



Community Broadband as an Economic Development Tool

Presentation

National Association of Telecommunications
Officers and Advisors

November 7, 2008



COMMUNITY BROADBAND

Local governments are in the unique position of knowing firsthand how important broadband services are to our residents, businesses, and first responder personnel. There is no question that universal broadband access is vital to local and national economic growth, educational services, and the efficient functioning of government at all levels.

Unfortunately, advanced broadband services are not available in all areas of the country, especially in more rural and economically-challenged communities. As a result, municipalities across the nation, often in public/private partnerships, are entering the broadband marketplace in direct response to growing consumer demand.

NATOA supports federal legislative efforts, such as the Community Broadband Act of 2007 (S. 1853 and H.R. 3281) that provide local governments with the option to provide these advanced services when the private sector is unwilling or unable to do so.

SOME FACTS ABOUT BROADBAND DEPLOYMENT

- According to the Organisation for Economic Co-Operation and Development (OECD), the United States currently ranks 15th in the world in broadband penetration.
- The Information Technology & Information Foundation (ITIF) also ranks the United States 15th using a composite metric of penetration, speed, and price.
- According to a report prepared for the U.S. Department of Commerce, Economic Development Administration, communities with mass-market broadband experienced more rapid growth in employment and the number of overall businesses in comparison to communities without broadband.
- Local governments support and encourage the deployment of broadband services to all residents.
- Widespread broadband deployment can generate up to 1.2 million jobs.
- Accelerated broadband deployment to seniors and the disabled could result in over \$800 billion in potential savings by lowering medical and institutional living costs and increasing output generated by increasing the labor force.



Introduction to NATOA's Broadband Principles

For centuries, the United States has been a world leader in economic development and social initiatives. From the 19th century railroad systems and the early 20th century electric and telephone networks' expansion, to the post-World War II highway system and airport construction, investments in physical infrastructure have been instrumental in supporting social and economic progress.

Today, the United States is at a critical juncture. Economic and social development increasingly depend on advanced communications infrastructure. However, there is no strategy in place for widespread deployment of next-generation broadband networks. Our failure to take immediate action threatens to relegate our country to second-class status in the broadband age.

The future of broadband is about more than viewing television, surfing the Web and making phone calls. It is about new forms of communication and mass collaboration through the virtually unlimited potential for sharing information, storage capacity, processing power and software made possible through high-capacity bandwidth connections. This collaboration will generate new ideas, accelerate economic development and lead to opportunities for wealth creation, social development and personal expression.

While other industrialized nations have developed strategies for next-generation broadband infrastructure, the United States still lacks a national broadband strategy. The lack of a proactive strategy has effectively ceded control of our broadband destiny solely to the private market without sufficient regard for the public interest or the unique needs of local communities. This approach has not resulted in the investment needed and has failed to realize the many positive externalities created by next-generation broadband networks. The effects of this failure are clearly manifest: fading international rankings for broadband penetration; relatively low bandwidth at high costs; throttling of peer-to-peer communications; and little competition among service providers. Moreover, the future contours of broadband in the U.S. are being defined by a small number of private entities.

NATOA is increasingly concerned that the communities we represent are losing their competitive advantage to communities in Europe and Asia due to the lack of federal and state broadband leadership. This inaction will likely harm the competitive status of local communities with respect to education, healthcare, economic development, standard of living, and the level and quality of civic discourse. Inaction will adversely affect local governments' ability to provide public safety or to create a more sustainable environment for the future.

Local governments have always played an essential role in ensuring that the benefits of communications infrastructure would be available in communities across the United States. Localities will, by necessity and by choice, be part of the solution to our national broadband deficit. To that end, NATOA has adopted its Broadband Principles.



BROADBAND PRINCIPLES

Local governments have always played an essential role in ensuring that the benefits of communications infrastructure would be available in communities across the United States. Localities will, by necessity and by choice, be part of the solution to our national broadband deficit. The National Association of Telecommunications Officers and Advisors (NATOA) supports the development of a National Broadband Strategy consistent with the following principles.

- **NATOA calls for the immediate nationwide deployment of advanced broadband networks.**
- **True broadband requires high capacity bandwidth in both directions.**
- **Fiber to the premises is the preferred broadband option.**
- **High capacity broadband connectivity must be affordable and widely accessible.**
- **High capacity broadband requires open access networks.**
- **Network neutrality is vital to the future of the Internet.**
- **All networks and users have the right and obligation to non – discriminatory interconnection.**
- **Local governments must be involved to ensure that local needs and interests are met.**
- **Local governments must be allowed to build and operate broadband networks.**
- **A variety of options must be considered to cover deployment costs.**



BROADBAND PRINCIPLES

The National Association of Telecommunications Officers and Advisors (NATOA) supports the development of a National Broadband Strategy consistent with the following principles.

1. NATOA calls for the immediate nationwide deployment of advanced broadband networks.

The United States faces a broadband crisis. Broadband network infrastructure is critical to economic growth. New and emerging applications and services demand more bandwidth than can be delivered by most current domestic networks. The gap between the United States and other industrialized nations is growing wider. Our country is becoming a digital also-ran with serious adverse consequences to our economic competitiveness and quality of life.

The United States has a proud history of deploying electric, telephone and transportation infrastructure to all parts of the country. Now we are challenged again. We are behind and the buildout of advanced broadband networks will take time. We must act now!

2. True broadband requires high capacity bandwidth in both directions.

To grow and enhance economic opportunity, local communities must have access to interactive, open, broadband networks with sufficient capacity to meet the increasing information, communications and entertainment needs of their residents, businesses, institutions and local governments. US competitors in Europe and Asia are building broadband networks that can provide bandwidth of 100 Mbps to 1 Gbps to each premise. Those networks serve as platforms for continuing innovation and allow the delivery of new services and applications that will transform these nations' economies and enhance the quality of life. To remain globally competitive, networks in this country should meet or exceed those standards and be designed so that capacity can be expanded by replacing electronics without having to rebuild the networks.

It is important for America's networks to offer symmetrical, high capacity bandwidth in both directions, as with many of the new networks in Europe and Asia. Ample upstream bandwidth empowers network users to become creators and distributors of content and applications, as well as recipients of services. NATOA believes that the success of Web sites featuring user-provided content, as well as the successes of traditional educational, government and public access television, demonstrate that people can and will become content creators if they are afforded the tools to do so.

3. Fiber to the premises is the preferred broadband option.



Broadband networks use several wire-based and wireless technologies, including: copper and other metal wires; coaxial cable, multimode fiber optics; single-mode fiber optics; microwaves; Wi-Fi; and WiMax. The transmission bandwidth and reliability characteristics and capabilities of each technology vary based upon many factors, including: the specific technology; the transmission distance and the connecting and terminal equipment being used. Currently, single-mode fiber optic networks are capable of transmitting the most bandwidth with the highest reliability. They show the best potential to handle increasing future demands for higher speeds and greater quantities of information.

NATOA recognizes that it will not be economically feasible to bring fiber optics to all communities in the near term. Where fiber connection is not practical, other technologies, such as high capacity coaxial cable or wireless, may be viable if they achieve the bandwidth levels described above. In the long run however, the goal should be to make fiber to the premises universally available.

Wireless networks are an important part of the broadband picture. Wireless allows mobility, and offers a competitive choice for Internet access with quick and relatively low cost deployment. Wireless will not be a substitute for an all fiber network but will play a complementary role.

4. High capacity broadband connectivity must be affordable and widely accessible.

An informed citizenry requires knowledge and opportunities for expression. NATOA believes that everyone should be able to access the information and services that high capacity broadband networks will provide. Without reasonable prices and equitable access many of our citizens will not be active participants in the broadband age. Our residents and our society will benefit from wide availability, since the communicative power of the network increases exponentially as more network endpoints are created. High capacity broadband networks can bring to bear the collective ingenuity and enterprise of our citizens to find solutions to the many problems confronting us. NATOA believes that everyone should have access to high capacity networks at reasonable prices.

5. High capacity broadband requires open access networks.

Fiber optic networks continue to demonstrate economies of scale. This characteristic gives the owner of the fiber platform an unbeatable advantage over other service providers. It is expensive – perhaps prohibitively so - to build multiple fiber networks in one community. Thus the owner of the first and therefore dominant network can set unfair terms and prices for others to use it. On the other hand, multiple service providers who can compete over a common platform will fuel innovation in broadband services, which will benefit local communities and society. Thus structural or regulatory measures must be employed to protect the right to non-discriminatory access to networks for all competing service providers and to forestall unfair business practices by network owners. NATOA recognizes



that private developers of new fiber networks must be able to seek a realistic return on investment. This is consistent, however, with providing access on non-discriminatory terms.

6. Network neutrality is vital to the future of the Internet.

It is vital to the future of the Internet that network owners not discriminate in terms of content transport or unnecessarily interfere in communications between end points on the network. Where packet prioritization is necessary network owners must provide similar treatment to all providers of like services. NATOA believes that everyone must have the unabridged freedom to create, post or access any lawful content and services and to attach any devices to the network as long as they do not impair network performance. Many current network traffic management strategies are a function of scarce bandwidth capacity and should not be necessary with high-capacity networks.

7. All networks and users have the right and obligation to non –discriminatory interconnection.

Broadband communications at the local access level can be fast and economical. However, data packets that leave the local access network and traverse the public Internet will flow only as fast as the slowest connections between end points. To facilitate reliable, high-bandwidth, symmetrical, peer-to-peer communications between our communities and to promote the expansion of open access networks, NATOA supports the direct linkage of local broadband fiber network peering points through the use of long haul fiber. All local broadband networks must have the right and obligation to non-discriminatory interconnection with other broadband networks using common, interoperable standards and protocols.

8. Local governments must be involved to ensure that local needs and interests are met.

The desired development of high capacity broadband networks and broadband services will require extensive collaboration among all parties: local communities, regions, state governments, national government, the private sector, interest groups and others. While the U.S. has plenty of broadband capacity in the “long haul” routes, fiber connections rarely reach homes and small businesses. Local governments are central players in ensuring that this “last mile” fiber connection to homes and businesses is achieved. Local elected officials are well positioned to evaluate the infrastructure and economic development tools needed to sustain viability, encourage growth and ensure that the unique needs and specific interests of local communities are addressed. NATOA believes local governments must be recognized as key partners to industry and the states and federal government in broadband development.

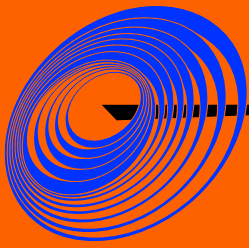


9. Local governments must be allowed to build and operate broadband networks.

Local geographic communities share common interests and offer the best opportunity for acceptance and growth of high capacity broadband. The right of local governments to build and operate broadband networks must not be infringed. Public agencies and community-based non-government agencies also need to have equal opportunity to participate through meaningful investments in communications infrastructure. Communities must have the freedom to meet their unique communications needs. NATOA believes that local governments and the communities they serve must be able to preserve the policy option to own and operate public broadband networks. Any existing prohibitions on local government communications initiatives must be abolished.

10. A variety of options must be considered to cover deployment costs.

It is not yet clear which methods of funding deployment are best. Different methods may be preferable in different communities. For example, networks may be financed by private investment, by government investment, by public-private partnerships, by tax incentives, or by other means. None of these approaches should be prohibited by law or burdened by special restrictions (such as laws that forbid cross-subsidy by governments but allow it for private entities).



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Our New Community Broadband Awards Program

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Recognizing Extraordinary Efforts – NATOA's Community Broadband Awards

By Joanne Hovis

NATOA members stand at the threshold of a revolution—one in which government's technology role broadens beyond internal government services and expands to include government provision of communications services to the public. In recognition of the broadening role of government in technology, NATOA proudly introduced at our recent annual conference in Portland, the Community Broadband Awards, honoring six outstanding individuals and projects that seek to improve government and public options in broadband technology.

NATOA's Board of Directors initiated this program to recognize and highlight some of the many extraordinary efforts going on at the local level to bring the benefits of technology to American communities. Throughout the United States, numerous exceptional leaders in government, business, and the community are serving as champions of local interests and needs in broadband and technology. NATOA's Community Broadband Awards will annually recognize these efforts and achievements. The Awardees will be highlighted on NATOA's website and in the *NATOA Journal*.

Community Broadband Projects of the Year

It will come as no surprise to the members of NATOA that local communities and governments are at the forefront of attempts to expand broadband access and services to the public. For two decades, many local

communities have sought to deploy networks (or encourage the private sector to do the same) that would expand access to broadband communications—in the early days, to cable television services; more recently, to Internet as well as video and voice services. Since the 1980s, many local governments and municipal electric utilities have sought to increase broadband communications availability through ambitious projects including constructing competitive cable television systems, building fiber optics to business areas or development parks to spur economic development, building wireless broadband networks, and deploying fiber optics to all homes and businesses in a community. The recent wave of community wireless networks has been a high-profile continuation of this form of local effort—hundreds of localities are exploring a wide variety of business models and relationships with the private sector so as to promote the interests of their communities. Community broadband networks around the country are successfully serving the public by providing competition, stimulating economic development, facilitating digital inclusion, and improving quality of life.

In Portland, NATOA recognized two of the most exemplary among these many extraordinary projects. First, in the area of wireless communications, NATOA presented a 2007 Award for *Community Broadband Project of the Year* to **PhiladelphiaWireless** and the City of Philadelphia, Pennsylvania, for setting off a wave of community

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wireless projects and leading the way for other communities. The award was accepted by Michael Athay on behalf of the City.

And second, in the area of wired communications, NATOA presented an Award for 2007 *Community Broadband Project of the Year* to the **Pulaski Electric System Fiber-to-the-Home Network** and to the City of Pulaski, Tennessee, for planning and building a path-breaking, fiber-to-the-premises network to secure the economic future of the community and residents of Pulaski. The award was accepted by Ron Holcomb, President and CEO of Pulaski Electric.

Community Network of the Year

Local broadband initiatives are not focused solely on public access, but also on improving government services. For decades, local governments and communities have worked to plan and deploy government communications networks that serve community interests such as public safety, eGovernment, education, and library access. Among such networks are I-Nets, Institutional Networks that were deployed by numerous NATOA member jurisdictions, in partnership with local cable companies. Since the 1980s, I-Net planners have recognized the great cost efficiencies of simultaneous deployment of cable and government network infrastructure, and that such networks could represent a cost-effective means by which cable companies could compensate local communities for their use of public property and rights-of-way. Today, around the country, I-Nets and other government broadband networks serve countless communities by providing connectivity among schools, libraries, government buildings, criminal justice locations, public health facilities, fire stations, police stations, and mobile first-responder vehicles.

In one impressive example of such a project, 19 jurisdictions in three states surrounding the Nation's capital have worked together to interconnect their fiber networks for emergency and

other purposes. The National Capital Region Interoperability Program I-Nets Project is a post-9/11 partnership among 19 local governments, three states, and the Federal Department of Homeland Security to use fiber optics to enhance public safety. In Portland, NATOA proudly presented the Award for 2007 *Community Network of the Year* to the **National Capital Region Interoperability Program I-Nets Project**, for innovative use of community Institutional Networks to protect public safety and promote emergency communications. The award was accepted by the Hon. Jane Lawton of the Maryland State Legislature, on behalf of the National Capital Region.

Community Broadband Organization of the Year

The Community Broadband Awards seek to recognize the importance of local efforts and initiatives in serving community—and national—interests. Numerous other organizations and companies are engaged in similar and complementary efforts to demonstrate the importance of communications infrastructure to our future. One exemplary example is an ongoing effort by the Clinton Global Initiative and Cisco Connected Urban Development to partner with local communities, San Francisco, Seoul, and Amsterdam, to demonstrate through pilot projects the potential of fiber-to-the-premises networking to reduce the need for travel and thereby reduce CO2 emissions. NATOA proudly presented the 2007 Award for *Community Broadband Organization of the Year* to the **Clinton Global Initiative and Cisco Connected Urban Development**, for their joint initiatives to demonstrate the efficacy of community fiber networking in reducing carbon dioxide emissions. The award was accepted by Bas Boorsma and Carolyn Purcell of Cisco.

Community Broadband Visionary of the Year

What drives many Community Broadband initiatives is the need to fill

a gap left by an absence of a Federal broadband strategy. The lack of a coordinated US policy is even more troubling in an era when our competitor nations in Europe and, particularly, Asia, have robust and aggressive national policies to build next generation, high-speed networks. By virtually any account, the United States has lost to other nations our competitive advantage in broadband deployment. Though many have noted our competitive decline, one person in particular has championed the need for a national strategy to reverse that decline. It is much to the credit of our next Awardee that the issue of the need for a national broadband strategy has begun to reach the ears of policymakers and the public. In Portland, NATOA presented the 2007 Award for *Community Broadband Visionary of the Year* to our very own **Jim Baller**, for nearly single-handedly putting on the map the issue of the need for a national broadband strategy.

Community Broadband Hero of the Year

Finally, every project needs a champion, and sometimes an entire community needs one. The final 2007 Community Broadband Award was awarded to an individual who has championed local prerogatives in communications; who has worked to support and protect local initiatives within a broader national context in the interests of promoting the interests of the national as a whole; and who has proven himself a great champion of consumers, local communities, and the public interest. NATOA was pleased to present the Award for *Community Broadband Hero of the Year* to **Commissioner Jon Leibowitz** of the Federal Trade Commission, for visionary and resolute support of localism and local prerogatives in community broadband.

The NATOA Board of Directors congratulates all of the 2007 Community Broadband Awardees. ■



FIBER: IMPORTANT TO YOUR CITY'S ECONOMIC HEALTH

Lafayette, Louisiana's Success Story

By: City-Parish President Joey Durel

During the 1890's municipalities were doing anything they could to get that new technology called electricity to their communities. Like so many, Lafayette, Louisiana found itself being left out because it made no economic sense for a company to invest in the infrastructure required. So, in 1896 the people voted, unanimously, to form their own citizen-owned utility company and take control of their own future. A year later our small town of about 3500 people built the infrastructure of the 20th century and got electricity. Because of what this did to enhance the quality of life for the citizens of Lafayette, today it is the largest city in south central Louisiana.

Interesting how history repeats itself. That same discussion is now taking place all around America, just on a slightly different subject. Today's discussion is whether or not municipalities should provide broadband to their citizens and once again, Lafayette is in the forefront of that discussion. Just as our forefathers did in the 1890's, we asked the "private sector" to provide our community with the essential infrastructure needed to catapult Lafayette into the future. We wanted Fiber to the Premise. Since we already had a fiber loop around Lafayette and were providing broadband to wholesalers who were then selling it to larger companies, they knew we were capable of doing it ourselves. And we could provide not just high speed internet, but also television and telephone service to both residential and commercial customers. Just like in 1896, the private sector providers told our citizens that it made no business sense for them to bring state-of-the-art infrastructure to a town the size of Lafayette, now with a population of around 121,000. And they were right; it really didn't make sense for them to do it. So, I simply told them I understood and asked them to get out of our way. Of course they didn't. After a couple of years of court battles, the Louisiana Supreme Court unanimously authorized us to go forward— just as it had done in 1896. We had already received the approval of our citizens by a vote that resulted in a 62% to 38% victory by the 9th most conservative city in America. Our citizens realized that just as in 1896, if we didn't do it, we were not going to get it.

So, how did we get the support of the citizens of Lafayette? First of all, Lafayette is a very entrepreneurial community, as a result of its unique heritage of cultures that were all forced to the area from somewhere else. That includes the Cajuns, Africans, French, as well as farmers and slaves from Haiti. These cultures had to assimilate in order to survive, and today that assimilation is clearly represented by our "gumbo." Add to that mix the risk-taking wildcatters that came to south Louisiana at the turn of the 20th century, and you have a town that works together not just to survive, but to excel.

If we were going to get this "infrastructure of the 21st century" our community had to know that it was a risk worth taking. I knew that the Chamber of Commerce had a great deal of credibility in town and, as a past chairman, knew that it was a good place to start, but not the only place. I also enlisted credible, civic minded business people to be my eyes on the project and ultimately a conduit to the business community. In the end, 20 past chairmen of the Greater Lafayette Chamber of Commerce stood together and endorsed our initiative. They did so because they did not see the project as a local government's effort to compete with the private sector, but as a way to spur economic development, enhance educational opportunity, and contribute in multiple other ways to the well-being of all residents, businesses, and institutions in the community.

But, again, that wasn't enough, because some perceived those individuals as not being representative of the entire community. And, while every business organization in Lafayette endorsed the project, the thing I was always most proud of was getting the Democrats and Republicans to stand hand in hand (holding their noses) for the greater good of the community. Additionally, we had mayors of small towns in our parish supporting it, because they knew that while they were not going to get it anytime soon, we represented their best hope for the future. Grass roots organization played a huge role in getting support of not just the tech savvy, but the average consumer as well. We also enlisted the support of the Louisiana Municipal Association and The Louisiana Conference of Mayors. And we got all this support because we told the truth and offered hope for the future.

I want to stress how important truth is. We were bombarded with half truths, misleading statements and even outright lies. But we had the experience of other communities to look to as we put together a top notch multi-disciplinary team of fulltime in-house staff, as well as assembling outside technology, legal, financial, and public communications experts. Since we had done our homework on what other communities had gone through, our team was ready to refute, *immediately*, every one of the misleading or untruthful statements the incumbent providers threw out. With the help of our team, we developed a very conservative business plan that estimated costs higher than expected, revenues lower than expected, and timetables longer than expected; simply a plan for the worst and hope for the best approach. The key to our success was

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that, unlike our adversaries, we were always candid and truthful with everyone, especially the people of our community.

As expected, this became more than just a community battle, and anyone contemplating an initiative such as this has got to be prepared to fight for the long haul and on multiple levels. As I stated earlier, our legal battles took us all the way to the Louisiana Supreme Court at a cost of around \$1.3M (best marketing dollars we have ever spent). In addition, we had to fight for our project before the Louisiana Legislature, the Louisiana Bond Commission, the Louisiana Public Service Commission, and the City and Parish governing bodies. We also had to respond to constant requests for briefings and interviews with the local, state, national, and international media. In appreciation of our thorough, candid, and timely responses, the media consistently portrayed our initiative in a highly favorable light.

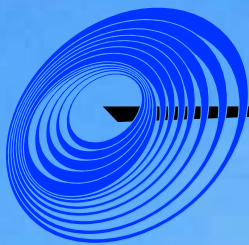
Today, we are installing that infrastructure of the 21st century, and in January will begin servicing our first retail customers with great television and phone service as well as entry level internet service of 10mbs. All three services will be at about 20% *cheaper* than what we are paying for less quality today. But, most exciting is what we will do with our *intranet*. Every customer will have peer to peer speeds of 100mbs...for **no additional cost!** So, an engineering firm sending data to an architectural firm or a video game company communicating with our university will do so with 100mbs, both ways. And we could give them more, but the computers are the bottleneck today.

As technology improves, Lafayette will be ready, and we expect to become a laboratory to research what could be done with not only 100mbs, but what can be done with 1000mbs or 10,000mbs. We hope that this will enable others to see what most of America's communities are missing, particularly those in states that have posed legal barriers to projects such as ours, and that it will encourage the federal and state governments to sweep such barriers away.

So, don't let anyone fool you into seeing this simply as a "government competing with the private sector" issue. This is a huge *free enterprise* initiative that I believe will encourage creativity and economic development in Lafayette and other cities that decide to fight the battle. Our entire community, both the wealthiest and the poorest, will have inexpensive access to super fast broadband and Lafayette will surely solve the digital divide issue like none before us. The true "Broadband Heroes" will be the entrepreneurs that take advantage of this infrastructure and find ways to provide new services that will improve the quality of life for our citizens in ways we can't even imagine. The day will come, I believe in our lifetime, when we look back and laugh at the discussion of 100mbs being considered super fast. The question is how many other cities will be able to share that bit of humor along with us in Lafayette? Will your community be laughing with Lafayette? I hope so.

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Lafayette, Louisiana's Success Story

Author Information: Lafayette (LA) City-Parish President Joey Durel has been a huge supporter of technology initiatives, appointing the first-ever Chief Information Officer for Lafayette Consolidated Government shortly after taking office. Four months into office, Durel was instrumental in spearheading the Lafayette Utilities System Fiber Project, which will serve its first customers in January of 2009. He received the Fiber to the Home Council "President's Award" in 2005, the American Public Power Association Spence Vanderlinden Public Official Award in early 2008, and just recently was named the NATOA 2008 Community Broadband Hero of the Year. He is currently the Chairman of the Policy Makers Council of the American Public Power Association, and was just recently appointed by Louisiana Governor Bobby Jindal to the Technology Council of the Southern Growth Policies Board. Under Durel's leadership, Lafayette is well on its way to becoming the most-connected city in America.



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WiFi in Skokie – Why Not? The SkokieLink Project

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WiFi in Skokie – Why Not? The SkokieLink Project

By Albert J. Rigoni and Nori A. Van Elzen

Why did Skokie become one of the first Illinois municipalities to jump on the WiFi bandwagon? The answer is that this is a natural fit for our community. Our schools advocate providing access to information anywhere, anytime. It's natural for us to provide WiFi access outside the library, in local parks, and near the community college. The Internet has become the place for people to seek information, pay bills, apply for jobs, and communicate with friends and family. Providing WiFi access in the downtown areas assists with making the downtown a destination area and allows visitors and residents to access the Internet during lunch breaks or after school or work.

The Village of Skokie has a population approaching 65,000. We are a northern suburb of Chicago located on 10.2 square miles. According to the 2000 Census, our population base increased 6.6% from 1990 making the Village the 12th largest municipality in Northeast

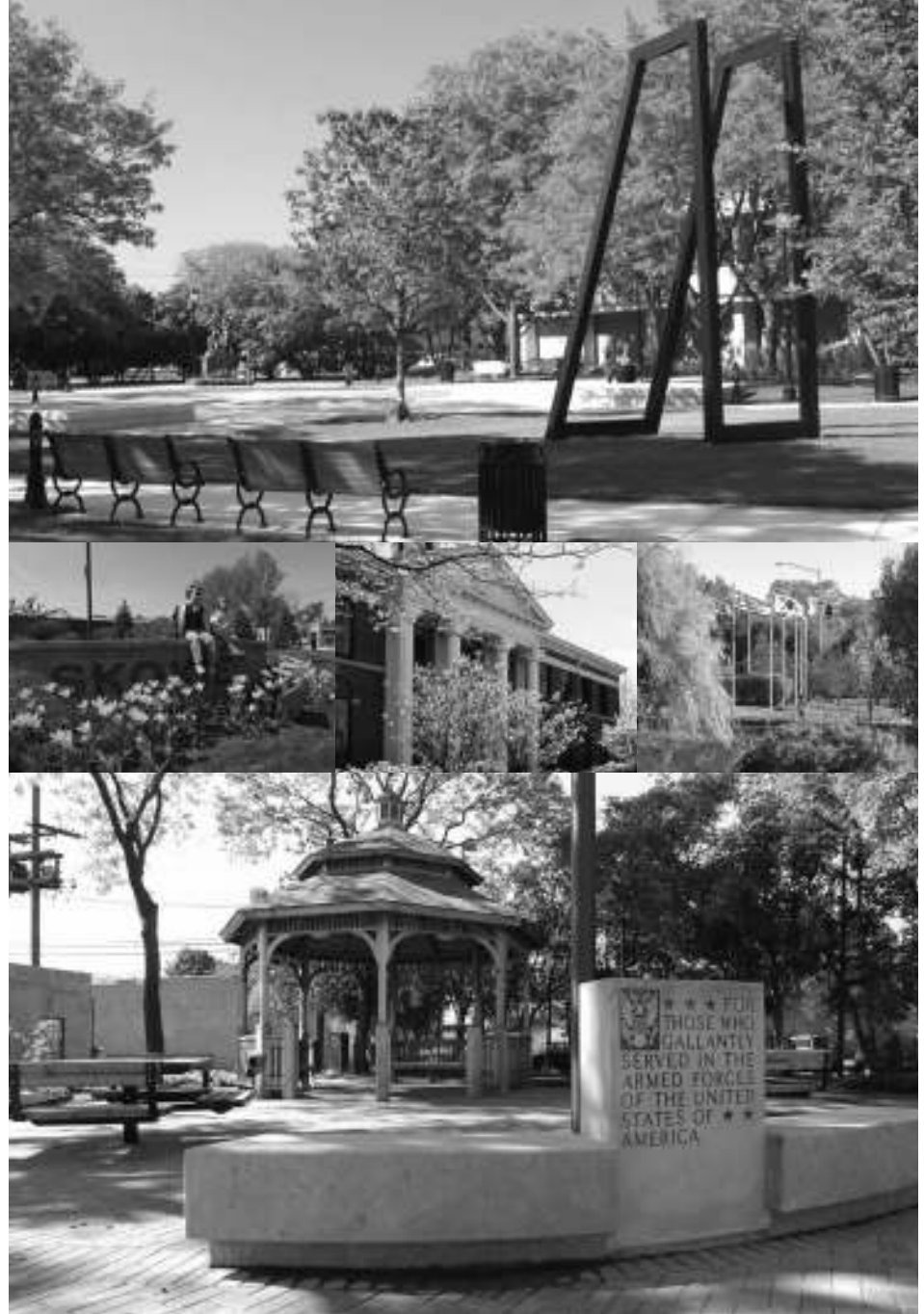
Illinois and the 18th largest in the state. The town is one of the most culturally rich communities in the state—over 90 languages are spoken in Skokie homes. The Village's Fitch AAA bond rating attests to strong economic health and prudent fiscal management.

In 2003, the Village became the first municipality nationwide to achieve nationally accredited Police, Fire and Public Works Departments, and a Class 1 Fire Department as rated by the Insurance Services Office (ISO). Skokie is proud of the fact that over 250 residents advise the Mayor and Trustees on community matters. It is this distinction that prompted the Governor to designate Skokie an “Illinois Home Town.” The Village keeps abreast of all community needs whether these needs are business (economic development) or residential-based. Every three years a citizen survey is conducted by an outside firm to provide the Village with the opportunity to obtain public opinion on Village programs, services, and initiatives.

SkokieLink’s Beginning

SkokieLink was initiated by citizens, staff, and businesses. The Skokie Community on downtown Development, Skokie Cable Commission, and the Independent Merchants of downtown Skokie approached the Village Board with the concept of introducing public WiFi access to parts of the downtown area. The group felt that public WiFi would enhance services in the downtown area and complement the downtown redevelopment project. In addition, a planned commuter train station and the new Illinois Science + Technology Park promises to increase visitors to the downtown Area. The Illinois Science + Technology Park is a 23-acre corporate research campus that when complete will consist of two million square feet of high-tech facilities. Recently, Evanston Northwestern consolidated their Data Center operations to the park, bringing over 500 new jobs to the downtown area. Combined with other new biotech uses, the number of employees in the park is about 750.

The concept of a downtown public WiFi system was approved by the Village Board. A consultant was hired to review existing Village assets,



develop a network design, oversee project implementation, and assist the Village in forming a network operation governance structure.

The consultant determined that the system should consist of access points in areas of public gathering, and at the Skokie Public Library. The consultant also determined that future scalability of the project is of critical importance so that the network could grow as the need arises.

Making Cost-Effective Use of Existing Assets

A critical component of the WiFi project was a review of existing

municipal assets. This process enabled us to identify locations for wireless access points – and also presented the opportunity for costs to be substantially reduced through use of existing resources. With all SkokieLink partners at the table, the group was able to identify project contributions— we identified resources ranging from staff expertise to real estate to light posts to internal technical capabilities.

We then set out to use all these resources: Park District staff installed the park access point under direction of our consultant. To bring down the cost of the remaining installation work, the Village supplied a bucket truck, access

to electric power, and detailed information on existing conduit routes. The library IT Department assisted with the configuration of radios and supplied access to the library Blue Socket device for SkokieLink use. Centralization of traffic at the library reduced monthly access charges by 75%. Access points were mounted on the library and park facilities in addition to Village light posts, thus eliminating the need to negotiate a pole attachment agreement.

Designing a Scalable, Workable Network

The greatest project challenge was system design. Contrary to popular perception, WiFi design and implementation is not simple. WiFi design is unique to each community. The design of the system depends on:

- The needs of the community
- The geography of the area
- The availability of electric power, facilities or poles
- The router location
- The future scalability desired

Skokie's downtown area is narrow and has a mix of low and high structures. Line-of-sight connections were not possible and interference with existing roof-mounted antennas was a concern. The Village decided upon a 900 MHz wireless back haul with access points at each location. The backhaul solution involved more planning but eliminated the need for separate connections to the Internet and reduced maintenance and monthly costs. The library offered to host the router and the gateway device to centralize functions.

The project was designed with future scalability in mind. Future access points may be added at the new commuter train station and near the Illinois Science + Technology Park by mounting an access point and adding a backbone link to the library. If Internet traffic demand requires more bandwidth in the future, the centralization of the Internet access point permits the connection to be



upgraded by upgrading the library ISP package.

Selecting a Governance Structure

Skokie's existing I-Net governance structure was used to build the foundation for SkokieLink and made it easier to define day-to-day operations of SkokieLink. The context for determining governance was good—the Village enjoys solid relationships with the School Districts, Skokie Public Library, and Park District. We all work together to serve the needs of the Village residents, organizations, and businesses. Our I-Net serves as one such example of intergovernmental partnerships. Through a Franchise Agreement with a cable provider, all schools, libraries, parks, and municipal facilities are connected over optical fiber. The fiber was installed and is maintained by the cable provider. Internet traffic is aggregated and sent to the Internet using the State of Illinois Internet Access program, Illinois Century Network.

As a result of this intergovernmental approach, we agreed that the Park District would provide day-to-day maintenance of the park-located access point. The Village oversees the access points at its locations and the Skokie Public Library is responsible for the access point outside its facility. The Village pays the monthly ISP fees and, if necessary, provides replacement equipment. The library hosts the wireless router that manages the access points and provides the ISP

connection. Library IT staff maintains this equipment and provides monthly traffic reports showing network utilization. Another collaborator is a local school district, which helped with planning and marketing, even though it is not located in the downtown area.

Finding Funding

SkokieLink uses Tax Increment Financing (TIF) as a funding mechanism—the TIF was formed to support the redevelopment of the downtown area. Costs are very modest as a result of our creative use of existing resources—we pay only \$600 per year for Internet access and we have budgeted only \$5,000 per year for equipment replacement. Even without access to TIF funds, the project is designed to maximize resources and reduce monthly operation and maintenance charges.

We encourage communities contemplating public WiFi projects to use our project as a model for your own efforts, if appropriate. Please visit www.skokielinek.org for more information or, better yet, visit the downtown area as we continue to redevelop it into a vibrant part of the Skokie community. ■

Albert J. Rigoni, was appointed Skokie Village Manager in 1987. He has over 30 years tenure with the Village, and has been involved in overseeing major community improvement projects, new services and initiatives. He has particular expertise in efficient management of resources, building community partnerships and financial management.

Nori Van Elzen worked in the public sector for over 15 years, including over 10 years in Skokie, before opening the Chicago Division of Columbia Telecommunications Corporation (CTC) in December 2006. CTC provides communications engineering consulting services for public sector and non-profit clients throughout the United States.