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## **Municipal Responses to State-Level Broadband Internet Policy**

Andrea H. Tapia  
329G IST Building  
College of Information Sciences & Technology  
The Pennsylvania State University USA  
814-865-1524  
[atapia@ist.psu.edu](mailto:atapia@ist.psu.edu)

Julio Angel Ortiz  
307G IST Building  
College of Information Sciences & Technology  
The Pennsylvania State University USA  
814-865-8952  
[jortiz@ist.psu.edu](mailto:jortiz@ist.psu.edu)

### **Abstract**

Since 2004 policy makers at the state level have been proposing legislation to prevent local municipalities from developing or deploying some form of broadband Internet infrastructure. As of June 2006, 35 states have addressed the municipal broadband issue in some way. Many of the bills that have passed have done so through amendment and compromise. Many of the bills that have died in committee have failed to pass because of the failure of legislators, private providers and municipalities to compromise. We have compiled a database of all municipal wireless initiatives in the United States. As of June 2006, we have a total of 357 entries. We have queried every state in which legislation has been passed or is pending regarding municipal wireless initiatives. Drawing from one subsection of fields from the database, we have compiled the statuses of all cities within those states concerning their efforts to build municipal wireless broadband networks. In this paper, we present a typology of five municipal responses to this legislation.

## Introduction

Since the Federal Communications Commission's (FCC) inception, communications regulations have largely come at the federal level and restricted what and how states and municipalities could be involved in telecommunications. However, in the context of municipal wireless broadband deployments, this 'top-down' model of policymaking has been flipped on its head, with the power shifting away from the FCC to city halls and state legislatures throughout the United States. This is partly a result of the FCC's own policies that lower the barriers of entry for cities to deploy wireless broadband networks. But at the same time, state legislatures have been pressured by private providers to regulate if and how a municipality can deploy and operate a broadband network.

Since 2004, legislators at the state level have proposed legislation to prevent local municipalities from entering the wireless Internet provider sphere. Most states have legislation proposed, pending, passed or dead-in-committee that prohibits municipalities from providing telecommunication services directly or indirectly. In some cases, state legislatures have prevented municipalities from expanding existing networks. In other cases, state legislatures have not outright prohibited the development and deployment of municipal broadband networks. Instead they have created organizational and bureaucratic barriers causing these networks to be curtailed, reconfigured or resized. The central argument on the part of those lobbying state legislatures is that the public funding and support of municipal broadband networks unfairly impacts competition in municipal markets between traditional private telecommunications providers and new ventures funded in part with public tax funds (Tapia, Maitland and Stone, 2006; Stone, Maitland and Tapia, 2005).

These private providers have expressed concern that cities providing wireless broadband service have several advantages. These include an unlimited base from which to raise capital; ability to regulate local rights of way and tower permits; existing public infrastructure that is necessary for network deployments including street lights; and status as tax-exempt organizations. Many companies have sought legislative relief at the state level to regulate or restrict a municipality's ability to provide wireless broadband services to the public.

According to the CTIA: The Wireless Association, (Cellular Technology Institute of America) stated "As of November 2005, more than 1,000 pieces of wireless-related legislation were introduced in states across the country. It has been reported that 181 legislative proposals spanning all 50 states purported to address wireless "consumer protection" issues. ( quoting from StateScape, November 18, 2005.)<sup>1</sup> According to our data as of June 2006, 35 states have specifically addressed the municipal broadband issue. If we can characterize 2004 as "the year of municipal planning for broadband" and 2005 as "the year for legislative restrictions," then 2006 can be characterized as "the year of compromise and accommodation." So far in 2006, most state bills have fallen into three categories: 1) legislation passed with major revisions and compromise; 2) bills that have died in committee due to a lack of compromise; and 3), legislation in committee and now undergoing a strenuous negotiation between multiple stakeholders.

However, legislation that is pending, threatened or failed has been described as having a slowing, dampening, or chilling effect on municipally sponsored broadband networks<sup>2 3</sup>. These effects may have several dimensions. For example, while some municipalities may speed up network deployment to ‘beat’ the deadline of the enactment of restrictions, others may either roll back their plans or may abandon the proposed project altogether. Still other municipalities may create new business plans in which ownership of the network is transferred to private partners, and some may sell off municipal rights-of-way in exchange for discounted/wholesale services.

Given all the legislative activity at the state level, the central questions of this research are: 1) How many municipalities have carried on to meet the requirements laid out in their state’s legislation ; 2) How did the process of fulfilling these requirements change the project; 3) Were these changes considered improvements by municipal leaders?

## **Lack of Existing Federal Legislation and a Plethora of State Legislation**

In a more general sense, this is not a new issue. State governments have regulated a municipality’s ability to provide telecommunications services for many years. Before the emergence of metro-scale wireless broadband, at least 15 states had passed laws regulating a city’s right to provide telecommunications services.<sup>4</sup> These laws often required a municipality to have public hearings, develop detailed business plans, and use separate cost accounting methods for the telecommunications utility. However, existing laws do not apply to broadband or voice over internet protocol (VoIP) services because of their designation as advanced services by the Telecommunications Act of 1996.<sup>5</sup>

Congress passed the Telecommunications Act of 1996 with the intention of promoting competition by further deregulating the industry. Despite the effort by forward thinking leaders in 1996, they were in actuality wholly unprepared for the exponential advancement of high-speed, affordable Internet technologies, and perhaps even more unprepared for the revolutionary changes its adoption into society would create. The 1996 act did not address broadband or municipal entry into providing such services, and therefore, the act was toothless in regulating the issue on a federal level: in essence, it left regulation to the state governments. States, however, were also unprepared and began passing legislation in reference to municipal entry.

Since the existing federal laws were not applicable, state legislatures began considering how to respond to the objections of private sector providers. The legislative initiatives made use and continue to make use of a variety of tools that ostensibly aim to ensure that:

1. A majority of local residents are behind the initiative;
2. The broadband project will not negatively affect a city’s finances;
3. The broadband deployment does not compete or competes on a level playing field with private carriers.

The tools used to achieve these objectives have included the following. First, to ensure that a majority of the residents support the initiative, several states included a requirement that municipalities hold hearings and/or referenda about the broadband deployment. These activities also went some way to answering the second concern, that the project did not negatively affect finances. In addition to reporting to the public, some states have also required plans be submitted for approval to a state entity or agency. Tools used to achieve the third objective included a variety of stipulations ranging from providing the local exchange carrier (LEC) the right of first refusal to outright prohibition of competing with LECs. In some cases, municipalities were prohibited from charging for services altogether (Tapia, Maitland and Stone, 2006; Stone, Maitland and Tapia, 2005). Currently, there are approximately 35 state laws governing or affecting municipal broadband.

Four states have crafted legislation that focused on the financial soundness of municipal wireless broadband initiatives. Florida, Indiana, Ohio and Oregon have considered bills that required municipalities to conduct due diligence, including the creation of a business plan which projected capital needs and operating expenses for the network over a period of time. After this work was complete, the final results were to be released at a public hearing where citizens would have had the opportunity to comment. Florida's Senate Bill 1322 required Florida cities to hold two public hearings to discuss their wireless broadband initiatives.<sup>6</sup> Ohio required cities to complete cost projections annually while the network is operational.<sup>7</sup>

Other states required cities to hold referenda before moving forward with wireless broadband networks. Colorado, Iowa, Louisiana, Oregon and Florida all proposed legislation that required a municipality's governing body to call a referendum to approve a wireless broadband initiative. The focus of such legislation was to measure the support of local citizens for a municipal Wi-Fi network. But the requirement to have a referendum could often be avoided if certain conditions regarding cooperation with the private sector were met or certain financing vehicles were used. Colorado's Senate Bill 152 allowed a municipality to move forward without a referendum if the incumbent provider denied a request for service from the municipality after 60 days or was unable to build the requested network within 14 months.<sup>8</sup> In Oregon, a referendum must be held to approve government financing of the broadband initiative.<sup>9</sup> Florida cities could avoid holding a referendum if the network was financed by revenue bonds that matured within fifteen years.<sup>10</sup>

While these legislative strategies focused on local oversight through study or public hearings, two states have chosen a different route to examine the financial soundness of municipal wireless initiatives. Tennessee and Texas both considered legislation that required cities to submit their financial models to state agencies for approval before moving forward with their respective initiatives. Tennessee proposed that municipalities present a business plan to the State Comptroller's office and receive approval before moving forward with a wireless initiative.<sup>11</sup> Texas HB 789 required municipalities to file a notice of intent with the Texas Utility Commission to provide either free or fee-based wireless broadband services to end users after June 2006.<sup>12</sup>

A majority of states have chosen legislative language that required cities to grant the local exchange carrier (LEC) the right of first refusal before the municipality deployed a wireless broadband network. Meant to ensure a level playing field and foster partnership between the private and public sectors, these bills allowed a municipality to deploy wireless broadband technology only after requesting that their incumbent provider build a network with similar speeds. Ohio's bill required cities to move forward with an initiative only if less than two private providers offered competitive services within a city.<sup>13</sup> Pennsylvania's House Bill 30 required cities interested in a wireless broadband initiative to request a network supporting similar speeds from the local exchange telecommunications company serving the area. HB 30 also allowed the private provider up to two months to decide whether they wanted to build the network and provide the requested services.<sup>14</sup> If the private provider agreed to provide the service, then the company had up to 14 months from the date of the municipality's request to implement it.<sup>15</sup> Otherwise, the municipality was permitted move forward with its own initiative.

Finally, a number of states considered an outright prohibition on services. The main difference between these bills was whether free municipal Wi-Fi networks were prohibited along with fee-based wireless networks. Illinois considered SB 499 to prohibit a municipality from providing "for sale, either to the public or to a telecommunications provider, a telecommunications service."<sup>16</sup> This language prohibits both wholesale and retail offerings by municipalities. Michigan may prohibit both free and fee-based telecommunications service from cities. However, due to the legal definition of telecommunications service, Michigan's HB 4600 may not affect a city's ability to deploy a wireless broadband network.<sup>17</sup> Nebraska's legislation prohibits cities from charging wholesale or retail fees for their broadband networks while the Texas bill would have prohibited fee-based networks immediately and free networks after September 2006 if it had passed.<sup>18</sup>

The status of the state bills as of June 2006 is as follows:

Bills which have been signed into law or are pending

Tennessee -- HB3569 / SB3514

Colorado -- SB 05-152

Florida -- SB 1322

Louisiana -- SB 126

Michigan -- HB 5237

Nebraska -- LB 645

Ohio -- HB 591/HB 188

Tennessee -- HB 1403

Bills which have died in committee

Indiana -- SB 245

Illinois -- SB 499 Amendment 1

Indiana -- HB 1148  
Iowa -- HF 861/HSB 205  
Oregon -- HB 2445  
Texas -- HB 789  
Virginia -- HB 2395  
West Virginia -- SB 740

Many of the bills that have passed have done so through amendment and compromise. Many of the bills that have died in committee have failed to pass because of their failure to compromise. For example, in the case of Colorado, State Bill 05-152 as originally proposed would have prohibited municipalities from providing telecommunications services, cable services, or advanced services directly or indirectly, at wholesale or retail, unless the municipalities met various requirements.

*“A municipality intending to provide retail services would have been required to hold a preliminary public hearing to inform the public of its intent and would also have had to obtain a majority vote in a referendum on its proposal. The original bill also prohibited municipalities from cross-subsidizing covered services and facilities in any way; required municipalities to secure and pay for bonds used to finance telecommunications, cable, and advanced-service facilities from the revenues of each of these services, taken separately; subjected municipalities to all federal, state and local requirements that apply to private entities; required municipalities to set rates high enough to recover their actual direct and direct costs, plus imputed fees, taxes and other charges that similarly-situated private entities would pay; and removed municipal eminent domain authority and antitrust immunity.”*

(The Baller Herbst Law Group A Professional Corporation June 8, 2006, p. 3)

However, in the spring of 2005, the bill was amended twice which resulted in loosening the stringent requirements significantly. The compromise took the form of giving underserved municipalities a right of first refusal process, added a grandfather clause for municipalities already in the deployment stage, and allowed municipalities to offer services without a vote, unless the services became retail communications services.

Despite many of the bills dying in committee, the power of threatened future legislation at both the state and the federal levels has spurred municipalities to act in all states, regardless of the status of their state legislation on this issue.

## **A New Wave of Federal Legislation**

As states have considered legislation, so has the U.S. Congress. Congressional leaders have agreed for some time that the Telecommunications Act of 1996 needs to be rewritten to reflect the many developments in telecommunications that have occurred during the last decade. As of June 2006, there were a dozen bills or so bills relating to Internet and broadband adoption. Some of these bills include: Internet Freedom and Nondiscrimination Act of 2006 (HR 5417), Internet Freedom Preservation Act (S. 2917),

Prepackaged News Story Announcement Act of 2005 (S. 967), American Broadband for Communities Act (S. 2332), Broadband Rural Revitalization Act of 2005 (S. 497), Broadcast Ownership for the 21<sup>st</sup> Century Act (HR 1622), Fairness and Accountability in Broadcasting Act (HR 501), Internet Non-Discrimination Act of 2006 (S. 2360), Media Ownership Reform Act of 2005 (HR 3302), etc.

Below is a description of the main bills relating directly to municipal broadband that currently are in committee in Congress.

- H.R. 2726: “*Preservation Innovation in Telecom Act of 2005*” was introduced by Representative Sessions and proposes state and federal barriers to Municipal Wireless Networks. In essence, it prohibits municipal officials from providing telecommunications, cable or information public services except to rectify market failures by Incumbent Local Exchange Carriers (ILECs) to provide such service infrastructures. This legislation is viewed as the most prohibitive of the four federal bills. As of June 17<sup>th</sup>, 2005 this bill was referred to the House Subcommittee on Telecommunications and the Internet.
- S. 1294 was introduced by Senators Lautenberg and McCain ; it is called the “*Community Broadband Act of 2005.*” The bill would amend the Telecommunications Act of 1996. It preserves and protects the ability of local governments to provide broadband capability and services. The bill will prohibit any state policy or regulation from restricting or prohibiting any public provider from providing, to any person or public or private entity, advanced telecommunications capability or any service that utilizes such capability. The bill, however, protects incumbent providers by mandating that the municipality not discriminate against a telephone company project when it acts as both a competitor and the franchising authority. As of June 23<sup>rd</sup>, 2005 this bill was referred to the Senate committee on Commerce, Science, and Transportation.
- S. 1504 was introduced by Senator Ensign; it is entitled “*The Broadband Investment and Consumer Choice Act of 2005.*” This legislation will require cities to inform private providers of plans to build municipal broadband networks; will allow bids from private sector companies to deploy, own, and operate the infrastructure; and will give preference to non-governmental organizations in the required bid process. Essentially it creates a market-driven marketplace and eliminates government-driven competition. As of July 27<sup>th</sup>, 2005 this bill was referred to the Senate committee on Commerce, Science, and Transportation.
- HR 5252 Representatives Barton and Rush introduced legislation entitled the “*Communications, Opportunity, Promotion, and Enhancement (COPE) Act of 2006.*” This is a large telecommunications bill designed to update U.S. laws to address changes in voice, video and data services. The bill allows phone companies to enter the broadband market nationally without getting permission or approval from local sectors. Additionally, the bill would authorize the Federal Communications Commission to enforce principles it has issued that call on

broadband Internet providers to allow consumers unfettered Internet access and allow providers to run any Internet-based applications. On June 28<sup>th</sup> of 2006 this bill was sent to the Senate Committee on Commerce, Science, and Transportation.

- The most recent and most comprehensive of the bills is S. 2686 introduced by Senator Stevens. This legislation seeks to reform existing communications laws affecting broadband and video access, the universal service fund, video franchising, wireless spectrum, community Internet, and network neutrality. The bill is called the “*Communications, Consumer’s Choice and Broadband Deployment Act of 2006.*”<sup>15</sup> The bill itself attempts to address such issues as the war on terrorism, interoperability and universal service.<sup>8</sup> The language of the bill would allow telecommunication companies the ability to “charge fees to preferred businesses? for speedier Internet delivery”<sup>15</sup> and the ability to block competitors’ content entirely. This bill is important to municipal broadband issues because it permits telecommunication companies to charge competitors higher rates for service. For example, a telecommunications company would be able to charge a public entity that has access to public infrastructure and a subsidized business model an exorbitant amount of money to access the company’s high speed lines. This in effect legally sabotages any effort by the municipality to provide any advanced telecommunications services. As of June 13<sup>th</sup> 2006 this bill was referred to the Senate committee on Commerce, Science, and Transportation.

Within S. 2686, both Title V and Title VI address municipal broadband directly. Both contain provisions that will “preempt any State or local law, regulation, rule or practice that is inconsistent with the requirements” of the bill. If passed, these provisions in S. 2686 will affect municipal broadband in several ways.<sup>8</sup>

Municipalities must allow access to “public rights of way” without discrimination in favor of itself or any other advanced communications carrier it might be affiliated with. Municipalities must publish public notices of its intent to provide advanced telecommunications services and “provide opportunity for commercial enterprises to bid for the rights to provide such capability during a 30-day period following publication of notice.” Section 2.D. specifically points out that the public provider must also publish information if it intends to serve advanced communications capabilities to low-to-moderate income areas or other similar areas. S. 2686 has a provision of the right of first refusal where the public provider may only proceed with provider services if no private company submits a bid in the 30-day period. If passed, the bill will also grandfather public providers who are “providing advanced communications capability to the public as of April 20, 2006” or are in the RFP process, have networks being built, or have projects that have stalled pending litigation begun before March 1, 2006. S. 2686 would exempt any network whose sole intention is to serve public safety and does not serve the public in any other way other than through municipal uses.

If passed in its current form, S. 2686 has the potential to limit municipal broadband. In response, Senators Snowe and Dorgan submitted an amendment that “would have ensued meaningful protection for Net Neutrality (NN), preventing telecommunication companies

from “turning the Internet into their private toll way.”<sup>10</sup> The amendment has been placed on hold and is waiting further discussion in committee at this time.

## **Legislative Effects**

Since June 2005, our research team has created a dynamic and evolving database of all municipal wireless initiatives in the United States. As of June 2006, we have a total of 357 entries. The data that we have collected spans multiple categories including information on the shape, form, uses, and technologies of the network itself; the business plan and or service delivery plan; the status of the development/deployment of the network; the social impacts of the network; and the marketing/PR language used by the owners and users of the network.

The database has been populated through a variety of methodologies. In most cases, information was obtained through the use of the Internet, using crawling techniques through municipal sponsored websites, press releases, public documents and online news and weblogs. In addition, when information proved scarce or dubious, municipalities were called, and information was supplemented and verified via phone.

We have queried the states in which legislation has been passed or is pending regarding municipal wireless initiatives. Drawing from one subsection of fields from the database, we have compiled the statuses of all municipalities within those states concerning their efforts to build municipal wireless broadband networks.

We have developed a typology in order to better categorize the results of our search. All municipalities can be placed in at least one of five categories. Our five categories are:

1. Development/Deployment Slow Down
2. Development/Deployment Acceleration
3. Reduction/Limitation of Services, Customers or Network
4. Business Plan Change
5. Technical/Delivery Change

Each category is discussed below. The cities which fall into this category are listed and textual examples are provided to support the category. It is important to mention that these categories are not mutually exclusive and in many cases a single municipality can be placed in several categories in that their response to state legislation was diverse and complex.

## Development/Deployment Slow Down

In several cases, the municipality in question has been required to reevaluate its implementation plan for a broadband network, setting dates further out into the future for eventual deployment. In all of these cases, the municipality has complied with requirements to issue and consider RFQs/RFIs from at least several viable vendors. In addition, the municipality may have had to conduct referenda, feasibility studies, and/or comply with various restrictive regulations mandated by its state legislation.

Exemplary municipalities that fit this form of response are:

- Bristol, Virginia
- Clam Union Township, Mich.
- Clarksville, Tenn.
- Jackson, Tenn.
- Lafayette, Louisiana
- Windom, Minn.
- St. Paul, Minn.
- Dunedin, Florida
- Oakland County, Mich.

For example, in the case of Lafayette, La., a referendum was needed in order for the municipalities' utility provider to be able to provide broadband services. The referendum was successful, but drastically slowed down the implementation of the project: "...voters said yes to the city's fiber to the home project. With a 27% turnout, 12290 (62%) voted to authorize the Lafayette Utilities System to sell up to \$125 million in bonds for a fiber to the home and business project."<sup>19</sup>

In the case of Bristol, Va., the operators of the network OptiNet were required to submit cost studies to the Virginia State Corporation Commission (SCC), which is the state's public service agency. In December 2004, a report from a SCC's Hearing Examiner, according to OptiNet, cleared Bristol Virginia Utilities of allegations that the unit subsidized its telephone service with income from its other operations, and the ruling was upheld by the state commission in February 2005.<sup>20</sup> These legal battles began in 2002 and retarded the growth of OptiNet for three years.

Both Windom, Minn. and Clam Union Township, Mich., were forced to ask local telecommunications companies to provide broadband service before implementing their own. In the case of Windom, despite failing to pass a referendum to start its own telephone company with a two-thirds majority, as required by state law, the local telecommunications company allowed the municipality to move forward with their plans for broadband deployment after the ILEC stated they would not bring DSL into the county. Clam Union Township was forced to both request local telecommunications companies to provide the service (which was not provided) and to conduct a feasibility study, which determined it was, indeed, needed.<sup>21</sup>

In the case of Clarksville, Tenn., in order for the municipality to enter the telecommunications field, the Private Act must be passed by a two-thirds majority of the City Council, or by a majority of Clarksville voters during a public referendum. Clarksville Department of Electricity was sought that the Private Act to be passed by the City Council so as not to delay the deployment further.<sup>22</sup> Also in Tennessee, Jackson County and Madison County have had two failed petitions between them, both calling for a public referendum allowing the Jackson Energy Authority to move forward with its telecommunications plans.<sup>23</sup>

The municipality of Dunedin, Fla., had to wait approximately two years since the launch of an RFP to move ahead with Wi-Fi plans.<sup>24</sup> Both Oakland County, Mich., and Dunedin, Fla., are classic examples of problems that municipalities can encounter when they have to ask for permission from a utility that is not owned by the city.<sup>25</sup> Similarly, St. Paul, Minn., was forced to suspend their development and deployment plans until they had completed a broadband assessment and economic impact study. The study examined the options available to St. Paul in implementing a wired and/or wireless broadband network and examined the impact of this network on economic development issues.<sup>26</sup> Again, this resulted in a significant slow down in intended deployment plans.

## **Development/Deployment Acceleration**

In several states, broadband/telecommunications legislation was enacted with what is commonly referred to as a “grandfather clause”—that is, a legally allowed exception to new legislation. Thus, municipalities which were in the process of developing or deploying a network at the time that the new legislation passed aren’t held accountable to the new laws but are “grandfathered in” under the older laws if deployment is completed before an agreed upon date. These due dates had the effect of encouraging some municipalities to dramatically accelerate the development and deployment of their networks to make the legal cut off of the impending anti-municipal legislation. Often municipalities met the specified requirements, typically by having a single paying customer or a completed infrastructure in place.

This legislation had the potential to prohibit all future municipal deployments unless the network was already in operation when the bill became law. As a result, many cities accelerated the timetables for their initiatives to ensure that their networks were grandfathered. While streamlining innovative initiatives may have provided benefits to communities, many cities may have chosen less than optimal business models and technology solutions or made questionable financial assumptions in order to beat legislative deadlines. This acceleration, then, could have had the opposite effect that lawmakers intended – instead of urging municipal leaders to carefully consider and plan their broadband initiative, they were urged to rush through to make sure their community’s broadband needs were met.

Three municipalities that meet these criteria are:

- Kutztown, Pa.
- Upper Dublin, Pa.
- Philadelphia, Pa.

All three of our examples are from Pennsylvania. Pennsylvania House Bill 30 allowed municipalities to claim exempt status from the state law prohibiting municipally sponsored broadband networks if they were able to claim one paying customer before January 1<sup>st</sup>, 2006. Paul Leonard, the city manager of Upper Dublin Township, stated: "...the system needed to be operational and providing telecommunication service for a fee to customers within the Township by January 1, 2006. By meeting this deadline, the Township preserved its ability to offer broadband services... since we were able to make our system operational before the deadline, the Township will be able to offer competitively priced telecommunications broadband services to residents and businesses..."<sup>27</sup> In an interview, Frank Caruso, the CIO of Kutztown, Pa., stated that Kutztown also "was able to deploy a network with paying customers in time for the January 2006 deadline."<sup>28</sup>

Perhaps the best example of the effect of a grandfather clause is the municipality of Philadelphia, Pa. In many ways, the development of Philadelphia's wireless program spurred the state of Pennsylvania to enact HB 30. However, negotiations with state officials granted Philadelphia the ability to create its network as long as the city met the January 1, 2006 deadline and allowed a non-profit, Philadelphia Wireless, to actually own the network.<sup>29</sup>

## **Reduction/Limitation of Services, Customers or Network**

In some states, legislation has been passed that limits municipal telecommunications services geographically--by location, for example, such as low-density or rural areas; by population, meaning services can only be offered to low-income customers; or by services, such as for emergency or public safety systems. Oftentimes, the anti-municipal law is lenient towards municipalities trying to serve low density, low population areas. Other legislation allows the municipality to operate a network, however, only in extenuating circumstances.

Examples of this form are:

- New Orleans, La.
- Dayton, Ohio
- Muskegon County, Mich.

"...Deputy Mayor Greg Meffert described how the city used Wi-Fi and VoIP to re-establish communication in New Orleans, an effort that, Meffert said, has come under fire from the ILEC, BellSouth Corp... There is a law in Louisiana, passed about a year ago, that bars municipalities from competing commercially with private interests for

communication services... That municipal network legislation includes an exception in emergency situations.”<sup>30</sup>

To accommodate state legislation, the municipality of Dayton, Ohio has agreed to only provide services outdoors, so as not to compete with local providers. According to the municipalities’ leaders, "The city's deal is streets, sidewalks and green spaces. That's intentional because I don't want to take any business away from a (Telco Systems) or a cable company that's already providing a service.”<sup>31</sup>

In Muskegon County, Mich., in response to pending state legislation, municipality officials created the Digital Divide Investment Program in which certain populations and geographic areas described as underserved would be allowed, and even encouraged, to develop some form of municipally sponsored broadband program. “The DDIP is intended to mobilize broadband investment in geographic regions where high-speed Internet service may not be available or where such service is unaffordable for the average [customer]... Increasing broadband adoption rates in [Lower Michigan] communities is the ultimate goal of the DDIP.”<sup>32</sup>

## **Business Plan Change**

The municipalities that fall into this category have moved forward with their plans to develop and deploy some form of broadband network. However, each of them has been required to change the original model to accommodate legislative restrictions. In most cases, these municipalities were forced to provide services indirectly, either through public private partnerships with telecommunications companies and/or Internet service providers, or through the creation and/or partnership with a non-governmental organization.

Exemplary municipalities that fit this form of response are:

- Alexandria, Va;
- Charleston, S.C. ;
- State College, Pa;
- Chelan County, Wash.;
- Daytona Beach, Fla.;
- Glenwood Springs, Colo.;
- Houston, Texas;
- Jackson, Tenn.;
- Pend Oreille County, Wash.
- Cincinnati, Ohio

Pen Oreille County, Wash., created the Pend Orielle County Network as a smaller subsidiary of NoaNet, a nonprofit corporation. This agreement allows Pend Orielle County to lease its bandwidth wholesale to private ISPs to be re-sold to consumers, allowing residents to receive broadband services while not violating Washington state law which forbids a county from offering telecommunication services directly.<sup>33</sup> Another county in Washington, Chelan County, has built and operates a wholesale broadband

network with retail service providers offering services to end-users on the network. In this case, 14 local companies, using the district's fiber network, offer broadband services directly to county residents.<sup>34</sup>

In order to comply with Pennsylvania state law, officials of State College had to create a business plan in which the municipality was not the owner of the network. In an interview, Tim Gratton, the municipal CIO, stated: "State College does not intend to own the network in anyway. Instead it simply wants to have a wireless network of some kind offered to the area. Because the municipality does not own the network, State College won't infringe on current laws."<sup>35</sup>

In the case of Daytona Beach, Fla., the network is owned by the vendor to accommodate the Florida state law. Steven Rolsten, the Information Technology Manager for the municipality of Daytona, said in an interview that "... the vendor owns the network. It provides service and the municipality provides access to public infrastructure... The current agreement allows the network to operate within the law, since the municipality does not own the network, nor is free access provided..."<sup>36</sup>

Lily Pad is a partnership between the City of Cincinnati, OH, Time Warner Cable and the Lily Pad non-profit organization wherein free wireless connectivity and access is made available to the municipality. The initiative is interesting and unique for four reasons: 1) the project is funded by contributors, 2) it is managed by volunteers (i.e. no use of municipal funds), 3) the initiative is the country's first interstate wireless hotzone that interconnects Cincinnati, OH, Covington, KY and Newport, KY, and 4) a telecom operator is engineering Lily Pad and supports municipal wireless efforts.<sup>37</sup>

In three municipalities, public outcry forced local leaders to change business plans to accommodate state laws. Officials in Glenwood Springs, Colo., decided the municipality should act as a wholesaler and sell bandwidth to 10 Internet service providers.<sup>38</sup> Charleston, S.C., changed its business plan so as to not offer direct service. In response to criticism, a municipality official said that "because Charleston is not subsidizing the project," there is no problem with regulations.<sup>39</sup> Houston, Texas also altered original plans, so that no taxpayer dollars would be used directly to fund the wireless network. In an effort to placate pressure from Telecoms, Mayor Bill White "pledge[d] [that] no taxpayer money will be used" towards the network.<sup>40</sup>

## **Technical/Delivery Change**

In several cases, legislation prohibited or restricted municipalities from competing using one form of broadband delivery (WiFi, Fiber, DSL, Cable, or Dial-Up) which forced local governments to change the services or technologies on which their deployment plans were structured. In several cases, the technical specifications of the network were changed from WiFi, Fiber, DSL, Cable, or Dial-Up and/or the speed (upload/download specifications) was changed.

The cities which serve as examples for this are;

- Alexandria, Va.;
- North Kansas City, Mo.

In response to Missouri state law prohibiting municipalities from competing with cable-based broadband delivery, North Kansas Municipality sought alternative forms of delivery such as DSL, fiber and WiFi. Missouri law does not allow cities to operate cable television systems unless it is approved by a vote of residents.<sup>41</sup>

Virginia law prohibits municipalities from providing broadband services that compete with private local Internet service providers. So the municipality of Alexandria responded by creating free wireless Internet that only served the outdoors. The technology was devised so that it would not penetrate buildings, and thus not compete with local providers. “The connection is also not expected to work indoors. These limitations mean that for businesses and residents alike, the city's free wireless access would not be a viable alternative to subscribing to an Internet service provider, so the question of government competition with private enterprise doesn't arise.”<sup>42</sup>

## Discussion

As changing technologies have made broadband affordable for cities, cities have jumped into the broadband market, seeing it as an alternative to poor and spotty service and high prices. They have also seen it as a way to potentially generate more tax revenue, spur economic development by enticing more business, open up tourist markets, provide service for municipal employees, improve delivery of municipal services, and address digital inclusion efforts. For example, Maine was the first state to pass legislation authorizing cities in the state to build their own municipal broadband networks for public safety and civic services. Much of the media portray these efforts as noble, a “David and Goliath” campaign, as cities battled incumbent telecommunications companies and the state legislatures lobbied by them. The public outcry seemed to be split between support for development of municipal broadband programs and opposition to big telecommunication business.

This public momentum has driven many of the state legislative efforts to end in compromise, resulting in less stringent, negotiated legislation.

States that have pending legislation have learned from others and have created bills that are far more flexible in what municipalities can and cannot do in their efforts to implement more affordable broadband. Similarly, policy decision makers have also learned more about incumbent providers and what roles they should and should not serve in the delivery of services.

The intent of the proposed legislation at both the state and federal levels is to ensure cooperation and communication between the public and private sectors when considering wireless broadband networks for public access. In a nutshell, this legislation aims to

achieve three objectives: measure local resident support, develop a sound financial plan and maintain a level playing field with private telecommunications carriers. In most states, the compromise at which the legislation has settled, or is settling, has focused on these issues rather than outright prohibition or punishment for municipalities engaging in this space.

These legislative compromises have led to compromises and continued negotiations between municipalities and telecommunications incumbents. As seen from the data presented above, many cities have changed their approach to offering municipal broadband. The five forms of change that we described above can be placed into two very broad categories: the deployment of a network (e.g. rate of deployment) and limitations on types of customers and geographic locations (Development/Deployment Slow Down, Development/Deployment Acceleration, Reduction/Limitation of Services, Customers or Network). The second broad category are those municipalities which have responded by changing the nature of their organizations, either through a change in business plan, change in partners, change in services offered, or a change in the technological platform upon which the services are offered (Changes to Services, Customers or Network, Business Plan Change, Technical/Delivery Change).

While changes in deployment are interesting, changes in organization typify the core of the negotiations between municipalities, states and telecom providers and between compliance and organizational work-arounds to get all needs met. In most cases, these partnerships have fallen into four forms: community network, public utility, private consortium and cooperative wholesale (Tapia, Maitland and Stone, 2006; Stone, Maitland and Tapia, 2005) The community network hybrid involves the municipality or a non-profit entity obtaining funding from taxpayer funds, foundation grants, donations from citizens and businesses, and advertising revenue from a splash page. The municipality or non-profit entity then builds the network and provides marketing and customer service. Under the public utility model, the need to deploy, operate, and manage broadband service for its citizens requires a local government to establish a new municipality department or combine operations with existing water, gas, and/or electric departments. The broadband utility's capital cost is funded through the use of taxpayer dollars and revenue bonds. The public utility installs the network, markets the service, and provides customer support and billing. The private consortium model involves one or many private sector provider(s) offering broadband service to end users. Funded by private investment, the provider offers access to both the municipality and to subscribers for a monthly fee. The provider is responsible for operating and maintaining the network and providing technical support, customer service, and billing. Lastly, in the cooperative wholesale model, the municipality builds a broadband network to provide its broadband and telecommunications needs. Funding for the network comes from taxpayer dollars, state and federal grants, foundation grants, and/or bonds. After securing funds, the municipality issues a Request for Proposals (RFP) for the design, deployment, and management of the network. After the network is deployed and the municipality has completed in-sourcing its broadband needs, the excess capacity is sold to private providers including Wireless Internet Service Providers (WISPs), Incumbent Local Exchange Carriers (ILECs), Competitive Local Exchange Carrier (CLECs) or another

local Internet Service Provider (ISP) at wholesale prices. The private providers then compete for business and residential subscribers while providing marketing, technical support, customer care, and billing. Free cash flow (or the total positive cash flow remaining after network upgrades and maintenance) generated from the wholesale fees can be used to fund a number of programs, including economic development and digital divide initiatives. As an alternative, instead of the municipality funding and managing the network, the community can create a non-profit organization to manage the network. The local government provides low-cost access to light poles and other assets for the network deployment and acts as an anchor tenant for the network. The non-profit partners with private companies to both build and manage the network, resulting in a smaller staff. The non-profit's focus is to monitor network management, develop effective social and/or economic development programs, and attract and develop relationships with retail providers (Tapia, Maitland and Stone, 2006; Stone, Maitland and Tapia, 2005).

In response to proposed, pending and passed state legislation regarding municipal broadband initiatives (and perhaps future federal initiatives), many municipalities have blurred the boundaries between public and private. Municipalities have created and entered into complex partnerships that allow them to have access to high quality affordable broadband service, while staying within the letter of their states' laws. As these partnerships emerge, they demand further study in that they bring up new questions as to security and privacy of the hybrid networks, future maintenance, service contracts, pricing, universal access, digital inclusion and open access.

## **Conclusions and Future Research**

In 2006, policy issues are at the forefront. According to Greg Richardson, the founder and managing partner with Civitium, the leading consultant to municipalities developing municipal broadband initiatives, questions about what role cities had in broadband initiatives and what that role looked like defined 2004 and 2005. He states that different questions define 2006. This year's questions include "whether their initiatives will succeed or fail, whether the technology works, whether cities are going about the process correctly, and whether cities are making the right policy decisions."<sup>43</sup>

Despite the similarity of technological platforms across municipalities, it seems that social factors play a huge role in how, when and in what form telecommunications services are taken up by municipalities. In recent work, the diffusion of the telephone was examined by MacDougall<sup>44</sup>, among several American cities. He argues that the telephone diffusion rate across these cities differed despite sharing similar technological infrastructures. He argues that societal attributes play a key role in diffusion. Similarly, we contend that societal factors need to be examined for each municipality considering deploying some form of municipal network in order to better understand how broadband is perceived and interpreted and how it is implemented and adopted.

In some cases, municipal broadband projects have been significantly delayed or cancelled altogether due to state legislation. Even if municipal broadband networks are not

deployed to the public, there may yet be positive outcomes. State legislation and municipal action may spur private sector innovation, or at least wider broadband deployment. Recently, 20 companies (including AT&T) submitted an intent to bid on the broadband project for Grand Rapids, Michigan. “Having tried to stop cities from offering cut-rate or free wireless Internet access to their citizens, some large phone and cable companies are now aiming to get into the market themselves,” writes Amol Sharma of the Wall Street Journal.<sup>45</sup> An example of this currently is in New York City where ISPs like Cablevision and Verizon are fighting for broadband customers. In order to compete with Verizon—which is deploying its FiOS fiber-to-the-premises (FTTP) technology—Cablevision has revealed three changes to its data service, upgrading downstream/upstream flagship service and introducing two new options which offer higher downstream/upstream service. This makes sense. Yet another aspect of municipal broadband that demands further study is answering the following question: how have both state legislation and municipal actions encouraged CLECs, ILECs and ISPs to provide higher quality services to more customers at more affordable rates?

Central to the broadband question is the issue of universal access and digital inclusion. The growth of broadband adoption has been very strong in the middle-class, among African-Americans and among those with lower levels of education. According to a Pew Internet study,<sup>42</sup> “broadband adoption grew by 68% since March 2005 among people with incomes between \$40,000 and \$50,000. Broadband adoption among African-Americans increased by 121% between 2005 and 2006.<sup>46</sup>” Similarly, broadband users who live in a household earning less than \$50,000 a year are more likely than those with higher incomes to put content online. Additionally, advanced telecommunication infrastructures like wireless broadband create opportunities for job growth, higher wages, increased property values, and new companies.<sup>47</sup> As more and more marginalized groups access the Internet, this will set the agenda for the universal access debate between the federal government and the general populace. As broadband access becomes essential for local growth, the federal government may play a greater role between the private sector and local governments for ensuring public or quasi-public networks. For policy decision-makers seeking to promote universal access and economic development in local markets, it is vital to understand the importance of information access<sup>48</sup>. Another pressing question that demands to be addressed is what are the social, economic and political impacts for communities that have instituted some form of public broadband which does approach universal access?

It is important to note that progress has been made in telecom and municipal broadband reform. This said, nonetheless, the most difficult challenge of policy implementation remains on the horizon. Establishing effective and responsive federal, state and local legislation that furthers our free-market enterprise all the while fulfilling the growing needs of consumers will be quite a challenge<sup>45</sup>. Specifically, testing the limits of competition in unbalanced markets and creating laws that promote economic development and universal access will require extremely informed and very competent policy makers.<sup>46 47</sup> The daunting task of providing universal access must be put at the top of governmental agendas if the increasing divide between the telecom/knowledge and disparaged groups is to ever be fully addressed. As federal and state legislation takes

center stage, the legislations being crafted reflect this increased dependency on information communication technologies like municipal broadband as knowledge networks. In turn, the influence and impact of telecom policy and regulation on local societies is becoming evident. The opportunities are enormous and the challenges are unlike those encountered in the past history of telecommunications.

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