



Task Force on Rural Internet, Broadband, Wireless and Cellular Service
Senate Bill 717/House Bill 1169 - Connecting Rural Maryland Act of 2017

Task Force Report

January 9, 2018

November 30, 2017

The Honorable Thomas V. Mike Miller, Jr.
President of the Senate
The State House
Annapolis, Maryland 21401

The Honorable Michael E. Busch
Speaker of the House
The State House
Annapolis, Maryland 21401

Dear President Miller and Speaker Busch:

We are pleased to present to you the following report as required under Chapter 621 of the 2017 Laws of Maryland by the Task Force of Rural Internet, Broadband, Wireless and Cellular Service.

The Task Force met three times during the Fall of 2017 once members were officially appointed and discussed the various issues related to rural telecommunications. We voted to adopt this report on January 5, 2018 and support its recommendations.

Broadband and internet connectivity are the keys to economic success for our rural communities. We thank you for the opportunity to serve the State of Maryland and to assist in improving the quality of life for all Marylanders.

Sincerely,

Members of the Task Force on Rural Internet, Broadband, Wireless and Cellular Service

Executive Summary

The Task Force on Rural Internet, Broadband, Wireless and Cellular Service conducted an assessment of connectivity to determine the challenges, issues and potential actions to address broadband access to the un-served and underserved areas of rural Maryland. The Task Force also researched and discussed available and existing federal funding opportunities. While many federal funding opportunities exist, private and public entities within the State are challenged with meeting the necessary eligibility requirements, applicability and criteria of particular grant programs as well as in general lack the capacity needed to pay back any borrowed funds.

The overall state government interest identified by the Task Force was to provide adequate and scalable broadband service to un-served and underserved rural areas of Maryland in a timely manner adhering to the standards set forth by the Federal Communication Commission of 25 megabits per second (Mbps) as an “adequate” level of service. The main issues identified from the meetings and group discussions centered on the need for internet service providers to be able to achieve a return on investment on broadband services, the need to understand the total costs to reach un-served areas and subscriber sign up rates. In addition, there is no current existing database or maps that provide information on all of the state assets and resources that could be utilized for the expansion of broadband to un-served and underserved areas.

The Task Force on Rural Internet, Broadband, Wireless and Cellular Service offers the following recommendations:

- 1). Statutory and regulatory amendments should be reviewed and implemented to reduce obstacles and permitting challenges between private providers and State and local government;
- 2). A complete inventory of all state and local government agencies assets including cellular towers, water towers and other structures should be completed within the next year;
- 3). With its expertise and mission to support infrastructure and current funding programs, the Maryland Department of Housing and Community Development may be a better fit for the Office of Rural Broadband;
- 4). In addition, there needs to be a full development of and further establishment of a scope of work or work plan for the Office of Rural Broadband;
- 5) The State needs access to updated mapping to better educate constituents, elected and appointed leaders. This updated mapping capability could be used to calculate the overall cost for universal service last mile broadband and should include a complete population and business density for under-served and unserved areas in each county. Local government should be asked to help identify and prioritize un-served and underserved areas with opportunities for input by the ISPs.
- 6). Lastly, the Task Force on Rural Internet, Broadband, Wireless and Cellular Service should be extended for an additional year and its charge expanded to continue working on uncompleted

tasks, such as development of a funding or financing model for rural broadband deployment and identifying potential funding sources other than federal grants and financing options.

Introduction and Background

During the 2017 Legislative Session, the Maryland General Assembly passed Senate Bill 717/ House Bill 1169 - Connecting Rural Maryland Act of 2017. Signed into law by Governor Hogan, the legislation authorizes the creation of a Task Force to study Rural Internet, Broadband, Wireless, and Cellular Service. The Task Force was established in response to growing concerns that the rural areas of Maryland are underserved by internet and broadband providers.

The lower population density of rural areas presents unique challenges in the deployment of broadband. The greater the geographical distances among customers, the larger the cost to providers looking to serve those customers. Therefore, there is less of an incentive for companies to invest in broadband in a rural region than in an area where there is more demand, more customers with higher incomes, and less cost to the service provider.

Expansion of broadband services into rural areas where populations, and potential customers, are less dense has not occurred in certain areas of Maryland largely due to the costs associated with building out broadband networks.

The legislative charges of the Task Force are:

- Study and make recommendations regarding how Western Maryland, Southern Maryland, the Eastern Shore, and Frederick, Carroll, and Harford counties can work together to obtain federal assistance to improve Internet, Broadband, wireless, and cellular services and accessibility;
- Assess current Internet, Broadband, wireless, cellular, and landline service connectivity;
- Assess coverage for the users located at the end of
 - the Internet service connectivity;
 - Broadband service connectivity;
 - wireless service connectivity;
 - cellular service connectivity;
 - and landline service connectivity;
- Evaluate redundancies and gaps in the current Internet, Broadband, wireless, cellular, and landline service connectivity; and
- Evaluate any federal funds applied for in response to any previous Broadband task force in the State.

The law mandates a report due by November 30, 2017 with the sunset of the Task Force in May of 2018.

Membership

Task force membership as dictated by SB 717/HB 1169 calls for a combination of legislators, statutory members and representatives of the broadband and telecommunications industry. The Chair is given authority to appoint additional members as deemed necessary.

Legislative members of the Task Force:

- The Honorable George Edwards representing Western Maryland
- The Honorable Steve Waugh representing Southern Maryland
- The Honorable Adelaide Eckardt representing the Eastern Shore
- The Honorable Wayne Norman representing Frederick, Carroll and Harford Counties
- The Honorable Carol Krimm representing Western Maryland
- The Honorable Sally Jameson representing Southern Maryland
- The Honorable Johnny Mautz representing the Eastern Shore
- The Honorable Mary Ann Lisanti representing Frederick, Carroll and Harford Counties

Statutory members of the Task Force:

- Mr. Michael Leahy, Secretary of the Maryland Department of Information Technology
Mr. Steve Pennington, representing the Maryland Secretary of Commerce
- Ms. Charlotte Davis, Executive Director, Rural Maryland Council
- Mr. Juan Alvarado, representing the Maryland Public Service Commission
- Mr. Guy Winterberg, representing the Tri-County Council for Western Maryland
- Mr. John Hartline, Executive Director, Tri-County Council for Southern Maryland
- Mr. Jack Wilson representing the Upper Shore Regional Council
- Mr. Scott Warner, Executive Director, Mid-Shore Regional Council
Mr. Michael Pennington, Executive Director, Tri-County Council of Lower Eastern Shore of Maryland
- Ms. Heather Gramm representing a multicounty organization serving Frederick, Carroll or Harford counties

Gubernatorial appointees:

- Ms. Theresa Bethune, InfoPathways Inc.
- Mr. Drew VanDopp, Maryland Broadband Cooperative
- Mr. Brian Roche, Bay Country Communications
- Mr. Jonathan Favorite, Communications Electronics, Inc.
- Mr. Andrew Roscoe, Consolidated Broadband Systems
- Ms. Lisa McCabe, Cellular Telecommunications and Internet Association, CTIA
- Mr. Robert Scott Randall, Atlantic Broadband
- Mr. Robert Branson, Verizon

Chair appointees:

- Dr. Michael Scott, Eastern Shore Regional GIS Cooperative
- Mr. Tom Dennison, Southern Maryland Electric Cooperative, SMECO
- Mr. Patrick Mitchell, Maryland Broadband Cooperative
- Mr. Hugh Grunden, Easton Utilities
- Mr. Sean Looney, COMCAST
- Mr. Robert Behlke, Choptank Electric Cooperative

The Chair, as determined under the legislation, is Ms. Charlotte Davis, Executive Director of the Rural Maryland Council. Staff to the Task Force is Ms. Andi Morony, Inter-Governmental Liaison Maryland Department of Information Technology. Ms. Cassie Shirk with the Governor's Office also assisted with Task Force activities.

Additionally, other interested stakeholders also attended and participated in Task Force meetings, including:

- Dale Coldren, DBT Data
- Mitsuko Herrera, Montgomery County Office of Broadband Programs
- Cheryl DeBerry, Garrett County Economic Development
- Tom Dixon, Frederick County Government
- John Lyons, Anne Arundel County Government
- Natasha Mehu, Maryland Association of Counties
- James McCormick, Caroline County Government
- Michelle Painter, Sprint
- Shannon Reed, United States Department of Agriculture, Rural Development
- Brian Skimmons, KCI Technologies
- Nathaniel Watkins, Garrett County Economic Development
- Julie Woepke, Maryland Department of Commerce
- John Woodfield, Delmarva Wifi, LLC.

Federal Funding Opportunities

Many financing options exist to support broadband projects and implementation. However, there is a concern the private and public entities within the State of Maryland often do not meet eligibility, applicability, and payback capacity to qualify for many of these options. In addition, the Farm Bill has been identified as a source of broadband loans and grants, and is set to expire in 2018. Congress is beginning work on the reauthorization process and updates. The Farm Bill will continue to be monitored as a potential resource. The following resources were researched and discussed:

Rural Broadband Access Loan and Loan Guarantee Program

The United States Department of Agriculture (USDA) offers a Rural Broadband Access Loan and Loan Guarantee Program to provide loans and loan guarantees to eligible applicants, including telephone companies, telephone cooperatives, municipalities, nonprofit organizations, and tribes, to deploy infrastructure that provides broadband service in rural communities that meet the program's eligibility requirements. Broadband service means any technology having the capacity to transmit at a minimum transmission speed of 200 kbps both to and from a residential subscriber. The rate of data transmission is subject to annual review and will be published in the Notice of Funds Availability at the beginning of each fiscal year. Loans maturities are equal to the composite economic life of the facilities financed. The interest rate for the Cost-of-Money program is equal to the cost of borrowing to the Department of Treasury for a comparable maturity. The 4-Percent program interest rate is 4 percent and the maximum loan amount for the 4- Percent program is \$7.5 million. The interest rate for the Guarantee program is set by the lender. Eligible rural communities are any area of the United States (which includes its territories and insular possessions) that is not contained in an incorporated city or town with a population in excess of 20,000 inhabitants, based on the most recent available information of the Bureau of the Census. The following entities are eligible: cooperative, nonprofit, limited dividend or mutual associations, limited liability companies, commercial organizations, Indian tribes, tribal organizations, state government, local government, including those located in the U.S. territories and countries included in the Compact of Free Association Act of 1985, providing or proposing to provide broadband services in eligible rural communities.

Community Connect Broadband Grants Program

The Community Connect Broadband Grants Program provides community access to broadband services in un-served areas through a one-time grant to such organizations as tribes, cooperatives, private companies, and universities, and uses the infrastructure built by the grant to create opportunities for continued improvement. The funding will support construction, acquisition, or lease of facilities, including spectrum, to deploy broadband transmission services to all critical community facilities and to offer such service to all residential and business customers located within the proposed service area. The funding can be put towards the

improvement, expansion, construction, acquisition, or leasing of a community center that furnishes free access to broadband Internet service, provided that the community center is open and accessible to area residents before, during, and after normal working hours and on Saturday or Sunday. All equipment purchased with grant and/or matching funds must be new or nondepreciated.

Applicants must be organized as an incorporated organization, an Indian tribe or tribal organization, a state or local unit of government, or other legal entity, including cooperatives or private corporations or limited liability companies organized on a for profit or not-for profit basis. The project must deploy Basic Broadband Transmission Service, free of all charges for at least 2 years, to all Critical Community Facilities located within the proposed Service Area. Additionally, it should offer Basic Broadband Transmission Service to residential and business customers within the proposed Service Area.

Telecommunications Infrastructure Loan Program

The Telecommunications Infrastructure Loan Program makes long-term direct and guaranteed loans to qualified organizations for the purpose of financing the improvement, expansion, construction, acquisition, and operation of telephone lines, facilities, or systems to furnish and improve telecommunications service in rural areas. "Rural area" is defined as any area of the United States, its territories and insular possessions (including any areas within the Federated States of Micronesia, the Republic of Palau) not included within the boundaries of any incorporated or unincorporated city, village, or borough having a population exceeding 5,000 inhabitants. Applications are accepted year round and are not competitive. The types of loans offered include: cost-of-money loans, guaranteed loans (including federal financing bank loans) and hardship loans. Eligible applicants consist of telephone companies or cooperatives, nonprofit associations, limited dividend associations, mutual associations or public bodies including those located in the U.S. Territories and countries included in the Compact of Free Association Act of 1985, providing or proposing to provide telecommunications service to meet the needs of rural areas. A beneficiary must be a resident of rural areas and others who may also receive telephone service as a result of service provided to a rural area.

Distance Learning and Telemedicine Loans and Grants Program

Distance Learning and Telemedicine Loans and Grants Program provides loans and grants to rural community facilities (e.g., schools, libraries, hospitals, and tribal organizations) for advanced telecommunications systems that can provide health care and educational benefits to rural areas. The Distance Learning and Telemedicine Program provides three kinds of financial assistance; a full grant, grant-loan combination, and a full loan. To be eligible for a grant, an organization must: currently deliver or propose to deliver distance learning or telemedicine services for the term of the grant. To receive a grant, the purposes must meet the grant definition of distance learning and telemedicine. Planning studies, research projects, and short-term

demonstration projects of less than two years will not be considered. An eligible entity must be legally organized as an incorporated organization or partnership; an Indian tribe or tribal organization; a state or local unit of government; a consortium; or other legal entity, including a private corporation organized on a for profit or not-for profit basis with the legal capacity to contract with the United States Government. An eligible entity must operate a rural community facility or deliver distance learning or telemedicine services to entities that operate a rural community facility or to residents of rural areas at rates calculated to ensure that the benefit of the financial assistance passes through to such entities or to residents of rural areas.

Broadband projects funded in Maryland by USDA Rural Development:

Broadband Loan Borrowers

- 2005 Bay Broadband Communications, LLC – \$4,358,000
- 2010 Bloosurf, LLC – \$1,600,000

Distance Learning and Telemedicine in Maryland

- 2015 Atlantic General Hospital – \$99,725 (Never disbursed)
 - To install teleconferencing equipment in nine rural health clinics in Maryland and Delaware to provide at-home monitoring equipment.
- 2014 Crisfield Clinic, LLC – \$390,115
 - To link two primary care clinics with six remote rural schools to provide telehealth and community services.
- 2014 San Mar Children’s Home, Inc. – \$450,883
 - To finance video conferencing equipment to join the San Mar children's Home in Boonsboro and the Maryland Department of Juvenile Services regional offices, for therapy, counseling, education and coordination.

Federal Communications Commission

The Connect America Fund/Universal Service High Cost Program provides funding to eligible telecommunications carriers to help pay for telecommunications services in high-cost, rural, and insular areas so that prices charged to customers are reasonably comparable across all regions of the nation. The goal of Universal Service is to promote the availability of quality services at just, reasonable and affordable rates for all consumers. The program will advance the availability of such services to all consumers, including those in low income, rural, insular, and high cost areas at rates that are reasonably comparable to those charged in urban areas. Eligible entities include wireline and wireless telephone companies seeking to participate in any of the High Cost Program support components and must be designated as eligible telecommunications carriers (ETCs) and meet ongoing requirements for each component. The FCC also has adopted the Mobility Fund II, where over \$4 billion will be available to help fund mobile rural broadband. The framework for establishing eligible areas was adopted in an August 2017 Order. Mobile

providers must submit maps by January 4, 2018 showing 4G/LTE coverage areas. The FCC will release a map of coverage areas in the first quarter of 2018. Parties will have 150 days to challenge the FCC's determination of coverage areas. The FCC will develop application and bidding procedures in 2018.

Universal Service Schools and Libraries Program

Universal Service Schools and Libraries Program provides discounts for affordable telecommunications and Internet access services to ensure that schools and libraries have access to affordable telecommunications and information services. This program is also known as "E-Rate" and is administered by the Universal Service Administrative Company (USAC) under the direction of the Federal Communications Commission (FCC), and connects the nation's schools and libraries to broadband. When E-rate was established in 1996, only 14 percent of the nation's K-12 classrooms had access to the Internet. Today, virtually all schools and libraries have Internet access. The FCC began updating E-rate in 2010 and in July 2014 released the E-rate Modernization Order expanding Wi-Fi networks in schools and libraries across America while ensuring support continues to be available for broadband connectivity to schools and libraries. Eligible entities must be schools that must provide elementary or secondary education as determined under state law; may be public or private institutional day or residential schools, or public charter schools; must operate as non-profit businesses; and cannot have an endowment exceeding \$50 million. Libraries must be eligible for assistance from a state library administrative agency under that Act; must have budgets completely separate from any schools (including, but not limited to, elementary and secondary schools, colleges and universities); and, cannot operate as for-profit businesses.

The Rural Health Care Program

The Rural Health Care Program includes the new Healthcare Connect Fund, which provides funding to eligible health care providers (HCPs) for telecommunications and broadband services necessary for the provision of health care. The goal of the program is to improve the quality of health care available to patients in rural communities by ensuring that eligible HCPs have access to telecommunications and broadband services. Funding for the Rural Health Care Program is capped at \$400 million annually. The Rural Health Care Program of the Universal Service Fund makes discounts available to eligible rural health care providers for telecommunication services and monthly Internet service charges. The program is intended to ensure that rural health care providers pay no more for telecommunications in the provision of health care services than their urban counterparts. The Rural Health Care Program is currently made up of four programs: the Healthcare Connect Fund, the Telecommunications Program, the Internet Access Program, and the Rural Health Care Pilot Program. The Rural Health Care Program reimburses telecommunications and Internet service providers for services provided to rural health care providers. While health care providers apply for these discounts, USAC works in conjunction with service providers to make sure these discounts are passed on to program participants.

Eligible entities include: Post-secondary educational institutions offering health care instruction, teaching hospitals, or medical schools; community health centers or health centers providing health care to migrants; local health departments or agencies including dedicated emergency departments of rural for-profit hospitals; community mental health centers; not-for-profit hospitals; rural health clinics including mobile clinics; consortia of HCPs consisting of one or more of the above entities; and, part-time eligible entities located in otherwise ineligible facilities

Appalachian Regional Commission

The Appalachian Regional Commission Project Grant Program awards grants to projects that create jobs and improve infrastructure, enabling the people of Appalachia to compete in a global economy. These grants include funds that may be used to improve broadband access, such as distance learning, telehealth and telemedicine, e-government, and e-business applications and workforce development. Most ARC project grants originate at the state level. Potential applicants should contact their state's ARC program manager to request a pre-application package. ARC project grants can be used for business development and entrepreneurship, education and training, health care access, physical infrastructure, including broadband, and leadership development and civic capacity. Maryland is limited in its eligibility for ARC funds. Only three Maryland counties included in the Appalachian Regional Commission are eligible for funding: Garrett, Allegany, and Washington Counties.

United States Department of Commerce Economic Development Administration Economic Development Facilities and Public Works

Economic Development Facilities and Public Works provide funding for construction of infrastructure in areas that are not attractive to private investment. Most funding is for water and sewer infrastructure but some has been designated for communications projects. Public Works and Economic Development investments help support the construction or rehabilitation of essential public infrastructure and facilities necessary to generate or retain private sector jobs and investments, attract private sector capital, and promote regional competitiveness, including investments that expand and upgrade infrastructure to attract new industry, support technology-led development, redevelop Brownfield sites and provide eco-industrial development. An eligible applicant that is a non-profit organization must include in its application for investment assistance a resolution passed by (or a letter signed by) an authorized representative of a general purpose political subdivision of a State acknowledging that it is acting in cooperation with officials of such political subdivision. Maryland is limited in its eligibility to regional councils that have completed a Comprehensive Economic Development Strategy (CEDS). Currently, three of the five regional councils established in Maryland qualify under these eligibility requirements including the Tri-County Council for the Lower Eastern Shore, the Mid-Shore Regional Council, and the Tri-County Council for Western Maryland.

United States Department of Housing and Urban Development

Choice Neighborhood Implementation Grants help communities transform neighborhoods by revitalizing severely distressed public and/or assisted housing. Grantees may use funds to provide unit-based broadband internet connectivity. The Choice Neighborhoods program is designed to catalyze critical improvements in neighborhood assets, including vacant property, housing, services, and schools. The program requires proposals with a comprehensive neighborhood revitalization strategy that involve local leaders, residents, schools, authorities, business owners, nonprofits, and private developers. Eligible entities include: county governments; city or township governments; public housing authorities/Indian housing authorities; Native American tribal organizations (other than federally recognized tribal governments); nonprofits having a 501(c)(3) status with the IRS, other than institutions of higher education; and nonprofits without 501(c)(3) status with the IRS, other than institutions of higher education.

Community Development Block Grant Program

The Community Development Block Grant (CDBG) program is a flexible program that provides communities with resources to address a wide range of unique community development needs. The CDBG program provides annual grants on a formula basis to 1209 general units of local government and States. The majority of funding must be used for activities that benefit low- and moderate-income persons. In addition, each activity must meet one of the following national objectives for the program: benefit low- and moderate-income persons, prevention or elimination of slums or blight, or address community development needs having a particular urgency because existing conditions pose a serious and immediate threat to the health or welfare of the community for which other funding is not available. There are thirteen entitlement communities in Maryland who receive allocations directly from the United States Department of Housing and Urban Development and the State non-entitlement program which provides funds to rural counties and towns.

Health Resources and Services Administration (HRSA)

Telehealth Network Grants fund proposals that develop sustainable telehealth programs and networks in rural and frontier areas. Telehealth Network grants are competitively awarded to proposals that best demonstrate the use of telehealth networks to improve healthcare services for the medically underserved in rural and frontier communities. HRSA rural health programs fund rural hospitals, health centers, local clinics, and other qualified health organizations.

The Telehealth Resource Center Grant Program provides grants that support the establishment and development of telehealth resource centers to assist health care providers in the development of telehealth services, including decisions regarding the purchase of advanced telecommunications services. Telehealth Network grants are competitively awarded to proposals that provide the best support for the establishment of Telehealth Resource Centers. These centers

are to assist healthcare organizations, healthcare networks, and healthcare providers in the implementation of cost-effective telehealth programs in medically underserved rural populations. HRSA rural health programs fund rural hospitals, health centers, local clinics, and other qualified health organizations.

Events

2017 Regional Rural Broadband Forum – Annapolis, MD

On May 24, 2017, USDA Rural Development partnered with the Rural Maryland Council to host the 2017 Regional Rural Broadband Forum at the Governor Calvert House in Annapolis. The forum was designed to convene and connect those working to expand improved rural broadband service throughout the region. The event was attended by nearly 120 attendees representing members of the public and private sectors, and federal, state and local governments. Keynote speakers included Robert R. Puckett, President of the New York State Telecommunications Association, Inc., who spoke of New York State's "Broadband for All" initiative which uses previously unaccepted Connect America Fund Phase II grant dollars to ensure all rural New Yorkers can access high-speed internet. Keith B. Adams, Assistant Administrator for USDA Rural Development spoke of various federal resources available to support rural broadband initiatives. Mike Romano, National Telecommunications Cooperative Association (NTCA), highlighted how communities can support organizations interested in using unaccepted Connect America Fund Phase II grant funds to expand broadband access in underserved rural areas. Additional focused sessions were offered showcasing different broadband technologies rural communities can use to gain internet access, exploring successful private-public partnership models, best practices for making communities more attractive to service providers, and tips for using local franchise agreements to increase broadband access. While the information presented at the forum provided a solid overview of the resources and tools available, particularly at the federal level, the State of Maryland is challenged with accessing and qualifying for these resources due to its high per capita income. In addition, rural communities and service providers are challenged with limited capacity to pay back borrowed funds on loans. Local governments are also challenged with limited capacity to borrow funds due to a lack of generated tax revenue.

Issues

In the course of its work, the Task Force identified several issues and areas of concern. The level of connectivity that should be available to all Marylanders was first identified. A number of questions were presented to the Task Force:

- What should every Marylander expect in telecommunications?
- Should all Marylanders have universal service to the home and at what speed?
- What is the minimum service that is needed in rural areas and should plan for?
- What is the State Government's role in addressing access to last mile broadband?
- What is local government's role in addressing access to last mile broadband?
- What is necessary to establish universal service?
- What would enhance the private sector's role in achieving last mile connectivity?
- Are access to rights of way a significant issue? Permitting?
- Would increased access to state and local government assets help solve the issue?
- Should the State ask for clarification of use of federal funds for broadband for commercial purposes?
- How could we lower costs for expansion?
- Would other utilities be interested and willing to help address the issue?
- Should the State expand the use of middle mile fiber?
- Define what is affordable.
- Establish a viable business model for low populated areas
- Should we designate and support a preferred technology? DSL vs Coax vs cell vs TV white space
- How do we pay for it?

Facilitated discussion was led by Ms. Mae Johnson, retired, Maryland Department of Agriculture, at the Thursday, October 26, 2017 Task Force for Rural Broadband Meeting in Frederick, Maryland. The discussion involved breaking participants into three groups to develop a plan for broadband implementation by identifying purpose and objectives, generate ideas for critical success factors, identify the respective group's roles and responsibilities, and to create an action list. Individual members would indicate their preference for priorities with stickers that would indicate a high priority (green), medium priority (orange), and low priority (yellow). The discussion groups were composed of participants representing: 1) State/County/Regional; 2) ISPs/Other Private Entities; and, 3) Utilities. The following recommendations and priority areas were identified by the participants:

The State/County/Regional group identified the main problem as a lack of access to accessible, affordable high speed in internet, particularly access in low density areas. Affordability was generally referred to as the incremental cost to individual homeowners. In addition, they identified the minimum level of service provided to be 25 megabytes per second (Mbps), the

current FCC standard. The State roles and responsibilities identified included collecting a map data on un-served areas for measurable goals (share with Taskforce) (4 high priority; 1 medium priority); affordable access to state assets (fiber, towers, etc.) (8 high priority); facilitate stakeholder dialog (3 medium priority); research and share funding sources (1 medium priority); streamline permits and application processes (7 high priority); revisit cost model for access to state assets (2 low priority; 1 high priority); share inventory of state assets (2 medium priority); and, identify programs for build out to low income residents (1 high priority; 1 medium priority; 1 low priority).

The group identified that the County-level responsibility is to lead the effort to get access to federal assets, and its roles are to: provide accurate data (un-served areas) and update (2 high priority; 3 medium priority); keep dialog open (2 low priority); provide inventory of county assets (1 low priority); and, streamline permits and application processes (2 high priority; 1 low priority). Additional notes included asking for funds in the State's annual Capital Budget (identify amount) (1 high priority); and assessing roadways to put in conduits for fiber (2 high priority).

The ISP/Other Private group identified three main areas as their responsibility, including achieving return on investment (6 high priority), expenses and revenue. Actions identified included: to state and local government structures; reasonable and predictable fees for access to the Rights of Way and government structures; cultural change – examining what we value, and increased accountability and response time (1 high priority; 1 medium priority); identifying sources for funding, particularly using the funding model presented by Carroll and Montgomery Counties; establish a policy for use of federal money and competitive bid; lower expenses (1 high priority; 1 medium priority); reduce time for permitting (6 high priority; 2 low priority); focus allocating money on solving the problem (1 high priority); and, offer hybrid solutions (1 high priority). Ideas for revenue included taxes, franchise fees, grant funds recommended to the legislature (1 high priority).

The Utilities group identified their purpose and objective to provide “adequate” and scalable broadband service to un-served and underserved rural areas of Maryland in a timely manner using the FCC definition of adequate service of 25 Mbps Down. (2 high priority). Critical success factors identified included: ubiquitous access by 2022 (3 medium priority); affordability; and, measure area and households that go from un-served and underserved to adequate (1 high priority). Actions identified included: fully develop Governor's Office of Rural Broadband (4 medium priority); create a technical advisor/clearinghouse position for federal funding; resolve issues surrounding private use of public fiber, i.e. open access (2 high priority; 1 medium priority); and, canvas best practices and share results, e.g. portfolio of PP and end-user funded last mile (2 high priority). Recommendations included continuation of this Task Force (4 medium priority), and identification of federal resources, money and other (2 low priority).

Additional recommendations were identified throughout the discussion, including: assessing technology skills; assessing the current definition of acceptable access; offering hybrid solutions and development of expertise (wireless, fiber, copper, DSL); development of a request for proposal (RFP) to define needed results (allow market to show creativity); develop case scenarios; and, identify financing options for citizens.

Recommendations

State agencies need to better collaborate with local governments and all private Internet Service Providers of internet, broadband, wireless and cellular service in reaching low density areas. This includes reducing the time it takes for permitting and increasing accountability and response times. State and local government resources and assets, including rights-of-way and government-owned structures, should be deployed wherever possible to help lower costs for broadband deployment and thereby facilitating greater coverage of the rural areas. **Statutory and regulatory amendments should be reviewed and implemented to reduce these obstacles and permitting challenges between private providers and State and local government.** Restrictions on State owned fiber networks to allow service to commercial providers should be considered. Network segmentation of Maryland Department of Information Technology, the Maryland Broadband Cooperative and the Maryland Department of Transportation, State Highway Administration networks should also be considered. Access to DoIT wireless towers should be prioritized for last mile providers. The use of MDOT SHA rights-of-way should also be eased along with a reduction of resource sharing fees. A standard of conduit installation concurrently with all transportation projects should be developed. It is also recommended to request federal exemptions in using federally funded assets for commercial usage and allow exemptions on State assets. These proposed statutory and regulatory changes could help reduce current obstacles and permitting challenges with state and local governments. Reducing permitting times, increasing access to rights of way and state and local government owned structures, and having reasonable and predictable fees are critical to providing the incentives to enhance our rural broadband infrastructure.

In order to identify potential state assets to assist with broadband build out, **a complete inventory of all state and local government agency assets including cellular towers, water towers, fiber, and other structures should be completed within the next year.** This inventory should include a complete a map of all current deployable assets and resources owned or managed by the Maryland Department of Information Technology, the Maryland Department of Natural Resources, the Maryland Department of Transportation, State Highway Administration and others. Deployment of assets or resources should be limited to un-served or underserved areas.

Maryland Governor Larry Hogan recently established a new Office of Rural Broadband currently housed with the Maryland Department of Information Technology. However, DoIT is currently an inward facing agency created to serve Maryland State Government. If the Office of Rural Broadband is to remain with DoIT, the Department should be evaluated and studied to determine whether its mission should be an outward facing agency tasked with working with private providers and other entities to solve last mile issues. **With its expertise and mission to support infrastructure and current funding programs, the Maryland Department of Housing and**

Community Development may be a better fit for the Office of Rural Broadband. The Department of Commerce or another agency where the Office's mission more closely aligns with the parent agency's economic development goals and departmental priorities could also be considered. **In addition, there needs to be a full development of and further establishment of a scope of work or work plan for the Office of Rural Broadband.** The proposed scope of work could include identifying and assisting local jurisdictions with funding sources, coordinating State asset and permitting agencies and conducting outreach with Internet Service Providers. The Office could gather the metrics to measure the success of deployments and be the liaison with the counties and other state agencies. The office could also funnel requests for ongoing operational improvements, recommend policy changes along with permitting, facilitating the use of state and federal assets, and handle interagency coordination to smooth broadband deployment.

The State needs access to updated mapping to better educate constituents, elected and appointed leaders. This updated mapping capability could be used to calculate the overall cost for universal service last mile broadband and should include a complete population and business density for each county. The mapping should include the above recommended inventory and an overall assessment of current assets and resources that could deploy broadband that are currently owned or managed by the various state agencies and local governments. Local government should be asked to help identify un-served and underserved areas with opportunities for input by the ISPs. The previous Salisbury University GIS initiative led by Dr. Michael Scott could be revived to update existing state broadband maps based on address information obtained from the service providers. Challenges in collecting confidential business information such as where these private assets are located could be mitigated by requiring any service provider that wishes to receive deployment loans to provide anonymous address information on existing coverage for state broadband maps before and after deployment. After each phase of deployment, counties will provide updated coverage information so the state broadband maps can be updated.

Lastly, the Task Force on Rural Internet, Broadband, Wireless and Cellular Service should be extended for an additional year and its charge expanded to continue working on uncompleted tasks, such as development of a funding or financing model for rural broadband deployment and identifying potential funding sources other than federal grants and financing options. Financing options explored should include financing for end users and a needs-based grant program for last mile service extensions. A State revolving loan fund with new or existing funds to provide low interest loans for un-served and underserved broadband deployment to each county should be examined. Counties could either borrow funds directly, or lend to service providers who bid competitively to expand broadband in the county priority areas. Funds should only be available for areas that do not have at least one provider offering the FCC standard for broadband (25 mps download/3 mps upload). In order to qualify for low cost

loans for broadband, counties should either have to have already incorporated broadband deployment in their comprehensive plans or formally adopt a strategic plan for broadband deployment that identifies their local priorities.

Appendix A – Task Force Activities

The Task Force met officially three times before the November 30, 2017 report date: September 19, 2017 at Chesapeake Community College in Queen Anne’s County, October 26, 2017 at Winchester Hall in Frederick County and on November 20, 2017 at SMECO in Charles County. Each meeting was publically accessible with a live broadcast of the group’s activities. Meetings were recorded for future viewing as well. Agendas, meeting minutes and recordings are available on the Rural Maryland Council website: rural.maryland.gov.

The September 19th meeting focused on the assessment of connectivity throughout rural Maryland. Dr. Michael Scott with the Eastern Shore GIS Cooperative (ESRGC) presented the Maryland Broadband Mapping Initiative which ended in 2012. Mr. Drew VanDopp presented on the current network operated by the Maryland Broadband Cooperative and Mr. Dennis McEligott with the Maryland Department of Information Technology presented on the One Maryland Broadband Network and the Inter-County Broadband Network.

Dr. Michael Scott led a presentation on mapping broadband in Maryland, the State’s broadband initiatives and availability. Dr. Scott also identified key constraints and conditions, including that the definition of broadband is out-of-date, definition of “served by broadband” is also problematic, and various error checking procedures exist with varying degrees of effectiveness. The presentation concluded with three objectives: 1). Broadband mapping is a critical component for reaching underserved areas and preventing unnecessary duplication/competition; 2). Several states have continued the broadband mapping effort and have passed legislation requiring BSP (Broadband Service Provider) participation, threatened to withhold state owned assets such as rights-of-way; and, 3). Broadband mapping in rural areas creates little competition but enables marginally-viable areas to be identified.

According to the ESRGC, Maryland’s broadband availability is as follows (2014):

By land area

- 15.9% of the state served by Front of the House (FOTH - wired service)
- 47.0% of the state served by cable modem
- 42.1% of the state served by Digital Subscriber Line (DSL)
- 12.5% of the state served by fixed wireless
- 89.1% of the state served by mobile wireless

By population

- 50.6% of the state served by FOTH
- 91.8% of the state served by cable modem (482,570 are not)
- 96.5% of the state served by DSL

- 98.8% of the state served by mobile wireless

DoIT presented mapping of their assets and the Department's use of the Broadband Technologies Opportunities Program (BTOP). The maps showed the One Maryland Broadband network with ICBM (Inter-County Broadband Network) consortium included. The Maryland Broadband Cooperative provided an overview of the Maryland Broadband Cooperative and its assets, including who the organization serves. The Cooperative identifies four key priorities, including: 1). Open as much fiber up to expansion as possible; 2). Constantly reinvest in equipment and services to expand networks; 3). Offer a statewide OA (Open Access) network that is integrated whole; and, 4) Commitment to solving problems.

The October 26th meeting focused on challenges at the County level with a presentation by Mr. Mark Ripper, President of the Maryland Association of County Information Technology Officers and Director of the Carroll County Department of Technology Services. Mr. Norman Farley gave an overview of Statewide Interoperable Communications and FirstNet, the State's emergency operations network. Ms. Cindy Stone with the Maryland Department of Housing and Community Development discussed Community Development Block Grants and Mr. Nelson Smith and Mr. Darien Manly with State Highway Administration, Maryland Department of Transportation discussed permitting issues and other State fiber assets and resources that may be available for broadband purposes. After presentations, a facilitated conversation led by mediator, Ms. Mae Johnson, was held to discuss key issues, begin formulating recommendations and to build consensus.

Mr. Ripper provided an overview of county private-public partnerships and leasing of the fiber network with a specific focus on Carroll County's fiber network system. Carroll County has a 110 mile fiber network with 216 strands, one-third of the strands have been allocated for inter-governmental use, one-third of strands have been allocated to private business entities, and the remaining one-third of strands have been allocated towards future growth to be applied to inter-governmental or private business use.

Several private public partnership models were described, including a local hospital that connected to multiple locations within and outside Carroll County to create their own virtual private network. The hospital leased fiber from the County, and built their own fiber back-bone build which was turned back over to the County, and has been utilized to connect nearby shopping centers. A private company with two locations in northern and southern Carroll County leased fiber from the County to increase their connectivity. In addition, Carroll County Economic Development was also involved in working with local businesses to build a fiber back-bone based upon the projected number of employment opportunities the businesses would provide as a result of increased broadband service. However, there are an estimated 3,000-3,300 un-served homes and businesses in the County due to their terrain locations and thick tree

coverage. The County conducted a study of how much it would cost to run fiber to these locations, a potential solution that is being explored in providing broadband to these un-served areas is a wireless shot out to a certain point in the County and connecting the locations from there.

Carroll County also created a committee to assess how to expand its fiber network to un-served locations, a recommendation from the committee's findings has included exploring the possibility of creating an ISP (Internet Service Provider) Grant Program to contribute funding to local ISPs who lack the capital to build fiber in areas that are currently un-served.

Mr. Farley provided an overview of First Net Broadband Program for Public Safety and Emergency Operations, which provides first responders with high speed internet service and broadband cellular coverage in rural areas for public safety and emergency services, including voice and data. The legislation would provide seed funding, and States were given the option to opt-in or opt-out of First Net. States that choose to opt-out would be responsible for creating their own radio access network. States that opted in early could receive implementation of the plan earlier, and would have to accept the vendor chosen at the federal level. AT&T was awarded the contract to build out First Net. Governor Hogan opted into the plan early in September 2017. Maryland's first responders will receive access to prioritization and will receive 25 additional sites in addition to what AT&T plans to implement. AT&T will work with the State of Maryland to determine the site areas that will be built out over the next five years.

The 25 sites may not be brand new and they may be areas that are leased from another entity. AT&T is required contractually to provide deployable devices within 14 hours in case of an emergency event. AT&T will also be responsible for building the tower infrastructure or lease the infrastructure from another entity. First Net will not replace the land and mobile radio systems used by first responders and public safety.

Ms. Stone provided an overview of the Community Development Block Grant (CDBG) Program for broadband services and implementation. The CDBG project needs to meet a national objective for broadband funding, benefiting low to moderate income persons. Specifically, the project must address broadband access by individuals in cases of emergencies. A current project is underway to address last mile in the City of Crisfield using CDBG funds. The CDBG program is a potential source for communities looking to address last mile broadband; however, there are limits on who can use the assets once they are in place.

Mr. Smith and Mr. Manley addressed issues regarding access to right-of-ways. Mr. Manley spoke of tower resources and resource sharing agreements that currently exist within State Highway Administration. Mr. Smith oversees policy for utility permits. There is currently no charge for utility permits. The permit applicant must be recognized by SHA as an authorized

utility, and four documentation pieces are required including showing documentation that the utility is under the jurisdiction of an entity such as the Federal Communications Commission, provide proof of liability insurance, demonstrate the ability to respond to an emergency within a few hours, and underground facilities must be a member of the utility. Utilities include fiber, towers and poles.

The November 20th meeting focused on a review of the draft Task Force report, and presentations on reverse auction opportunities with the Federal Communications Commission and financial model in use by Easton Utilities. Mr. Hugh Grunden, President & CEO of Easton Utilities, shared an overview of Easton Utilities' services and a financial model that has been used to expand broadband services to un-served areas in Talbot County. Easton Utilities is Maryland's first municipal utility, established in 1914. Easton Utilities serves the Town of Easton and 60 square miles within Talbot County, and has seven business units. Easton Utilities identifies un-served broadband areas via mapping, determines feasibility by conducting market research to solicit interest levels, and develops a marketing strategy through community meetings, direct mail campaigns, and personal customer contact. Easton Utilities uses a Customer Aid in Construction (CAIC) financial model, which takes into account number of anticipated customers, build miles, standard customer drop distance and installation included, and socialized costs over community. Model variables include a 5-year payback period, estimated 50% penetration rates, and a specific CAIC amount. The model involves the end-user in the capitol costs to spread around costs. Lessons learned from the financial model included: execution is key, the need to set clear expectations with customers, be proactive in customer communication, and great public relations happens when neighbors talk.

Ms. Chelsea Fallon, with the Rural Broadband Auction Task Force, Federal Communications Commission, shared information regarding the Connect America Fund Phase Two auction and the Mobility Fund Phase Two auction. The Rural Broadband Auction Task Force is overseeing the implementation of both the Connect America Phase Two and Mobility Fund Phase Two auctions. The Connect America Fund (CAF) auction will be conducted in 2018 and will be the first auction to award on-going costs for universal service support through competitive bidding in a multiple-round reverse auction. The CAF will focus on fixed services; the Mobility Fund will focus on mobile services.

CAF rules and procedures have been proposed for the auctions and were advertised for comment in September 2017. Some of the key decisions that have already been determined include that the auction will award up to \$1.98 billion in support for over 10 years to service providers who commit to providing broadband and voice services to fixed locations in un-served, high-cost areas that are eligible for the auction. The auction will be a multiple-round reverse auction. There will be a two-stage application process, a short form application must be filed in advance of the auction, and a long form application to be filed by winning bidders. Eligible areas are census

blocks where price cap carriers turned down support through the Connect America cost-level. Additional preliminary eligible areas are illustrated online at fcc.gov/maps. This mapping will be updated with finalized eligible areas soon. Entire census blocks will be included or not in the auction; census blocks will not be broken into eligible areas. The FCC has proposed grouping eligible census blocks together. Every census block that is included as eligible will have a set reserve price which have already been published on the FCC website. Reserve prices will not change. The reserve price will be the maximum support that can be awarded to a census block. Auction winners are subject to deployment obligations, including requirements to offer both voice and broadband services to residential and small business locations within their census blocks, and achieve specific build-out milestones including deploying build-out to 40% to locations within their census block within 3 years of receiving support, and 100% deployment within 5 years. Auction winners who win multiple census blocks can aggregate the number of locations they will serve at the state level for increased flexibility.

The rates that broadband service producers set for users must be reasonably priced and comparable to prices set for urban areas. Comparability rates for urban settings are published on the FCC's website. The minimum broadband speeds would be determined by a particular performance tier that is associated with a winning bid in an auction. Bid winners are required to submit information each year on their deployment, filed with the Universal Service Administrative Company (USAC), and includes annual reports and information on the locations where the service has been deployed, including latitude, longitude, and address. Bidders can bid to receive support to offer broadband at different performance tiers which are based on the upload and download speeds and the usage levels associated with service, and latency. There are 4 speed and usage tiers and two latency tiers. The lowest tier is a minimum of 10:1 service, or a usage allowance of 150 gigabytes.

Additional information regarding the auctions for prospective bidders is available on the FCC's website. The auction will take place sometime in 2018.

The Task Force reviewed hard copies of the draft Task Force report. Chair Davis requested comments, suggestions and revisions. Suggestions included: including a timeline/deadline for surveying state and local assets and mapping; including a recommendation to create a program for mapping and inventorying county assets; a specific plan is needed for inventory of assets, increasing access to permits, and for certain uses of assets; creation of a five-year strategy for mapping assets, the mapping should be dynamic, include a fast-baseline, and updated at intervals; create submeetings for individual counties and localities for gauging issues; and examining availability of current municipal and state bond programs.

Additional questions that were discussed that were not in the draft report included how to solve the broadband issue, how to finance the issues, and the role of the state, county and local levels.

Chair Davis shared that an update draft report will be made available at the Task Force for Rural Broadband breakout session scheduled during the 2017 Rural Summit on Friday, December 1st. The Task Force will review and further discuss, and approve, the report.