Virginia Information Technologies Agency

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Virginia's Strategic Broadband Roadmap

Information Communications
Technology Innovations

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Executive Summary

The Commonwealth of Virginia, like most states, lacks ubiquitous, affordable, statewide broadband access. Much of the responsibility for expanding broadband access falls to the locality, but more often than not the locality lacks the understanding about what it needs and how it can obtain broadband. It is important for a locality to develop a strategic broadband plan that takes into account its needs, assets, priorities and goals before pursuing partnerships, but most localities do not have the resources or expertise to do this in a cost-effective and efficient manner.

To help solve this problem, the commonwealth tasked its Center for Innovative Technology (CIT) with finding a solution. CIT established a partnership with the Virginia Information Technologies Agency's (VITA) geographic information systems (GIS) staff, Virginia Geographic Information Network (VGIN) and Virginia Tech's Center for Geospatial Information Technology. Together, CIT, VGIN and CGIT make up the Virginia Broadband Team. CIT works directly with localities leveraging Virginia's proven broadband methodology. VGIN collects broadband coverage data from broadband providers, giving the team and localities the data needed to support current assessments. CGIT creates and manages the online assessment and planning tools.

Using experience and knowledge gained from years of working in the field, the team created the Strategic Broadband Roadmap. The roadmap contains easy-to-reference guidelines and a variety of online, innovative tools designed to assist localities in developing a strategic broadband plan that will inevitably result in a public-private partnership(s) with a broadband provider(s).

The roadmap has been successfully implemented and has begun to change the way localities approach improving broadband service. As a result of the roadmap, localities can easily identify their needs and assets, prioritize buildouts to be as effective as possible, identify the best technology type and arrive at the negotiation table as a powerful partner. What used to take a lengthy amount of time, a team of people and considerable funding now can be done quickly with limited resources and at no cost to the locality.

Concept

The Problem

Access to and adoption of reliable and affordable broadband service provides a locality the opportunity to improve in every arena, including local government, healthcare, education, economic development, public safety and quality of life. However, broadband expansion can be an overwhelming matter especially for local governments where often resources are limited.

To add to the challenge, many localities believe that the onus is on the state to provide the answer but any change done at the state level would be difficult and costly. Broadband-related legislation is almost always contentious and the limited funds available needed for a statewide broadband initiative compete with other state priorities.

Localities in Virginia vary drastically from urban to rural, mountainous to wetlands and densely to sparsely populated areas. There is no one-size-fits-all solution to the challenge of providing broadband across the commonwealth. Each locality requires solutions to its specific needs and challenges.

The Solution

The commonwealth recognized the need to assist localities and tasked CIT with the objective of making broadband improvement at the local level easier. Through its years of experience in the field, CIT was able to identify common obstacles for localities seeking improved broadband access and adoption. In an effort to help localities overcome their broadband obstacles, the Virginia team developed the Strategic Broadband Roadmap. It includes a methodology and tools to assist localities in defining their needs, specifying goals and developing an action plan to expand and improve broadband access.

Strategic Broadband Roadmap

In July 2015, CIT released its Strategic Broadband Roadmap. The roadmap is a step-by-step guide that utilizes the state's proven methodology and leverages the assessment and planning tools in order to facilitate local-led broadband access and utilization initiatives. The roadmap objectives were to provide an easy-to-follow step-by-step guide and the tools to complete the task.

The roadmap consists of an easy-to-reference infographic and a more in-depth white paper to guide localities. The Strategic Broadband Roadmap steps outlined below can be found at http://www.wired.virginia.gov/broadband/resources/. The associated tools are available at http://www.cgit.vt.edu/broadband.html.

- **Conduct a Citizen Survey**
  - The first step in the roadmap is to conduct a citizen survey. The purpose of the survey is to get an in-depth look at the broadband environment in the locality.

Specifically, it is important to examine if, how and where citizens and businesses are connecting to and leveraging the internet.

- **Associated tool** - Citizen broadband survey - Available online as well as in paper format. There are questions regarding access, cost, speed, utilization, access to education and perceived quality of service. Once a locality has completed a survey campaign, the team is able to pull the results and analyze them.

- **Capture Unmet Demand**
    - This step involves the locality recording its citizens' broadband requirements to understand where broadband is most needed. This step allows a locality to prioritize any build-out project and offers a list of potential customers to partnering providers.
        - **Associated tool** - SurveyCardinal – An online demand capture tool. Allows users to log their current broadband connection and speed, and their broadband need. Once a locality has conducted a demand capture campaign, the results can be pulled and mapped.

- **Facilitate Expansions**
    - The locality then should review and discuss local policies and processes to remove barriers and facilitate broadband deployments. If a locality wants to partner with a provider, it is important that the locality ensures its policies are broadband-friendly.
        - **Associated tool** - Broadband policy assessment tool - Lists the most common policies and ordinances that can affect broadband deployment, allows a locality to rank itself based on broadband-readiness, and offers suggestions and best practices in order to adjust these policies.

- **Aggregate Demand**
    - This step guides a locality through review of the strategic plans of its community anchor institutions (CAI) so it can better understand the future broadband capacity needs. This information is important to drive a strategic plan that will ensure capacity is available to support the future of the community.

- **Economize Telecom Expenditures**
    - Localities should review current telecommunication contracts across departments or agencies and combine contracts where possible or eliminate by leveraging technology to lower costs. The financial savings can be redirected toward necessary broadband infrastructure.

- **Create Strategic Plan**
    - Finally, the locality should utilize the information gathered through the previous steps to develop a strategic broadband plan.

- **Associated tool** - There are a number of successful local-led broadband models, including request for proposal (RFP) and request for information (RFI) templates, available online that can be tailored to a specific locality.

Additional Planning Tools

The tools mentioned are housed within Virginia's Integrated Broadband Toolbox. The toolbox contains additional tools that state and local government officials use to meet specific needs in broadband planning. These additional tools are outlined below.

- **MapBook Portal**
  - o The MapBook Portal consolidates various data layers from Virginia's interactive broadband availability map and creates new views of related information for broadband planning. To date, each county, city, planning district and congressional district can view its broadband data based on various themes such as vertical asset locations, CAIs, population density, etc.

- **Vertical Assets Inventory**
  - o The Vertical Assets Inventory is an interactive online repository of location information for tall structures that have the potential to serve as wireless transmission sites or vertical assets. This tool brings owners and managers of wireless transmission sites together with wireless internet service providers to facilitate broadband expansion.

- **Virginia Broadband Policy Database**
  - o The Virginia Broadband Policy Database application allows users to select a geographic location for a potential vertical asset site and obtain a report providing the federal, state and local policies or restrictions that are applicable to that location.

- **DataCardinal**
  - o To obtain consistent, unbiased internet speed data, the team created DataCardinal to measure internet speed tests across Virginia. Results can be viewed spatially and are available for desktop and Android mobile devices.

- **Radio Frequency (RF) Propagation Tool**
  - o The RF Propagation Tool calculates generic coverage estimates for various wireless broadband technologies, including fixed wireless, leveraging digital surface model and digital terrain data. The model generates RF propagation coverage estimates for planning purposes and models current service provider coverage. The modeling supports planning by identifying target sites for new vertical assets to ensure comprehensive wireless coverage.

Significance

Stakeholders

- All 133 Virginia localities and their citizens, county and rural associations, planning district commissions, chambers of commerce
- Gov. Terry McAuliffe, state legislators, local governments
- Broadband providers, provider advocacy associations

The Strategic Broadband Roadmap has benefited multiple levels of stakeholders statewide from the citizen level to the state level. The most obvious and directly affected groups are the Virginia localities and citizens. Between 2014 and 2015, the Virginia Broadband Team directly assisted 37 localities, planning district commissions and county-focused associations. At the state level, as part of Gov. McAuliffe's "New Virginia Economy" Workforce Initiative, broadband is cited as being crucial to economic development and growth in Virginia. The initiative also emphasizes the need to leverage existing assets, help localities develop strategic plans, and encourage public-private partnerships. The roadmap answers the governor's call by educating localities and providing the tools necessary to develop comprehensive broadband plans.

Innovative and Successful

The roadmap is both innovative and unique. What makes the roadmap exceptional is the ease of use and the dynamic planning tools. Broadband initiatives can be overwhelming for a locality but with the roadmap, locality officials can easily and efficiently complete the steps to identify needs, goals and set priorities.

This initiative has been successfully implemented and many stakeholders have benefited. Typically, in the beginning a locality is unsure about its community needs and how to achieve its goals. As localities have worked through the roadmap and the associated tools, locality officials have come to understand which technology will serve their community best, where broadband is needed most and how much capacity is needed to support the future. As a result, the localities are prepared to pursue partnerships.

This process has positively impacted both state and local governments by empowering local governments and removing the burden from the state. It has changed the way broadband providers conduct business with the localities by making the locality a more knowledgeable and powerful partner.

Impact

Then and Now

Before the implementation of the Strategic Broadband Roadmap it was unclear as to who the primary driver of broadband change was in Virginia. Many localities looked to the state government to drive broadband expansion hoping for changes in legislation and significant state funding. Additionally, localities lacked the know-how and the resources (both financial and

human resources) to conduct an impactful broadband initiative. Creating a comprehensive strategic broadband plan was costly and labor intensive.

The Strategic Broadband Roadmap gave localities the ability to make a real impact. The roadmap guidance and the dynamic online tools planning require fewer resources.

Clear Benefits
In the case of broadband expansion, the benefits trickle upward. Localities can effectively improve the broadband environment and economic development, public safety, education, citizen engagement and quality of life. These improvements are benefits for the state as well.

Virginia's broadband providers have benefited and will continue to benefit from the roadmap. The Virginia Cable Telecommunications Association (VCTA) has adopted completion of the roadmap as a requirement for localities before discussions with broadband providers.

The roadmap also benefits the Virginia broadband team because it now is able to guide localities through a well-defined and proven process with an abundance of tools that help assure that each plan is tailor-made to the locality. It is through the collaboration and partnership between CIT, VGIN and CGIT that this innovation has resulted in identifying a more comprehensive path forward to improved broadband for Virginia.

Performance Measurements
- In 2015, the roadmap and its tools received nearly 10,000 online unique visitors.
- The team directly assisted 37 localities, commissions and associations in 2014 and 2015.

  The Virginia General Assembly allocated $500,000 to CIT for two years to provide broadband technical assistance to localities (a portion of which resulted in the development of the roadmap). The return on investment is hard to define because there is no average cost for a statewide broadband deployment campaign. However, this investment will save the commonwealth and its localities millions of dollars in the long run.

NASCIO state CIO priorities addressed include:

- Consolidation – Centralized and consolidated resources for localities to identity needs and assets and leverage technology initiatives.
- Enterprise Vision and Roadmap for IT – The CIT upgrades represent a mission-critical component of reliable, real-time innovations to better serve citizens.

The project addresses the governor's priorities:
- Innovation - Explore and pursue innovative strategies to increase government efficiency or to reduce government costs for needed services.
- Upgraded technology - Enhance current technology platforms and infrastructure while protecting all data.
- Customer service - Deliver high-quality products and services to customers in a timely manner.