrate Tucker County's local and regional identity.
- As part of the Complete Streets policy implementation (described below), consider missing links where sidewalks and bicycle lanes could be added to offer connections to nearby residential neighborhoods and tourist destinations
- Begin discussing how to incorporate the river into each community, particularly connections from downtown
- Identify local ordinances impacting outdoor dining, including on sidewalks, balconies, and in alleys.

Medium-term Actions (6-12 months)
- Begin repairing any sidewalks identified as deficient (or any incomplete pedestrian connections) and design them to be Americans with Disabilities Act-compliant.
- Begin discussions with the West Virginia Department of Transportation or other roadway owners to utilize right of way owned by these agencies to place monuments where they will be visible by motorists.
- Seek funding to pay for monument designs from chamber of commerce or other entities

Example of on-street parking temporarily repurposed as dining (Source: jsonline.com)

- Install additional wayfinding and trailblazing signage that directs visitors to destinations and allows them to explore and learn about the history of each downtown and the greater region.
- Create a "river plan" for each community to reconnect them to the river
- Consider temporarily repurposing one or more parking spaces as outdoor dining at one or more restaurants during pleasant months.[8]

Long-term Actions (12 months and longer)
- Continue repairing and maintaining sidewalks to ensure they remain in a good state of repair
- Implement bike lanes to connect the city center with neighborhoods and recreational destinations such as the riverfronts and other community gathering places

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[8] For more information, see
http://archive.jsonline.com/business/two-east-side-parking-spaces-replaced-by-14-outdoor-dining-tables-b9982256z1-220860751.html

- Connect Davis and Thomas via a multiuse trail
- Place monuments at gateways to downtown and tree columns leading up to downtown gateways. Ensure that this signage, once placed, receives ongoing maintenance.
- Investigate lighting design to increase pedestrian safety during evening and nighttime hours.
- Implement the river plan created for each town
- Consider the application of the following features to increase pedestrian safety and visibility to drivers:
    - Raised crosswalks
    - Different pavement types or colors to distinguish them from the roadway pavement
    - High-Intensity Activated crosswalk (HAWK) or Rectangular Rapid Flash Beacons (RRFBs)[9]

Transportation Alternatives Program (TAP) funds administered by the West Virginia DOT is a natural place to apply for funding for this and other pedestrian infrastructure.

4. **Seek new development projects to fill in the "missing teeth" while paying careful attention to building and site design**

In each downtown core, Tucker County's towns should preserve historic buildings to the greatest extent possible (at least the facade if the whole building isn't salvageable). Each legacy building contributes authenticity and character to the whole of downtown, is critical to the storytelling of local history, and provides unique spaces for adaptive reuse.

As downtown renovations are planned, the community must not view each restoration project as merely a standalone building. Rather, these legacy structures collectively create a framework and context for both the town's history and its future that is worthy of celebration and community pride.

Consider opportunities to embed technology-enabled trends into redevelopment plans. For example, comments during the Cool and Connected workshop pointed to the need for event space, expanded public access at the libraries, and the capacity for telework and distance education. The solution to these diverse problems might converge in the adaptive reuse of the Parsons historic depot (or other downtown facilities) into a coworking space that supports resident and visiting teleworkers, entrepreneurs, and students in a flexible space with high-speed Internet access. What a banner marriage of the past and future!

As the downtown of each community in Tucker County pursue new development, it is critical that they do so in a manner that fits with the surrounding development patterns. This will ensure that the new structures blend in with the existing structures in the downtown and face the block front. Even a new drug store can come up to the block front and have parking on the sides and in the back (instead of in front).

Explore restoring the Tucker County Courthouse in Parsons to its original glory
The Tucker County Courthouse, designed by architect Frank Pierce Milburn, is a strong visual identifying element for Parsons—and the county as a whole. Built in the late 1890s, it is a

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[9] For more information on this technology, see
http://www.bikewalknc.org/2015/04/understandingpedestrian-signals/

combination of Flemish Renaissance and Romanesque Revival architectural styles and the county should be extremely proud to have it within its boundaries. The courthouse is also an important part of the county's local history, symbolizing the decision to place the county seat at Parsons rather than St. George.

One observer has the following to say about the courthouse:

The courthouse at Parsons is an especially commanding structure in a small-town setting. The building's high degree of architectural and structural integrity reveal much about ideas of late 19th century design and construction...Few courthouses in West Virginia feature better preserved design features of high-style Victorian-era public architecture.[10]

Restored Meridian, Mississippi city hall and its council chambers

Serious consideration should be given to pursuing state and federal tax credits and incentives to restore it to its original glory. The Economic Development Administration (EDA) and USDA Community Facilities are examples of federal sources of funding. Refer to Appendix C for more information. Every effort should be made to restore the structure to its original appearance when it opened.

Site Design

Buildings – active spaces, which generate people – serve to engage and activate the street space. This is done by both creating an attractive street wall and through buildings' permeability (doors and windows). These techniques promote human contact and make passersby feel comfortable. The building itself should front the sidewalk and meet the block face.

When any new buildings are being planned or redeveloped downtown, special attention should be paid to how any included parking is designed. Parking can often be wrapped within or behind the building faces to help screen the parking. Feelings of welcoming and comfort are lost if cars are in the way between the sidewalk and the building itself. This is why parking goes behind the building—not because we need to hide the parked cars.

10

https://www.livingplaces.com/WV/Tucker_County/Parsons_City/Tucker_County_Courthouse_and_Jail.html

The SGA team recommends that parking be accessible from side streets or rear alleys to allow the major streets to remain attractive walking environments for pedestrians. This will maximize the best use of the site for those walking between various destinations.

This figure demonstrates the proper placement of surface parking around project sites.

Consider adopting a form-based code for the downtowns
To both facilitate new development and guide it to create the right building envelope, Tucker County may wish to consider if a form-based code is right for its downtowns. A form-based code (FBC) is an alternative to the conventional zoning most localities adopted in the mid-20th century. It is intended to regulate development so as to achieve a desired form of the built environment, one that emphasizes walkability and the creation of appealing public spaces, in a mixed-use setting. This contrasts with conventional zoning, which emphasizes the separation of uses, and was developed largely to accommodate an automobile-centric development pattern.

One of the advantages of an FBC is to simplify the project approval process. Because the community establishes the characteristics of acceptable and desirable development beforehand, application review can become somewhat routine, or at least simplified. Protracted negotiations among applicant, government, and community members can be avoided. This has benefits both for developers (concerned about the uncertainties of the entitlement process, and the associated costs that may be incurred) and for neighbors (concerned about the nature of the development that may occur next to them, and the impact on the neighborhood).
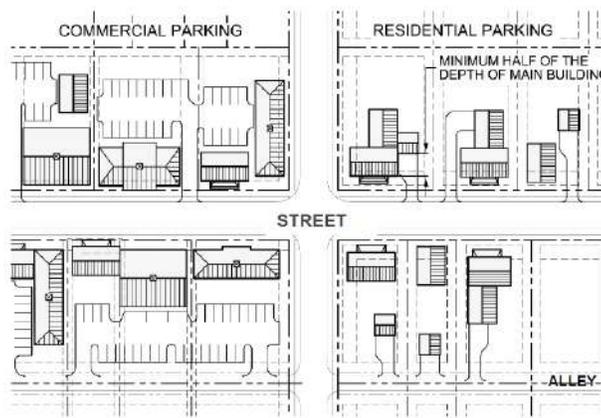
Proper design of surface parking around project sites. (Source: Marshall, Virginia draft form-based code)

The potential benefits over time, in achieving a community's goals for development, do require significant "upfront" investment in a planning effort, including the time of municipal staff and citizens.

Refer to the Form-Based Code Institute (a program of Smart Growth America) resources page for more information on implementing FBCs.[11]

For residential, focus on small lot homes and small format multifamily units
Traditional small lot homes and small format multifamily units are the right types of residential development to focus on in and around downtown. This will add some density and allow for housing choices while preserving the historic look and feel of downtown. Consider the tiny home

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[11] https://formbasedcodes.org/resources/

model as one possible type of housing development.[12]

Photos of small format residential units and small lot homes suitable for the communities in Tucker County.

Short Term Actions (1-6 months)
- Explore the availability of state and federal tax credits and incentives for restoration of the Tucker County Courthouse
- Identify parcels in each downtown that could be suitable for redevelopment in an effort to bring more rooftops and retail into the core of each community

Medium-term Actions (6-12 months)
- Explore adopting a downtown form-based code overlay to encourage building and site design that promotes walkability and placemaking
- Identify a plan for restoration of the courthouse to its original state
- Research and apply for funding applicable to the type of project selected (such as USDA grants and loans, low to moderate income tax credits, TIF districts, historic tax credits, Opportunity Zones, and New Market Tax Credits) to incentivize and support the private sector development as well as for creating new upper floor housing units in other historic properties in the downtowns. Refer to Appendix D for USDA and other resources.
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- Create a downtown master plan for each community and ensure that existing ones are updated to reflect current priorities

Long-term Actions (12 months and longer)
- If funding is secured for restoration of the courthouse, implement the identified plan
- Create and implement a plan for infill development consistent with the downtown master plan and sensitivity to the existing architectural fabric

5. **Adopt a Complete Streets policy and implementation strategy**
   Tucker County and its municipalities should adopt a consistent Complete Streets policy to ensure that all future street design efforts consider the needs of pedestrians, bicyclists, transit users and persons with disabilities. This effort should be undertaken in conjunction with the West Virginia Department of Transportation. Attention should be given to take advantage of the state's "Dig

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[12] For information on a tiny home development in Clarkston, Georgia, see https://www.microlifeinstitute.org/clarkston

Once" policies that encourage the integration of broadband infrastructure development with updated or new transportation and other infrastructure arteries. Adopting a Complete Streets Policy demonstrates Tucker County's commitment to establish, design, and implement transportation improvements, addressing and balancing the needs of citizens of all ages and abilities.

Refer to Appendix D for a list of helpful Complete Streets resources available online.

Short-term Actions (within 1-6 months)
- Create a timeline for the adoption of a Complete Streets policy within three to six months. The timeline should consider:
  - Who needs to be involved in the development of the plan?
    - Local elected officials and City staff
    - Smart Growth America recommends the city work to bring seniors and people with disabilities together with the West Virginia DOT to work on accessibility issues
    - It is recommended that a meeting and tour with the West Virginia DOT be setup to demonstrate the accessibility issues some citizens face on a regular basis when interacting with state highways
    - This is a fantastic opportunity to affect change not only at a local level but also at a state policy level
  - When to release a draft of the plan to the public.
    - The timing of this release is critical to project success
    - The public should see a draft version
  - What type of feedback it will ask from the community and what it will do with the feedback.
    - To create community buy-in, Smart Growth America recommends sharing a draft of the plan with the public and asking for their buy-in. However, the Tucker County planning group must be clear on exactly what type of feedback they are looking for (high level, such as does this fit your vision for the city, or more detail-oriented, such as what do you think of this sentence) and how Tucker County will use the feedback. This will create transparency and manage expectations for residents.
    - Host open houses within the community, otherwise known as meeting people when and where they are at. For example, Tucker County could reach out to local church groups or have meetings on weekends, which may be easier for some residents to attend.
- Determine the type of plan(s) to adopt
  - A Complete Streets policy will change and add value to Tucker County's decision-making process. Tucker County should identify the type of policy that would be most effective in sparking change, while being realistic about the type of policy that can be passed and implemented successfully. Many communities begin with a simple resolution that then leads to a more complex internal policy.
    - A **resolution** will allow the Tucker County Commission and municipal leadership to lead the initiative on Complete Streets and leverage their leadership to highlight the importance of Complete Streets with the public and the media.

- A Commission-adopted **ordinance** will codify the policy into law.
- Plan a community/press event
    - Tucker County should celebrate the success of the adoption of a Complete Streets policy with a public event. This will help educate the public and media about Complete Streets, as well as allow the city and the community to celebrate the passage of the policy.

Medium and Long-term Actions (6 months and longer)
- Incorporate Complete Streets policy into roadway and intersection redesigns as they occur

Broadband Internet Recommendations

Technology and connectivity become more impactful to business and economic development with every passing day. Whether it's attracting technology related businesses, telecommuters, re-educating displaced workforces, or just empowering home-based businesses, connectivity is required to participate in the modern economy. Making certain everyone can benefit from technology in an equitable and affordable way is critical to our future success but also remains an enormous challenge.

The remote, isolated natural beauty of Tucker County underlies much of its appeal to both the resident population and visitors who travel to the area to enjoy its multi-season outdoor adventures. Tucker County is rich with networks of rivers, hiking, biking and ski trails but critically lacking in the telecommunication networks that underpin competitive communities today. As broadband increasingly becomes the platform over which essential education, health, public safety and commercial services flow into communities, the availability of adequate broadband becomes a critical determinant of quality of life and economic sustainability. Cellular services are equally important, as mobile devices increasingly become the tool of choice for accessing the Internet. Telecommunication networks represent significant capital investments and scale requirements that in sparsely populated rural settings necessitate creative and collaborative approaches that engage partners across demographic, geographic and institutional boundaries.

Current Situation

Geography and remoteness are not the only challenges affecting the state of broadband and cellular service in Tucker County. Few, if any, locations in Tucker County can currently be described as having reliable, high-speed, redundant broadband or cellular telephone service of the sort required to support livable, competitive communities. In the extremely limited number of locations where fiber infrastructure delivers true broadband, the cellular phone service may be very spotty. Challenges observed during the driving tour and/or noted by interviewees include the following:

- Extremely limited telecommunications infrastructure: Tucker County has no fiber backbone and sparsely distributed middle-mile fiber resources, much of which is owned by and for the exclusive use of Frontier Communications (Appendix E). Cable Internet service is

available from Atlantic Broadband (Appendix F), Shantel and Canaan Valley Cable, all with limited service footprints.

- No competition: The small number of Internet service providers results in an absence of competition that contributes to higher costs of service that make Internet unaffordable for some businesses and residents.

- Public lands: The exceedingly large proportion of Tucker County that is held in public trust by either the State of West Virginia or the federal government negatively affects the capacity of the county to address its broadband gaps in two primary ways (1) public lands do not directly generate tax revenues that could be used to incent broadband providers, and (2) restrictions on the use of public lands and transmission spectrum may interfere with optimizing the location of needed transmission towers and other communications infrastructure.

- Few community anchor institutions: In some relatively low-population communities, large anchor institutions, such as hospitals and universities, provide the demand scale and revenues needed to attract potential broadband service providers. Community anchor institutions in Tucker County are limited in number and scale and are widely distributed over a large area.

- Highly-variable demand: Demand for broadband and cell service in Tucker County is highly variable, reflecting an influx of seasonal and weekend visitors, resulting in the need to overbuild infrastructure to meet peak demand or under build to the average.

BROADBAND IN TUCKER COUNTY

- 3,000 people do not have Internet service at FCC-defined broadband speeds (25 mbps download/3 mbps upload)
- 600 people do not have any Internet access
- 43% premises served by only one provider

Results as of March 2017 (the most recent data available)
https://www.fcc.gov/Internet-access-services-reports

Tucker County Broadband Availability Survey Results Spring 2019
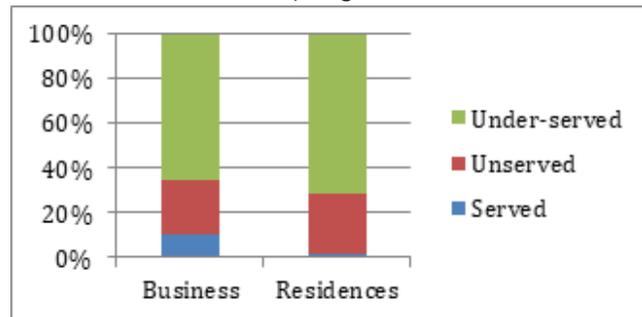
On the positive in Tucker County:

(1) Wi-Fi is already being deployed for public purposes, albeit on a very limited basis, such as on park trails in Parsons;
(2) There are promising elevated locations with large view sheds where towers and other vertical assets could support expanded fixed wireless and cell service;
(3) Awareness and commitment at the state and federal levels to address last mile rural broadband gaps is strong; and,
(4) Innovations in technology continue to improve service availability and quality.

It is a good time to be mounting an effort to improve connectivity in Tucker County. By working together to obtain better broadband, communities in Tucker County can develop and share with the world a cohesive and compelling story of what makes it a great place to live, work and visit.

Broadband Planning: Abbreviated Summary of Action Steps

The following pages provide detailed descriptions of the rationale and steps involved in developing an actionable connectivity plan to improve broadband cellular access throughout Tucker County. It may seem overwhelming at first read, so the following "Cliff's Notes" version is intended to offer assurance that:

(1) This is a realistic undertaking for a small, rural, low-population county and its dispersed communities; and,
(2) It can be completed in 18 months.

The level of interest, technical support and available external funding is high; Tucker County does not have to be alone in the effort.

- Solidify commitment by forming an official Broadband Planning Group (BPG) and hiring/appointing someone to spearhead the effort
- Explore models/best practices
- Develop and validate data and map results
- Develop an inventory/portfolio of approaches with variety of partners/projects and timelines to accomplish comprehensive vision
- Conduct a proactive outreach effort to build awareness of Tucker County efforts / commitment to address broadband/cell service and use gaps
- Issue an RFP to ascertain interests from providers and to obtain an optimized actionable strategy with cost and schedule information for moving forward.
- Work to establish Tucker County as a priority for external public investments in broadband e.g., FirstNet and Abandoned Mine Lands location for towers and devices

Detailed Broadband Action Steps

Given the scale of challenges identified above and the inadequacy of local resources it is unlikely

that Tucker County alone will be able to resolve the natural and structural impediments to achieving ubiquitous high-quality telecommunications. External resources and partnerships will have significant roles in successful solutions. Tucker County can be strategic and opportunistic in optimizing its options for better service by being fully informed about current challenges. Moving forward, broadband planners in Tucker County need to be prepared to accurately account for both the challenges and opportunities for technology-led growth.

It is important to note that counties positioned similarly to Tucker County in their need to take steps to improve telecommunications face two paths in developing plans for moving forward:

(1) Take ownership of the process and undertake efforts to define the problem, characterize the desired solution and seek support needed to achieve the goals; or
(2) Contract with professional planners experienced in broadband studies to work with the county and be responsible for developing a comprehensive plan and managing the Requests for Proposals and vendor contracting process.

Costs for a contractor-managed planning process vary with the scale of the project but can be expected to range between $50,000 and $150,000. It should be noted that some counties have obtained outside funding to defray all or some of the planning costs, although the process of developing the request for planning funds will delay actual progress to resolve the problems. A number of toolkits to guide broadband planning exist, including one developed by Broadband Catalysts for the Cool and Connected program (Appendix G).

6.   Organize for action around broadband Internet

Form a broadband and cell phone service planning subgroup to the overall working group
The Cool & Connected effort helps small towns and rural communities leverage broadband to revitalize their downtowns and promote sustainable economic development. A successful short-term outcome will be the creation of a platform to facilitate collective action through which Tucker County and its municipalities might effectively partner with citizens, local businesses, institutions, public land management, broadband providers, and other entities to increase and improve the communities' access to broadband Internet and cellular communications.

While everyone in Tucker County will benefit from improved broadband and cell service, only a few folks will have the insight, capacity and commitment to join a prolonged effort to make better telecommunications a reality. And while Tucker County does have individuals with the interest and skills to move broadband planning forward, simultaneous efforts to plan and implement actions to make the county's towns more attractive and sustainable will inevitably draw on many of the same community leaders. Care should be taken to integrate and smartly manage these related, but distinct efforts so as to leverage the fastest progress and most benefit from each.

Composition of the Broadband Planning Group (BPG): This group should ideally be an affiliated subgroup of the larger working group implementing the recommendations in this report. Planning for better telecommunications will require diligent and focused effort. Ideally the composition of such a planning group will reflect the breadth of business, personal and organizational stakeholders in the county. Consideration might be given to asking key contacts at the Region VII Planning and Development Council to join the group as an ad hoc link to state resources and to the U.S. Department of Agriculture (USDA), Appalachian Regional Commission (ARC) and Economic Development Administration (EDA). The BPG should be formed as soon as possible.

Leadership of the Broadband Planning Group: The identification of a single person as chair or pair of co-chairs who agree to serve as the county's broadband champion(s) is vital to the ultimate success of these efforts. This person will serve as:

(1) The catalyst for getting efforts off the ground;
(2) The information broker for what is underway; and,
(3) As the point of contact and coordination with the broader Tucker County working group and with external entities that may partner with the county to improve its broadband and cellular service.

Leading the BPG over the coming 18 months will require dedicated time and effort. Ideally, the county and its municipalities could find funding to compensate the person who is selected / volunteers to serve as the Tucker County e-champion. Should the person selected to lead the BPG be a public employee, attention should be given to adjusting their normal duties to allow them time to focus on BPG activities.

7. **Acquire the information needed to become a 21st century connected community**

Accurate, comprehensive and current data drives better decisions, smarter investments, and stronger policies. In the spirit of knowing themselves and the state of broadband development in peer locations, Tucker County needs to undertake a deep-dive environmental scan. Data collected can be used to provide a full and accurate accounting of:

(1) Existing unmet demand for telecommunication services;
(2) Existing and planned physical assets that can be leveraged in crafting a plan for better connectivity; and,
(3) Existing and planned broadband development initiatives in nearby counties that might be leveraged for Tucker County's purposes.

This documentation can be used in developing a Request for Proposals (RFP) for service and to strengthen the county's position in discussions with providers and potential funders and partners. A list of information resources and contacts at potential support and partner organizations is found in Appendix H.

Distribute demand aggregation survey and map responses

Results of the Tucker County Cool and Connected survey successfully demonstrated that citizens and businesses in need of better telecommunications services are distributed throughout the county (see Appendix I). This was a good start but a more compelling case for potential providers and funding partners requires stronger documentation. More comprehensive outreach efforts that actively engage a wide variety of distribution partners is required to maximize the number and geographic distribution of responses. For example, schools can distribute surveys to students' families, by local governments through utility/service bills, and to businesses through the Chamber of Commerce. Local influence leaders can promote the survey on social media or through public service announcements in local media. The point is that more data provides better validation of existing unmet demand. This information will be most powerful if graphically displayed on maps and charts indicating the number of residents and business actively interested in obtaining better, faster connections. The same survey instrument (Appendix J) and Broadband Catalysts' open-source data mapping process that was used in advance of the Cool and Connected workshop can be adapted or used as is for this broader demand aggregation and mapping effort.

Expand and improve value of survey data to prospective providers/partners

Organizations and institutions that have relatively-larger demand for telecommunications services, such as call centers or larger companies, can have an outsized effect on perceptions of potential providers/partners. A modified survey that targets larger corporations, community anchor institutions and non-profits with queries about their current and anticipated demand for services will further validate unmet and growing demand. This data should be mapped.

Conduct telecommunications asset inventory and map results

Existing physical telecommunications assets can be a valuable resource in crafting cost-effective plans for expanding telecommunications infrastructure. Adding equipment to existing towers and other vertical assets on sites that have been approved for such use can save significant money. Erecting new assets on sites that have passed environmental clearance can avoid long, costly delays. In Tucker County, there is evidence of possible towers being planned for different locations around the county. Promising view sheds that would optimize coverage by fixed-wireless equipment need to be identified, including any that might be located in bordering counties that could provide good signal strength coverage in Tucker County. An inventory of planned and existing assets needs to be conducted as part of the package of information provided in RFPs that could be distributed in the coming months. Region VII and the West Virginia USDA office may be able to provide resources to assist in this effort.

Identify other broadband infrastructure efforts being planned/underway in West Virginia

A number of announced broadband projects are being planned and implemented in West Virginia that could be leveraged to improve service in Tucker County. These include the following:

- FirstNET: AT&T is under contract to implement the National Public Safety Broadband Network, also known as FirstNET.[13] This network will include a statewide dedicated network in West Virginia that will provide interoperable connections between all state and federal public safety providers.[14] Part of the vision for this network is that towers and other infrastructure developed to support FirstNet might also be available for use by providers for co-location of equipment to enhance broadband and cell service in under- and unserved locations. FirstNET deployment is already underway in West Virginia[15] and elements of the network will almost certainly have a presence in Tucker County. In the medium term, the county needs to initiate discussions with the First Responder office to explore options for advancing the priority of tower locations identified for Tucker County.

- Abandoned Mine Lands: Federal funding is available for economic development projects on or adjacent to specified abandoned mine sites. In West Virginia, the Department of Environmental Protection's Office of Abandoned Mine Lands administers these funds. Grants approved in 2016-17 included resources to construct broadband towers.[16] Four towers that represent the backbone of the network being deployed are currently under construction. Preliminary plans included sites in Tucker County (see Appendix K), with final location of towers to be determined as the network is deployed, with an update of plans scheduled for a meeting on July 10, 2019.

- Fiber backbone: In the longer term, Facebook has announced plans to lay 275 miles of fiber backbone across the southern part of the state[17] and Zayo Communications will expand its backbone network from Ashburn, Virginia to Columbus, Ohio traveling through northern West Virginia.[18] Neither company has disclosed detailed public route plans. While their planned routes may not currently include Tucker County, they may still provide a backhaul resource that could eventually be tapped to improve the robustness of middle and last-mile connections in the county. Efforts should be made to make the companies aware of Tucker County's situation and its possible interest in partnering with private companies to improve access. The Tucker County Broadband Planning Group should maintain contact with the West Virginia Broadband Enhancement Council to track development of these networks and be prepared to leverage them whenever possible.

13

https://sirn.wv.gov/information/NATIONAL%20PUBLIC%20SAFETY%20BROADBAND%20NETWORK%20(FirstNet)/Pages/default.aspx

14

https://sirn.wv.gov/information/NATIONAL%20PUBLIC%20SAFETY%20BROADBAND%20NETWORK%20(FirstNet)/Documents/WV%20Planning%20for%20FirstNet%20presentation_040914.pdf

15 https://www.firstnet.gov/newsroom/press-releases/new-firstnet-cell-site-announced-preston-county-wv

16 https://dep.wv.gov/news/Pages/Justice,-Caperton-announce-$50.65M-in-AML-Economic-Development-Grants;-Application-Deadline-for-Additional-Funds-is-June-29.aspx

17 http://www.theintelligencer.net/news/top-headlines/2019/03/facebook-to-build-broadband-network-across-west-virginia/

18 https://www.wvnews.com/statejournal/government/fiber-optic-network-could-be-a-game-changer-for-w/article_7a389c86-a48d-5a4a-a9fd-603474310e55.html

Short-term Actions (within 1-6 months)
- Continue to distribute the broadband survey within the community to collect even more compelling data for action and map responses
- Consider modifying the survey for organizations and institutions to reflect their greater demands for broadband Internet service. Map the results.

Medium- and Long-term Actions (6 months and longer)
- Conduct telecommunications asset inventory and map results
- Identify other broadband infrastructure efforts being planned/underway in West Virginia

8. Conduct structured discussions with providers currently active in Tucker County

Convene meetings with providers

Once the county has in hand the telecommunications assets inventory, demand aggregation survey data and the list of potential partners and funding and its Broadband Planning Group (BPG) and the overall downtown planning working group have identified a list of priority outcomes, the county will be prepared to convene a meeting with broadband and cell service providers currently active in Tucker County. The purpose of this meeting is to:

(1) Share the working group's' preliminary findings and priorities; and,
(2) Solicit input from providers about their plans for expansion and/or capital investment that might be relevant to Tucker County's next steps.

This is an opportunity to convey to providers that the community is serious about addressing its telecommunications needs and that it is actively looking for options and partners to move efforts forward. This could also serve as an informal request for information and interest (RFI) from the providers. Their responses could help frame options for next steps.

Providers should be asked to come to the meeting prepared to share the following information:

- Routes their fiber takes from key structures along with existing fiber infrastructure and whether that fiber is aerial, buried, or a combination of the two. This information should be used to create a map of known fiber routes and key structures.
- Information on network downtime and if the fiber routes are part of a ring or series of rings. This information will identify the degree of any redundancy and reliability.

Identify success metrics and evaluate progress

Funders of all stripes, federal, private, foundation – increasingly ask for proof of impact of their investments/interventions in the form of rigorous evaluations. All data collected in the short-term by Tucker County documents the "before" situation that can be compared with the "after" that will follow the deployment of additional infrastructure and services. The BPG and downtown planning working group should:

(1) Proactively identify and codify relevant metrics that would demonstrate success; and,
(2) Create a process and specify responsibility for collecting this information.

The Appalachian Regional Commission has recently expanded their evaluation resources and might be able to assist Tucker County with evaluation of best practices.

Short- and Medium-term Action (within 1-12 months)
- Meet with broadband and cell service providers currently active in Tucker County

Medium- and Long-term Actions (6 months and longer)
- Identify Tucker County's metrics for success
- Collect data to evaluate progress towards achieving Tucker County's broadband goals

9. **Explore creative options for bringing public lands into the broadband solution set**
Public trust lands are a classic example of a mixed blessing—the scenic and recreational benefits provided by Tucker County's bountiful state and federal parks, refuges, waterways and wilderness areas are at least partially off-set by the limitations such resources may place on options for building public and/or private infrastructure. Interviewees in Tucker County frequently cited the fact that more than 50 percent of the county is public land as a major impediment to resolving their connectivity challenges. This is unfortunate as many of the county's broadband and cell service dead zones are within line-of-sight signal range from elevated locations on public trust properties. A set of factors in play may make public resources more available for inclusion in Tucker County broadband plans, including the following:

- State and park managers, staff and visitors also have increasing demand for broadband and cell service. These needs make the efforts of the Broadband Planning Group (BPG) directly relevant to the public lands managers.
- The federal interagency American Broadband Initiative has formed a working group to address the possible use of public land and to serve as a mechanism for expediting access to public resources.[19]
- Federal legislation has been introduced to more actively engage public lands in addressing telecommunications gaps by providing:

  (1) Federal land management agencies with fee retention authority for rights-of-way and other telecommunications infrastructure use authorizations to ensure these funds are reinvested to further broadband and telecommunications deployment; and,
  (2) Cooperative agreement authority to federal land management agencies for the administration of communications sites to break down funding silos and encourage new federal partnerships.

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[19] https://www.benton.org/blog/trump-administration-update-american-broadband-initiative

The West Virginia Broadband Enhancement Commission is positioned to work with the West Virginia Department of Natural Resources to explore issues related to broadband deployment on state lands.

Meet with public land managers to discuss common needs and interests
The Tucker County BPG should meet with managers of local state and federal lands relating to their current and projected telecommunications needs and their interest in partnering with the county in efforts to improve local broadband and cell service. The BPG should educate itself on developing legislation and become acquainted with appropriate state and federal officials who can be their advocates in efforts to secure access / use of priority deployment sites that will be identified through planning efforts.

Explore policy changes to compensate for public land
Beyond restricted access, communities where an unusually large proportion of surrounding lands held-in-trust for the public are at a significant economic disadvantage in that tax revenues that otherwise could help underwrite infrastructure investments are not available. One option for addressing this resource disparity could be a subsidy program that provides monetary compensation for economic challenges resulting from the loss of tax revenue. Tucker County could work with Region VII, state elected officials and non-profit rural broadband advocacy groups[20,21] to explore options for moving the subsidy idea forward.

Short-term Action (within 1-6 months)
- Hold meetings with public land managers to discuss common needs and interests

Medium- and Long-term Action (6 months and longer)
- Explore policy changes to compensate for public land

10. Explore models of success to understand your options
Rural communities throughout the United States are burdened by inadequate broadband and cellular service. The exact nature of their challenges varies, but efforts to improve connectivity have to be grounded in grassroots commitment to finding creative solutions.

Research best practices
The Appalachian Regional Commission, National Telecommunications Information Administration (NTIA) and USDA have all invested in rural broadband and have performed evaluations at the community level to identify best practices. The Broadband Planning Group (BPG) should look to studies done by these federal agencies to identify promising approaches utilized by best-practice communities.

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[20] https://www.ruralstrategies.org
[21] http://www.localnetchoice.org/org/broadband

Visit model communities

The BPG should create a list of model community broadband planning and development efforts. This list should include the three communities presented as case studies during the Cool and Connected workshop as they represent different, but successful approaches taken by towns and counties located in rural and/or mountainous settings. The BPG should identify communities for closer examination through site visits (see Appendix H for case study contacts).

Short-term Action (within 1-6 months)
- Research best practices compiled by federal agencies.

Medium-term Action (within 6-12 months)
- Identify and visit model communities elsewhere in the country.

11. Inventory regional and local approaches

Local Developments

Partnerships between West Virginia counties can leverage existing assets and overcome some of the challenges from sparse populations. Scale economies through joint equipment purchasing, strategic location of towers for signal transmission across borders, and aggregation of demand from a larger population pool are just a few of the benefits from regional approaches to broadband access problems. The West Virginia Broadband Enhancement Council has published a regional broadband planning toolkit that might be a useful guide.[22] Several promising creative developments underway in West Virginia may provide lessons for improving broadband in Tucker County and optimizing its use for economic and community development. Examples include the following:

- Community Development Block Grants (CDBGs): Mason, Pocahontas and Wayne counties recently received CDBGs from the U.S. Department of Housing and Urban Development (HUD) for broadband planning and deployment projects that are of the exact sort needed in Tucker County.[23] A separate CDBG grant is underwriting costs of a region-wide planning grant in Harrison, Marion, Monongalia, Preston, Taylor and Doddridge counties (Region VI) that will enable the counties to be more competitive for Federal broadband funds.[24]
- USDA Community Connect Grants: Barbour, Randolph and Upsher counties in the Eastern West Virginia Development Association (Region VII) obtained a $3 million grant to partner with MicroLogic to upgrade three microwave towers and construct 26 additional towers to improve Internet and cell service.[25]
- USDA ReConnect Grant and Loan Program:[26] Tucker County was recently part of an effort

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[22] http://www.wvgs.wvnet.edu/bb/reports/WV_Broadband_Planning_Toolkit.pdf
[23] https://governor.wv.gov/News/press-releases/2019/Pages/Gov.-Justice-announces-$225,000-in-federal-grant-funding-for-broadband-upgrades-in-Mason,-Pocahontas-and-Wayne-counties.aspx
[24] https://www.wvnews.com/progress/state_of_ncwv/local-partnerships-seek-to-increase-access-to-broadband/article_c8c6c30c-a3ba-5c8c-91dc-2e0bb2b3652c.html
[25] https://therecorddelta.com/article/three-counties-get-3m-to-expand-Internet-access
[26] https://www.usda.gov/reconnect

with other Region VII counties to develop a USDA ReConnect grant application. Concerns about the ability to develop a qualifying application prevented this effort from coming to fruition in this grant cycle, but the opportunity exists to make another attempt when the program reopens for submissions (expected in early 2020). Such partnerships between counties can leverage existing assets and overcome some of the challenges from sparse populations. Scale economies through joint equipment purchasing, strategic location of towers for signal transmission across borders, aggregation of demand from a larger population pool are just a few of the benefits from regional approaches to broadband access problems.

Become familiar with what is underway in peer communities
Contact Region VII, the West Virginia Broadband Enhancement Council and the West Virginia USDA office to collect information on efforts underway in other counties in the state and on services and tools available through these offices and become familiar with their efforts.

Develop a mechanism for information sharing with potential partners
All West Virginia counties could benefit from a structure that supports information and resource sharing. Tucker County could lead efforts to create this resource or could serve as the catalyst. It is possible that the USDA, Appalachian Regional Commission or the West Virginia Broadband Enhancement Council might be enticed to provide this service or might be willing to provide modest funding required to create such a portal and share drive. This is an excellent internship project for local students.

Short-term Action (within 1-6 months)
- Research and become familiar with what is underway in peer communities and counties across West Virginia

Medium-term Action (within 6-12 months)
- Develop a mechanism for information sharing with potential partner counties across the state

12. Achieve reliable, redundant telecommunications

Develop schedule with milestones for priority projects
It is important to remember that broadband is a tool, albeit a powerful one, for connecting communities to each other and the broader global market sources of information, services, and opportunities that increasingly are accessed on a digital highway. Getting better broadband and cell service is an important goal for Tucker County, but the true benefits of improved service will be realized if development is implemented with specific goals in mind. For example, consider if improved emergency/medical response capacity emerges from planning discussions as a top priority for improvement.

Such prioritization can go a long way towards identifying:

(1) Optimal equipment and location of infrastructure;
(2) Potential partners whose interests most closely align with better access to emergency services, e.g., managers of public lands and resorts; and,
(3) Potential funding partners, e.g., the West Virginia First Responder Network or the Federal Communications Commission's (FCC) Rural Healthcare Program.[27]

Prioritization of implementation efforts results in ready identification of project champions and appropriate marketing/awareness building strategies. Prioritization is a critical deliverable of short- and medium-term planning and needs to involve input from both the Broadband Planning Group (BPG) and overall downtown planning working group.

Complete the broadband planning grid
A simple tool for organizing planning priorities is found in the following table. Needs and goals are prioritized and defined in terms of infrastructure needed and its location(s) and enabling applications / software. The most appropriate partners associated with the sort of project, its costs and timeline for implementation can be determined. It is likely that the BPG may not have the expertise at this point to be able to identify specific cost and/or scheduling input and that completing the grid will be an iterative process. Nonetheless, it provides a tool for organizing thinking and identifies information needs that will help frame any RFPs that emerge from this planning process.

Broadband Planning Grid

Priorities *	Partners	Cost	Timeline
Needs	Internal		Short term
Supply-Location	External Local		Middle term
Demand -Applications	External State		Long term
	Federal		
	Corporate		
	NP/Foundations		

*Economic Development; Health; Education; Public Safety

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[27] https://www.fcc.gov/general/funding-broadband-enabled-health-care

Develop proposals to fund prioritized "easy win" projects

As Tucker County is aware from its experience with highway construction, infrastructure projects can take a frustratingly long time to complete. Consideration should be given to identifying what amounts to "easy wins" to demonstrate to Tucker County residents and visitors that the county is committed to and making progress on becoming a 21st century connected community. For example, improving digital marketing and providing downtown Wi-Fi are examples of wins that could be achieved in the medium term.

There is sufficient broadband infrastructure in some locations in Tucker County to jumpstart efforts to leverage it for important progress; e.g.; downtown Wi-Fi and/or dynamic digital marketing programs. These efforts should be undertaken with the Tucker County downtown planning working group and reflect priorities developed in their planning process. Guidance on funding this initiative can be sought from Davis (which was successful in qualifying for CDBG water and sewer funding) and from the Community Development Division of the West Virginia USDA office.

Consider as a first action developing and submitting an application to HUD's CDBG program to fund a county-wide broadband planning grant to provide the resources needed to bring professional broadband planning talent to bear on this effort. Peer counties in West Virginia, including several in Region VII, have received such grants.

Further, consider developing and submitting an application to HUD's CDBG program to fund Wi-Fi development or expansion in one or more Tucker County municipalities. Community foundations, Blue Print Communities, the USDA and the Appalachian Regional Commission are potential partners for such an initiative. A detailed list of steps to take in developing a downtown Wi-Fi RFP is found in Appendix L.

Finally, consider writing and submitting a business development grant application to the USDA Rural Utilities Service to create and implement a more dynamic web presence with changing content, real time visuals and supported by a map / GPS-based application that draws visitors into Tucker County communities. This action step could be operationalized by the winter ski season.

Conduct detailed Strengths, Weaknesses, Opportunities, Threats (SWOT) analysis[28] as basis for RFP

Building on all the environmental scans, asset inventories, demand surveys, inventories of potential partners and funding options, and discussions with broadband and cell service providers, the BPG will be prepared to develop a statement of gaps, opportunities and prioritized action areas. This statement will form the basis for developing a Request for Proposals to address prioritized telecommunications needs. Both the West Virginia USDA office and the Region VII office have

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[28] For information on this process: https://www.mindtools.com/pages/article/newTMC_05.htm

indicated a willingness to assist Tucker County develop this RFP. Various organizations offer guidelines to preparing broadband RFPs.[29,30]

Issue an RFP for telecommunications enhancement in Tucker County

Issue an RFP for county-wide residential broadband service utilizing the infrastructure maps, survey results and prioritized connectivity needs generated as part of this project. The BPG should develop an RFP to be issued by the Tucker County Commission for proposals. Examples of model county-wide broadband RFPs abound.[31]

Topics to include in an RFP for providers:

- Require matching funds from providers for any publicly funded deployments. Dollar for dollar match suggested.
- Require providers to estimate coverage, speeds, monthly costs, and any charges related to data usage (i.e. data caps). If data caps apply, what is the charge or penalty for exceeding the cap?
- If the service cannot penetrate foliage, what options do home / business owners have and how much do those options cost?
- Ask providers to specify experience working in mountainous environments and approaches to achieving non-line-of-sight service

Apply for funding to implement infrastructure plans

Information gathered during the planning, RFI and RFP process will prepare Tucker County to be a strong partner in regional applications for broadband funding or in stand-alone applications to programs that fund telecommunications infrastructure or applications development. By this time, the BPG should have a full understanding of its priorities, their costs, potential partners, and funding sources. Public Private Partnerships (PPP) have emerged as the most promising option for financing broadband infrastructure for many rural communities.[32,33] Get familiar with this option!

Short-term Actions (within 1-6 months)
- Develop schedule with milestones for priority projects
- Complete the broadband planning grid described above.

Medium-term Actions (within 6-12 months)
- Develop proposals to fund prioritized "easy win" projects
- Conduct detailed SWOT analysis as basis for RFP

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[29] https://www.ncbroadband.gov/playbook/building-the-broadband-network/putting-together-your-rfp-or-rfi/
[30] https://www.fiberbroadband.org/page/developing-an-rfp
[31] For example: Vance County, North Carolina: http://www.kerrtarcog.org/wp-content/uploads/2018/08/Vance-County-Broadband-RFP-final.pdf
[32] https://www.ntia.doc.gov/report/2015/broadbandusa-introduction-effective-public-private-partnerships
[33] https://broadbandusa.ntia.doc.gov/ntia-blog/case-studies-public-private-partnership-driving-broadband-deployment

Long-term Actions (12 months and longer)
- Issue an RFP for telecommunications enhancement in Tucker County
- Apply for funding to implement infrastructure plans

Closing Note: Grow and Flourish with Broadband
Better broadband and cell phone service will empower cross-cutting strategies to make Tucker County a more attractive and economically-sustainable community. The challenges are many, but the prospects of not solving this problem are dire. Tucker County is to be applauded for taking advantage of the Cool and Connected workshop that we hope will be the catalyst for many positive developments over the next 18 months. Telecommunications, including broadband Internet, embedded data devices and mobile connected devices, are transforming every aspect of modern life.

Complicating the task of community broadband planners are rapid innovations in the technology and the applications it supports that are driving an ever-increasing demand for more and faster broadband. What this points to is the need for communities to adopt a proactive approach to on-going monitoring of the adequacy of their telecommunications infrastructure. Decisions need to be made with an eye to future-proofing the infrastructure through investments in fiber whenever and wherever possible, and strategic use of fixed wireless when necessary.

As with all conceptual plans, implementation is the challenge. The key to success with the above action items is to engage the most influential and passionate individuals and partners in the community. The success or failure of implementation will rest in the efforts of the implementation working group as supported by town, county, and other local leaders. It has been our pleasure to work with Tucker County and to be able to observe the unique opportunity it has to plan for a prosperous future.

Appendix A: Interview and Workshop Participants

June 11, 2019: Group Interviews

Local Government
- Dorothy Judy, Mayor of Parsons

Business & Industry
- Debbie Stevens, Stevens Realty
- Angie Shockley, Planning Commission Member
- Matt Shockley, Canaan Internet (Shentel)
- Steve Leyh, Executive Director, Tucker County Development Authority
- Andrew Metter, Business Owner

Recreation
- Michael Chaney, Canaan Valley Resort

Education
- Alicia Lambert, Tucker County Schools Superintendent
- Jonathan Hicks, Tucker County Schools Director of Support Services
- Nancy Moore, Director, 5 Rivers Library
- Chris Michael, Tucker County Assessor

Health Care
- Sheila Marsh, Tucker County EMS Director

June 12, 2019: Workshop
- Dennis Filler, Tucker County Planner
- Sheila Marsha Tucker County EMS Director
- Lowell Moore, Tucker County Commission
- Alicia Lambert, Tucker County Schools Superintendent
- Jonathan Hicks, Tucker County Schools Director of Support Services
- Terry Silk, Building Commission and EMS
- Ben Herrick, Tucker County Planning Commission
- Samantha Haverty, Canaan Valley Resort
- Steve Leyh, Executive Director, Tucker County Development Authority
- Nancy Moore, Director, 5 Rivers Library
- Michael Chaney, Canaan Valley Resort
- Kelly Studelman, Tucker Community Foundation
- Deb Stevens, Stevens Realty
- Matt Morris, Tucker County Cultural District Authority
- Dorothy Judy, Mayor of Parsons
- Jessica Waldo, Executive Director, Tucker County Convention & Visitors Bureau
- Wendy Madden, Office of Congressman David B. McKinley, PE
- Robin McClintock, Tucker County Planning Commission
- Michael Garcia, Regional Coordinator, Office of Sen. Joe Manchin

Appendix B: Workshop Participant Viewpoints

Goal: Question #2

S.M.A.R.T Actions: Specific, Measurable, Achieveable, Relevant, TimeFrame	What is this and why is it important?	Immediate Next Steps: (Next 3 Months)	How will we know success?	Time Frame	Leading and Supporting Role	Cost and Implementation Resources
Blackwater Canyon - Thomas to Parsons	Rail Trail connects County and Community	Meeteeing beween two property owners	- having conversations working towards an agreement - Big picture: agreement between the two.	6 months to a year	County Commission Development Authority Allegheny Highlands Rail Trail Group	Redoing trail will be costly Grants may be available
Trail connectivity between Davis - Thomas	Being able to bike or walk between towns and school.	- Follow up with WV DOH - Specific Route	- Meeting with WV DOH - Route selected - Funding secured	6 months - meeting 1 -2years	County Commission Davis/Thomas town Councils New Davis Ress Group New Historic Thomas Trail Club(s)	Grant Funding (?)
Cultural Distric Authority	Connect whole county One message/logo	- County Signage - Brochures - Davis/Thomas/Parsons	Signs Installed Brochures Printed	6 months or less	CDA Board County Commission	CDA Budget & Grants
Regular County Meetings (All 5 communities)	Work Together Knowing what everyone is doing One Voice	Schedule next meeting	Each municipality represented at meeting and public attendance	Fall Meeting (3 months)	County Commission Municipalities	
Visual Changes - Unsightly buildings - Sidewalks - Streetlights - New Visitor's Center / Museum	To attract business and visitors to town	Working together Identify targets and goals Community Involvement	- Movement on any one of these efforts - Organized group	6 months	County Commission municipalities CDA PRO, NDRG, NHT	Depending on project - grant opportunities, fundraising, Woodlands

Goal:

S.M.A.R.T Actions: Specific, Measurable, Achieveable, Relevant, TimeFrame	What is this and why is it important?	Immediate Next Steps: (Next 3 Months)	How will we know success?	Time Frame	Leading and Supporting Role	Cost and Implementation Resources
Reach out to Hardy County	This is important so that we can link in to the fiber intrastate. Once we do that other companies can link in.	Contact Hardy County and research options. Talk with PSC. Get a good map of fiber lines within Tucker County	Possess accurate data and map.	Grant Application	County Developers TCDA County Commission Tucker County Foundation Banks Mayors Planning Commission Top Businesses - Employers	
Get a better measurement of service throughout Tucker County.	Proves what service is here - actual results throughout the county.	Contact Tucker County residents and ask them to complete the survey. * schools * Tucker County Sheriff * Assessor's Office * Post Cards	Talk with providers in the country and establish their interest in helping to advance this project.			
Leverage our assests and resources of Tucker County to establish fiber throughout the area.	Need elected officials to work together. (US Senators and Representatives) Ask for an allocation or set asside that fits Tucker County Geography.	* Talk with Senators Manchin and Capito * Congressman McKinley * Talk with State Representatives * Identify the dollar amount needed for the work around.				
Communicate with other areas outside of West Virginia to develop a strategy for broadband in Tucker County.	* grow business * increase Tourism	* Begin communication with Erwin TN * Talk with Broadband Commission in WV				
Obtain funding to develop a fiber system throughout Tucker County	Need funds to build out system (Homeland Security, transportatoin, etc)	* Make list of potential funding sources * Make list of potential grants * Identify gaps	Partnerships - ARC = Power grant EDA - DOH Homeland Security USDA City of Parsons - Harmon Fund Benedum Foundation			
Identify the starting point or are within Tucker to receive broadband first, second, third etc.	Need a starting point - once this is done we can put together a plan.	Decide on criteria for establishing the starting point.				

Goal: Improve Broadband

S.M.A.R.T Actions: Specific, Measurable, Achieveable, Relevant, TimeFrame	What is this and why is it important?	Immediate Next Steps: (Next 3 Months)	How will we know success?	Time Frame	Leading and Supporting Role	Cost and Implementation Resources
Request for RFP - Is the county interested?	Find out all the costs and interest level of vendors	Identify the leader of the project. - County Planner - Development Planning Continue the survey	Multiple partners identified.	Short - get on agenda Medium - RFP	County Commission County Planner Development Authority OEM TC BOE City/Town Council Members	
Form a Broadband Enhancement Council with "County-wide Reps".	Make sure that the project stays on track	Increase involvement in the group.	Functional council	Short - formation of group Long - Continued support & and follow up.	See above	

Goal: What makes us cohesive -
- Trails
- Recreation

S.M.A.R.T Actions: TimeFrame	What is this and why is it important?	Immediate Next Steps: (Next 3 Months)	How will we know success?	Time Frame	Leading and Supporting Role	Cost and Implementation Resources
Mayors need to unite	Without town leadership we will not be 100% or even know	Call for a meeting - All 5 towns	When they identify membership and join in	6 - 12 months	Mayors and City Councils	
Utilize the maps - kiosks	Davis Thomas Parsons	Wayfinding will be set	When we share - people will use them APP - revealing resources in the area		Citizens Blackwater Bikes Chamber of Commerce local Businesses USDA - signage WVU	
Involve youth Develop leadership	Future	involve WVU extensions, hold meetings, schools	involvement + their own projects	1-2 years	PRO churches Moutain Laurel School TC Historical Society	
Recall & Make history come alive		Tucker County Historical Society Libraries	Internet will allow doors to open Reveal more history and research	1-2years	Towns (5) PRO Blueprint Communities Initiative TCDA WVU	
Accomplishments and Celebrations	To mark progress and improve the future		As projects come together and communities, we celebrate together	6 months		

Appendix C: USDA and Other Funding Resources for Projects

Tucker County, developers, and other entities may be able to take advantage of USDA Rural Development grants and loans to help pay for renovation projects of historic buildings as well as construction of new buildings in the downtowns. These include:

Multi-Family Projects
Multi-Family Housing Direct Loans
https://www.rd.usda.gov/programs-services/multi-family-housing-direct-loans

Multi-Family Housing Loan Guarantees
https://www.rd.usda.gov/programs-services/multi-family-housing-loan-guarantees

Single-Family Projects
Single Family Housing Direct Home Loans
https://www.rd.usda.gov/programs-services/single-family-housing-direct-home-loans

Single Family Housing Home Loan Guarantees
https://www.rd.usda.gov/programs-services/single-family-housing-guaranteed-loan-program

Community Facilities Projects
Community Facilities Direct Loans & Grants
https://www.rd.usda.gov/programs-services/community-facilities-direct-loan-grant-program

Community Facilities Loan Guarantees
https://www.rd.usda.gov/programs-services/community-facilities-guaranteed-loan-program

Community Facilities Relending Program
https://www.rd.usda.gov/programs-services/community-facilities-relending-program

Economic Impact Initiative Grants
https://www.rd.usda.gov/programs-services/economic-impact-initiative-grants

ReConnect Loan and Grant Program for broadband and e-connectivity
https://www.usda.gov/reconnect

The above list is not an exhaustive list of all available programs through USDA. Tucker County is encouraged to refer to USDA's website for eligibility and application instructions for these and other programs (https://www.rd.usda.gov/programs-services/all-programs).

U.S. Economic Development Administration
https://www.eda.gov/funding-opportunities/

Other funding options include low to moderate income tax credits, tax increment finance districts, historic tax credits and New Market Tax Credits.

Appendix D: Complete Streets and other resources

According to the National Complete Streets Coalition, an ideal Complete Streets policy:

1. Includes a vision for how and why the community wants to complete the street
2. Specifies that the term "all users" includes pedestrians, bicyclists and transit passengers of all ages and abilities, as well as trucks, buses and automobiles.
3. Applies to both new and retrofit projects, including design, planning, maintenance, and operations, for the entire right of way.
4. Makes any exceptions specific and sets a clear procedure that requires high-level approval of exceptions.
5. Encourages street connectivity and aims to create a comprehensive, integrated, connected network for all modes.
6. Is adoptable by all agencies to cover all roads.
7. Directs the use of the latest and best design criteria and guidelines while recognizing the need for flexibility in balancing user needs.
8. Directs that Complete Streets solutions will complement the context of the community.
9. Establishes performance standards with measurable outcomes.
10. Includes specific next steps for implementation of the policy

Taking a Complete Streets policy from paper into practice is not easy, but providing some momentum with specific implementation steps can help. Some policies establish a task force or commission to work toward policy implementation. There are four key steps for successful implementation:

1. Restructure procedures to accommodate all users on every project;
2. Develop new design policies and guides;
3. Offer workshops and other educational opportunities to transportation professionals, community leaders, and residents; and
4. Institute better ways to measure performance and collect data on how well the streets are serving all users. Each of these steps requires agencies to think in new ways and, in order to do so they must include a wider range of stakeholders in decision-making.

The following is a list of Complete Streets resources providing information from the fundamentals to implementation. Click on any of the links to go to the resource.

Fundamentals

Communities just getting started with Complete Streets will find these materials most useful. They present a comprehensive overview of the benefits and basics of the Complete Streets planning and design approach. The resources listed in this section can be found at the link below or by clicking on the titles below.

https://smartgrowthamerica.org/program/national-complete-streets-coalition/policy-development/

- Introduction to Complete Streets. A comprehensive PowerPoint presentation on why we need Complete Streets, available to download for use and adaptation in your community.

- [Presentation and Fact Sheets: Benefits of Complete Streets](). A free PowerPoint provides an overview of the research-backed benefits of safe, multimodal street planning and design. The Coalition's series of research-based fact sheets explores the many benefits of Complete Streets for various groups of users and outcomes.

Topics include: Health; Safety; Economic Revitalization; Children; People with Disabilities; Older Adults; Public Transportation; Climate Change; Gas Prices; Lower Transportation Costs; Livable Communities; Equity.

- [Other Resources](). A variety of Complete Streets handouts, downloadable presentations, articles and reports

Changing Policy

After a community has agreed to the concept of Complete Streets, the next step is to develop a formal policy. The Coalition provides many resources to illuminate best practices, share actual policy documents from across the country, and help communities develop the best, most appropriate policies for their needs.

- [Complete Streets Local Policy Workbook](). A comprehensive workbook for communities to follow when writing their own Complete Streets policies. For use by city and county agencies, the guide is based in national existing policy and best practices and encourages a thoughtful, inclusive process for developing locally appropriate policy language.

- [Complete Streets in the States: A Guide to Legislative Action](). AARP and the National Complete Streets Coalition developed a toolkit to use in a state-level Complete Streets effort. This report includes model legislation and a discussion of the various elements of an ideal law, a roadmap for legislative action, and analysis of existing state Complete Streets laws.

- [Presentation: Complete Streets: Changing Policy](). Use this PowerPoint presentation and its comprehensive presenter's notes to lead a discussion of Complete Streets policy development in your town. The presentation covers the reasons to adopt a policy and details on the ten elements of a Complete Streets policy.

- [Complete Streets Policy Atlas](). The Coalition compiles information on all policies adopted to date in our Policy Atlas. The Atlas includes an interactive map of all regional and local policies, and downloadable lists of known Complete Streets policies, across all jurisdictions and at the state level.

- [Best Complete Streets Policies reports](). The Coalition also reviews all the policies adopted each year and assesses how well they fulfill the ten elements of an ideal Complete Streets policy. The annual Best Complete Streets Policies report highlights exemplary policy

language and provides leaders at all levels of government with ideas for how to create strong Complete Streets policies.

- [Ten Elements of a Complete Streets Policy](). This is a helpful document for others reviewing your draft policy.

Implementation

Once a Complete Streets policy is in place, the day-to-day decisions a transportation agency and community leaders make in funding, planning, design, maintenance, and operations should be aligned to the goals of that adopted policy document. The Coalition helps communities implement their policies by collecting and sharing best practices and examples.

- [Taking Action on Complete Streets](). This guide describes five types of activities identified by the Coalition that are needed to reorient a transportation agency's work to fully and consistently consider the safety of all users:
  - Planning for Implementation;
  - Changing Procedure and Process;
  - Reviewing and Updating Design Guidance;
  - Offering Training and Educational Opportunities; and,
  - Measuring Performance.

- Resources, activities, and best practices from communities across the country are [available here]().

- [Answering the Costs Question](). A handbook and slide presentation that helps transportation professionals, advocates, and decision-makers make the case that implementing Complete Streets won't break the bank.

- [Do Complete Streets cost more than incomplete streets?]()
  Shapard, J. and Cole, M. (2013). "Do complete streets cost more than incomplete streets?" Proceedings, Transportation Research Board Annual Meeting, 2013. Paper 13-4283.

- [Implementation Resources](). The Coalition's series of research-based fact sheets on specific elements of Complete Streets implementation is available for download.

Topics include: *Costs of Complete Streets; Change Travel Patterns; Ease Traffic Woes; Complete and Green Streets; Networks of Complete Streets; Rural Areas and Small Towns.*

Other General Resources

1. *Arts, Culture, and Transportation. A Creative Placemaking Field Scan.* Transportation for America. http://t4america.org/maps-tools/creative-placemaking-field-scan/.

2. *The Scenic Route. Getting started with Creative Placemaking and Transportation.* Transportation for America. https://creativeplacemaking.t4america.org/

3. *Dangerous by Design.* National Complete Streets Coalition. https://smartgrowthamerica.org/resources/dangerous-by-design-2019/

4. *Resorting Properties, Rebuilding Communities*. Center for Community Progress. https://www.communityprogress.net/restoring-properties--rebuilding-communities--transforming-vacant-properties-in-today--039-s-america--pages-405.php

5. *Core Values: Why American Companies are Moving Downtown.* Smart Growth America. https://smartgrowthamerica.org/resources/core-values-why-american-companies-are-moving-downtown/

6. *(Re)Building Downtown: A Guidebook for Revitalization.* Smart Growth America. https://smartgrowthamerica.org/introducing-rebuilding-downtown-a-guidebook-for-revitalization/

7. *Made in Place: Small-Scale Manufacturing & Neighborhood Revitalization*. Smart Growth America. *https://smartgrowthamerica.org/resources/made-in-place/*

8. *Building Better Budgets: A National Examination of the Fiscal Benefits of Smart Growth Development*. Smart Growth America. https://smartgrowthamerica.org/resources/building-better-budgets-a-national-examination-of-the-fiscal-benefits-of-smart-growth-development/

9. *The Fiscal Implications of Development Patterns.* Smart Growth America. https://smartgrowthamerica.org/resources/the-fiscal-implications-of-development-patterns-overview/

10. Form-Based Codes Institute Resources https://formbasedcodes.org/resources/

APPENDIX E
Frontier Middle Mile Fiber
Connecting Community Anchor Institutions
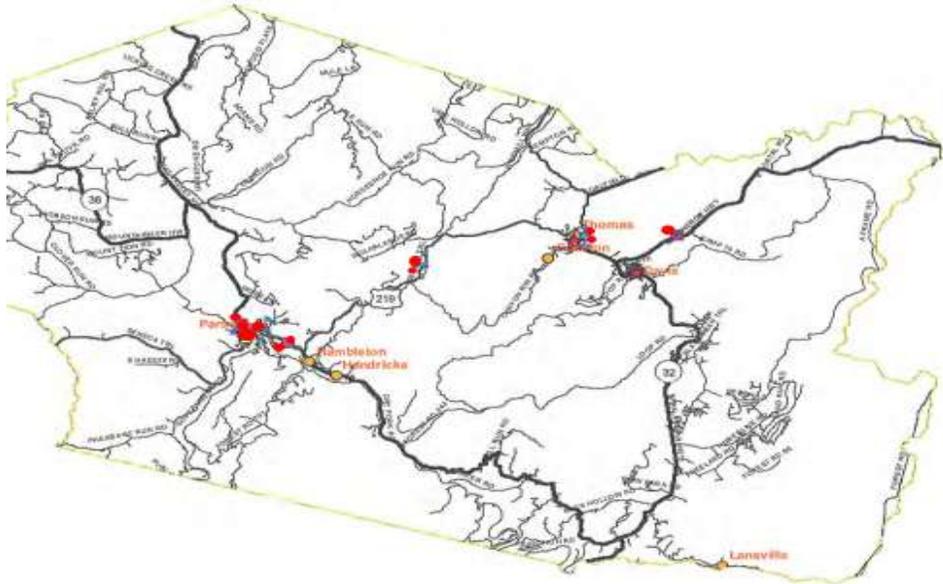
APPENDIX F
Atlantic Broadband Fiber Routes
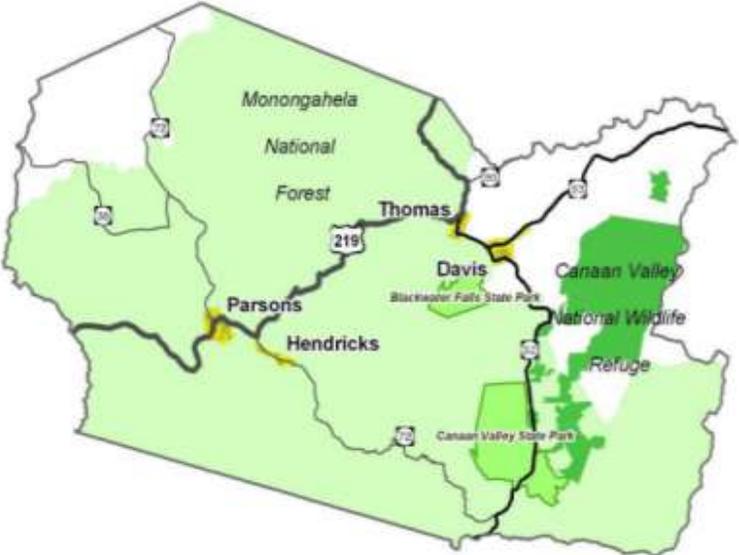
APPENDIX G

COOL AND CONNECTED COMMUNITY PLANNING CHECKLIST

What does being connected mean and why does it matter?

Is your community networked to actively participate in the digital economy? Is affordable, robust broadband being leveraged to create jobs and promote your community to valuable tourism and business prospects? Are local assets being tapped to deliver broadband services that support small and entrepreneurial businesses and attract teleworkers? Do your citizens and businesses have access to high-quality, web-based education, health, public safety and government services? Is the Internet a powerful billboard that markets your community to the world? Does Wi-Fi attract people to spend more time and money in a revitalized downtown? Downtown Wi-Fi can be an important piece of the digital puzzle, revitalizing existing downtown and protecting the environment by helping to preserve open spaces and farmlands. But Wi-Fi is only one component of a much more complex, multi-dimensional connectivity strategy that small communities need to become more sustainably competitive, cool and connected through broadband. The following checklist provides planning assistance to help your community members develop strategies and an action plan for using broadband to create walkable, connected and economically vibrant main streets and small town neighborhoods that improve human health and the environment.

What does strategic broadband planning involve?

Broadband Internet is a dynamically developing phenomenon that cuts across business and service sectors. To become and remain competitive in this environment, communities must develop the capacity to be vigilant, flexible and responsive to opportunities and challenges presented by broadband. Strategic broadband planning involves developing a current, accurate and comprehensive understanding of existing broadband availability, including the identity of providers, technologies employed, level and speed of service and plans for upgrades and expansion. This level of service needs to be assessed against current and anticipated business, institutional and residential demand and gaps identified. Community assets that can be leveraged to improve the business case for expanded service need to be inventoried. Creative options for funding necessary infrastructure builds need to be identified and explored.

How does Wi-Fi fit in the broadband planning puzzle?

Wi-Fi is part of a broader public access issue, supporting education and digital literacy, disaster relief and public safely monitoring, and supporting business development, community marketing and tourism. Strategically-placed public access services can be used in neighborhood revitalization efforts, workforce development and economic access to services and resources. Wi-Fi is never a stand-alone asset but rather necessarily employed in the context of existing or planned network systems.

APPENDIX G **Broadband Planning Toolkit**		
Action Steps for Attracting Business and Residential Broadband Investment		
Getting Organized	**Yes**	**No**
1. Does your community have an established, informed task force or group focused on exploring options for improving broadband availability and use?		
a) Does your local government have a chief technology/information officer/manager?		
b) If your community has a broadband planning group (BPG), is the group inclusive of diverse segments of the local population and does its membership adequately represent important stakeholder groups, for example: leaders from government, healthcare, education, business, economic development, philanthropic and faith organizations?		
c) Are there established outreach mechanisms to engage stakeholder interest and involvement in broadband planning?		
d) Are there educational and learning opportunities for planning group members to acquire knowledge and skills required for developing goals and proposals related to developing and implementing comprehensive broadband planning for the community?		
e) Does the BPG have a name that can be used in news releases and other media?		
f) Has the BPG been officially sanctioned by local community elected officials?		
g) Does the BPG have sufficient startup funds to cover operating costs, i.e. $7,500 to $10,000?		
Getting Informed: Assessing Broadband Access and Demand in the Community		
2. Can your BPG define the local broadband availability situation with specificity?		
a) Does the BPG have access to accurate and comprehensive data on existing broadband service, including providers, levels of service, technologies utilized, availability and speed?		
b) Is the broadband availability data available in a mapped format to facilitate planning? (For assistance in broadband availability mapping see http://www.broadbandcatalysts.com/)		
c) Does the local community (city, county or region) have geographic information specialists that might be available to help with data mapping?		
d) Do broadband service providers in your area have plans to address unserved or under-served areas?		
e) Are local governments involved in the First net (national inter-operational network for first responders for public safety?		

3. Can your BPG define the current and anticipated demand for broadband service?		
a) Has a survey been conducted to assess business and residential demand for improved broadband services/speeds? (See attached sample survey)		
b) Has there been an assessment of high-speed broadband needs/costs for educational institutions– k-12 (including traditional and virtual public schools, charter schools and home schools) and higher education?		
c) Has there been an assessment of high-speed broadband needs/costs for public safety and first responders in the community?		
d) Has there been an assessment of high-speed broadband needs/costs for healthcare institutions in the community?		
e) Has there been an assessment of high-speed broadband needs for local government (municipal, count, regional)?		
f) Has there been an assessment of business and/or citizen interest in		
g) and/or use of expanded Wi-Fi?		
h) Has there been an assessment of the potential in your community for tourism-related enterprises that are strongly dependent on broadband, i.e., Airbnb, bed and breakfasts, etc.?		
i) Has there been an assessment of the potential for agritourism in your community?		
4. Has the BPG synthesized the community, county and regional assessment to develop specific goals to guide efforts to improve broadband access and use?		
Leveraging the Community's Assets		
5. Has the BPG developed an inventory of available physical and regulated assets that could be leveraged to reduce barriers and help make the business case for expanding/improving broadband services, i.e., towers and other high structures, rights-of-way, planned public infrastructure projects (such as water, sewer, gas, highway), land acquisition for economic or housing development, municipally-owned utilities, etc.?		
6. Is there an existing common network that aggregates demand in serving your community anchor institutions, i.e. schools, libraries, public safety, and local government facilities?		
7. Is there a non-profit health care network in the community that is funded by the FCC Universal Service Telehealth Network Fund?		

8. Has an assessment been conducted of the community's relevant soft assets, i.e., IT professionals, mapping expertise, existing public-private partnerships, financial strength?		
Facilitating Public Wi-Fi and Possible Fixed-Wireless Service		
9. Has existing Wi-Fi services at local businesses, libraries and other public places been inventoried with respect to availability, transmission speeds and coverage as well as gaps to determine the overall coverage needs and what speeds are needed for that coverage area?		
10. Is there an existing state-funded highway patrol network that has local towers?		
11. Have existing assets that could be used to provide line-of-sight access to potential Wi-Fi locations been identified, i.e. church steeples, tall buildings or towers?		
12. Is there existing infrastructure (fiber or non-fiber) that could provide needed backhaul to service the Wi-Fi identified in the availability assessment?		
Attracting Broadband Investment		
13. Information gathered by the BPG can be used to determine the type and locations of service needed to address existing broadband gaps and goals for expanded access. Is your community prepared to move forward to secure the resources needed to become more sustainably competitive through broadband?		
a) If the community cannot self-finance the identified broadband investment is it prepared to pursue grants and/or loans from appropriate public and/or private sources? (See *Funding Resources Guide* (updated quarterly) at www.broadbandcatalysts.com.		
b) Is the community prepared to approach current Internet Service Providers (ISPs) to discuss options for partnering to address costs and service issues and goals identified by the BPG process?		
c) Is the community prepared to distill the information gathered through the broadband planning process to issue an informal Request for Information or a more formal Request for Proposal to search more broadly for potential service solutions?		
d) Does your broadband plan directly consider options for leveraging use of public facilities/resources or high-density markets to ensure provision of access to low-income citizens and businesses? (see www.fcc.gov for current broadband support programs offered by the Federal Communications Commission)		
Growing the Market for Broadband – Building Demand		

14. Increasing access is only part of the equation for a connected and thriving community; broadband adoption and use must be encouraged too. Has your BPG conducted an assessment of digital literacy among citizens and businesses?		
a) Does a plan exist to conduct a campaign targeting public awareness and training on Internet use for citizens? (for further assistance see (1 https://www2.ntia.doc.gov/files/toolkit_042913.pdf (2013) and (2)https://www.arc.gov/images/programs/telecom/ARCBroaddbandPlanningPrimer Toolkit.pdf (2016) and (2)		
b) Does a plan exist to engage the Chamber of Commerce and other business associations to provide training needed to enhance the adoption and use of the Internet by small and entrepreneurial businesses in the community?		

APPENDIX H
**Broadband Planning and Best Practices Resources**

- Appalachian Regional Commission - Division of Critical Infrastructure
    - Mark DeFalco mdefalco@arc.gov (202) 884-7719
- Appalachian Regional Development – WV State Office
    - James Bush James.E.Bush@wv.gov (304) 558-2234
- Atlantic Broadband
    - (888) 536-0600
- Broadband Catalysts
    - Brian Rathbone (828) 223-4053   Deborah Watts (919) 418-7522
    - Open Source Mapping tool and Planning Guide
      http://www.broadbandcatalysts.com/2016/11/open-source-broadband-map_2.html
- Canaan Cable
    - Matt Shockley http://www.canaantv.tv/ (304) 614-0975
- Canaan Valley Ski Resort State Park
    - Steve Drumheller https://www.canaanresort.com/ (304) 866-4121
- Frontier
    - (876) 218-5089
- Micrologic
    - Emiel Butcher, President (304) 472-0975
- Shentel Internet –
    - https://broadbandnow.com/Shentel
- Tucker Community Foundation - Harmon Foundation
    - https://www.tuckerfoundation.net/ (304) 478-2930
- USDA e-Connectivity Toolkit, a Broadband Resource
    - https://www.rd.usda.gov/files/508_RDeConnectivityToolkit121918.pdf
- USDA – WV State Office
    - https://www.rd.usda.gov/contact-us/state-offices/wv
    - WV Community Programs Office -Janna Lowery, Program Director
      (304) 284-4886 |
    - WV Telecomm Representative - Richard Jenkins, Richard.jenkins@usda.gov
      (681) 318-3236
    - Elkins Area Office - Joe Crickenberger, Area Director (304) 636-42158 ext 4
      Counties served: Barbour, Berkeley, Braxton, Gilmer, Grant, Hampshire, Hardy,
      Harrison, Jefferson, Lewis, Marion, Mineral, Monongalia, Morgan, Pendleton,
      Preston, Randolph, Taylor, Tucker, Upshur and Webster

- U.S. Housing and Urban Development, W.V. Field Office – Julie Alston, Director, Charleston Field Office (304) 347-7000

- Woodland Development Group

    o https://www.wdgwv.org/woodlands-development-group (304) 636-6495
- WV First Net – Michael Todorovich, WV Point of Contact
    o Michael.l.todorovich@wv.gov   (304) 558-5380
    o https://sirn.wv.gov/information/NATIONAL%20PUBLIC%20SAFETY%20BROADBAND%20NETWORK%20(FirstNet)/Pages/default.aspx
    o https://www.firstnet.gov/newsroom/press-releases/new-firstnet-cell-site-announced-preston-county-wv
- WV Region VII Planning and Development Council
    o Shane White hair SWhitehair@RegionVII.com(304)472-6564
    o Region VII Broadband Strategic Plan https://www.regionvii.com/sites/default/files/resource-files/Browser%20Region%20VII%20RBPT%20Plan%20reduced_0.pdf
- WV Broadband Enhancement Council -Kelly Workman
    o https://broadband.wv.gov/
    o https://broadband.wv.gov/assets/files/news/B19_CY_2018_14230.pdf

Tucker County Cool and Connect Workshop Case Study Contacts
- Erwin Utilities – a public utilities-led broadband planning and development effort
    o Lee Brown, General Manager
    o https://www.e-u.cc/fiber/
    o 244 Love Street P.O. Box 817, Erwin, TN 37650
    o Telephone (423) 743-1820
- Halleyville, Alabama – A municipality-led broadband planning and development effort
    o Ken Sunseri, Mayor
    o haleyvillemayor@cityofhaleyville.com
    o 911 21st street Haleyville, Alabama 35565
    o Telephone: (205) 486-3121
- Pangaea Networks: - a non-profit formed to plan and develop regional broadband.
    o Ron Walters, Executive Director (828) 859-3072
    o P.O. Box 340, Tryon, NC 28782
    o Telephone: (828) 859-3072

APPENDIX I
Tucker County Broadband Access Survey
Spring 2019
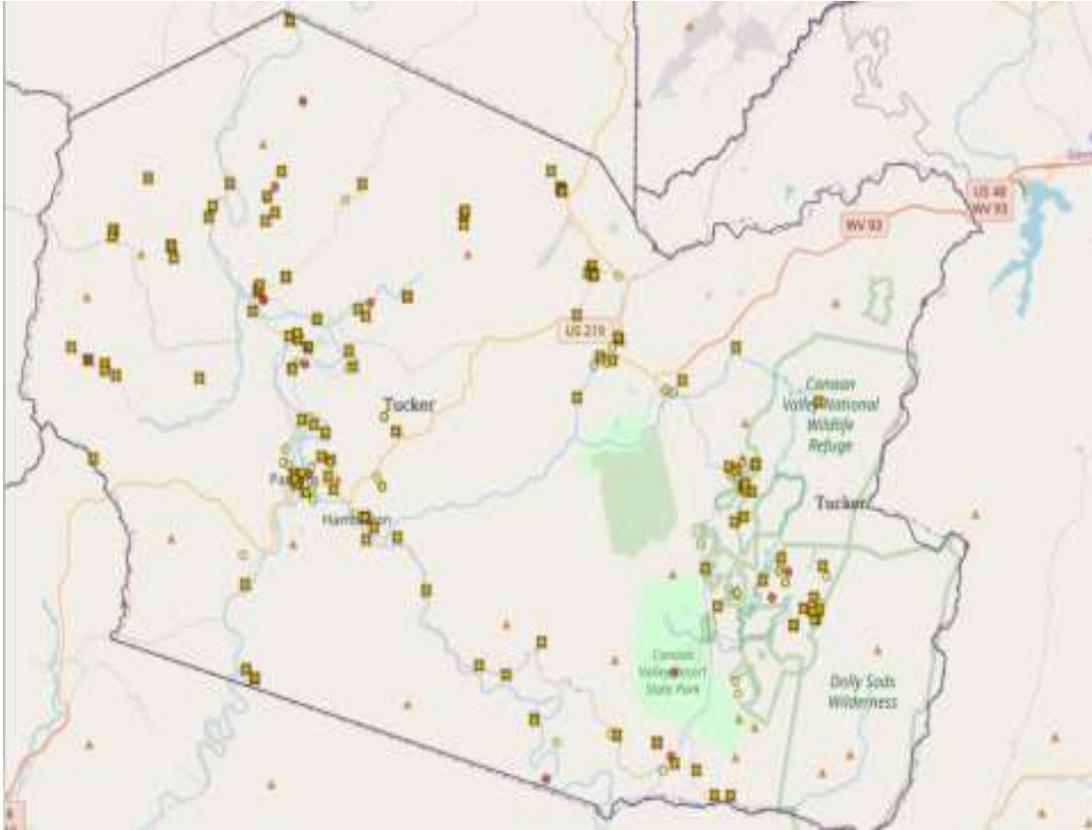
[Company Name]

Can you get Broadband Internet?

Broadband Internet is defined as 25Mbps download speed and 3Mbps upload speed. Satellite Internet and cellular (LTE) hotspots do not count as Broadband Internet for the purpose of this survey.

---

1. Please check YES if you have access to broadband Internet service at your location and NO if you do not.

   ☐ YES ☐ NO

   *If you answered yes, skip to question 5

---

2. If you have broadband Internet, is it:

Reliable?	☐ YES
Affordable?	☐ YES
Fast enough for your needs?	☐ YES

---

3. Do you need more options? Please check YES if you would purchase additional broadband Internet service at your location if it were available.

   ☐ YES ☐ NO

[Company Name]

---

6. Is this location a business? Please check YES if this is a commercial location or if you operate a home-based business from this location.

   ☐ YES ☐ NO

---

7. Is this location a farm? Please check YES if you earn more than $1,000 annually from agriculture and NO if you do not.

   ☐ YES ☐ NO

---

8. Can you reliably make cell calls and send texts from this location?

   ☐ YES ☐ NO

---

9. Can you reliably use mobile Internet (LTE) from this location?

   ☐ YES ☐ NO

4. Who is your current Internet Service Provider (ISP)? (optional)

5. What is your approximate monthly budget for Internet service? (optional)

10. Who is your current cell phone provider?

11. What is your address? Please provide address of physical location rather than a P.O. Box.

12. What is your email address? This will only be used in an effort to get you better Internet service. (optional)

APPENDIX K West Virginia Publicly-
Funded Broadband Projects
2018

http://energywv.org/assets/files/Energy-Summit-Presentations/2018/6_Hinton.pdf

Note: Tucker County is depicted as the tentative location for one backbone tower (blue pin symbol) and as many as 5 spoke towers (round green pins) funded by the Abandoned Mile Lands Program. Final locations of towers are still to be determined. Surrounding blue-hatched counties have received USDA Community Connect grants. Purple-hatched counties have received HUD CDBG broadband planning grants.

APPENDIX L
Establishing Wi-Fi Internet access zones in downtown

A Wi-Fi network for visitors and residents is a critical tool to keeping Tucker County moving down the highway represented by the Internet.

But a Wi-Fi network is only as good as its performance during peak usage, such as during concerts, balloon races, or other events. Consider sharing a gigabit or faster connection between downtown landmarks surrounding the desired Wi-Fi service area. If an access point is located on a structure, that structure will inherently need / have access to the network, which can then be employed for additional purposes within that structure.

At sign on, the Wi-Fi should automatically direct users to a useful landing page where they can find information on parking, restrooms, restaurants, as well as other attractions and accommodations. It should also collect users' home zip codes to help the Tucker County Convention and Visitors Bureau or other entities identify travel and tourism markets for future advertising.

The project should also Include considerations for signage to let visitors know the otherwise-invisible Wi-Fi service is available and that it can potentially be used for Wi-Fi calling, since many are not aware this new technology exists.

Issue an RFP for a smart Wi-Fi deployment focusing on phase one to include a limited service area. This RFP can be followed up with additional phases for the applicant with the winning proposal.

Additional topics to include in RFP for providers
- Request options for local businesses to host access points on the smart Wi-Fi using various connections for backhaul. By providing a common mesh over places where visitors gather, those who lack cellular service from their provider will be able to utilize Wi-Fi calling anywhere there is coverage on the smart Wi-Fi network. This can facilitate personal and public safety communications on the part of visitors from all over the world.
- Respondents should define how they will keep users safe through isolation, IPv6 encryption, and any other security measures proposed.
- What traffic shaping systems can be employed to prevent long-term abuse of the network and potentially look at it as a way to provide ultra-low-cost service to those on limited budgets?

  Example: PANGAEA in Polk County, NC allows locals to subscribe to 10Mbps service at low cost via their public Wi-Fi network (More information: https://www.ncruralcenter.org/2018/05/broadband-innovation-pangaea-Internet/)

- How will month to month costs be abated?

Short-term Actions (1-6 months)
- Identify likely locations for fiber Internet feed and Wi-Fi Access points. Generate a map of Access Points and Network Access.
- Issue RFP for a smart Wi-Fi deployment focusing on Phase 1.

Medium-term Actions (6-12 months)
- Coordinate with property owners, utilities, and other agencies as required to facilitate completion of the project
- Calculate gap funding and match needed.
- Apply for grant and loan program to fill the gap.

Long-term Actions (12 months and longer)
- Select RFP winner
- Oversee installation and ongoing network operation. Ensure Wi-Fi remains operational and users are happy.
- Evaluate success of Wi-Fi network and consider expansion

About Smart Growth America (SGA)

Smart Growth America envisions a country where no matter where you live, or who you are, you can enjoy living in a place that is healthy, prosperous, and resilient. We empower communities through technical assistance, advocacy, and thought leadership to realize our vision of livable places, healthy people, and shared prosperity. Learn more at www.smartgrowthamerica.org.