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From

UNDERSTANDING THE DEBATE OVER GOVERNMENT-OWNED BROADBAND NETWORKS:

Context, Lessons Learned, and a Way
Forward for Policy Makers

Danville Case Study

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Danville, Virginia

The government-owned broadband network in Danville, Virginia, is differentiated from other GONs in a number of ways:

- ▶ It adheres to an open access model, which means that the municipality only sells wholesale access to its network; it does not sell Internet access or other services directly to residents.
- ▶ Its financing model is extremely conservative — FTTH is being deployed on a pay-as-you-go basis, which has helped the city avoid amassing any debt associated with the GON.
- ▶ The network, called nDanville, has been consistently profitable and contributes hundreds of thousands of dollars annually to the city's general fund.

Background

The GON in Danville grew out of a fiber-optic network the local utility, the Danville Utilities Department, deployed in the early 2000s to enable more robust communications across its electric network.¹ The communications network was also built out to municipal buildings and schools.² In 2006, the utility studied the feasibility of turning its fiber network into an open access system that could be used by private ISPs to deliver communications services to residents and businesses.³

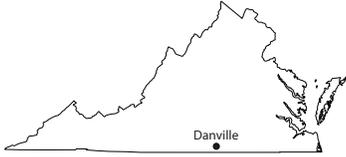
These efforts were reinforced by a parallel state-level initiative to improve rural communications capabilities. The Mid-Atlantic Broadband Cooperative (MBC) launched in 2003 to lead these efforts and spearhead the construction of an expansive broadband network in rural Virginia that could “provide unique opportunities for research/development and create opportunities for the private sector to deploy competitive broadband services.”⁴ The MBC network was funded by federal and state grants, the latter of which stemmed primarily from the state's tobacco settlement proceeds, some of which had also been channeled into the GON in Bristol, Virginia (see **section 4.2**). Together, these grants totaled over \$40 million (\$34 million of which came from the Tobacco Commission) and helped support deployment of a 700-mile middle-mile fiber network in the mid-2000s.⁵ Danville eventually hooked up its fiber network to the MBC middle-mile network and began to plan for the expansion of its local infrastructure.

The network that emerged, nDanville, went live in late 2005 and was the “first municipal open access, open services network in the United States.”⁶ After the 2006 expansion, the utility in 2010 recommended the City Council vote to expand the fiber network to homes and businesses.⁷ To that end, it offered a plan that would expand the network to between 2,000 and 3,000 new homes funded by a \$2.5 million loan.⁸ The City Council voted against this proposal,⁹ but a year later it approved a smaller-scale pilot program that would extend the network to 250 homes.¹⁰

Cost and Financing

The initial phase of the Danville network was constructed for \$2.5 million. This stage used 70 miles of fiber-optic cable¹¹ and was funded by a loan from the electric utility, which has been paid back with

Danville, Virginia At-A-Glance



City Population: 42,996 (2012)

Year of Network Launch: Early 2000s

Current Status: Partially Built

Number of subscribers: 200

Revenues: \$1.8 million

Operating Expenses: \$1.7 million

Note: Additional information on the Danville network is contained in Table 1 and in Appendix I.

interest.¹² Ever since, the portion of the GON that extends to homes and businesses has been built on a pay-as-you-go basis.¹³ The initial 250-home pilot program approved by the city hinged on the utility's ability to fund the cost from reserves accrued from its telecommunications division.¹⁴ As of December 2012, nDanville was debt-free and contributed over \$300,000 to the city general fund each year.¹⁵

The Network

The emerging fiber-optic GON in Danville is open access, which means private ISPs can contract to use the infrastructure to deliver Internet, television, and telephone service to customers.¹⁶ nDanville also provides free Wi-Fi access in several parks across the city.¹⁷ In addition, during the second phase of its deployment (i.e., after initial deployment but before build-out to residents), nDanville constructed a medical network that brought fiber-optics to the local medical community.¹⁸ The vast majority of the city's "medical offices, clinics and labs, including Danville Regional Medical Center," are connected to the network and use it to strengthen the quality and reach of their services.¹⁹

The last phase of deployment—bringing fiber to homes and businesses in Danville—is ongoing and is being "sized" according to the amount of reserve funding available in an effort to avoid amassing any debt.²⁰ Current customers have two choices of ISP—Gamewood Technology Group and Sunset Digital; the former offers several bundles of television, Internet, and telephone service, while the latter offers telephone and Internet service.²¹ Gamewood's offerings range from a "bronze" package for \$60 per month, which includes a 3 Mbps asymmetrical Internet connection, phone, and basic cable package, to a "platinum" package for \$130 per month, which includes a 20 Mbps asymmetrical Internet connection, telephone, and an expanded cable package.²²

Community Impact

The Danville fiber GON, though not yet fully deployed to residents, has already been credited with positive impacts. The medical network, for example, has won plaudits from a number of organizations and has been favorably received by healthcare professionals and local patients alike.²³ Danville also uses its fiber network to provide broadband access for its schools.²⁴ It receives about \$1 million in federal E-rate funds annually for these purposes.²⁵

Danville has also used the network to diversify the local economy and attract new technology-focused firms. This has been a policy imperative for the municipality, which saw its industrial base erode in the early 1990s, when Danville "lost thousands of agriculture- and textile-related jobs."²⁶ To date, a number of programs and initiatives have been launched in an effort to attract new firms to the area and encourage entrepreneurs and existing businesses to leverage the services provided via nDanville. These have included the Dan River Business Development Center, which is a nonprofit organization that seeks to "create an environment to enable entrepreneurs to succeed in establishing businesses and creating jobs in the Danville area."²⁷

Assessment

The model employed by Danville to build its GON is mindful of the enormous costs associated with deploying such vast and complex infrastructure. That it has studiously avoided accruing debt and has been able to generate profits is notable. It is, however, too early to declare this GON a success or cite it as a model that other cities might adapt. The iterative nature of its deployment model runs the risk of ultimately undermining its ability to build out a citywide network, raising the possibility that its services will only be available in certain neighborhoods. Being able to pick and choose where it offers service

provides it with embedded regulatory and competitive advantages over incumbent ISPs, many of whom have obligations to provide service to all households in a given area.²⁸

Finally, nDanville's open access model is subject to much debate because, in the U.S. telecommunications context, many argue that this approach has repeatedly failed to generate expected gains in competition and innovation.²⁹ In the broadband space in particular, there is little evidence this approach worked when open access was still required of DSL providers in the early 2000s.³⁰ In light of past failures, and recognizing the unique attributes of broadband service, the policy framework for broadband and other advanced communications services in the United States has been deliberately built around a preference for promoting facilities-based competition among ISPs.³¹ The results to date (discussed in **section 3.1.1**) have been impressive and continue to accrue, fueling the debate over the ability of an open access approach to succeed over the long term, especially one funded in an ad hoc manner.

Endnotes

- 1 See, e.g., Andrew Michael Cohill, *Danville Transforms its Economy with Fiber*, *Broadband Communities Magazine* (Nov./Dec. 2011), available at <http://www.bbpmag.com/MuniPortal/EditorsChoice/1111editorschoice.php> (“*Danville Transforms its Economy*”).
- 2 *Id.*
- 3 *Id.*
- 4 See Virginia Tobacco Indemnification and Community Revitalization Commission, MBC, <http://www.tic.virginia.gov/mbc1.shtml>.
- 5 *Id.*
- 6 See Danville, nDanville Fiber Optic Services Information, <http://www.danville-va.gov/index.aspx?NID=668>.
- 7 See Christopher Mitchell, *Danville City Council Nixes Expansion of nDanville Fiber Network*, Oct. 6, 2012, *Community Broadband Networks*, Institute for Local Self-Reliance, available at <http://muninetworks.org/content/danville-city-council-nixes-expansion-ndanville-fiber-network>.
- 8 *Id.*
- 9 *Id.*
- 10 See Christopher Mitchell, *Open Access nDanville Network Goes Residential*, Aug. 11, 2011, *Community Broadband Networks*, Institute for Local Self-Reliance, available at <http://muninetworks.org/content/open-access-ndanville-network-goes-residential> (“*Open Access nDanville Network Goes Residential*”).
- 11 See *City of Danville, Virginia, General Obligation Public Improvement Bonds, Series 2007*, at p. 36, Electronic Municipal Market Access, Municipal Securities Rulemaking Board (March 31, 2007), available at <http://emma.msrb.org/MS256957-MS232265-MD452865.pdf> (“*Danville, Virginia, General Obligation Public Improvement Bonds, Series 2007*”).
- 12 See *Editor’s Choice: State-of-the-Art Broadband Builds Communities*, *Broadband Communities Magazine* (Dec. 2012), available at <http://www.bbpmag.com/MuniPortal/EditorsChoice/1212editorschoice.php> (“*State-of-the-Art Broadband Builds Communities*”).
- 13 See *Comprehensive Annual Financial Report for the Fiscal Year July 1, 2001 to June 30, 2012*, at p. 14, Danville City Government, available at <http://www.danville-va.gov/DocumentCenter/View/8624> (“*Comprehensive Annual Financial Report—Danville*”).
- 14 *Open Access nDanville Network Goes Residential*.
- 15 *State-of-the-Art Broadband Builds Communities*.
- 16 *Danville Transforms its Economy*.
- 17 See Danville, *Danville’s Hot Parks*, <http://www.danville-va.gov/index.aspx?NID=669>.
- 18 *Danville, Virginia, General Obligation Public Improvement Bonds, Series 2007* at p. 21.
- 19 See *Danville Medical Network Wins International Award*, May 19, 2011, *Virginia Business*, available at <http://www.virginiabusiness.com/index.php/news/article/danville-medical-network-wins-international-award1/>.
- 20 *Comprehensive Annual Financial Report—Danville* at p. 14.
- 21 For additional information, see nDanville, *Our Service Providers*, <http://www.ndanville.com/our-service-providers/>.
- 22 See nDanville, *Packages*, <http://www.ndanville.com/our-service-provider/packages/>.
- 23 See, e.g., *Intelligent Community, Founders Awards 2012*, https://www.intelligentcommunity.org/index.php?src=gendocs&ref=Award_Founders&category=Events&link=Award_Founders.
- 24 See *Danville FY 2014 Adopted Budget Telecommunications Fund*, p. 17-1, (2014), available at <http://www.danville-va.gov/documentcenter/view/9715>.
- 25 Per a phone conversation with Jason Grey, Project Manager, nDanville.
- 26 *Danville Transforms its Economy*.
- 27 See *FY 2014 City Council Introductory Budget Summary*, at p. 4-72, Danville City Council, available at <http://www.danville-va.gov/DocumentCenter/View/9335>.
- 28 The practice of picking and choosing service areas is often referred to as “redlining.” In the communications context, redlining is often avoided by contractual terms (e.g., franchise agreements that mandate universal service in a given territory), legislation (e.g., service obligations for telephone companies), or as a *quid pro quo* for receiving subsidies to provide service (e.g., in the case of the federal or state-level universal service funds). This issue has emerged in areas that are experimenting with hybrid approaches to bolstering broadband connectivity. Additional discussion is provided in section 6, *infra*. For a discussion of one recent example, see John McQuaid, *Will Poor People Get Google Fiber?*, April 13, 2013, *Forbes.com*, available at <http://www.forbes.com/sites/johnmcquaid/2013/04/13/will-poor-people-get-google-fiber/>.
- 29 For an extended discussion of how this approach failed in the market for basic telephone service, see generally ROBERT W. CRANDALL, *COMPETITION AND CHAOS: U.S. TELECOMMUNICATIONS SINCE THE 1996 TELECOM ACT* (Brookings Press: Washington, D.C. 2005).
- 30 *Id.* at p. 127-129. See also *supra*, section 2.1, for additional discussion regarding the debate over open access policies in the early 2000s.
- 31 See, e.g., George S. Ford, Thomas M. Koutsky & Lawrence J. Spiwak, *Competition After Unbundling: Entry, Industry Structure, and Convergence*, 59 *Fed. Comm. L. J.* 331 (2007) (providing an overview of this approach).

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