Broadband Activities in the Commonwealth

An Annual Status Report

Presented to:

Governor Robert F. McDonnell,

The General Assembly of Virginia, and the

Joint Commission on Technology and Science

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Legislative Mandate

§ 2.2-225 (Secretary of Technology) – Monitor the trends in the availability and deployment of and access to broadband communications services, which include, but are not limited to, competitively priced, high-speed data services and internet access services of general application, throughout the Commonwealth and advancements in communications technology for deployment potential. The Secretary shall report annually by December 1 to the Governor and General Assembly on those trends.

§ 2.2-2699.4. (Broadband Advisory Council) The Council shall have duty to annually report to the Governor and the Joint Commission on Technology and Science on the progress towards the goal of universal access for businesses and on the assessment of Commonwealth broadband infrastructure investments and utilization of Council-supported resources to promote broadband access;

Executive Summary

2010 was a landmark year for broadband in the U.S. and the Commonwealth. For the first time in history, the U.S. has a national broadband plan, a national broadband availability map under development, and approximately $150 million in federal funding invested in broadband infrastructure in the Commonwealth.

Despite the national attention and funding, Virginia continues to have large geographic areas that remain unserved, lacking the (affordable) broadband services needed to participate in the ever-expanding pool of applications such as distance learning, electronic health records, telemedicine, and teleworking. This is unacceptable. We must leverage existing and emerging technologies to their fullest extent so that all of our citizens will have the opportunity to participate in the global economy.

As such, the Commonwealth remains diligent in our pursuit of ubiquitous affordable broadband services for our citizens. The remainder of this report highlights the initiatives and activities that have occurred dung the past year toward the attainment of this goal. For more information, please visit wired.Virginia.gov.

Recommendations:

On behalf of the members of the Broadband Advisory Council, we request that the Governor consider the following recommendations as he is formulating and considering future legislative and policy initiatives:

- The promulgation of affordable broadband technologies through public/private partnerships should remain a priority for the McDonnell Administration and the Commonwealth.
- Access to affordable broadband is a key enabler for many of the recommendations presented by the reform and jobs commissions. As such, the Secretary of Technology (or his designee) should be included in future discussion to maximize leverage and insure success.
- Encourage cross-Secretariat collaboration on items related to broadband application development and deployment such as (but not limited to) smart grid, health IT, distance learning and teleworking.
- Support initiatives and policies to promote the deployment and adoption of public/private partnership based broadband technologies and applications
- Support initiatives to reduce/remove regulatory barriers to deployment

Broadband Advisory Council

The Broadband Advisory Council was established to help determine the Commonwealth's goals for broadband and how best to achieve them. The council was created from a recommendation from the Broadband Roundtable (established by Governor Kaine in 2007) to accelerate the deployment of affordable broadband connectivity. The council was codified during the 2009 legislative session (HB2423).

The council is comprised of eleven members: four legislative, five citizen members, the Secretary of Technology, and the Secretary of Commerce and Trade. The council members are:

Delegate Kathy Byron (Chair)
Heather Gold, XO Communications (Vice-Chair)
Senator Phillip Puckett
Delegate Clarence Phillips
Delegate Joe May
Ray LaMura, Virginia Cable Telecommunications Association
Bryan David, Region 2000 Partnership
Laura Lee
Duront Walton, Virginia Telecommunication Industry Association
Secretary Jim Duffey
Secretary Jim Cheng.

Staff: Caroline Stolle (Center for Innovative Technology) and Karen Jackson, Deputy Secretary of Technology

The Broadband Advisory Council met for the first time on August 24, 2010 in Lynchburg to set a course of action. The second Broadband Advisory Council meeting was held on October 12, 2010 in Charlottesville and included presentations from Roadstar Internet, Mid-Atlantic Broadband Cooperative and University of Virginia Health System (telemedicine). The third council meeting was held on December 10, 2010 in Abingdon, VA.

Virginia Activities and Standings

Business – Virginia, along with North Carolina, Kentucky, and Louisiana are all committing NTIA dollars to benchmarking broadband adoption and application usage by businesses and households. At this point, there is no requirement that the data collected be compared across state boundaries however VA staff is working to reach out to the other state representatives to see if an informal comparison of data points can be conducted.

Education – we performed a baseline of school connectedness approximately 18 months ago with the help of Virginia Tech. The exercise is scheduled to be repeated in spring of 2011.

Health – Virginia is a leader in documenting healthcare connectedness and usage. As far as we know, VA is the ONLY state in the nation to be cross-referencing broadband availability and health IT adoption. North Carolina is initiating a health IT assessment, but it is unclear to what extent the activity will mirror what is being done in Virginia.

NTIA recently published a report on "Exploring the Digital Nation: Home Broadband Internet Adoption in the United States" which provides a national analysis on adoption gaps. Table 25 of the report indicates that (as of 2009) approximately 65% of Virginia households use broadband internet at home – up from 8% in 2001. The complete report can be found at: http://www.ntia.doc.gov/reports/2010/ESA_NTIA_US_Broadband_Adoption_Report_11082010.pdf

Virginia Mapping and Planning Program

Mapping

Determining where broadband services exist is historically one of the most difficult activities cited by planners. On a small scale, anecdotal information can provide a great deal of information regarding where services are available and where they are not. As the geographic area of interest broadens, the challenges get larger and the reliability of anecdotal and provider website availability data as a clear indicator of service availability decreases dramatically.

The Commonwealth completed its first mapping initiative in 2008 as an outgrowth of the Commonwealth's Broadband Roundtable. The first-generation map, created with the assistance of VITA-Virginia Geographic Information Network and Virginia Tech, and a myriad of private sector partners is the only state map in the U.S. to be based on "address-level" data, and developed at no incremental cost to the citizens. This initiative placed Virginia amongst the national broadband mapping leaders, and provided the basis for current broadband initiatives.

Currently, the Commonwealth, through the Center for Innovative Technology, is developing a second-generation broadband availability map as part of the national broadband mapping initiative conducted and funded by NTIA and the FCC. The current status of the second-generation map is as follows:

- 36 providers currently participating – biggest challenge is gaining input from the very small wireless broadband service provider
- Once again, partnered with VITA-VGIN and Virginia Tech (eCorridors) for technical elements/data delivery to NTIA. Third party statistical validation of the provider data being done by Apex. Validation is expected to be completed by March 2011.
- Will be submitting data to NTIA twice a year for the next 4 years.
- Future mapping initiatives will include speed data (captured by Virginia Tech through accelerate Virginia http://www.acceleratevirginia.org/speedtest/); information on vertical infrastructure and spectrum.
- Release of the 2nd Virginia map (including layers representing health and e-commerce data) is expected in early 2011.

Planning

Applications drive the adoption and use of broadband services. Many broadband scholars argue that applications and infrastructure are the proverbial "chicken or the egg" quandary of the broadband world. Which should come first remains a question that has yet to be answered. For years, theory held that it would take the development of a single "killer app" (like the light bulb was for electricity) in order for broadband demand to reach the fever-pitch necessary to drive large-scale last-mile deployments. Recent developments however, suggest that the evolution of the open source environment coupled with market demand for increased availability and mobility

of data is accelerating the development and deployment of applications appealing to all types of end-users and consuming bandwidth at an unprecedented rate. Without careful planning, even the most well-designed network can become obsolete unless adequate attention is given to scalability.

In order to baseline and document the use of broadband applications in key areas, the Commonwealth partnered with SNG, and Broad Axe Technology Partners to assess the usage of broadband by businesses (e-commerce), residences, and healthcare institutions. The results will be layered onto the broadband availability map as a means of drawing correlations between usage and service availability. Results from both assessments will be finalized and published in early 2011. Interim findings are as follows:

E-commerce assessment of VA businesses – *initiated August 24 2010, completed November 15, 2010*

- The surveys collected information from businesses, organizations, and households on the availability of broadband (high speed Internet) and the uses, benefits, drivers and barriers for broadband. The survey results provide insights into gaps and opportunities for increasing broadband utilization by organizations and households.
- The survey is part of Virginia's ongoing broadband planning efforts. This survey's unique contribution consists of the detailed level of information collected directly from consumers, as well as the extension of data collection to businesses and other non-commercial organizations.
- The final report will present the results of the survey-based research for the Commonwealth of Virginia with a focus on key findings that may be considered in forward planning for broadband infrastructure, as well as policies and programs to promote adoption of broadband-enabled applications and uses, which are referred to as e-solutions[1].

Summary statistics

- 48,000 organizations and 13,000 households across the state were invited to participate in the survey.
- Completed survey responses received: 2,014 from businesses and organizations and 738 from households.
- Partial survey responses received: 1,058 from businesses and organizations and 144 from households.

1 E-solutions refer to the integration of Internet technologies with the internal computer-based systems and applications within or among organizations for a variety of operational processes. E-solutions encompass not only product delivery and payment transactions (e-commerce) but also all processes that may be facilitated by computer-mediated communications over the Internet.

Summary of responses

- 2.7% of participants were dial-up users, of which 63% said lack of availability was the main reason for not subscribing.

- The majority of DSL, cable and satellite users spend between $40 and $100 per month. 83% of T1 users spend more than $200 per month compared to 43% of fiber users.

- More than 87% of establishments reported fiber as being more than fast enough, while satellite is not fast enough for over 46%. Dial-up service is not fast enough for 82% of its users.

- Over 32% of organizations say that the availability of broadband services was "essential" for selecting their business location, and over 54% say broadband is "essential" for remaining in their current location.

- 44% of organizations view their lack of internal expertise as a very significant barrier to adoption.

- Self-directed methods of knowledge development, such as online research and webinars, are most likely to be used, with in-person classroom training the least likely method and unlikely to be used by over 36% or organizations.

- Uses:
    - 65% use broadband for employee training.
    - 46% use broadband for employee teleworking.
    - Broadband uses that show the greatest increase in utilization with employment size are: teleworking, staff training, delivery of services, rich media content, supplier coordination, advertising online, and customer service.

Environmental Scan of healthcare site "connectedness" (in partnership with partners shown in Appendix One) Assessment initiated - Sept 14, 2010; completed November 30, 2010

Summary Statistics

Participation

- Diverse participation, with particular strength in key provider groups
    - **Physicians:** 45% of survey population
    - **Hospitals**: 21% of survey population (**More than 50% of hospitals responded to survey)**
    - **Home Health/Assisted Living**: 14% of survey population

    - **Behavioral Health/Developmental Disability**: 10% of survey population
    - **Community Health Centers/Small Clinics**: 4% of survey population
- Rural providers with significant representation
    - 30% of respondents at Rural or Mixed Rural locations,

***Summary of Responses**:*

- 92% of respondents reported that broadband service is "very important" to the healthcare mission. 46% plan to increase their investment in broadband services.

- 63% of respondents indicated they were involved in some form of Telehealth activity. 41% stated their intention to increase investment in Telehealth services.

- Nearly two-thirds (64%) of the entire survey population believe that they will meet the U.S. Department of Health and Human Services' criteria for 'meaningful use' of an EHR system by the 2015 deadline

- Health Information Exchange is still a relatively unknown model – only 14% of respondents reported involvement in any type of Information Exchange

Broadband-related activities at the federal level

American Recovery and Reinvestment Act (ARRA): $7.2 Billion allocated for broadband related initiatives. National Telecommunications and Information Agency (NTIA) - $4.7 Billion for infrastructure deployment, mapping, building demand and public computing centers. Rural Utilities Service (RUS) - $2.5 Billion for infrastructure.

RUS (BIP)/NTIA (BTOP) Programs: All ARRA funds committed to broadband related initiatives have been committed and there are (at this time) no clear indications that there will be additional funding in the future. www.broadbandusa.gov

National Broadband Map: The nation's first broadband availability map (utilizing the information collected with funding from NTIA) is due to be released in early 2011 (http://www.broadband.gov/maps/availability.htm).

National Broadband Plan: The plan was released on March 17, 2010. Work continues on converting recommendations and policy into practice at the federal level. **More than 60 key actions, proceedings, and initiatives the Commission intends to undertake over the next year and beyond to implement the recommendations of the National Broadband Plan. http://www.broadband.gov/plan/broadband-action-agenda.html**

Plan Elements:

A. Promote World-Leading Mobile Broadband Infrastructure and Innovation

- Unleash More Spectrum for Mobile Broadband
- Increase Opportunities for Innovative Spectrum Access Models
- Remove Barriers to Spectrum Utilization
- Improve Data and Transparency Regarding Spectrum Allocation and Utilization

B. Accelerate Universal Broadband Access and Adoption, and Advance National Purposes Such as Education and Health Care

- Connect Rural America (USF High-Cost Fund)
- Inter-carrier Compensation (2009 – HB387)
- Connect Low-Income Americans
- Connect Schools and Libraries
- Connect Hospitals, Clinics, Doctors, and Patients
- Connect People with Disabilities
- Connect Native American Communities

C. Foster Competition and Maximize Consumer Benefits across the Broadband Ecosystem

- Remove Barriers to Entry by Streamlining Access to Key Broadband Inputs (rights of way, pole attachments) (2009 – HB474)
- Improve Data Collection, Analysis, and Disclosure to Promote Broadband Competition and Protect and Empower Consumers
- Unleash Innovation and Competition in Video Devices

D. Advance Robust and Secure Public Safety Communications Networks

- Facilitate Creation of a Nationwide Interoperable Public Safety Mobile Broadband Network
- Promote Cybersecurity and Protect Critical Communications Infrastructure
- Promote Development and Implementation of Next-Generation 911 (NG911) and Alerting Systems

Virginia Participation in the ARRA- Funded Broadband programs

Broadband Mapping and Planning:

- Center for Innovative Technology – VA state designee for mapping initiatives with NTIA in conjunction with the Office of Telework Promotion and Broadband Assistance and the Secretary of Technology's Office

- CIT awarded **$1.8 million for broadband mapping** by NTIA (March 2010). Partners include the Virginia Geographic Information Network and Virginia Tech. Purpose: to build on the initial map published in 2009, provide additional verification and validation, and align VA data with requirements for National Broadband Map (2011).

- CIT awarded **$500,000 for broadband planning** benchmark health IT and e-commerce usage in the Commonwealth

Additional funding to CIT from NTIA includes: (approx $5.8 million)

- Expanded Broadband mapping (years 3-5) $2,123,964

- Capacity Building – this project will expand on the e-commerce and healthcare environmental scans. The expansion of the assessments will provide comparative data to the baseline that was created in the initial assessments making it possible to track the impact of broadband over time, particularly in areas that received NTIA/RUS funded infrastructure. $1,435,877

- Technical Assistance (education and training) - this project will create and maintain an inventory of digital literacy training programs, analyze need, and create and conduct training workshops. $1,000,000

- Technical Assistance (broadband mapping for tribal lands) – this project will expand the development of Virginia's mapping tool for use by any state, federal agency or other entity in an effort to map tribal broadband availability. We will be working directly with the FCC's Native Nations Task Force on the outreach portion of the project. $1,200,000

Broadband Infrastructure Deployment:

Broadband providers from across the Commonwealth garnered approximately $155 million (total) from the BIP and BTOP programs. The list of awardees is as follows:

Round One:

- **Allegheny County/nTelos** – $16 million loan/grant combination from the Rural Utilities Service for middle/last mile in Alleghany County

- **Mid-Atlantic Broadband Cooperative** - $16 million grant from the National Telecommunication and Information Administration for build out of 465 miles of open access (middle mile) fiber in southside Virginia.
- **Virginia Tech Foundation** - $5.5 million grant from National Telecommunication and Information Administration to build 110 miles of middle mile fiber between Blacksburg and Bedford City.
- **Nelson County** - $1.8 million grant from RUS to build middle mile fiber from Afton to Colleen in Nelson County.
- **Page County** - $1.6 million grant from RUS to build middle mile fiber to a distressed population in the county (< 40% broadband penetration) and to connect town governments, first responders, schools, libraries, and the primary hospital.
- **Buggs Island Telephone Cooperative** - $19 million from NTIA to bring high-speed affordable (wireless) broadband services to 15 underserved counties and the cities of Emporia and Franklin in south Central Virginia.

***Round Two**:*

- **Bristol Virginia Utilities** – (NTIA) $22.7 million for construction of middle-mile optic network (388 miles) for Bland, Buchanan, Dickenson, Russell, Smyth, Washington, and Wythe Counties covering 120 educational institutions and community organizations and within 2 miles of more than 18,000 homes and 500 businesses.
- **Utopian Wireless Corporation** – (RUS) $468,133 to bring Wi-Max infrastructure to communities in/around Mineral. Project estimates service approximately 4500 people, 400 businesses, and 50 other community institutions.
- **New Castle Telephone Company** – (RUS) $1 million to bring DSL to unserved establishments in Craig County. Project stands to benefit approximately 700 people, several businesses and other community institutions.
- **Citizen's Telephone Cooperative** - (NTIA) $9,327, 760 for middle mile in the New River Valley. Project will directly benefit more than 50 community institutions, 163,000 people and 1,300 businesses.
- **County of Rockbridge** - (NTIA) $6,993,399 for middle-mile in west-central Virginia. Project will directly benefit 50 community institutions, 33,000 people, and 1,300 businesses**.**
- **Mid-Atlantic Broadband Cooperative** - (NTIA) $10,023,247 for middle-mile in eastern Virginia. Project will directly benefit more than 66 community institutions, 84,000 people and 340 businesses.
- **Scott County Telephone Cooperative -** (RUS) received $7.45m in loans and $17.4 to provide fiber-to-the-premises (FTTP) broadband services to approx. 12,000 residents, 80 businesses and 16 community centers
- **LENOWISCO Planning District -** (RUS) received $6.06m in loans and $14.16m in loans to provide service to an estimated 42,000 residents, 1,550 businesses and 100 community institutions.

*Note: for Round 2, there were **41 applications (including those funded) submitted by Virginia entities for Virginia projects: NTIA: 24 (6-Sustainable adoption; 14-CCI (a.k.a. middle-mile infrastructure); and 4 public computing centers) and RUS: 17 (last mile projects only)***

Federal (non-ARRA) funding sources

e-Rate Funding

The Schools and Libraries Program of the Universal Service Fund, commonly known as "E-Rate," is administered by the Universal Service Administrative Company (USAC) under the direction of the Federal Communications Commission (FCC), and provides discounts to assist most schools and libraries in the United States to obtain affordable telecommunications and Internet access. It is one of four support programs funded through a Universal Service fee charged to companies that provide interstate and/or international telecommunications services.

To determine the amount of funding that the schools in your planning area receive, consult the school's (or school system's) IT director, or search the USAC's online database of commitments (http://www.usac.org/sl/tools/commitments-search/Default.aspx)

Year	No. of Applicants	No. of Requests	Total Commitments
2007	509	1518	$30,262,396
2008	501	1528	$32,206,473
2009	537	1653	$37,746,062
2010	462	1479	$41,274,519

Rural Health Care

The Rural Health Care Program of the Universal Service Fund (USF), which is administered by the Universal Service Administrative Company (USAC), is a support program authorized by Congress and designed by the Federal Communications Commission (FCC) to provide reduced rates to rural health care providers (HCPs) for telecommunications services and Internet access charges related to the use of telemedicine & telehealth.

To determine the amount of funding that the centers in your planning area receive, consult the clinic/hospital administrator, or search the USAC's online database of commitments at http://www.usac.org/rhc/about/program-overview.aspx

Year	Total Commitments
2007	$1,029, 065.35
2008	$770, 335.73
2009	$745, 558.94
2010	$630,286.47

First Responders

In recent years, the amount and sources of funding for advancing the sophistication and depth of first responder communication capabilities, has escalated dramatically. Most are coordinated

through the Virginia Department of Emergency Management (VDEM) or the Virginia Office of Commonwealth Preparedness, however you may discover that units in your planning area are also receiving funds from sources outside of those coordinated at by the Commonwealth. Due to the web of potential sources and the security issues related to grant funded projects, it is recommended that the amount and sources be obtained by contacting local unit leaders.

The Department of Agriculture through the Rural Utilities Service also offers funding opportunities through their Community Connect and Telecommunications funding opportunities http://www.rurdev.usda.gov/RUSTelecomPrograms.html .

Commonwealth Programs and Resources:

Department of Housing and Community Development, - The Virginia Department of Housing and Community Development (DHCD) has funds available to support the planning, and in some cases, implementation of telecommunications projects.

Virginia Community Development Block Grant Program
Through the Virginia Community Development Block Grant (VCDBG) program, telecommunication planning grants are available for future system development and support or implementation efforts. Funds may be utilized to:

- Assist in promoting awareness of potential CDBG eligible activities and gauging stakeholder interest;
- Creating a management team of potential user groups to oversee the creation of a Telecommunications Plan;
- Conduct surveying efforts to document the eligibility of future telecommunication planning and implementation efforts for VCDBG funding;
- Conduct informational and training programs; and
- Identify and procure professional assistance as necessary.

Up to $25,000 per project is available for Telecommunications Planning Grants.

Telecommunications Implementation:
Up to $200,000 per project is available for telecommunications efforts which may include implementation (e.g., installation of a fiber network) or system development and support (e.g., community business training and education). All projects must demonstrate that they meet a CDBG National Objective and demonstrate a direct relationship between intended project efforts and measurable, tangible improvements to the health of the community being served.

All projects funded must first submit a community telecommunications plan for approval to DHCD. Only implementation projects which target "last mile" installation of broadband applications will be considered for funding, i.e., no long-haul backbone systems will be installed with CDBG funds.

Department of Public Rail and Transportation*:*
DRPT continues to support the Telework!VA program which provides assistance (grants) primarily to business in NOVA, Hampton Roads, and Richmond (primarily) as a means of encouraging the adoption/expansion of telework by public sector entities. Telework is a key broadband application in the Commonwealth and a widely used tool for traffic congestion mitigation in the metro areas. www.telework!va.org

Tobacco Indemnification and Community Revitalization Commission - The Virginia Tobacco Indemnification and Community Revitalization Commission, through the use of their Reserve Fund, supplied matching funds to Bristol Virginia Utilities, Buggs Island Telephone Cooperative, Mid-Atlantic Broadband Cooperative and Cumberland Plateau, allowing the providers to secure federal grants for broadband infrastructure. The Reserve Fund was established in 2009 to provide commitment of funds needed to attract non-Commission project funding, including federal ARRA stimulus funds. The Tobacco Commission allocated a total of about $14 million in match resulting in close to $64 million in federal grants for broadband deployment in southside and southwest Virginia. To date, the Commission has invested approximately $118 million to construct 1,075 miles of broadband infrastructure in southside and southwest Virginia.

Recent Legislation

Only two bills were passed during the 2010 legislative session that directly impact broadband deployment/adoption in the Commonwealth (as follows). It should be noted that all bills related to state telework goals were unsuccessful.

SB 675 (William C. Wampler, Jr.) Health insurance; mandated coverage for telemedicine services

Health insurance; mandated coverage for telemedicine services. Requires health insurers, health care subscription plans, and health maintenance organizations to provide coverage for the cost of such health care services provided through telemedicine services. "Telemedicine services" means the use of interactive audio, video, or other electronic media for the purpose of diagnosis, consultation, or treatment. Utilization review may be undertaken to determine the appropriateness of telemedicine services.

HB 387 (William R. Janis) Telephone utilities; SCC to treat all providers of local exchange telephone service equitably

Telephone utilities; switched access rates. Requires the State Corporation Commission to establish a schedule for the elimination of the carrier common line element of intrastate carrier switched access charges. For incumbent local exchange carriers with more than 15,000 access lines, the charges are to be eliminated by July 1, 2013. For those with more than 15,000 access lines or that have received a grant and loan under the federal Broadband Initiatives Program, the Commission will determine such a schedule by July 1, 2011. Certain carriers with 15,000 or fewer access lines may apply for an opportunity to be heard on the issue of extending the deadline for elimination of such charges to a date not later than July 1, 2014. Carriers shall be permitted to increase retail rates to recover a reasonable amount of revenue lost due to the elimination of such charges.

Policy Activities

The Governor's Reform Commissions on Higher Education, Health and Government as well as the Jobs Commission all reference applications/opportunities that rely on broadband – Virtual Departments, Electronic Medical Records, enhanced teleworking/telecommuting, etc. Final reports from the groups are being developed and opportunities for collaboration will be identified and acted on as appropriate.

Appendix One