

# Cecil County Broadband Task Force Final Report



**Prepared for:**

County Council of Cecil County  
200 Chesapeake Boulevard  
Elkton, MD 21921

**August 6, 2014**

## **TABLE OF CONTENTS**

1.0 INTRODUCTION/PURPOSE OF STUDY	page 1
1.1 APPROACH	page 1
1.2 BASELINE/EXISTING BROADBAND INFRASTRUCTURE	page 2
2.0 SHORTFALLS/UNDERSERVED AREAS OF CECIL COUNTY	page 2
3.0 FUNDING SOURCES	page 5
4.0 RECOMMENDATIONS	page 5
5.0 CONCLUSION	page 9
APPENDICES	page 11
GLOSSARY	page 39

## 1.0 INTRODUCTION/PURPOSE OF STUDY

Established by the County Council of Cecil County on January 7, 2014 via Resolution #100-2013, the goal of the Cecil County Broadband Task Force entails development of a plan to expand affordable, reliable, and high capacity broadband internet access<sup>1</sup> to all County businesses and residents. Appointees to the Task Force include the following twelve individuals:

Dave Warnick, Chairman	Tom Lum
Clinton Reddig, Vice Chairman	Travis Marion
Sean Brimm	Don Newcomb
Ed Boas	George Remhof
Danny DeMarinis	John Thoma
C.J. Heitz	Simon Tusha

In addition, Council Manager Jim Massey and County GIS Coordinator David R. Black were designated as staff liaisons to the Task Force. Citizen members included Mark Caringi and Joe Yarborough.

## 1.1 APPROACH

The Task Force's approach was to establish assumptions, to identify shortfalls/underserved areas, and to identify funding methodologies/sources. To accomplish this, the Task Force met bi-weekly beginning on February 20, 2014, inviting numerous subject matter experts and representatives from local internet service providers to brief the Task Force on issues pertaining to current system offerings, funding sources, and future expansion plans. These experts included:

Lisa Webb, Cecil County Director of Economic Development  
Ted Pibil, Jr., Harford County Director of Information Technology  
Peter Marsh, Comcast Beltway Region, Regional Vice President  
Tom Yates, Comcast Beltway Region, Senior Director of Construction  
Richard Newcomb, Comcast Beltway Region, Vice President of Engineering  
Scott Mesneak, Cecil County Director of Information Technology  
Cal Coursey, Interim Chief Information Officer at Washington College  
Billie Dodge, President of Eastern Shore Data, LLC  
Edward Vitalos, Broadband Implementation Coordinator for Eastern Shore Regional GIS Cooperative  
David P. Robinson, Director of Sales and Marketing for Maryland Broadband Cooperative

<sup>1</sup>The Federal Communications Commission (FCC) currently defines "broadband" as having download speeds of at least 4 megabits per second (Mbps) and upload speeds of at least 1 Mbps. The FCC is considering redefining broadband as 10 Mbps down and 2.9 Mbps up.

In addition, due to time, travel, or distance constraints, the staff liaisons met with the following subject experts and relayed informative summaries to the Task Force members:

Tom Worley, Comcast Director of Regulatory Affairs  
Tony Randall, Verizon Director of State and Government Affairs  
Michael J. Jacobs, Verizon Area Manager, Outside Plant Engineering  
Sam McGill, Atlantic Broadband Vice President and General Manager  
Donna Felthousen, Google SLED Enterprise Associate  
Scott Boone, Kent County Director of Information Technology  
Kenrick M. Gordon, P.E., United States Department of Agriculture.

Attempts to engage Armstrong Cable in constructive dialogue proved unsuccessful, as staff reached out multiple times, but were unable to garner a response from Armstrong. The Task Force was, however, able to obtain strand maps from Armstrong based upon the existing cable franchise agreements.

## **1.2 BASELINE/EXISTING BROADBAND INFRASTRUCTURE**

For decades, providing water, sanitary sewer, and natural gas service to parts of Cecil County has been a primary focus of Cecil County Government and the utility companies operating within the County. Only recently, however, has the importance of providing high speed internet service become critical for economic development efforts and quality of life for Cecil County's citizens. Given that many existing businesses and residents within the County do not have access to reliable broadband service, the Task Force recommends that County Government become a catalyst in ensuring comprehensive access to the information superhighway.

In order to suitably determine the locations within the County where broadband service is lacking, the Task Force directed staff to map the locations of all known fiber and cable lines. All three cable franchisees (Armstrong, Atlantic Broadband, and Comcast) provided strand maps depicting the locations of their lines. Network Maryland and Maryland Broadband Cooperative made similar information available via their respective websites. Verizon, which is not a cable service franchisee, unfortunately refused to provide County staff with information, citing the locations as sensitive business information.

The asset mapping also included the locating of all communications towers within the County, as communications towers play a key part in providing wireless internet access.

The resulting maps are contained in Appendix A (titled "Existing Broadband, Cable, and Fiber Service in Cecil County") and Appendix B (titled "Existing Fiber Service and Communications Towers").

## **2.0 SHORTFALLS/UNDERSERVED AREAS OF CECIL COUNTY**

Using the information gathered as part of the asset mapping, the Task Force identified 27 areas that are

truly underserved, meaning that no wire based cable or broadband options exist in these areas. Appendix C (“Underserved Areas of Cecil County”) contains a map depicting the geographic locations of the 27 areas. Wireless options, such as satellite based internet service providers Hughes Net and Direct TV, may exist in these areas, but oftentimes said options offer slower speeds at a higher price compared to wire based services. Wireless data service at LTE 4G is available in most areas of Cecil County from various providers, but the cost is exorbitant.

The Task Force prioritized the underserved areas based on economic potential, perceived residential need, and cost to implement. In order, they are:

- 1) ***The Route 40 corridor (Areas #1 - #4)*** – Significant and major gaps in coverage exist along Route 40, the heart of the County’s development corridor. These gaps exist near Principio Industrial Park (Area #1), the 2900-3500 block of Pulaski Hwy in North East (Area #2), the 500-1500 block of W Pulaski Hwy in Elkton (Area #3), and the 200-700 block of E Pulaski Hwy in Elkton (Area #4). Although at least three existing providers (Comcast, Atlantic Broadband, and Network Maryland) have fiber running down Route 40, this fiber is a “denied access” trunk line that individual homeowners and businesses cannot connect to. Commercial and industrial growth along the Route 40 corridor will be difficult, if not impossible, to accomplish without sufficient access to broadband. The result of these gaps is significant loss of businesses locating in Cecil County due to inability to secure necessary broadband infrastructure.
- 2) ***Institutional Buildings not connected to Network Maryland (Areas #5 - #10)*** – The future School of Technology (#5), Cecil Manor Elementary School (#6), Leeds Elementary School (#7), Elk Neck Elementary School (#8), Conowingo Elementary School (#9), and the Seneca Point Wastewater Treatment Plant (#10) are all anchor institutions that were originally planned to be connected to Network Maryland, the state owned fiber network. However, funding limitations necessitated that they be dropped. Some of these facilities are tantalizingly close to fiber (i.e. Comcast owned fiber runs past Elk Neck Elementary School, and the Seneca Point Wastewater Treatment Plant is 0.75 miles from where Network Maryland fiber ends at Charlestown Elementary School). Some require creativity to obtain a connection (i.e. private fiber owned by Maryland Broadband Cooperative member W.L. Gore & Associates literally passes the doorsteps of the future School of Technology and Cecil Manor Elementary School). It should be noted that W.L Gore & Associates and ATK provided their own privately funded high speed internet access in order to remain in Cecil County.
- 3) ***Existing Industrial Parks (Areas #11 - #17)*** – The Red Toad Road Business Center, Peninsula Industrial Park, North East Commerce Center, Triumph Industrial Park, Elkton Business Center, and the businesses in the 1300-1600 block of Elkton Road in Elkton (i.e. Performance Food Group) are all underserved. In discussions with Comcast staff, the Task Force learned that Comcast high speed internet services are available in these general areas, but are not on the specific sites. Maryland Broadband Cooperative has a fiber line serving ATK that runs

through Triumph Industrial Park, but no other business entities are believed to utilize the line. The Task Force is uncertain how Ikea's Perryville Distribution Center has broadband access, as it is located over one mile from Atlantic Broadband's nearest fiber line.

- 4) ***Southern Cecil County (Area #18)*** – With a 144 count Maryland Broadband Cooperative owned fiber line running along Route 213 from Route 40 south to the Sassafras River, the southern part of Cecil County offers tremendous potential for future connections. While placing fiber along every rural road is economically unfeasible, wireless and WiMAX (a wireless form of broadband that can achieve data rate speeds of up to one gigabit per second) possibilities are a serious possibility. In addition, the County can take advantage of the roughly seven mile proposed West View Shores to Cecilton waterline project to install fiber conduit within the water line right of way. Doing so at the time of the water line's construction would make the fiber's cost significantly lower ("Pennies on the dollar" according to Atlantic Broadband's Sam McGill) and provide a fiber backbone to the Earleville area. Please see Appendix D, titled "Proposed Pearce Creek Water System," for a map of the proposed waterline project.
- 5) ***Existing Residential Communities (Areas #19 -27)*** – Spotty availability exists for both existing and new residential subdivisions located on the Elk Neck Peninsula and the area between Elkton and North East located south of I-95. Seemingly the result of haphazard planning on the part of providers, the cost of providing service to these areas actually offers a small return in terms of number of subscribers. In other words, filling the existing gaps in coverage is not worth the existing providers' time and effort. Nonetheless, the Task Force's charge to expand affordable, reliable, high speed internet service to ***all*** County businesses and residents necessitates that the needs of the residents in these areas be seriously considered.

Residents of Rhodes Mountain Estates, a new 32 lot subdivision (with 15 additional lots approved but not yet recorded) located off of Irishtown Road, have particularly shared their frustrations and concerns with the Task Force. Noting that a lack of high speed internet provides for limited telecommuting options for those who work in high tech industry (such as those associated with Aberdeen Proving Ground), the Rhodes Mountain residents also explained how their children are at a disadvantage compared to other school students who have access to broadband. With schoolwork increasingly being done online, only having access to broadband at school is no longer sufficient for today's student.

Additionally, residents of Sunset Pointe, a sixteen lot subdivision located on the south side of Pond Neck Road in Earleville informed the Task Force that cable infrastructure was not constructed by the original developer following the subdivision's approval in 1988. Comcast has existing internet and cable service on Pond Neck Road, but even with Comcast paying a portion of the cost, extending service would cost residents over \$3,000 each in hookup fees and construction costs. Thus, while some holes in broadband coverage could be filled by

existing providers, the cost share required of existing residents may be too much for the average homeowner to bear.

### 3.0 FUNDING SOURCES

The Task Force recognizes that funding is the major impediment to expansion of broadband service. With costs to install buried underground fiber ranging from \$75,000 to \$90,000 per mile (according to Mr. David Robinson of the Maryland Broadband Cooperative), expansion of broadband is a significant capital improvement project. The Task Force finds that funding can come from a variety of sources, including:

- The internet service providers themselves;
- Cable franchise fees;
- Grants, such as the United States Department of Agriculture's (USDA) Community Connect program;
- Low interest loans, such as the USDA's Farm Bill Broadband Loan Program;
- Public/private partnerships, such as those accessible via the non-profit Maryland Broadband Cooperative; and
- Cost savings.

Recommendations #2, #4, and #6 in the following section discuss these funding sources in more detail.

### 4.0 RECOMENDATIONS

In order to serve the underserved areas mentioned in the Section 2.0, and in order to fulfill the Task Force's charge to expand affordable, reliable, high speed internet service to *all* County businesses and residents, the Cecil County Broadband Task Force recommends the following:

- 1) ***Cecil County Government should focus an existing staff person to work on matters related to broadband expansion.*** As with any successful project, project management is of utmost importance. Currently, at least six County agencies play a role in matters related to broadband and high speed internet. County Administration administers the cable franchise agreements, the County Council has appointed the Broadband Task Force, the Economic Development Office works with prospects looking to obtain broadband services at new locations, the Information Technology Department coordinates with the Upper Shore Regional Council and State Department of Information Technology, the Department of Public Works reviews permits and construction design, and the Office of Planning & Zoning creates maps and analyzes geospatial information to support decision making. With portions of the broadband puzzle spread across so many staff persons, seeing the big picture becomes difficult. The Task Force in no way advocates hiring of a new employee, but rather, recommends determining if an existing staff

person can assume these responsibilities with some reallocation of existing duties. Said staff person can be guided and supported by the technology subcommittee of the Economic Development Commission.

- 2) ***The franchise fees received from the three cable franchisees should go into a fund dedicated to broadband and/or high speed internet improvements.*** As part of the existing cable service franchise agreements executed in February 2013, five percent of the gross revenues received by Comcast, Atlantic Broadband, and Armstrong come to County Government. The Cecil County Finance Department estimates that in Fiscal Year 2015 (July 1, 2014-June 30, 2015), the County will receive \$740,000 in franchise fees. This money currently goes into the general fund. The Task Force recommends that receipts from the franchise fees be placed into a dedicated fund used for the installation of new fiber to serve the County's goals. Said funds could then be used as matching funds for grants, become part of a larger capital improvement project to install fiber, be used to lay fiber to attract certain economic development prospects to Cecil County, etc.
- 3) ***The County should develop a broadband master plan similar to the Master Water and Sewer Plan.*** With at least six major internet service providers active in the County, County Government needs to develop a broadband master plan by which all future proposed projects can be evaluated and prioritized. The Task Force believes that fiber to the home (or fiber to the business) is the best long term solution to meet ever evolving technological needs. However, wireless and WiMAX technologies may also play an important role in any future solution, but communications towers require fiber connections in order to make their coverage more efficient and maximize the amount of traffic they are able to handle. Installing a fiber backbone throughout the County is thus extremely important.

Appendix E ("Future Broadband Planning Considerations") contains a draft broadband master plan that can serve as the basis for future refinement and discussion. The draft map shows select existing fiber lines and proposed fiber lines traversing the County in strategic locations to maximize the number of connected anchor institutions. Anchor institutions include communications towers, business centers, industrial parks, schools, libraries, town halls, and fire, police and paramedic stations.

The Task Force is not recommending that the County become an internet service provider. Instead, the County can use the master plan to either encourage investment by private entities or install fiber that could be then be leased or sold to internet service providers (ISPs).

- 4) ***Funding sources and solutions such as grants, low interest loans, and public private partnerships should be thoroughly explored.*** The United States Department of Agriculture's Rural Development Agency offers grants and low interest loans via its Community Connect grant program and Rural Gigabit network pilot program. Signed into law on February 7, 2014 as part of the 2014 Farm Bill, the Rural Gigabit program is so new that as of this writing, the USDA is not yet accepting applications for it. Guidelines establishing the procedures applicants need to

follow are apparently under development and will eventually be published in the Federal Register. Other communities in Maryland have taken advantage of similar programs in the past, as eligibility requirements for funding through the Community Connect grant program include areas with (1) 20,000 or fewer residents; (2) no prior access to a broadband transmission service; and (3) a minimum matching contribution equal to 15% of the grant amount awarded. Southern Cecil County is the prime candidate for this type of funding.

In addition to these programs, the Task Force recommends developing a stronger relationship with the Maryland Broadband Cooperative (<http://mdbc.us/>). As a non-profit cooperative, MDBC can assist with maximizing infrastructure investment and developing cost estimates for installing fiber and necessary network equipment. For example, MDBC staff has indicated that they are willing to develop cost estimates for the installation of fiber along Route 40. Last mile service providers would still need to be found (i.e. Bay Country Communications in Cambridge), but legislation approved in 2006 enables MDBC to access all state owned road right of ways without cost or imposition.

Funding solutions can also be money saved via the realization of cost savings. Ted Pibil, Jr., Harford County's Information Technology Director, informed the Task Force that a specific connection that Harford County pays Verizon to maintain in support of their 911 Center costs \$1 million a year. When the 911 Center connects to HMAN (Harford County's metropolitan area fiber network), that \$1 million cost will go away. Thus, the initial upfront costs will be recouped in cost savings over the next few years. Mr. Pibil also encouraged the Task Force to further explore how having all County facilities on fiber can save money in unexpected ways. For example, Harford County realized savings via a new VOIP phone system, server centralization, more efficient data backup, and by enabling help desk analysts to access remote sites without needing to travel.

- 5) ***Amend the Subdivision Regulations to require that conduit for fiber is installed at the time of subdivision construction.*** Section 5.1 of the Subdivision Regulations currently states:

"Extensions of distribution lines necessary to furnish permanent gas, electric, telephone, and/or computing (i.e. high speed internet, cable television) service to any residential, commercial, or industrial subdivision, shall be made in accordance with Public Service Commission Rules and existing tariffs."

The Public Service Commission regulates gas, electric, for-profit water and sewage companies, and common carriers, such as charter bus, van and limousine companies. It does not regulate, nor does it have any rules or tariffs pertaining to, high speed internet providers. As such, the Task Force recommends that Section 5.1 of the Subdivision Regulations be amended to require that conduit for future wired broadband solutions (i.e. fiber, cable, or the prevalent type of transmission line) are installed at the time of subdivision construction. In addition to saving money on future construction and right of way acquisition costs, this would enable new subdivisions to be "ready for service" and thus more attractive to internet service providers.

The Task Force strongly desires to avoid situations such as Rhodes Mountain Estates, wherein a newly constructed subdivision lacks the infrastructure to support high speed internet, thus necessitating costly construction and/or costly work-arounds to provide residents with service.

The Task Force recommends that staff from the Office of Planning and Zoning and Department of Public Works jointly draft the amendment's actual language. As the subject matter experts, the Task Force will defer to their expertise in terms of ensuring that the proposed amendment can be smoothly incorporated into existing plans review and on-site construction processes. At a minimum, the Task Force envisions some sort of financial bonding (i.e. via a subdivision agreement or public works agreement) that the developer can receive release of following successful installation of the conduit.

- 6) ***Take advantage of any underground construction projects (such as water, sanitary sewer, communications, electric, and gas) to install conduit.*** The Task Force recommends that the County, and any interested private sector partners, take a proactive approach by installing empty conduit when engaged in construction projects. Having empty conduit within existing easements or rights-of way makes future fiber installation cost pennies on the dollar. Budgeting or partnering with an internet service provider in the early stages of a construction project will benefit end users in the long run. Admittedly a very long term outlook, doing so allows for network expansion and edge out opportunities that might otherwise not be present at any other time.

The Task Force has examined maps of the various sanitary sewer projects that are a part of the Department of Public Works' capital improvement plan. As shown in Appendix F, the locations of multiple sanitary sewer projects correspond with areas lacking broadband access. For example:

- a) The Port Deposit Sewer interceptor and Route 40 Principio West sewer projects correspond to part of the Route 40 corridor, Principio Pkwy West, and the 200-300 block of Belvidere Rd (Area #1);
- b) The Route 40 West sanitary sewer project corresponds with Principio Pkwy East and the 2900-3500 block of Pulaski Hwy in North East (Area #2);
- c) The Route 40 East sanitary sewer project corresponds with part of the 500-1500 block of W Pulaski Hwy in Elkton (Area #3);
- d) The CSX sewer line at Red Toad Road project corresponds with the 700-900 block of Red Toad Rd (Area #12); and
- e) The Elkton West sanitary sewer project corresponds with both the 300-700 block of Blueball Rd (Area #15), the 0 - 600 block of Ricketts Mill Rd (Area #26), and parts of the 500-1500 block of W Pulaski Hwy (Area #3).

In the southern part of the County, the proposed seven mile West View Shores to Cecilton waterline project (see Appendix D “Proposed Pearce Creek Water System - West View Shores to Cecilton Waterline” for details) offers an unprecedented opportunity to provide a fiber backbone to the Earleville area. Installing fiber conduit within the water line right of way represents a once in a lifetime opportunity. Doing so at the time of the water line’s construction would make the fiber’s implementation cost significantly lower, and if grant funding opportunities cannot be found, the Task Force recommends that funds be made available as part of the County’s Fiscal Year 2016 Capital Improvement Plan.

- 7) ***Ensure connectivity to the outside world.*** The internet has a connection backbone, much like electricity suppliers are connected to the electric grid. Without a connection to this backbone, any fiber installed in Cecil County won’t take users very far. With currently one connection to the outside world (the Maryland Broadband Cooperative’s fiber line that runs south on Route 213 down to the rest of the eastern shore), the Task Force recommends that redundant backups to the outside world be found to provide alternatives in case of damage to the existing connection.

The Network Maryland system near I-95 would provide such a connection, creating a connection to Harford County. Unfortunately, Maryland Department of Information Technology (DOIT) officials are reluctant to share strands in certain locations. Dialogue should be initiated with DOIT officials, using the State Delegation, to allow other carriers to purchase, share, expand, or exchange capacity on the existing crossing. By doing so, this will facilitate connection to unserved schools or other critical facilities such as fire stations.

Alternatively, additional conduits could be placed on one of the existing Susquehanna River crossings (i.e. Route 40, Route 1, and I-95), but State Highway Administration officials are reluctant to do so. By keeping capacity scarce (there is only so much space available on the bridges for conduit attachments), SHA wants to reserve space for the major carriers, who are willing to pay very high rates to cross the Susquehanna River.

For this reason, the Task Force recommends that County officials maintain a presence in the ongoing discussions to construct the new Amtrak railroad bridge over the Susquehanna. If the County is able to gain any concessions, reserving sufficient space for fiber conduit is extremely important.

## **5.0 CONCLUSION**

Providing broadband access to the County’s businesses and residences is crucial to the future economic development, education, and quality of life in Cecil County. This report represents the first step in a long term process to expand affordable, reliable, high speed internet service to all Cecil County businesses

and residents. Only by working in conjunction with the major service providers and stakeholders will success be possible.

Moving forward, all parties need to understand that broadband technology is in continuous flux, requiring constant management. There is no “mission accomplished” milestone, only small successes along the way. Timelines for specific projects may change as future events happen or new technologies are developed, and items may slide up or down on the priority list based upon opportunities that present themselves. Amidst those unknowns, however, one certainty exists; doing nothing will not result in success.

Thus, the Broadband Task Force recommends that Cecil County Government do the following in order to expand broadband access:

- 1) Cecil County Government should focus an existing staff person to work on matters related to broadband expansion.**
- 2) The franchise fees received from the three cable franchisees should go into a fund dedicated to broadband and/or high speed internet improvements.**
- 3) The County should develop a broadband master plan similar to the Master Water and Sewer Plan. Underserved areas can then be prioritized based on economic potential and perceived residential need. The Route 40 corridor is a logical starting point.**
- 4) Funding sources and solutions such as grants, low interest loans, and public private partnerships should be thoroughly explored.**
- 5) Amend the Subdivision Regulations to require that conduit for fiber is installed at the time of subdivision construction.**
- 6) Take advantage of any underground construction projects (such as water, sanitary sewer, communications, electric, and gas) to install conduit.**
- 7) Ensure connectivity to the outside world by reserving sufficient space for fiber conduit across the new Amtrak railroad bridge over the Susquehanna River.**

The Task Force views fiber installation, especially direct fiber-to-the-home and fiber-to-the-business, as the ultimate “gold standard” in broadband technology. Although technology is in a constant state of flux, use of fiber-optic cable as a means of transmitting data dates back to the 1980s and shows no signs of technical obsolescence.

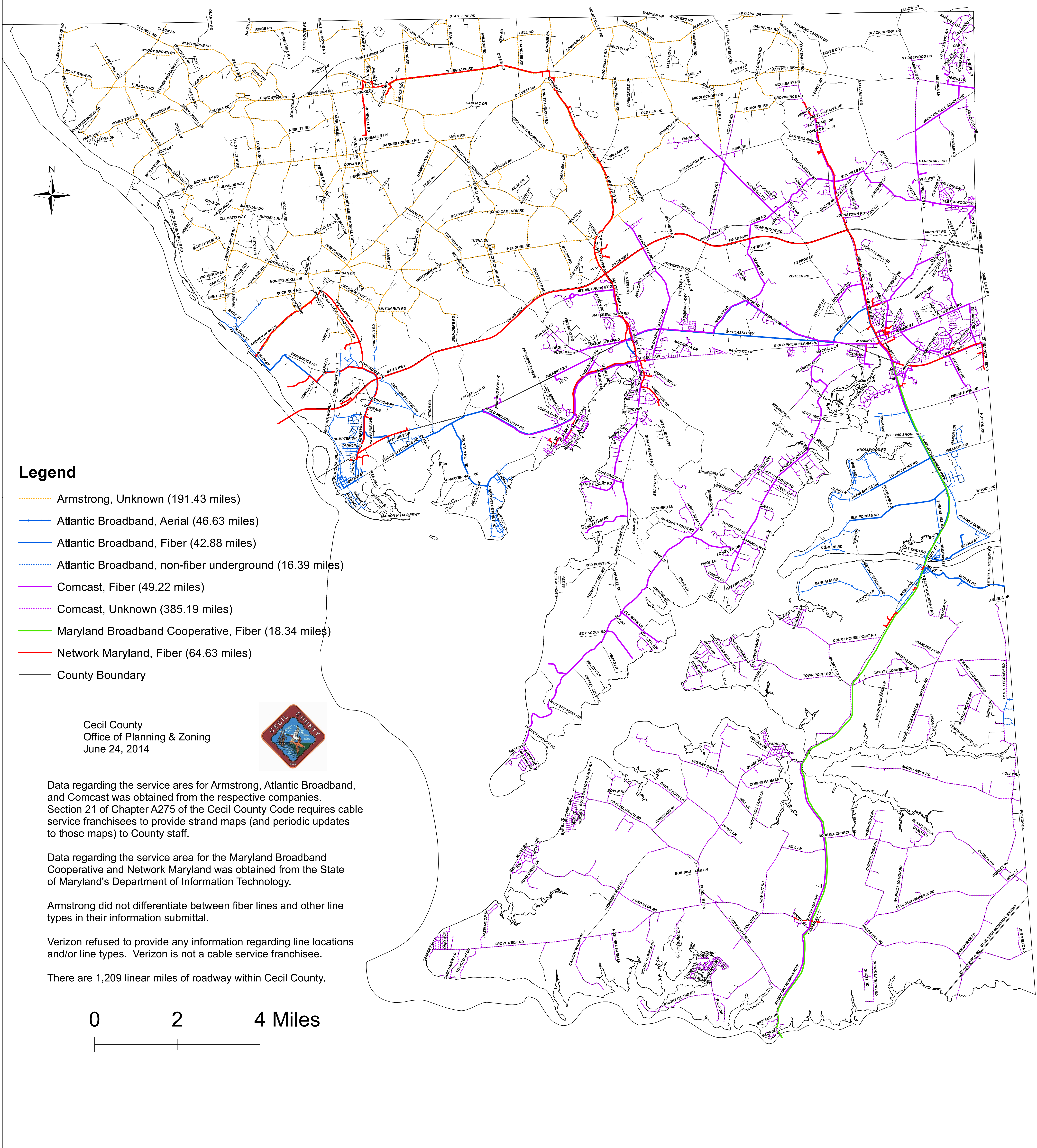
The Task Force advocates that Cecil County Government proceed with alacrity in adopting these recommendations and performing the time sensitive actions necessary to facilitate fiber infrastructure’s installation.

## **APPENDIX A**

### **Existing Broadband, Cable, and Fiber Service in Cecil County**

# Appendix A

## Existing Broadband, Cable, and Fiber Service in Cecil County



### Legend

- Armstrong, Unknown (191.43 miles)
- Atlantic Broadband, Aerial (46.63 miles)
- Atlantic Broadband, Fiber (42.88 miles)
- Atlantic Broadband, non-fiber underground (16.39 miles)
- Comcast, Fiber (49.22 miles)
- Comcast, Unknown (385.19 miles)
- Maryland Broadband Cooperative, Fiber (18.34 miles)
- Network Maryland, Fiber (64.63 miles)
- County Boundary

Cecil County  
Office of Planning & Zoning  
June 24, 2014



Data regarding the service areas for Armstrong, Atlantic Broadband, and Comcast was obtained from the respective companies. Section 21 of Chapter A275 of the Cecil County Code requires cable service franchisees to provide strand maps (and periodic updates to those maps) to County staff.

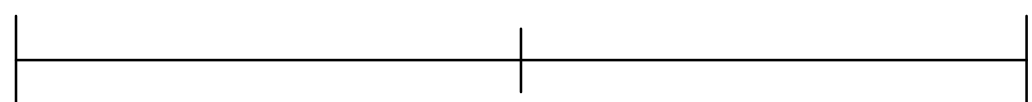
Data regarding the service area for the Maryland Broadband Cooperative and Network Maryland was obtained from the State of Maryland's Department of Information Technology.

Armstrong did not differentiate between fiber lines and other line types in their information submittal.

Verizon refused to provide any information regarding line locations and/or line types. Verizon is not a cable service franchisee.

There are 1,209 linear miles of roadway within Cecil County.

0 2 4 Miles

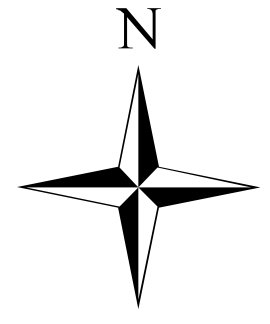


## **APPENDIX B**

### **Existing Fiber Service and Communications Towers**

# Appendix B

## Existing Fiber Service and Communications Towers



### Legend

- Communications Towers
- Atlantic Broadband, Fiber (42.88 miles)
- Comcast, Fiber (49.22 miles)
- Maryland Broadband Cooperative, Fiber (18.34 miles)
- Network Maryland, Fiber (64.63 miles)
- County Boundary

Cecil County  
Office of Planning & Zoning  
June 24, 2014



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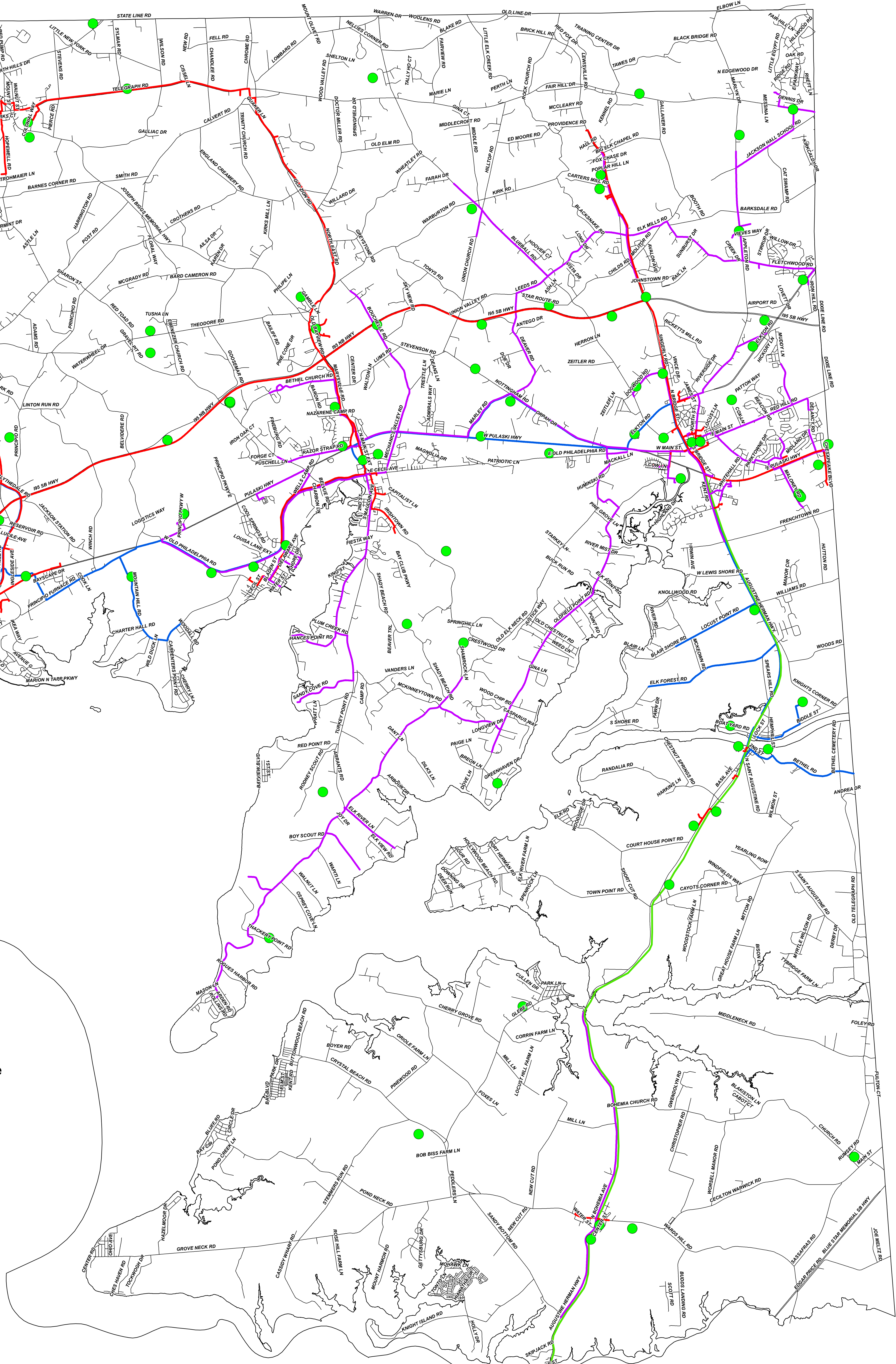
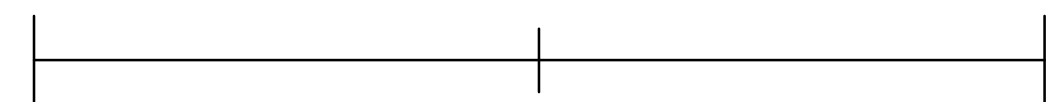
Data regarding the service area for the Maryland Broadband Cooperative and Network Maryland was obtained from the State of Maryland's Department of Information Technology.

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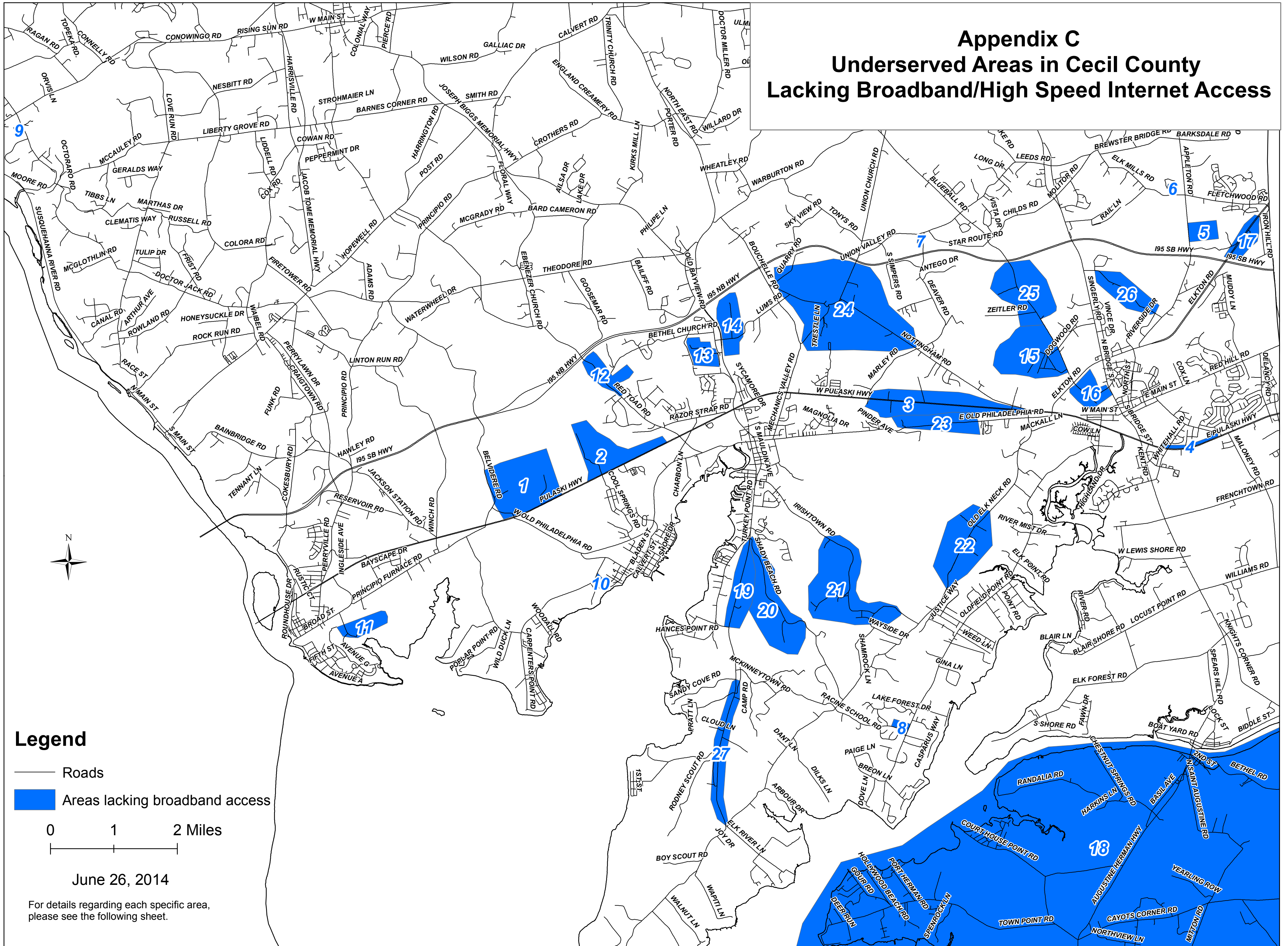
0 2 4 Miles



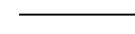

## **APPENDIX C**

### **Underserved Areas of Cecil County**

# Appendix C Underserved Areas in Cecil County Lacking Broadband/High Speed Internet Access



## Legend

-  Roads
-  Areas lacking broadband access

0 1 2 Miles

June 26, 2014

For details regarding each specific area, please see the following sheet.

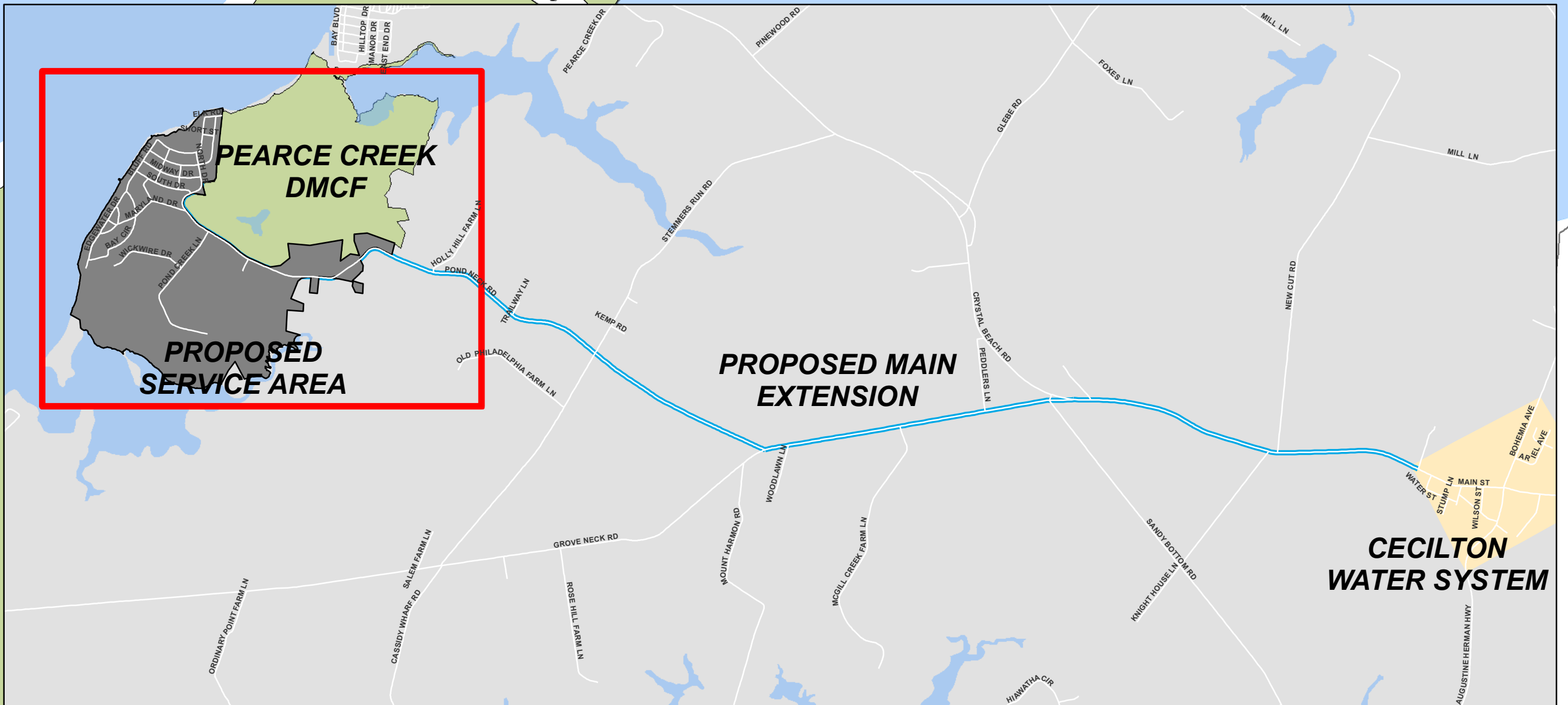
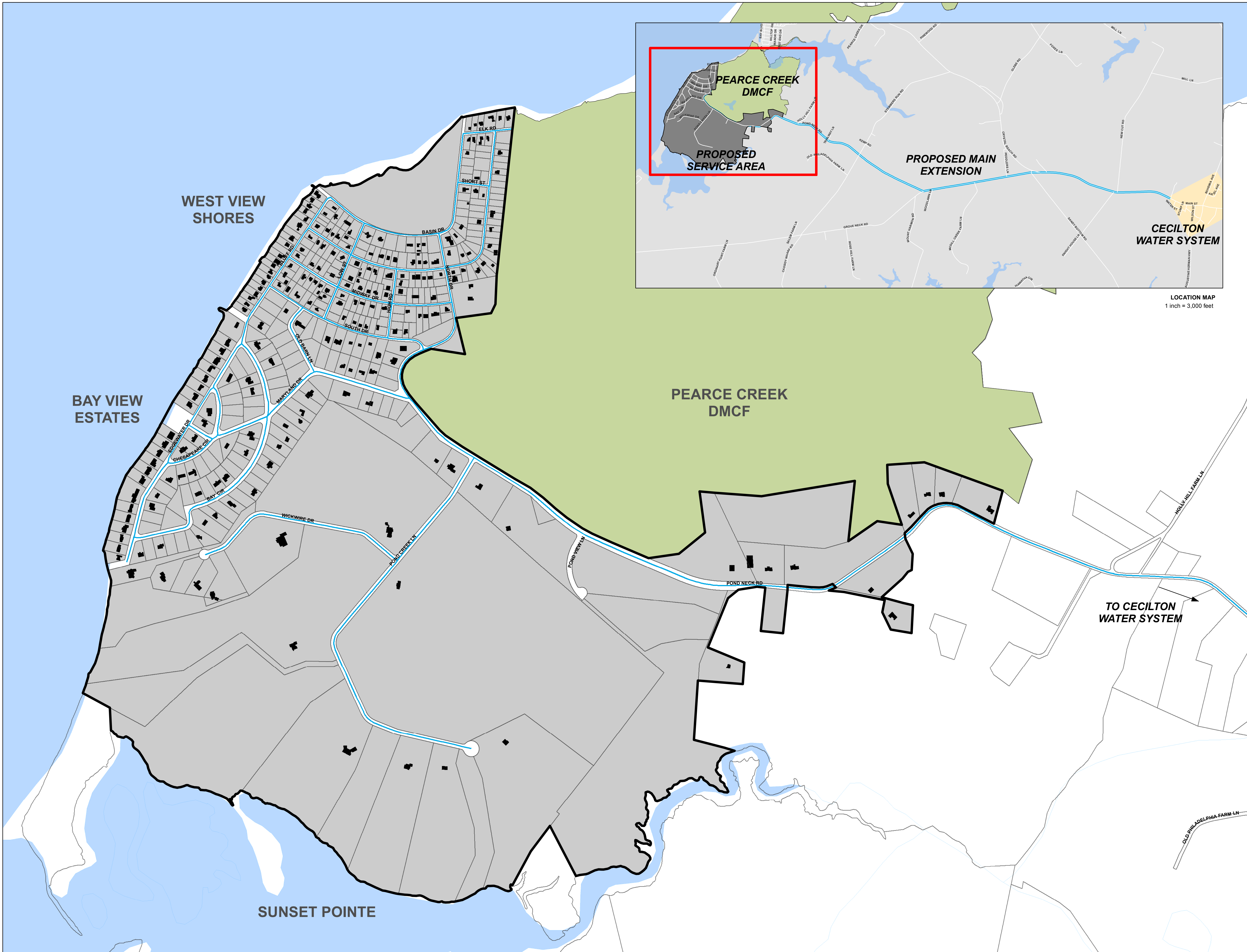


<b>Priority</b>	<b>Area Name</b>	<b>Location</b>	<b>Type</b>
1	Principio Business Park	Principio Pkwy West, 200-300 block of Belvidere Rd, North East, MD 21901	8 businesses
2	North side of Route 40, Between Red Toad Rd & Principio Pkwy East	2900-3500 block of Pulaski Hwy & Principio Pkwy East, North East, MD 21901	5 businesses and 6 residences
3	Route 40 (both sides), between Marley Rd & Nottingham Rd	500-1500 block of W Pulaski Hwy, Elkton, MD 21921	49 businesses and 99 residences
4	North side of Route 40, between Big Elk Mall & Delaware Ave	200-700 block of E Pulaski Hwy, Elkton, MD 21921	27 businesses and 3 residences
5	Future School of Technology	912 Appleton Rd, Elkton, MD 21921	1 institutional user
6	Cecil Manor Elementary School	971 Elk Mills Rd, Elkton, MD 21921	1 institutional user
7	Leeds Elementary School	615 Deaver Rd, Elkton, MD 21921	1 institutional user
8	Elk Neck Elementary School	41 Racine School Rd, Elkton, MD 21921	1 institutional user
9	Conowingo Elementary School	471 Rowlandsville Rd, Conowingo, MD 21918	1 institutional user
10	Seneca Point Wastewater Treatment Plant	123 Carpenters Point Rd, Perryville, MD 21903	1 institutional user
11	IKEA Distribution Facility & Perryville WWTP	72 & 100 Ikea Way, Perryville, MD 21903	2 businesses
12	Red Toad Rd, between Whitaker Ave & I-95	700-900 block of Red Toad Rd, North East, MD 21901	3 businesses and 9 residences
13	Peninsula Industrial Park	Peninsula Dr & Industrial Dr, North East, MD 21901	15 businesses
14	North East Commerce Center	100 block of Lums Rd & Center Dr, North East, 21901	8 businesses

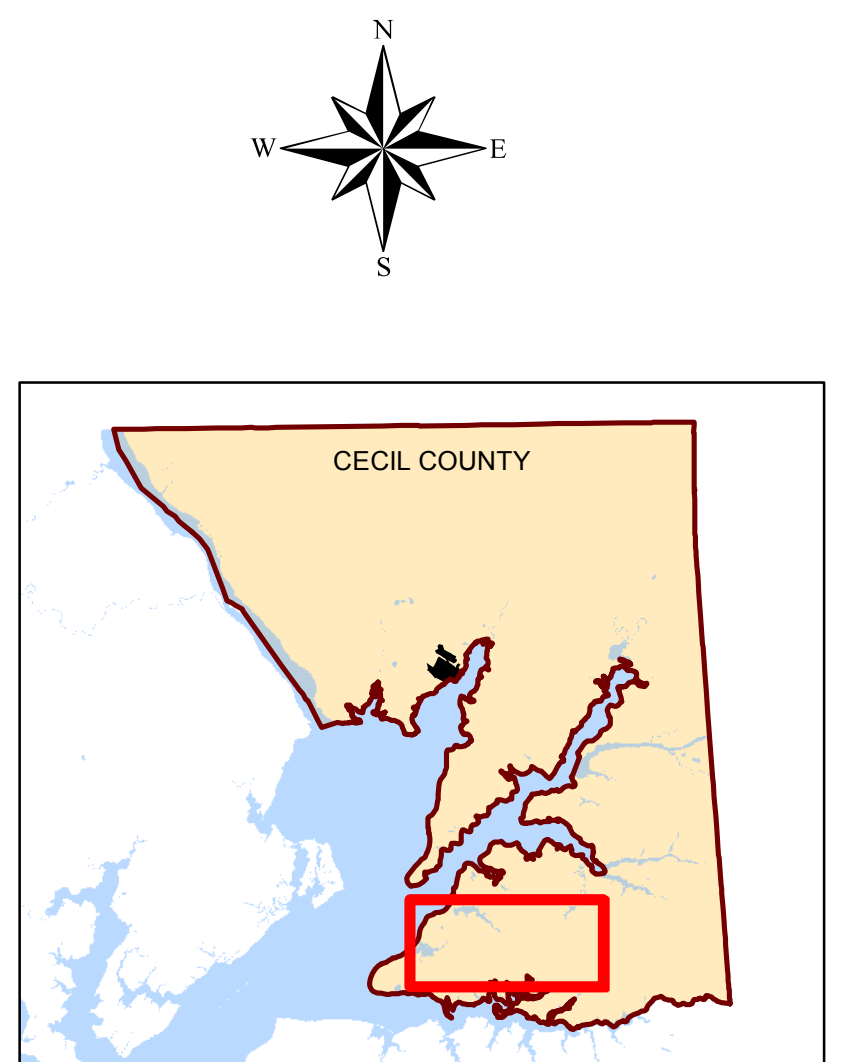
15	Triumph Industrial Park	300-700 block of Blueball Rd, Elkton, MD 21921	44 businesses
16	Elkton Business Center	100-300 block of Blueball Rd, 800 & 900 block of Elkton Blvd, Elkton, MD 21921	7 businesses and 4 residences
17	Elkton Rd	1300-1600 block of Elkton Rd, Elkton, MD 21921	12 businesses
18	Southern Cecil County	Earleville, Warwick, Cecilton, and Chesapeake City zip codes	275 businesses and 4,569 residences
19	Turkey Point Rd, between Irishtown Rd & Hances Point Rd	1200-1700 block of Turkey Point Rd, North East, MD 21901	7 businesses and 35 residences
20	Shady Beach Rd & adjacent subdivisions	Unit - 800 block of Shady Beach Rd, North East, MD 21901	1 business and 39 residences
21	Irishtown Rd & adjacent subdivisions	700-1600 block of Irishtown Rd, North East, MD 21901	91 residences
22	Old Elk Neck Rd	2200-2800 block of Shady Beach Rd, Elkton, MD MD 21921	21 residences
23	E Old Philadelphia Rd, between Amtrak railroad & Shaggy Oak Dr	1250-1800 block of E Old Philadelphia Rd, Elkton, MD 21921	11 businesses and 41 residences
24	Parts of Stevenson Rd, Mechanics Valley Rd, Union Church Rd, & Nottingham Rd	0-300 block of Union Church Rd, 0-600 block of Nottingham Rd, 0-500 block of Stevenson Rd, 900-1200 block of Mechanics Valley Rd	22 businesses and 120 residences
25	Blueball Rd	700-1100 block of Blueball Rd, Elkton, MD 21921	6 businesses and 27 residences
26	Ricketts Mill Rd, between Wedgemont Dr & Riverside Dr	Unit - 600 block of Ricketts Mill Rd	12 residences
27	Turkey Point Rd, between Sandy Cove Rd & Old Elk Neck Rd	2200-3000 block of Turkey Point Rd, North East, MD 21901	3 businesses and 65 residences

## **APPENDIX D**

### **Proposed Pearce Creek Water System West View Shores to Cecilton waterline**



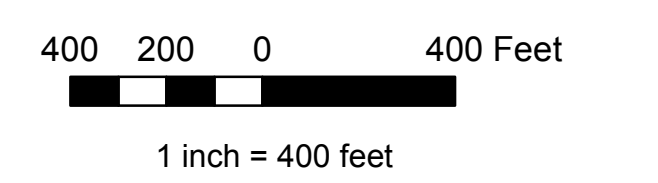
LOCATION MAP  
1 inch = 3,000 feet



AREA MAP  
1 in = 8 miles

**Legend**

- Service Area Boundary
- Service Area Parcels
- Parcel Boundary
- Building
- Pearce Creek DMCF
- Proposed Water Lines
- Water Body



**PEARCE CREEK  
WATER SYSTEM  
SERVICE AREA**

Cecil County, Maryland

**URS**  
Sabre Building Suite 300  
4051 Ogletown Road  
Newark, DE 19713

DATE:  
5/30/2014

FILE NUMBER:  
20812239

EXHIBIT:  
1 of 1

## **APPENDIX E**

### **Future Broadband Planning Considerations “Cecil County Fiber Area Network”**

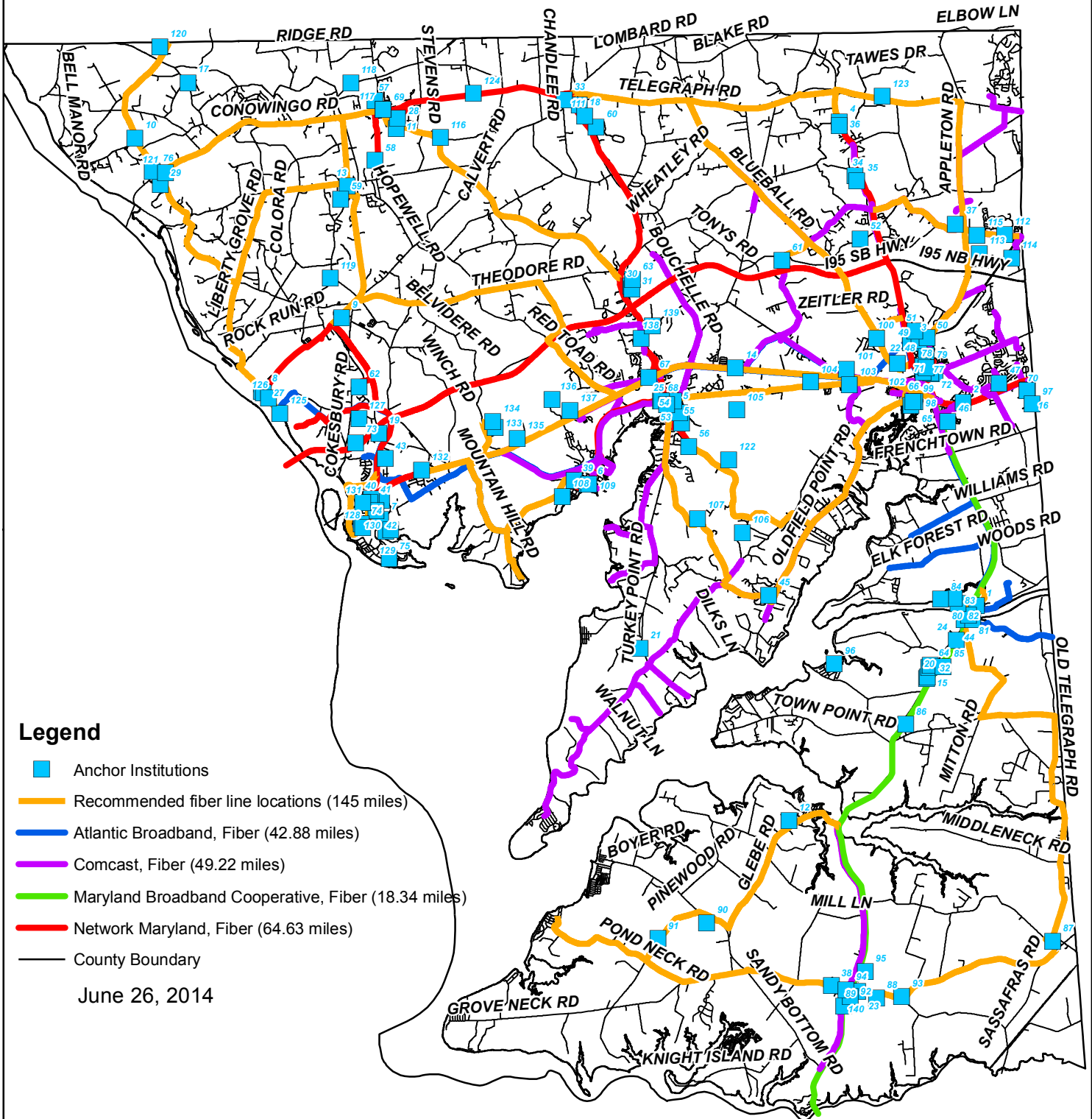


# APPENDIX E

## Future Broadband Planning Considerations

### “Cecil County Fiber Area Network”

(with anchor institutions shown)



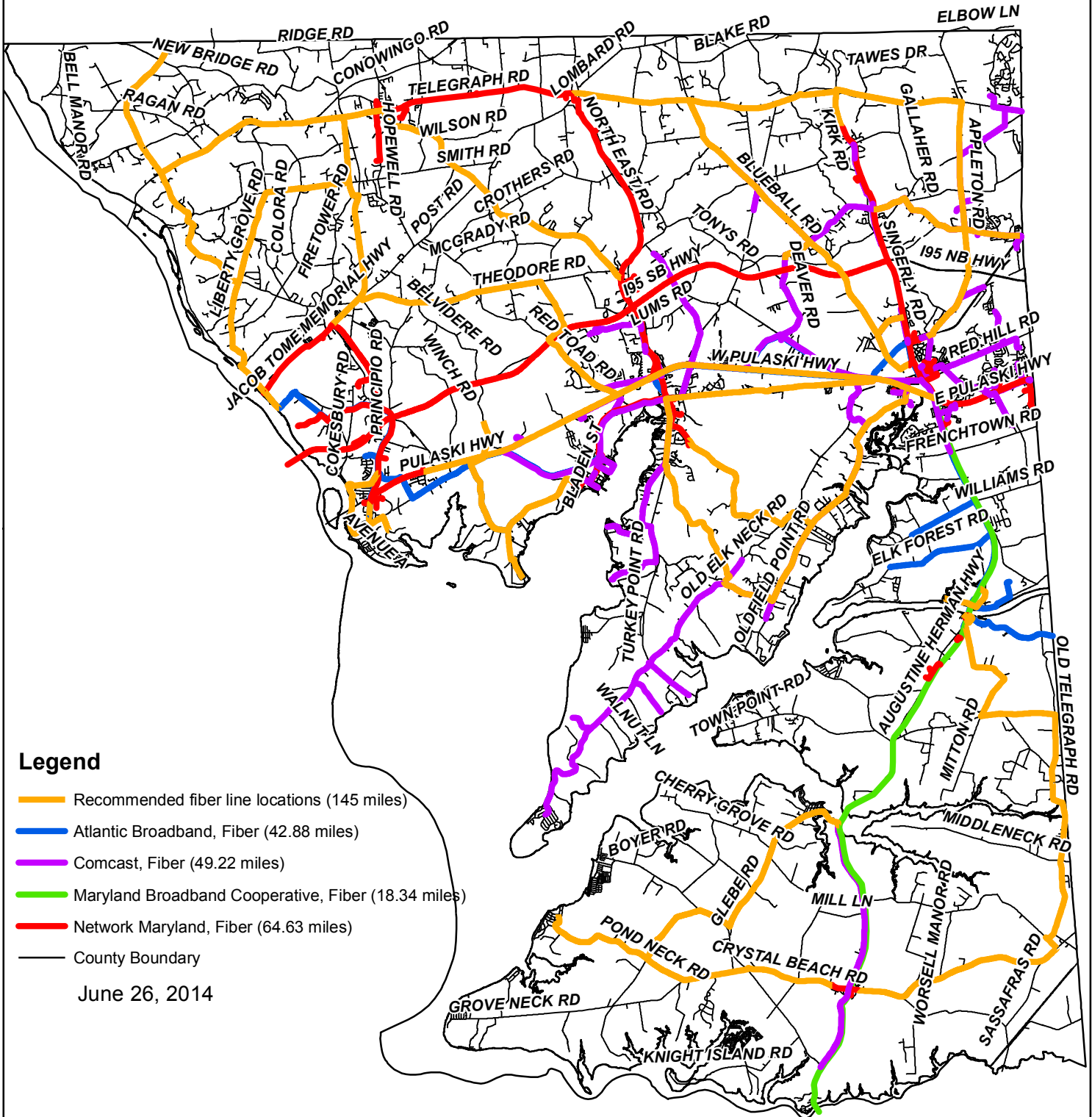


# APPENDIX E

## Future Broadband Planning Considerations

### “Cecil County Fiber Area Network”

(without anchor institutions shown)



#### Legend

- Recommended fiber line locations (145 miles)
- Atlantic Broadband, Fiber (42.88 miles)
- Comcast, Fiber (49.22 miles)
- Maryland Broadband Cooperative, Fiber (18.34 miles)
- Network Maryland, Fiber (64.63 miles)
- County Boundary

June 26, 2014

## Appendix E - List of Anchor Institutions

Number	Name	Address	CITY	Type
1	Chesapeake City Vol. Fire Department	215 Lock St	Chesapeake City	Fire or Paramedic Station
2	Singerly Vol. Fire Department	399 E Pulaski Hwy	Elkton	Fire or Paramedic Station
3	Singerly Vol. Fire Department	300 Newark Ave	Elkton	Fire or Paramedic Station
4	Singerly Vol. Fire Department	3074 Singerly Rd	Elkton	Fire or Paramedic Station
5	North East Vol. Fire Department	210 S Mauldin Ave	North East	Fire or Paramedic Station
6	Charlestown Vol. Fire Department	307 Market St	Charlestown	Fire or Paramedic Station
7	Perryville Vol. Fire Department	920 Principio Furnace Rd	Perryville	Fire or Paramedic Station
8	Water Witch Vol. Fire Department	15 N Main St	Port Deposit	Fire or Paramedic Station
9	Water Witch Vol. Fire Department	1 Bill Amoss Way	Port Deposit	Fire or Paramedic Station
10	Water Witch Vol. Fire Department	409 Rock Springs Rd	Conowingo	Fire or Paramedic Station
11	Community Fire Co of Rising Sun	300 Joseph Biggs Memorial Hwy	Rising Sun	Fire or Paramedic Station
12	Hacks Point Vol. Fire Department	1185 Glebe Rd	Earleville	Fire or Paramedic Station
13	Paramedic Station 1	191 Harrisville Rd	Colora	Fire or Paramedic Station
14	Paramedic Station 2	34 Fair Acres Rd	Elkton	Fire or Paramedic Station
15	Paramedic Station 3	2865 Augustine Herman Hwy	Chesapeake City	Fire or Paramedic Station
16	Department of Emergency Services	107 Chesapeake Blvd	Elkton	Fire or Paramedic Station
17	Community Fire Co of Rising Sun	32 Brer Rabbit Rd	Rising Sun	Fire or Paramedic Station
18	Community Fire Co of Rising Sun	2846 North East Rd	North East	Fire or Paramedic Station
19	Perryville Vol. Fire Department	16 Gr Dawson Dr	Perryville	Fire or Paramedic Station
20	Chesapeake City Vol. Fire Department	2859 Augustine Herman Hwy	Chesapeake City	Fire or Paramedic Station
21	North East Vol. Fire Department	2993 Turkey Point Rd	North East	Fire or Paramedic Station
22	Elkton Central Branch Library	301 Newark Avenue	Elkton	Library
23	Cecilton Library	215 E. Main Street	Cecilton	Library
24	Chesapeake City Library	2527 Augustine Herman Highway	Chesapeake City	Library
25	North East Library	106 W Cecil Avenue	North East	Library
26	Perryville Library	500 Coudon Boulevard	Perryville	Library
27	Port Deposit Library	13 South Main Street	Port Deposit	Library
28	Rising Sun Library	111 Colonial Way	Rising Sun	Library
29	Conowingo Elementary School	471 Rowlandsville Road	Conowingo	School
30	Bay View Elementary School	1000 N East Road	North East	School
31	Cecil County School of Technology	910 N East Road	North East	School

32	Bohemia Manor High School	2755 Augustine Herman Hwy	Chesapeake City	School
33	Calvert Elementary School	79 Brick Meetinghouse Rd	Rising Sun	School
34	Cherry Hill Middle School	2535 Singerly Road	Elkton	School
35	Kenmore Elementary School	2475 Singerly Road	Elkton	School
36	Providence/ Cecil Co. High School	3035 Singerly Road	Elkton	School
37	Cecil Manor Middle School	971 Elk Mills Road	Elkton	School
38	Cecilton Elementary School	251 W Main Street	Cecilton	School
39	Charlestown Elementary	550 Baltimore Street	North East	School
40	Perryville Middle School	850 Aiken Avenue	Perryville	School
41	Good Shepherd School	810 Aiken Avenue	Perryville	School
42	Perryville Elementary School	901 Maywood Avenue	Perryville	School
43	Perryville High School	1696 Perryville Road	Perryville	School
44	Chesapeake City Elementary	214 3rd Street	Chesapeake City	School
45	Elk Neck Elementary School	41 Racine School Road	Elkton	School
46	Holly Hall Elementary School	233 Whitehall Road	Elkton	School
47	Thomson Estates Elementary School	203 E Thomson Drive	Elkton	School
48	Immaculate Conception	452 Bow Street	Elkton	School
49	Gilpin Manor Elementary School	203 Newark Avenue	Elkton	School
50	Elkton Middle School	615 North Street	Elkton	School
51	Elkton High School	110 James Street	Elkton	School
52	Mount Aviat Academy	399 Childs Avenue	Childs	School
53	The Jacob Tome Institute	581 S Maryland Avenue	North East	School
54	North East Elementary School	301 E Thomas Avenue	North East	School
55	North East Middle School	200 E Cecil Ave	North East	School
56	North East High School	300 Irishtown Road	North East	School
57	Rising Sun Middle School	289 Pearl Street	Rising Sun	School
58	Rising Sun Elementary School	500 Hopewell Road	Rising Sun	School
59	West Nottingham Academy	1079 Firetower Road	Colora	School
60	Rising Sun High School	100 Tiger Road	North East	School
61	Leeds Elementary School	615 Deaver Road	Elkton	School
62	Bainbridge Elementary School	41 Preston Dr	Port Deposit	School
63	Cecil College	Seahawk Drive	North East	School
64	Bohemia Manor Middle School	2755 Augustine Herman Hwy	Chesapeake City	School
65	Cecil County Detention Center	500 LANDING LANE	Elkton	Police

66	Elkton Police Department	100 RAILROAD AVENUE	Elkton	Police
67	Maryland State Police - Barrack F	2433 PULASKI HWY	North East	Police
68	North East Police Department	104 W CECIL AVENUE	North East	Police
69	Rising Sun Police Department	1 E MAIN STREET	Rising Sun	Police
70	Cecil County Sheriff's Office	107 Chesapeake Boulevard	Elkton	Police
71	District Court	170 East Main Street	Elkton	Police
72	Circuit Court	129 East Main Street	Elkton	Police
73	State Police - JFK Barrack	15 Turnpike Drive	Perryville	Police
74	Perryville Police Department	448 Otsego St	Perryville	Police
75	Perry Point VA Center	Avenue D, Perry Point	Perryville	Hospital
76	West Cecil Health Center	49 Rock Springs Rd	Conowingo	Hospital
77	Union Hospital	106 Bow St	Elkton	Hospital
78	Cecil College - Elkton Station	107 Railroad Ave	Elkton	School
79	Elkton Town Hall	100 Railroad Ave	Elkton	Municipal Govt
80	Chesapeake City Town Hall	108 Bohemia Ave	Chesapeake City	Municipal Govt
81	Chesapeake City - South side WWTP	Charles St	Chesapeake City	Municipal Govt
82	Chesapeake City - North side WWTP	96 Boatyard Rd	Chesapeake City	Municipal Govt
83	Back Creek Communications Tower	109 Boatyard Rd	Chesapeake City	Communications Tower
84	Canal Place, LC	299 Boatyard Rd	Chesapeake City	Business Anchor
85	McCoy Communications Tower	2750 Augustine Herman Hwy	Chesapeake City	Communications Tower
86	SPCA Communications Tower	3276 Augustine Herman Hwy	Chesapeake City	Communications Tower
87	Warwick Communications Tower	64 Church Rd	Warwick	Communications Tower
88	Cooper Enterprises Communications Tower	364 Cecilton Warwick Rd	Cecilton	Communications Tower
89	Mid Atlantic Communications Tower	264 S Bohemia Ave	Cecilton	Communications Tower
90	Stemmers Run Communications Tower	2 Stemmers Run Rd	Earleville	Communications Tower
91	Stemmers Run Transfer Station	485 Stemmers Run Rd	Earleville	County Govt
92	Cecilton Roads Yard	146 S Bohemia Ave	Cecilton	County Govt
93	SHA Cecilton Yard	625 Cecilton Warwick Rd	Warwick	State Govt
94	Cecilton Town Hall	117 W Main St	Cecilton	Municipal Govt
95	Cecilton Wastewater Treatment Plant	262 N Bohemia Ave	Cecilton	Municipal Govt
96	Harborview WWTP	79 Dartmouth Rd	Chesapeake City	County Govt
97	County Administration Building	200 Chesapeake Blvd	Elkton	County Govt
98	Nextel Landing Ln Communications Tower	500 Landing Lane	Elkton	Communications Tower
99	Elkton Wastewater Treatment Plant	200 W Pulaski Hwy	Elkton	Municipal Govt

100	Triumph Industrial Park	505 Blueball Rd	Elkton	Business Anchor
101	ATK	55 Thiokol Rd	Elkton	Business Anchor
102	Terumo	950 Elkton Blvd	Elkton	Business Anchor
103	SHA Elkton Yard	2024 E Old Philadelphia Rd	Elkton	Municipal Govt
104	Quality Enterprises Communications Tower	1637 E Old Philadelphia Rd	Elkton	Communications Tower
105	Central Landfill & Central Roads Yard	758 E Old Philadelphia Rd	Elkton	County Govt
106	Shamrock Ln Communications Tower	Shamrock Ln	Elkton	Communications Tower
107	Shady Beach Rd Communications Tower	712 Shady Beach Rd	Elkton	Communications Tower
108	Seneca Point WWTP	123 Carpenters Point Rd	Elkton	County Govt
109	Charlestown Town Hall	241 Market St	Charlestown	Municipal Govt
110	North East Town Hall	106 S Main St	North East	Municipal Govt
111	Cecil Sports Arena	2706 North East Rd	North East	County Govt
112	Meadowview WWTP	246 Fletchwood Rd	Elkton	Municipal Govt
113	School of Technology (future)	912 Appleton Rd	Elkton	School
114	Performance Foods	1520 Elkton Rd	Elkton	Business Anchor
115	Broadlands Business Park	451 & 515 Fletchwood Rd	Elkton	Business Anchor
116	County Parks & Recreation	17 Wilson Rd	Rising Sun	County Govt
117	Rising Sun Town Hall	1 E Main St	Rising Sun	Municipal Govt
118	Rising Sun WWTP	2500 Conowingo Rd	Rising Sun	Municipal Govt
119	Woodlawn Transfer Station	561 Waibel Rd	Colora	County Govt
120	Old Dominion Electric Plant	1423 Rock Springs Rd	Conowingo	Business Anchor
121	Eldreth Communications Tower	476 Conowingo Rd	Conowingo	Communications Tower
122	Elk Neck Communications Tower (DES)	Irishtown Rd	North East	Communications Tower
123	Telegraph Rd (Fair Hill) Tower (DES)	4735 Telegraph Rd	Elkton	Communications Tower
124	Sylmar Tower (DES) and SHA Road Yard	909 Telegraph Rd	Rising Sun	Communications Tower
125	Port Deposit Wastewater Treatment Plant	166 S Main St	Port Deposit	Municipal Govt
126	Port Deposit Town Hall	64 S Main St	Port Deposit	Municipal Govt
127	Hollywood Casino	1201 Chesapeake Overlook Pkwy	Perryville	Business Anchor
128	Perryville Town Hall	515 Broad St	Perryville	Municipal Govt
129	Perryville Wastewater Treatment Plant	72 Ikea Way	Perryville	Municipal Govt
130	Ikea	100 Ikea Way	Perryville	Business Anchor
131	Rt 40 Bridge SHA Road Yard	6000 Pulaski Hwy	Perryville	State Govt
132	UMD Dental School & Doctors Offices	4863 Pulaski Hwy	Perryville	Hospital
133	General Electric	238 Belvidere Rd	Perryville	Business Anchor

134	Perryville Cold Storage	300 Belvidere Rd	Perryville	Business Anchor
135	Principio Business Park (west entrance)	500 Principio Pkwy West	North East	Business Anchor
136	Principio Business Park (east entrance)	4000 Principio Pkwy East	North East	Business Anchor
137	Ritchie Brothers	3201 Pulaski Hwy	North East	Business Anchor
138	Peninsula Industrial Park	Peninsula Dr	North East	Business Anchor
139	North East Commerce Center	Center Dr	North East	Business Anchor
140	Cecilton Vol. Fire Department	110 E Main St	Cecilton	Fire or Paramedic Station





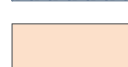






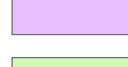
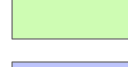





# **APPENDIX F**

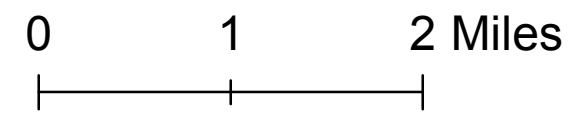
## **Department of Public Works Sanitary Sewer Capital Improvement Projects**



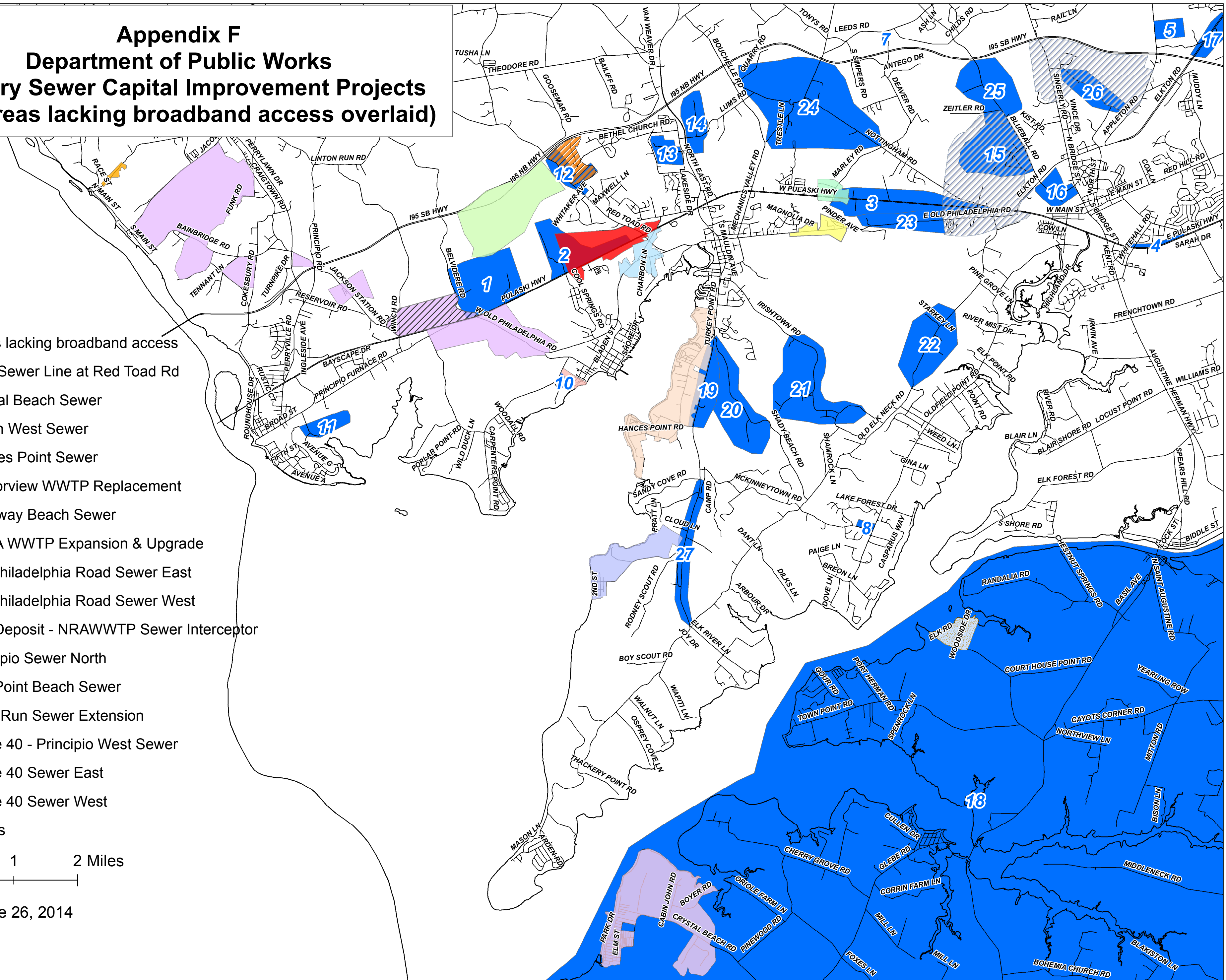
# Appendix F Department of Public Works Sanitary Sewer Capital Improvement Projects (with areas lacking broadband access overlaid)

## Legend

-  Areas lacking broadband access
-  CSX Sewer Line at Red Toad Rd
-  Crystal Beach Sewer
-  Elkton West Sewer
-  Hances Point Sewer
-  Harborview WWTP Replacement
-  Holloway Beach Sewer
-  NERA WWTP Expansion & Upgrade
-  Old Philadelphia Road Sewer East
-  Old Philadelphia Road Sewer West
-  Port Deposit - NRAWWTP Sewer Interceptor
-  Principio Sewer North
-  Red Point Beach Sewer
-  Rock Run Sewer Extension
-  Route 40 - Principio West Sewer
-  Route 40 Sewer East
-  Route 40 Sewer West
-  Roads



June 26, 2014



## **APPENDIX G**

**Existing Communications Towers – Coverage Analysis**

**and**

**Proposed locations of New Communications Towers**

## ***Discussion regarding wireless technologies and solutions***

Providing fiber to every corner of Cecil County is simply not cost effective at this time. To serve the more rural areas of the County, the Task Force recommends the promotion of wireless services such as WiMAX. Standing for Worldwide Interoperability for Microwave Access, WiMAX is a wireless form of broadband that can achieve data rate speeds of up to one gigabit per second. As a wireless solution, WiMAX relies on a network of communications towers to serve as relays to traditional wired fiber.

As do other wireless technologies, WiMAX's ability to provide service decreases the further a user travels (or is located, if stationary) from a communications tower. Additionally, as the amount of wireless traffic handled by a communications tower increases, the area it is able to serve decreases. Thus, ensuring a robust network of appropriately placed communications towers throughout the County is key to long term wireless success.

Having mapped the locations of all existing communications towers in the County, the Task Force analyzed gaps in existing coverage due to both geography and increased wireless traffic. The maps contained in Appendix G ("Existing Communications Towers – Coverage Analysis and Proposed Locations of New Communications Towers") contain coverage analyses for all existing towers, given 1.5, 1.0, and 0.5 mile radius service areas. Based on the 1.5 mile map, the Task Force considered the placement of approximately 21 new communications towers to fill in the wireless coverage gaps that exist.

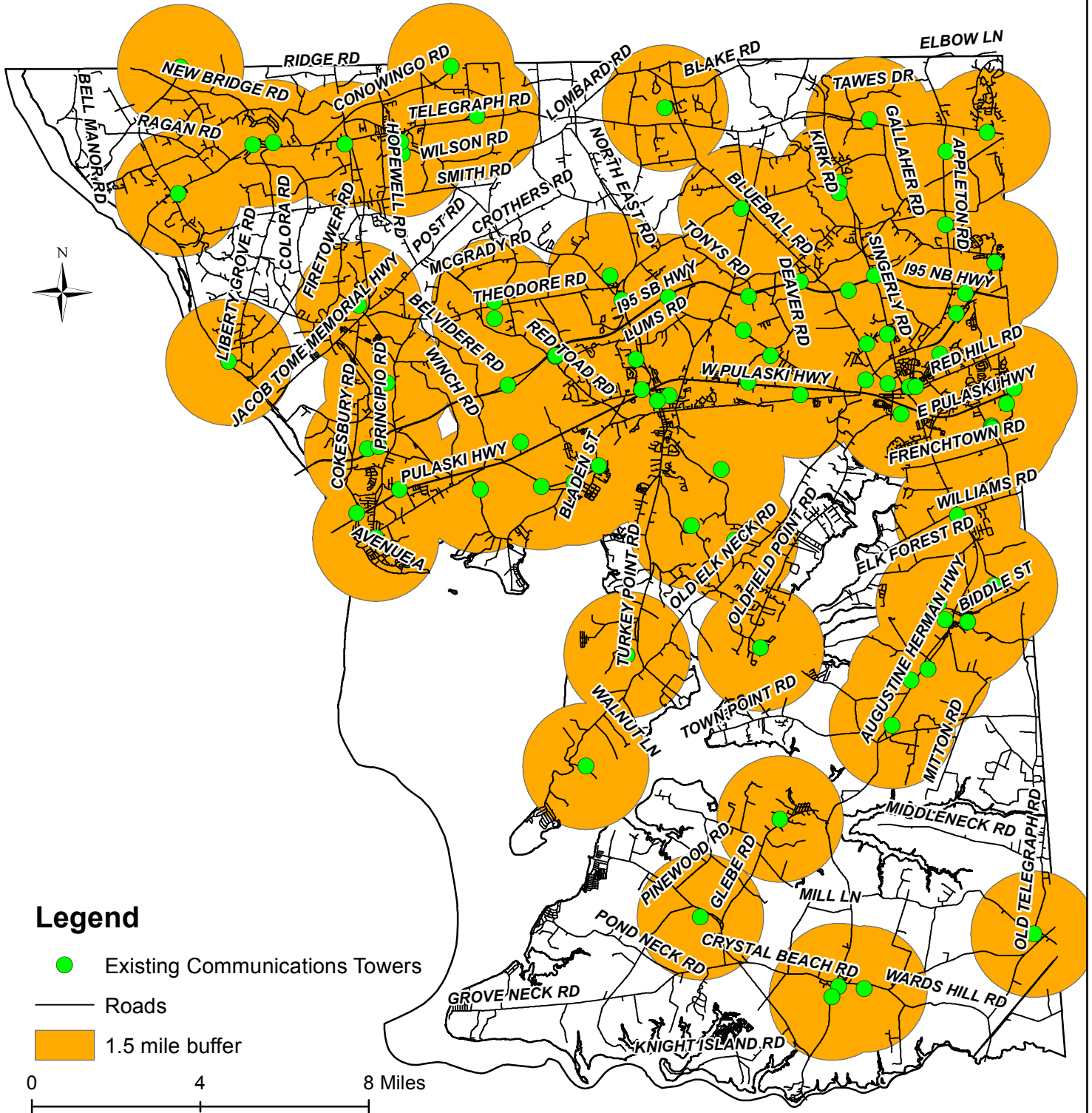
In meeting with Verizon staff, the Task Force learned that Verizon has interest in communication tower site leasing, and they would be interested in exploring partnerships for locating and leasing towers on County owned properties. County staff has also been contacted by Eco-Site (on January 16, 2014) and Milestone Communications (on May 7, 2014) regarding similar arrangements regarding leasing of properties for towers. The Task Force recommends that County Administration develop a request for proposal to gauge the level of interest from wireless telecommunications firms.

The Task Force recognizes that Section 115 of the Zoning Ordinance contains guidelines for permitting communications towers with conditions (in the BG, BI, M1, and M2 zoning districts) and permitting communication towers as a special exception (in the NAR, SAR, LDR, ST, UR, MH, RM, RMU, and EMU zoning districts).

Any newly proposed communications towers must proceed through the appropriate permitting process, and the publication of the maps contained in Appendix G ("Existing Communications Towers – Coverage Analysis and Proposed Locations of New Communications Towers") does not constitute approval of any potential site. The maps solely show where existing holes in wireless coverage exist and could be filled.

# Appendix G Cecil County Communications Towers Coverage Analysis - 1.5 mile distance

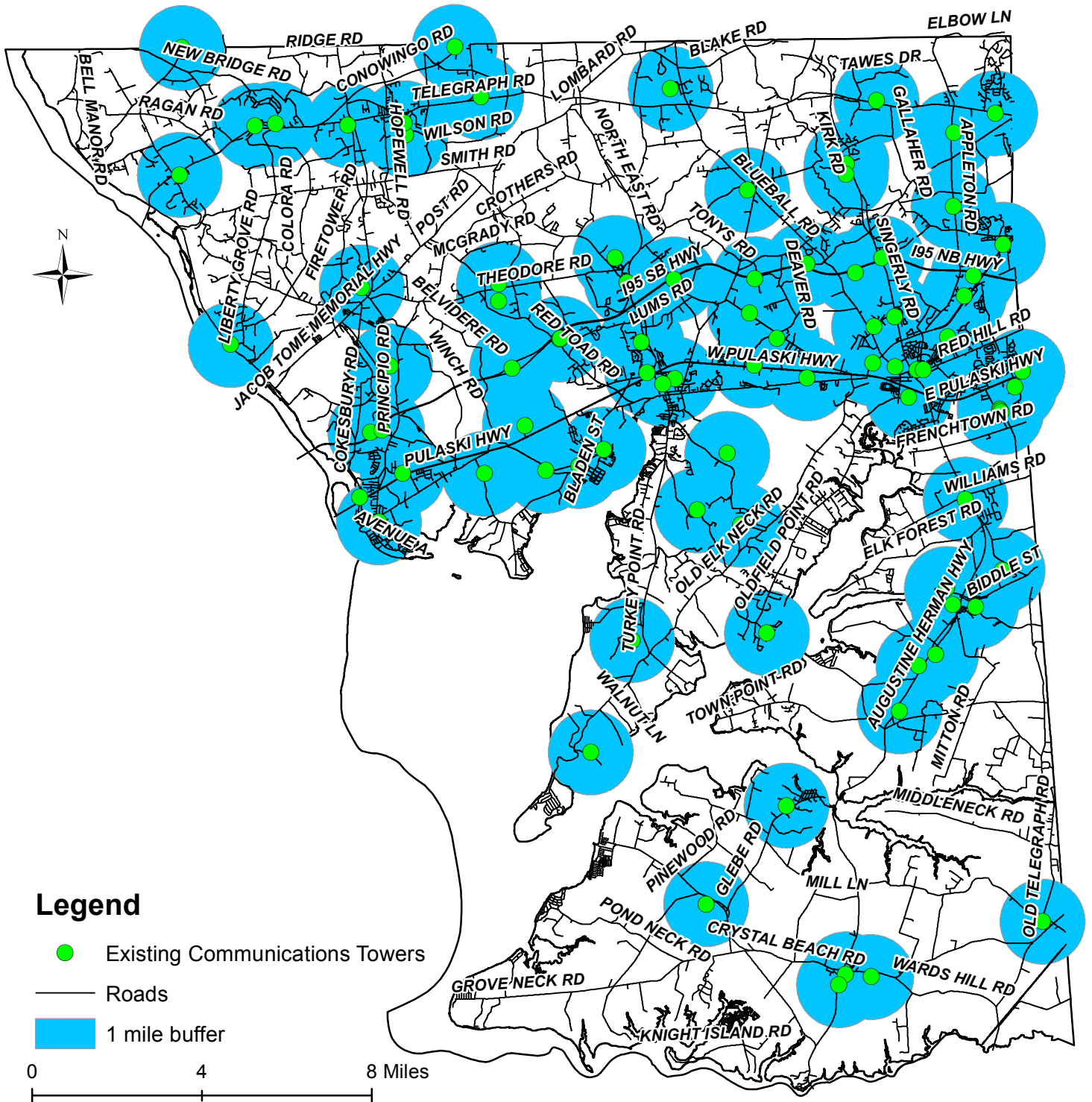
*As user capacity increases, coverage decreases*



June 26, 2014

# Appendix G Cecil County Communications Towers Coverage Analysis - 1 mile distance

*As user capacity increases, coverage decreases*



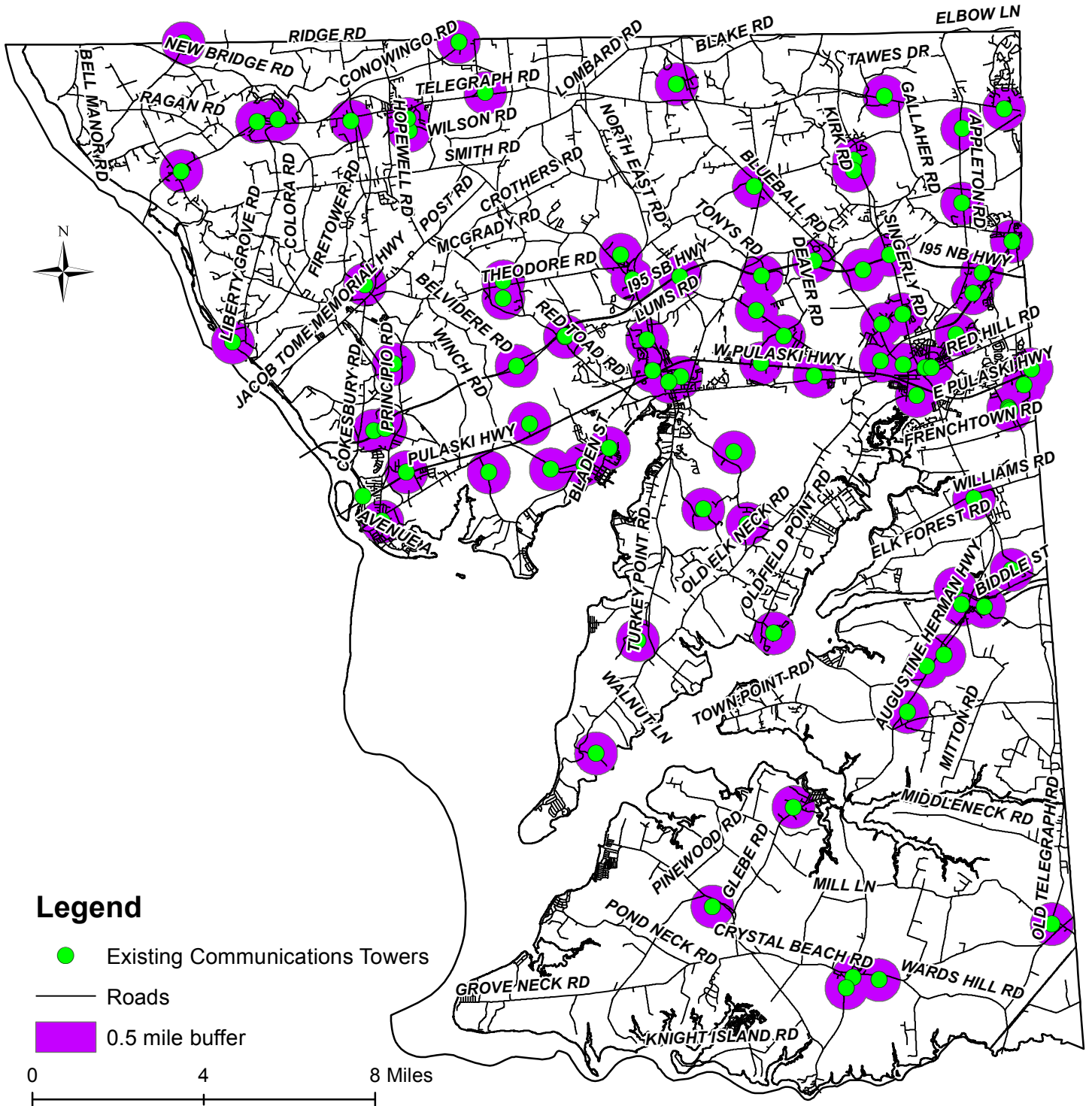
June 26, 2014

# Appendix G

## Cecil County Communications Towers

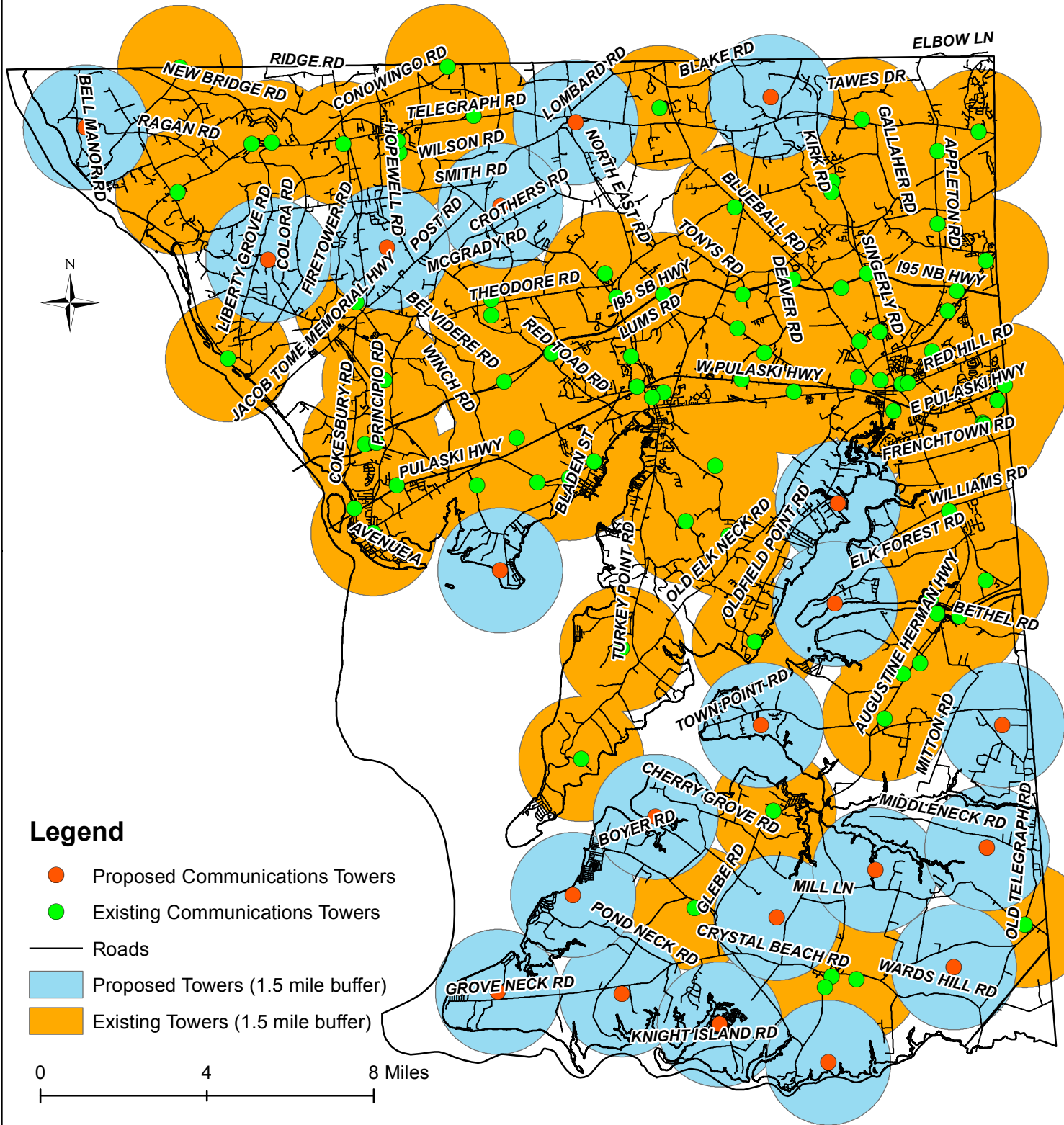
### Coverage Analysis - 0.5 mile distance

*As user capacity increases, coverage decreases*



June 26, 2014

# Appendix G Cecil County Communications Towers Proposed Towers For WiMAX coverage



June 26, 2014

## **GLOSSARY**

**BG** – Business General zoning district

**BI** – Business Intensive zoning district

**DOIT** - Maryland Department of Information Technology

**EMU** – Employment Mixed Use zoning district

**FCC** – Federal Communications Commission

**HMAN** – Harford Metropolitan Area Network

**ISP** – Internet Service Provider

**LDR** – Low Density Residential zoning district

**M1** – Light Industrial zoning district

**M2** – Heavy Industrial zoning district

**Mbps** – Megabits per second

**MDBC** – Maryland Broadband Cooperative

**MH** – Manufactured Home zoning district

**NAR** – Northern Agricultural Residential zoning district

**RM** – High Density Residential zoning district

**RMU** – Residential Mixed Use zoning district

**SAR** – Southern Agricultural Residential zoning district

**SHA** – State Highway Administration

**ST** – Suburban Transition Residential zoning district

**UR** – Urbanized Residential zoning district

**USDA** – United States Department of Agriculture

**WiMAX** - Worldwide Interoperability for Microwave Access