



Increasing
Economic
Vitality:

*A Community Guide to
Broadband Development*



Our Mission

Strengthen rural communities in Minnesota by partnering with and, responding to the Grand Rapids community, and by helping to create viable communities throughout Minnesota.

Our Aim

Healthy communities grounded in strong economics where the benefits are widely shared

Our Strategy

Develop and focus leader and community efforts on complex economic challenges. Work with communities to capitalize on their unique assets

Our Role

Offer community leadership development, inform public policy and provide grants

Our Approach

Community Economic Advantage



Based in Grand Rapids, Minn., Blandin Foundation is a private independent foundation with combined net assets of \$377 million for the calendar years 2001, down from \$441 in 2000.

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Chapter 1 Introduction

Chapter 2 Executive Summary

Chapter 3 All About Broadband

Chapter 4 Overview of Community Opportunities

“You discover that there are many common interests when you get people working together. Now we have ISPs that provide services to large businesses down to individual telecommuters working for companies 500 miles away”

— Barbara Berghorst
Finance Director
Luverne, MN



Introduction

In December 2002, the Blandin Foundation launched the Broadband Initiative to improve the economic vitality of Minnesota's communities by encouraging the development of rural telecommunications markets and infrastructure.

The foundation believes that broadband technology holds to potential for rural communities to overcome the disadvantages of a smaller labor force, fewer capital resources, reduced access to research institutions and greater distance from markets and suppliers.

In partnership with leadership across Minnesota, the foundation seeks to:

- *Increase awareness about the value of broadband telecommunications use and services*
- *Increase business and residential use of broadband in rural communities*
- *Increase public and private investment in rural broadband capacity*

To achieve these objectives, the Broadband Initiative Strategy Board, a group of public and private stakeholders, has initiated a series of broadband development projects, including this guide for community leaders, public officials and economic development professionals. This guide is designed to help them decide how to take advantage of the opportunities created by broadband technology. The guide explains their options along with the associated risks, benefits and required resources.

The guide is divided into the following sections:

The Overview (Chapters 3 and 4) introduces broadband, explains its value, summarizes community broadband opportunities and describes Internet Service Providers (ISPs).

Community Opportunities (Chapters 5-8) provides detail about the four options communities may decide to pursue.

Case Studies (Chapter 9) focuses on community success stories.

Tools and Resources (Chapters 10-11) are listed to provide useable and practical information for community leaders

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Executive Summary

Broadband technology creates a significant opportunity for rural communities to attract new business and grow existing businesses. Basic access to the Internet is no longer adequate to support business development. It is too slow and cumbersome; it often requires annoying dial-up service; and it will not support new applications. Communities already engaged in successful broadband initiatives (see the case studies presented in Chapter 9) understand fully the benefits, and the lessons, of the technology. This guide will help additional communities across Minnesota explore their options to use broadband to increase their economic vitality.

Simply defined, broadband is an always-on, high-speed Internet connection that allows users to download and manage large files and data quickly and easily. Whether it is used by entrepreneurs to engage in E-commerce or by doctors to share X-rays, broadband significantly increases efficiency. It allows businesses to manage finances and operations on-line, expand their networks of suppliers and customers, communicate effectively with far-away company executives and compete more broadly in larger markets. It provides residents with greater access to information, entertainment and the opportunity to telecommute in their jobs.

The benefits to a community include:

- *An enhanced ability to recruit new businesses*
- *A greater likelihood that existing businesses will survive*
- *A more vibrant quality of life*
- *New entertainment and recreational opportunities*
- *A stable tax base*
- *Stronger communications among major community organizations*

Successful broadband development requires both the availability of service and demand for the service. To begin to think about broadband development, community leaders should:

- *Build their understanding of broadband technology*
- *Learn more about the range of Internet Service Providers (ISPs)*
- *Review case studies of successful community initiatives*
- *Create a community-wide committee to increase the use of broadband technology*
- *Engage a community-wide discussion about the value of broadband development*
- *Explore public and private options to develop broadband*
- *Assess the risks and benefits of each option*

Community broadband opportunities include:

- *Conducting a market analysis to persuade an ISP to begin or increase service*
- *Working with ISPs to educate consumers and to market broadband services*
- *Engaging in a joint venture with an ISP to deliver broadband services*
- *Creating a municipal ISP to deliver broadband services*

Each opportunity has its own benefits and drawbacks, and should be pursued only after considerable thought and discussion. A community may decide to conduct the analysis and help an ISP market, or it may decide to invest its own financial resources in broadband development. There is no correct decision. Every community must decide its appropriate course.

All About Broadband

What is broadband?

In the simplest terms, broadband is the ability to move large amounts of data over the Internet using technology that is always available and operating. It is faster than dial-up Internet access, which must be turned on every time it is used. (See chart below and Chapter 10. For a truly mind-numbing experience, read *The Essential Guide to Telecommunications*, Dodd, Anabel.)

The definition of broadband is constantly changing as greater speed becomes available and new applications are developed that use greater amounts of data. When the primary use of the Internet was to transmit text, a 9600 baud modem was considered adequate. As the Internet evolved into a richer graphic and visual experience, higher speeds were required. The definition of broadband changed to 256K when sound and music applications required speed in excess of that available from dial-up service (56K maximum).

It is common to consider 256K to be broadband, but that definition is about to be reevaluated as a result of new high-quality video applications being developed by the entertainment, education/training and business sectors. Soon broadband will be defined as always-on service in excess of 750K.

Current Primary Broadband Options

Platform	Medium	Speed
Digital Subscriber Line (DSL)	Copper wire (telephone line)	128K-6Mbps
Cable Modem	Coaxial Cable (cable TV line)	256K and up
Wireless	Tower transmission to on-site antenna	256K and up
Satellite	Satellite transmission to on-site antenna	256K and up

Other options include T1 (more powerful, but more expensive), ISDN (expensive and now considered to be slow) and power line broadband (common in Europe, but now just appearing in the US).

Why is broadband important to your community?

Simply stated, any community engaged in economic development should be involved in broadband development. Greater use of broadband will:

Make businesses more competitive and more likely to expand. *Businesses using broadband are able to increase efficiency and expand their markets, resulting in increased revenues and decreased costs. Opportunities will increase as companies are able to transmit data at high speeds rather than relying on slower delivery through express mail or dial-up Internet access.*

Generate tax revenue. *Businesses that remain competitive and/or expand will pay more property and income taxes than businesses that reduce or cease operations. Tax-paying citizens, especially young adults, will remain in their home communities if jobs are available or telecommuting opportunities become available.*

Enhance the quality of life by expanding educational, health care and recreational services. *For example, schools will be able to expand curriculum and communicate more interactively, especially between teachers and parents. Health care institutions may access resources not available in their communities. Recreational and cultural opportunities available to urban youth may be just as available in rural communities (and potentially diminish the migration of young adults from rural to urban areas).*

Potentially decrease the cost of broadband services. *As the number of broadband users increases, economies of scale may be achieved that reduce the cost. In addition, an increase in numbers of users may attract additional service providers. Competition among service providers generally reduces the cost of service.*

Broadband technology has the potential to make rural businesses and communities more productive and more competitive by giving them equal access to global markets, raw materials, information, specialized labor and management tools.

It is especially important as rural communities strive both to grow existing resource-based businesses (timber, minerals, agriculture) and to expand knowledge-based businesses (computer technology, financial services, health care). Both types will benefit from increased use of broadband. Broadband will allow resource-based businesses to manage more efficiently, identify lower cost materials, sell more effectively and communicate more easily with distant headquarter operations. Knowledge-based businesses are more likely to locate in rural areas if broadband is available. Since they ship data not products, they are less hindered by distance and transportation challenges.

What is the state of rural Minnesota broadband today?

While the development of broadband services started later in greater Minnesota, availability is not far behind the metro area. A more significant problem is underutilization of broadband services. The rate for residents and businesses purchasing broadband service is relatively low. As of June 2002, Minnesota ranks 19th in broadband access, while ninth in all types of home Internet access. The average cost of rural residential broadband service today is \$40.90. Market research indicates that many customers would switch from dial-up service to broadband if the price were to drop to \$30 a month. (The cost of broadband is related to the cost of developing a community's telecommunications infrastructure, which can range from \$25,000 to \$1 million. Because of the size of this investment, few telecommunications companies are very profitable. The introduction of broadband service in a community usually creates a negative cash flow for ISPs for a period of years.)

Related to the cost issue is the perception of value. The decision to switch to broadband is related to the value people receive from the service. As people become more aware of the value of broadband, they are willing to pay a higher price for the service. Unfortunately, most people do not appreciate the value of broadband until they experience it personally. We must educate consumers to increase both their understanding of broadband and their appreciation of its benefit to their businesses and home lives.

To assure appropriate broadband service levels at the best price, more communities should get involved in promoting broadband use in their community. In some areas, where affordable broadband service is absent, community investment may reduce the minimum market size needed to attract the private investment for service expansion. For this to occur, the benefits should exceed the public investment. A detailed analysis of the anticipated costs and benefits must occur before any public investment.

But shouldn't the broadband service providers be doing this themselves?

Yes, but ISPs haven't necessarily been effective marketers. If communities wish to remain economically vital, they will have to take an active role in creating infrastructure and increasing the number of users, a situation similar to the historic precedents of rural electricity, telephone and transportation services.

You may ask why service providers haven't been more effective in promoting their services. The answer lies in a number of factors:

- *Telecommunications services have evolved from the utility industry, which has had little recent involvement in marketing, although 100 years ago they had to explain to their customers what you did with electricity and telephones. Access to the Internet is the first product line that is not seen as an "essential" public service, unlike electricity, municipal waste services, or telephone services. If the burden for making the "essential" case is left to the ISPs, we will be hurting ourselves while we wait.*
- *Broadband services are relatively new and the value is not well known. The Internet is only 10 years old and the most frequent users are teenagers downloading music.*
- *ISPs did not anticipate the need to educate consumers and are somewhat guilty of the "build it and they will come" philosophy.*

It is essential for communities to look at the relatively low cost of market development and compare it to the economic benefits resulting from increased broadband use. Rather than say to the ISPs, "it's your problem," it is more important to say, "we need to meet this challenge together."

What are ISPs? How do we work with them?

Regardless of a community's broadband strategy, the majority of the work will be performed by privately owned telecommunication companies known as Internet Service Providers (ISPs). Consequently, it is critical to know and understand what they are, what motivates them, their strengths and weaknesses and how they may be most effective partners.

First, we must understand ISPs as an industry are extremely diverse. It includes small, medium and large telephone companies, cable TV providers, wireless ISPs and municipally owned utilities. Electrical utilities may soon join the mix by delivering broadband along power lines. While telephone companies are heavily regulated by federal and state agencies, the cable companies are less regulated. Wireless companies, comprising the newest industry sector, are the least regulated. Attempts to update the regulatory system to recognize 21st century needs have gone as smoothly as updating our tax codes. Updating the regulatory system will not happen quickly.

Second, we must acknowledge that the ISPs are for-profit companies (with the exception of the municipally owned ISPs and cooperatives). This fact sometimes gets lost in the historic context of telephone, electrical and gas utilities, which before deregulation were considered quasi-public agencies with a public purpose. Profits were limited in exchange for beneficial franchise agreements and operating protections. Since deregulation, profits and prices are much less restricted, while competition is openly encouraged. As expected, ISPs have competed for market share in urban areas, while lower density areas frequently have only one service provider. Regardless of the size of the ISP or its technology, they all are accountable to their investors to provide a return on investment. Public purposes, such as the economic benefits to a community, are a secondary purpose. Any proposal for ISP involvement must make financial sense for the ISP and meet the expectations of its stockholders.

Third, we must identify ISPs strengths and weaknesses. Some provide good customer service, but are weak marketers. Some have access to abundant capital, but make poor investment decisions. Some have good operational abilities, but have no access to capital. ISPs are not necessarily candid about their strengths and weaknesses, so you should gather information before a discussion to create more constructive conversations about joint projects or ventures. The same holds true about public agencies. Analysis of public sector strengths and weaknesses will help ISPs search for and identify ideal partners.

Finally, we must bring something constructive to the table. Before a conversation with an ISP, it is important to identify community resources. Are there leaders who are willing to be involved? Is there local support for broadband development? Is a joint venture an acceptable "cultural" concept? Do we have funds to invest? ISP executives have complained that they receive calls from local officials asking them to install or expand broadband services, but the callers offer no persuasive argument about the value of the effort to the ISP. One of the best "assets" to offer an ISP is an analysis of the local market (See Chapter 5). Another modest public investment is a market development program to increase the size of the market. Public agencies are usually good at obtaining consumer and business data that can make discussions with private ISPs more productive.

Overview of Community Involvement Opportunities

This chapter provides an overview of the opportunities for communities to increase their broadband use. It introduces you to the concepts and provides basic familiarity with the topic. Each opportunity is explained in detail in the following chapters.

A community may become involved in broadband development by:

- *Conducting a market analysis to persuade an ISP to begin or increase service*
- *Helping an ISP educate consumers and market their broadband services*
- *Engaging in a joint venture with an ISP to deliver broadband services*
- *Creating a municipal ISP to deliver broadband services*

Each opportunity has its own benefits and drawbacks and should be pursued only after considerable thought and discussion. As a community leader, you may decide to conduct the analysis and help an ISP market, or you may decide to invest its own financial resources in broadband development. There is no correct decision, but all options should be considered.

Market Analysis

Before initiating any broadband development activity, you should conduct a local market analysis to answer two fundamental questions:

- *What services do you have in your community?*
- *What broadband services do people want?*

You may find that you have extensive services available, with little demand for them, in which case the primary efforts should focus on business and consumer education to show the benefits from the available services. You may find that you have no services, but significant demand, in which case the market analysis provides important information to start a dialogue with service providers about establishing broadband services. You may find that you have few services and low demand, in which case you may wish to undertake market development activities knowing that specific targets have to be met to generate ISP interest and investment.

The market analysis should include at least three components:

- Provider Survey:** This survey of local telecommunications providers will identify the types of broadband service available, including the technology platform, the speed, the monthly cost and the installation cost.
- Business Survey:** This survey of local businesses will identify the type of Internet service they have, what they use it for, their current cost, their interest in broadband service, the price they are willing to pay for broadband service and their interest in additional broadband-based applications. This survey will also assess the needs and interests of major community organizations, government, education, health care and non-profits.
- Residential Survey:** This survey of residents will identify the type of Internet service they have, what they use it for, their cost, their interest in broadband service, the price they are willing to pay for broadband service, their interest in telecommuting and their interest in developing a home-based business.

The cost of a market survey, which may be completed within a month, ranges from \$2,000 to \$10,000 depending on the availability of existing municipal or volunteer labor. Sample surveys (provider, business and residential) are included in Chapter 10. Organizations that can assist with market surveys are listed in Chapter 11.

Once the market analysis is completed, the community should develop a vision for broadband services. This community vision is the foundation for a plan to connect existing service and demand with a plan for reaching the community goals. For an example of community goals, see the Computer Systems Policy Project Readiness Guide, *Living in a Networked World* (Chapter 10) or the CSPP Web site at <http://www.cspp.org/projects/readiness>.

For more information about market analysis see Chapter 5.

Market Development

Most communities will need to undertake some type of market development activity. Even in the most technology-savvy areas, businesses and residents are rarely aware of new broadband applications that can keep businesses competitive and improve the quality of life for residents. A market development program will demonstrate the practical value of broadband applications and generate additional demand for broadband service. Increased demand attracts new investment and expanded service.

Applications exist for a variety of market sectors:

<i>Large businesses</i>	<i>Governments</i>	<i>Recreation/Entertainment</i>
<i>Small businesses</i>	<i>Schools</i>	<i>Home services</i>
<i>Health care institutions</i>	<i>Senior citizens</i>	

A development program will enable market sector leaders to identify the appropriate programs/applications for their markets and the best means to distribute and demonstrate the applications. Representatives from each market sector may form a steering committee.

Broadband capabilities may be demonstrated in a variety of ways, including:

- *CD ROMs that include application demos and tutorials*
- *Community technology fairs*
- *Open houses at computer labs*
- *One-on-one counseling with individual businesses or residents*
- *Local Web sites and newsletters that direct users to applications (preferably reviewed at broadband speeds)*
- *Presentations at community events*
- *Computer classes at local venues, such as libraries, school computer labs or business training centers*
- *Community education classes*

A market development program will take 1 to 6 months and can cost \$10,000 to \$30,000 depending on the types of activities and the methods of distribution used. Local ISPs should be interested in participating, since they will benefit from an expanded customer base. New ISPs may be interested in participation as well.

Depending on the results of the market assessment, discussions with ISPs could also include establishing thresholds of interest that generate specific responses from the service provider. "If ___ customers agree to subscribe to a new ___ service at ___ cost, the ISP will initiate the service within ___ months." "If ___ additional customers subscribe to an existing ___ service, the monthly cost will be reduced to ___." While these arrangements are somewhat delicate, they need to be discussed to determine the benefits for all of the parties.

For more information about market development see Chapter 6.

Joint Ventures

There will be times when market development activities are not adequate to attract the private investment needed to develop the desired broadband services. The market may still be too small; the ISP partners may have limited capital; the appropriate technology may be particularly expensive; or the price people are willing to pay may be too low. In these situations, you may wish to consider a joint venture with an ISP. Public investment reduces the investment needed from the ISP, which allows the ISP to assume greater risk. Since the public sector is assuming some risk with the investment, the relationship should not be undertaken without considerable evaluation.

You should first evaluate your own strengths before discussions with a potential ISP partner. These strengths could include:

Infrastructure	Does the community own telecommunications infrastructure (towers, switches, fiber, right-of-way, conduit) that maybe shared with a private ISP?
Management	Does the community have utility management experience that could absorb some of the operational costs?
Construction	Does the community have the expertise to build new infrastructure at reduced costs?
Finance	Does the community have access to more attractive capital (lower rate and/or longer term) than the ISP?

Following are types of joint venture structures:

- *The community builds the infrastructure and leases it to one or more private ISPs*
- *The community builds the infrastructure and hires a private ISP to operate a municipal broadband service.*
- *The community builds the infrastructure and leases it to a municipal utility.*
- *The community provides a loan to a private ISP to expand broadband service.*
- *The community and the ISP make an equity investment in a new broadband business.*

Joint ventures between public and private entities could cost as little as \$25,000 for limited infrastructure investment (a wireless application or a switch that is added to existing infrastructure) to more than \$10 million for a complete fiber optic cable installation. Any significant investment should only occur after considerable study, development of a business plan, an understanding of the financial condition and business objectives of the private partners and appropriate public discussions and hearings.

For more information about joint ventures see Chapter 7. Examples of successful joint ventures are included in the case studies in Chapter 9.

Municipal ISP

Communities should only consider the establishment of a municipal broadband service as a last resort when a joint venture partner is not available. This may be your only option because of limited demand (size of market), remote location, cost of infrastructure, or simply because of the inability to negotiate acceptable terms with an ISP. The investment and risk are the greatest of all of the alternatives. Furthermore, if local ISPs provide some broadband service, the appropriateness of the public sector competing with a private business may be questioned. In this latter case, a strong public purpose must be present before any municipal operation is considered.

If the municipal telecommunication service provides conventional telephone services in addition to broadband service, a public referendum must be approved by 65 percent of the affected voters. See Minnesota Statutes 237.19 for more information about this requirement.

For more information about municipal ISPs see Chapter 8. Examples of successful municipal ISPs are included in Chapter 9.

Opportunities for Community Involvement in Broadband Development

	Market Assessment	Market Development	Joint Venture	Municipal ISP
Description	Research to determine local demand for broadband service and to evaluate existing broadband services.	A marketing program to increase the demand for local broadband services.	Public-private partnership to expand broadband services.	Publicly owned
Outcomes	Quantification of demand (how many businesses and residents want it at different price levels) and how that compares to available services.	Demand is increased, which should result in lower cost and/or expanded levels of services.	Expanded broadband services.	Local public ownership of new broadband services.
Benefits	Critical information is developed for meaningful discussions with potential broadband service providers.	Local businesses are more competitive, and residents have a greater access to services and information.	Local businesses are more competitive, and residents have a greater access to services and information.	Local businesses are more competitive, and residents have a greater access to services and information.
Primary Activities	<ol style="list-style-type: none"> 1. Business survey 2. Resident survey 3. Broadband service provider telephone interview 	<ol style="list-style-type: none"> 1. Development of local committees to approach different market niches 2. Distribution and demonstration of services and information accessible via broadband 3. Quantification of new market potential 4. Dialogue with existing and potential broadband service providers 	Potential joint ventures could include: <ol style="list-style-type: none"> 1. Public infrastructure leased to private firms 2. Municipal assets managed by private firm 3. Public equity investment in private firm 4. Public financing of privately owned infrastructure 	Full development of municipal enterprise, including management, marketing, finance, technology selection and acquisition, and commencement of operations
Relative Cost	Low \$2,000-10,000	Low \$10,000-30,000	Moderate \$25K -1,000,000	High \$100K- >\$1,000,000
Public Risk	Nominal	Low	Moderate	High

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THE OPPORTUNITIES

Chapter 5 Market Analysis

Chapter 6 Market Development

Chapter 7 Joint Ventures

Chapter 8 Municipal Service Providers

“Use good marketing people who can help generate the enthusiasm and optimism about broadband in the community.”

— Gary Evans
President and CEO
Hiawatha Broadband



Market Analysis

Any new initiative, whether it is conducted by a business, non-profit organization, or governmental agency, begins with a self-assessment. Without an understanding of who you are and what resources you offer, it is difficult to choose the right strategies, activities and partners to help reach your goals. While this seems obvious, conversations between communities and ISPs often begin with a public official requesting broadband service from an ISP resulting in little, if any, response. The ISP has little understanding of the local market conditions and no information needed to seriously consider an investment.

A local market analysis will tell you about:

- *The broadband services already available in your community (including technology platform, rates, speeds and costs).*
- *The demand for existing and additional broadband services by business/institutional and residential markets.*

For example, a market analysis may show that your community has only dial-up Internet access, but there is a demand from 500 homes and businesses for 1 MB speeds and 4 T-1 connections at government, hospital and school sites. A market analysis may show that 256K DSL access is available at \$49 per month and currently used by 100 customers, but 300 customers would switch from dial-up access if the price dropped to \$40 per month. Data gathered from a market analysis, when done well, form the foundation for establishing appropriate goals for community broadband development and for the dialogue with ISPs.

The market analysis should include at least three components:

Provider Survey

A survey of local telecommunications providers will identify available services, the technology platform, speed, monthly cost and installation cost. The survey will include telephone companies, cable TV companies and wireless Internet providers. In some areas, electrical utilities are partners in Internet services. Municipalities or educational institutions may also be service providers. It is helpful to know their existing

capacity and the percentage of that capacity utilized during peak hours (usually 4 to 8 p.m.). The provider survey is best conducted by telephone. Most communities will only have 1 to 5 service providers, so this is not a labor-intensive effort. A telephone call will help ensure a 100 percent response rate, which is difficult to achieve with mail surveys.

Business/Institutional Survey

A survey of businesses and community institutions will identify the type of Internet service they have, what they use it for, current cost, their interest in broadband service, the price they are willing to pay for broadband service and their interest in additional broadband-based applications. It is also valuable to identify their interest in or use of telecommuting activity. Major community institutions include government units, hospitals and clinics, residential facilities (nursing homes, treatment centers), non-profit organizations and cultural or civic groups.

Residential Survey

A survey of residents will identify the type of Internet service they have, what they use it for, current cost, their interest in broadband service, the price they are willing to pay for broadband service, their interest in telecommuting and their interest in developing any home-based business. The business/institutional and residential surveys may be conducted by mail. A large sample size is necessary to ensure a statistically significant response, since many surveys won't be returned. The number of completed responses should be at least 5-10% of the local population. From the responses, the interest in broadband services for the entire population may be extrapolated.

The market analysis should cost between \$2,000 and \$10,000. The lower cost covers the printing, distribution and collection costs; the higher costs include additional paid labor needed to compile the surveys and conduct the provider telephone interviews. Funds for the activities could come from municipalities, ISPs or philanthropic sources. The labor may come from municipal staff, economic development organizations, business organizations (chambers of commerce), planning agencies, and private marketing and telecommunication consulting organizations.

Based on the results of the survey a number of strategies may be considered.

Demand Survey Results ⁵	Provider Survey Results	Potential Strategies
>200 new broadband users	No providers	Begin discussions with potential service providers to establish service
>300 new broadband users	Some provider(s)	Identify price points that motivate new subscribers. Collect new subscriber commitments and begin dialogue with providers.
Low demand	No providers	Begin market development program to develop demand. Potential providers could be partners in the market development activity.
Low demand	Some provider(s)	Begin market development program with local providers. Cost reductions could be coupled with achievement of marketing goals.

NOTE: Consideration of joint ventures and municipal ISPs is not yet appropriate. The intent is to assess local demand, identify available services and attempt to establish a connection between them at the lowest possible cost and risk to the community. Community investment should occur only after the market analysis and market development are completed and the full potential for private sector responses has been explored.

The data needed for the market analysis are described above and included in the sample surveys in Chapter 10. Market analysis activities will occasionally overlap with other objectives, creating an opportunity to combine activities, reduce costs and potentially add new partners/funders. For example, the survey focuses on broadband service, but other parties may be interested in collecting information about basic local or long distance telephone service, cable TV operations and other types of residential or business services.

⁵ The demand thresholds are estimations based on current broadband infrastructure costs, subject to change. The thresholds should go down as equipment and infrastructure costs go down.

Market Development

At this stage, you should have already determined the availability of broadband service, the level of broadband use, and business and residential interest in acquiring broadband service. A successful market development effort will involve all of the primary sectors and institutions in your community. Most communities, regardless of their current level of broadband service and demand, will benefit from a market development effort.

It is best to involve ISPs early in market development discussions to define objectives, costs, and to discuss how the benefits of a successful effort (service cost reductions or service increases) will materialize. The community and the ISP should also reach an agreement about how the benefits of a successful effort will be distributed. Important questions such as “if we increase the market by X, what will be the resulting drop in monthly costs?” and “if we obtain X or Y commitments for subscriptions, what will the resulting costs be?” Having these discussions after the conclusion of a market development effort will likely yield disappointing results and invoke “Irma’s Law”⁶.

Sometimes the benefits and results can be integrated in a new marketing campaign. In 2003, SBC, one of the regional successors to AT&T, initiated a major marketing campaign in the southeastern part of the U.S. to enlist new broadband users by offering an introductory rate of \$29.95 per month for its lowest level DSL service. These types of ISP promotions can be more effective with active community involvement.

Where to Begin: Organizing the Committee

Every successful market development effort begins with the creation of a committee to establish the goals, prepare relevant strategies and conduct promotional activities. The committee should reflect the diverse sectors of local broadband users. Furthermore, the more senior the representatives on the committee, the more effective it will be. For example, the commitment of a school district superintendent will carry more weight than a computer instructor, although the latter will likely know much more about broadband. The committee’s purpose is to create the vision; the people who actually undertake the activities may actually be an entirely different group.

⁶ *Irma’s Law: A service is always worth less after it has been rendered.*

The organizing committee should include members from all of the primary market sectors:

Sector	Potential Representative
Public	Mayor or city administrator
Large Business	Key business owner
Small Business	Chamber of commerce executive
Health Care	Hospital or clinic CEO
Education	School district superintendent, college president
Recreation	Cable television executive, high school student
Senior Citizens	Senior center manager or senior organization director
Technology	Telecommunication or technology professional

Note that Internet Service Providers (ISPs) have been left off the list. While their involvement is critical, there may or may not be a place for them on the organizing committee. If their community reputation is positive and they are committed to broadband development, their involvement on the committee is valuable. If their interest is unclear and potential exists for outside ISPs to become involved, preserving the independence of the committee could be very important. In some situations, having multiple ISPs on the committee may be appropriate.

Establishing Goals

The goals of the market development committee are to increase the demand for broadband service and increase the use of broadband applications. If demand (interest and subscriptions) is increased but use is not established, demand will diminish. People will not continue to pay for a service they don't use. In a similar fashion, it is not enough to increase understanding about how to use broadband applications. That knowledge must be reinforced through new services that allow people to use their new skills on a daily basis.

The goal of "increasing demand for broadband services" will serve you well during a quick conversation, but a successful effort will require more detail. How much of an increase do you seek? Are there specific areas that are particularly underutilized? Without specific goals, any increase will be considered a success. You should establish goals for each market sector that include:

- *Subscription rates*
- *Availability of e-commerce*
- *Customer/client support*
- *Telecommuting*
- *E-training/distance learning*
- *Access and availability*

One of the best tools for establishing goals is the CSPP Readiness Guide (See Chapter 10). The Readiness Guide has specific benchmarks to measure speed, competition, access and use, applications and innovation. These benchmarks may be used to establish specific goals:

- *Broadband service will be available to 80 percent of homes and business in the community.*
- *60 percent of employees have access to an always-on connection to the Internet.*
- *50 percent of campuses have a wireless network.*
- *75 percent of government agencies have transactional Web sites for citizens and suppliers.*
- *25 percent of health care providers have an interactive Web site for scheduling and basic questions.*

Forming Market Subcommittees

Broadband users tend to be divided into market sectors, each using different applications resulting in different benefits. The market sectors overlap very little. What appeals to a hospital administrator has no benefit to a high school teacher. What appeals to a small business owner does little for a government agency employee. Entertainment and gaming programming have little appeal beyond youth and young adults. Consequently, market

development activities will most often be targeted at distinct populations, each with different cultures, activities and broadband application.

Marketing subcommittees could include Large Business, Health Care, Higher Education, Senior Citizens, Small Business, Government, Public Education and Recreation. Many communities have a market sector that makes them unique, such as a tourism group, craft group or an agricultural niche. This could necessitate an additional subcommittee for that submarket.

Primary Activities

Marketing subcommittee activities should demonstrate how broadband-based programs could improve people's lives. While this may be presented to people through lectures and discussions, the best method is to give people hands-on experiences to show the potential of broadband. This is the best way to encourage people to use the applications and to subscribe to broadband service.

Identifying Applications

Each subcommittee needs to identify the most compelling applications relevant to its market sector. In some cases, members should be asked which applications they use. Once the applications are identified, they need to be catalogued. This can be as simple as maintaining a Web site with appropriate link or creating an electronic library of demonstration computer programs.

Demonstrating and Distributing Applications

Each market sector has its own preferred methods of distributing and demonstrating applications. The distribution method that works for small business owners does not necessarily work for senior citizens. High school students may take home a CD and reap the benefits of a demonstration CD, while adults new to the Internet may need assistance, either in person or via the telephone.

Many computer applications have demonstration versions that may be copied on a CD and mailed or distributed at local events. Some of the demonstration versions are accessible on-line, but they need a broadband connection to allow them to work as intended. This means that demonstrations must be conducted in places with large numbers of broadband-capable computers, such as libraries, colleges, high schools or large businesses that have internal training facilities. These facilities allow hands-on experience specifically targeted to the audience. Doctors or health care professionals may see demonstrations of applications specifically made

for their benefit. Small business owners may see demonstrations of electronic commerce applications that are applicable to their business. Adults interested in distance learning may be guided through on-line learning experiences that are available on the Internet.

Examples of events that promote broadband include:

- 1. Community Technology Fairs.** Software and hardware vendors, along with Internet Service Providers, may display and demonstrate their applications and equipment. Fairs should be located at a site that has broadband access. Special demonstrations may be scheduled at different times targeted toward individual market sectors. This event is similar to a miniature state or county fair.
- 2. E-Commerce Training.** Many communities have businesses, such as crafts, antiques and small manufacturers that may benefit greatly from electronic commerce to reach markets larger than their community. An introduction to e-commerce may be done in an evening, but to be successful, a series of classes should be held to design their Web sites and to assure that the sites function correctly. Similar businesses may be able to combine or link their Web sites to create greater appeal. For example, the tourism operations along the Gunflint Trail in Northeastern Minnesota have created a common Web site (www.gunflint-trail.com) that allows you to travel up and down the trail searching for a vacation destination. Customized e-commerce training may be conducted in every community. Most colleges and universities offer e-commerce training in their degreed and non-degreed programs. Internet-based training programs are also available.
- 3. "Broadband Night".** Demonstrations may be held at schools, libraries or in other facilities where people may come and experience broadband speed and connectivity. Attractive Web sites may be bookmarked for each market sector. For example, the U.S. Small Business Administration has a series of interactive video lectures at its Web site (<http://www.sba.gov/training/courses.html>).
- 4. Lectures and presentations.** Many communities have community forums with guest speakers. Organizing committee members should be familiar with opportunities for speaking to specific groups (health care, retailers, seniors, and job seekers) about broadband telecommunications. Presentations may be tailored to specific. While not generally as effective

as hands-on experience, lectures and presentations may help generate interest and create a local “buzz.”

5. Tutorials. Like e-commerce training described above, live and electronic tutorials may help people understand how to perform the fundamental tasks on the Internet, such as IP Telephony, videoconferencing, virtual private networking, video on demand and telemedicine.

6. CDs. All of the events described above limit the computer user to a prescribed amount of time to experience the benefits of broadband at a given location. Some computer applications can be put onto a CD that the user may use at home on their own schedule. While these samples are somewhat artificial in that they have limited interactivity, they can reach people who cannot attend a community event or who need more time to spend with a given application than an event allows.

7. Public Relations. Public relations activities maybe conducted to promote general public awareness, including writing newspaper articles, appearing on local public cable access shows, volunteering to be a guest on call-in radio shows, and creating speakers group.

For more ideas about community promotional events, see “Market Development Strategies and Resources, A Guide for Communities and Broadband Providers” on the web at www.communitytechnologyadvisors.com

Practicing What We Preach

While demonstrations, tutorials, lectures and CDs show people the benefits of broadband-based applications, nothing speaks as loudly as direct actions. Are the members of the organizing committee utilizing the Internet to its fullest capability? For example:

- *Do local health care providers schedule appointments, deliver test results, maintain personal health histories and share medical team information on the Internet?*
- *Do the schools provide schedules, e-mail addresses for teachers, school lunch calendars and other parent-teacher communication on the Internet?*
- *Does your community allow you to file permits, pay utility bills and obtain public hearing minutes and public notices on the Internet?*
- *Do businesses in the community and those interested in locating in the community know where they may go for financial, labor, real estate and utility information on the Internet?*
- *Does your local community college or university provide scheduling, course listings, enrollment and courses on the Internet?*
- *Do all of the institutions described above know where they may get assistance in establishing or expanding broadband-based services?*

Even though the applications may be available through dial-up Internet access, the slow speed and the slow connection time serve as practical barriers to their use.

Securing Financial Resources

Nearly all of the activities described above may be conducted at a nominal cost. The organizing members may absorb many of the expenses, including the use of community facilities, computers and meeting spaces. The primary cost could be the expense of a project coordinator if a local volunteer is not available. Advertising expenses are likely modest, as most of the outreach activity is done within the market sectors, which typically have effective informal communication channels. Printing and distributing demonstration CDs could become a substantial cost. A successful market development campaign could cost as little as \$10,000 or less, or as much as \$30,000.

Potential contributors include:

- *Municipal governments*
- *Economic development agencies*
- *Community and regional foundations*
- *Primary employers*
- *Educational institutions*
- *Chambers of commerce*
- *Electrical utilities*
- *Regional development corporations*
- *ISPs*

While the ISPs are mentioned last, they are definitely not the least, when it comes to financial support. Of all of the organizing members and sponsors, they have the potential to benefit most directly from a successful market development campaign. You must decide how wide to cast your net in soliciting sponsors. At minimum, it would be normal to expect that all local ISPs be invited to participate. In some cases, outside ISPs that have expressed an interest in a local expansion could also be considered.

Encouraging ISP Participation

The participation of ISPs in a market development campaign should not be limited to financial sponsorship or membership in the organizing committee. As mentioned earlier, there is significant economic value that will be created by a successful market development campaign. Some of the value is more difficult to measure, such as increased business productivity. Other results are more tangible, such as new (not replacement) revenue from electronic commerce. The most tangible economic value is the revenue from new broadband subscriptions. This potential value should be discussed with ISPs to leverage the opportunity for increased broadband service or reduced broadband costs.

Some examples include:

- *Reaching specified thresholds for new broadband subscribers generates a reduction in monthly broadband fees.*
- *Reaching specified thresholds for new broadband subscribers generates an investment in new broadband infrastructure.*
- *Introduction of a new broadband rate by an ISP is accompanying by a community investment in a market development program.*

Local ISPs should be willing to engage in discussions about investment in market development activities. It is impossible to establish specific standards for any particular community because there are so many economic variables that make each market unique:

- *Market size*
- *Investment in current infrastructure*
- *Cost of new infrastructure*
- *Degree of existing market penetration*
- *Current technology platform (DSL, wireless, cable)*
- *Return on investment expectations of ISP owners*

While it is impossible to establish specific standards for ISP investment, an ISP should be willing to engage in conversations and participation at some level. An ISP that is unable to participate in modest market development activity is unlikely to make a significant investment in broadband infrastructure or service/pricing changes. An unwillingness to participate in a tangible way is a sign that new ISPs should be contacted to explore their potential interest.

Joint Ventures

At this stage, your community has conducted the relatively easy, low-cost/high return activities. You have analyzed your local market and available services. You have initiated efforts to increase the demand for broadband services, and you have increased the level of broadband used by businesses, institutions and residents. Yet, the availability of affordable broadband service still does not meet your expectations and the interest of service providers in increasing services or reducing costs is too low.

You are about to enter a new arena, where the level of public investment may go up substantially. But the activities you have conducted have prepared you well for this new arena. You should have an understanding of local market needs. You should have a sense of the support for an increased public role in broadband development. Perhaps most importantly, you have had meaningful, constructive discussions with ISPs and have an understanding of what they need to invest in your community.

If ISPs have not agreed to create or expand service, you must avoid the inclination to blame them for the lack of progress. Broadband services, while essential to community economic vitality and competitiveness, have not been exceptional financial performers. Many providers invested in infrastructure on the “build it and they will come” basis, only to discover that their return on investment did not meet their expectations. Many companies went out of business by investing in the wrong markets or wrong technologies. The successful companies have an understanding of their requirements for a long-term investment. The better you understand their specific requirements, the easier it will be to find the right partner and forge a successful joint venture.

The most successful joint ventures occur when:

There is a “coincidence of interests”, that is, both partners have the same, or nearly the same, interests or objectives. While public and private partners have some differences (profitability vs. public purpose), you will find common interest in broadband use. For the public sector, broadband use means businesses that are more competitive and greater community economic vitality. For the ISP, broadband use means long-term subscribers with ongoing revenues.

There must be a cross-alignment of strengths and weakness between the parties. One party must bring to the partnership critical strengths that the other party does not have. Where there is redundancy, both parties tend to discount, or undervalue, the strengths of the other party, frequently resulting in an unsatisfactory arrangement between the parties as well as a joint venture that disappoints the customers.

Step 1. Conduct a self-assessment

Before initiating joint venture discussions, you should undertake a self-assessment to determine the strengths the community adds to the partnership. These could include a variety of strengths or assets.

Financial

The community may have significant financial assets to bring to a partnership. These could be derived from a variety of sources, from the community’s existing general fund balance, its reserves or from borrowing funds from the municipal financial markets. Communities frequently have an advantage over private ISPs, because the public sector can borrow money at lower rates and for longer terms than their private partners. In today’s financial markets, the key advantage of municipal financing is its ability to access funds for a much longer term. The cash flow benefit (lower annual debt service) of stretching the term of a loan from five to 10 years is much greater than the benefit of reducing the interest rate on a five-year loan from 5 percent to 3.5 percent.

Private ISPs have difficulty obtaining equipment financing for more than five years, as commercial financial markets keep the available term short because of the perceived risk. Public sector borrowers have access to longer term financing because the financial markets (purchasers of the municipal bonds) obtain some comfort from the economic viability of the community (assuming that the debt is a general obligation of the municipality) and are less concerned with the collateral value of the broadband infrastructure.

The more flexible repayment terms available to municipalities are one of the strengths they bring to a joint venture. Needless to say, prior to any serious consideration of municipal financing a community needs to understand its comprehensive debt picture as well as significant due diligence on its proposed partners and business plan (see pages 41 to 45 for details about developing a business plan).

Management/Operations

The community may have existing municipal operations that may be utilized in a joint venture. Some managerial and operational functions in a municipal utility (service and billing) are analogous to telecommunication services. Does the municipal utility have surplus capacity that may be added at a lower cost for a new operation? Just as importantly, do the municipal operations have the efficiency of a private operation? What is the public perception of the municipal utility? The value of public vs. private operations of broadband services should also be evaluated, where countless “what if?” questions can be quantified. For example, public and private operations may have different labor costs, fringe benefits and operating rules.

Infrastructure

The community may possess physical infrastructure that it can bring to a joint venture. It may have installed pipe or conduit that can be used for fiber optic or coaxial cable. A municipal electric utility may have already installed fiber optic cable to electrical substations that has additional unused capacity for telecommunications service. The community may be planning to develop infrastructure (water, sewer) where the opportunity to synchronize the installation of telecommunications may reduce costs significantly. It may own a cable television service that has cable infrastructure capable of handling additional data. It may own water towers or other structures that may be used for wireless data transmission. It may own buildings that could be used to house operations and dispatch service centers.

Reputation/Marketability

In many communities, public utility services have a reputation for high quality, reasonable cost and responsive service. If the municipality has a good reputation for service, it will be easier to generate new broadband customers. If public perceptions of service are unknown, it is easy to measure customer’s perceptions with a survey. The utility’s reputation, at least initially, may be extended to the new telecommunication service through effective marketing.

Brokerage

Public institutions represent a large market in every region. Frequently, multiple providers serve the region. If public institutions aggregate their local purchasing power for a specific joint venture, the critical mass necessary for a successful project may be reached. This expanded capability may significantly increase the likelihood of an ISP agreeing to a joint venture.

Step 2. Evaluate your partner’s strengths and weaknesses

Whenever a joint venture is considered, due diligence should be conducted to evaluate the strengths and weaknesses of your potential partners. An identified weakness does not mean you have a poor partner. It simply means that the weakness must be addressed, either by the community or by additional partners. Because you may be investing public dollars, you have a responsibility to assess the internal operations of your partners.

At minimum you should discover:

- *Current financial status and projected future financial condition*
- *Management team members*
- *Key personnel assigned to your local expansion*
- *Operational history in other communities*
- *References from other municipalities where joint ventures have occurred*
- *Startup experience in other communities (market penetration rates)*
- *Experience with different telecommunications technologies and equipment*
- *Customer service standards*

Private partners may be uncomfortable disclosing sensitive information, particularly if it means that the data will be available to the public. Communities vary in their policies to protect private proprietary data. If the community’s policies cannot protect the proprietary data, the ISP may be unwilling to disclose the data. In some cases, a community has hired a third party to conduct the due diligence so the proprietary information never enters the “public domain.” The third party provides a summary report that describes the strengths and weaknesses without disclosing specific proprietary data.

You may solicit partners through a formal request for proposals or “expressions of interest.” This is helpful in communities where multiple joint venture partners may be interested or simply to avoid the impression that one company is receiving favorable treatment. In a formal process, general information may be requested with additional disclosure required of finalists. In other cases, a community may be responding to a solicitation from a private partner. In this latter case, you will need to decide if an open competitive solicitation is warranted or required.

Step 3. Compare strengths and weaknesses

The community needs to step back and compare its strengths and weaknesses with those of its potential partner(s). A number of possibilities may emerge:

1. *There may be weaknesses possessed by all parties, in which case third parties may be needed. Example: Neither the community nor the ISP has the access to adequate financial capital. Assuming the proposed project is economically viable, a third party with financial strength may be added to the group.*
2. *There may be redundant strengths. Example: Both the community and partner possess operational capacity to run the new enterprise. Both scenarios should be evaluated to determine they affect the overall performance of the enterprise.*
3. *There may not be agreement between the partners about their relative strengths. When agreement cannot be reached, it is difficult to propose solutions. This is a common cause for termination of joint venture discussions.*

Step 4. Choose a partner and develop the business plan

At this time, you need to choose a partner and develop the business plan for the service. The first draft of this plan is a “term sheet” or “memorandum of understanding” that defines the anticipated responsibilities and expectations of all parties. It is a non-binding agreement, but it is an essential starting point. It confirms that all parties are in initial agreement about the basic structure of the relationship and confirms many of the assumptions and decisions that are reflected in the business plan. It is possible that these terms will change later based on the results of the business plan. All parties must agree before the term sheet (including changes in the term sheet) is rewritten into a formal joint venture agreement. If all parties are involved in the development of the business plan, the potential for last minute surprises is minimized.

The business plan may be assembled in a variety of ways. The most frequent method is to have the party with the most recent or developed business model be the lead author. The key assumptions would be approved by all of the partners. The business plan should include:

1. Management Plan

- *Who are the key personnel?*
- *What experience do they have?*
- *Are references available?*
- *If managers work for a larger organization, how long will they be assigned to your community?*

2. Marketing Plan

- *How will the market be solicited?*
- *What are the revenue expectations and market penetration rates?*
- *Are there comparisons to relate ventures?*
- *Is there a connection to the initial market survey?*
- *What public benefits will result from the venture?*
- *Are there specific marketing plans for each market niche (health care, industry, residents, educational facilities)?*
- *How do the services being proposed compare to those currently available in the community?*
- *What are the pricing strategies?*

3. Technology Plan

- *What is the technological platform for the new enterprise?*
- *How has it performed in similar applications?*
- *Does it allow for multiple levels of service (different bandwidth, data warehousing)?*
- *Does it lend itself to future upgrades?*
- *How long will the initial capacity be sufficient according to the initial revenue estimates?*

4. Operational Plan

- *Who will be responsible for the installation, billing and customer service functions?*
- *Will technical assistance and educational services be provided?*

5. Capital Plan

- *What are the sources of funding for the fixed assets and working capital?*
- *Does the list of resources include all terms and conditions?*
- *Will municipal bonds be used?*
- *If revenue bonds are proposed instead of conventional and marketable general obligation bonds, who will purchase these bonds?*
- *What is the return on investment expectation of the equity investors?*
- *Can it be met without public investment?*

6. Financial Pro-forma

- *Does it include a ten-year financial pro-forma that includes a balance sheet, income statement and cash flow statement?*
- *Does the financial pro-forma include a list of the assumptions?*

As the plan is developed, new information will frequently require a reevaluation of the initial assumptions. Estimated costs may go up, which may require a change in the capital structure. Projected revenues may be inadequate, in which case subscription costs may need to be examined to determine if increases are possible without a significant reduction in market penetration. Equipment costs may go down as new vendors are identified.

It is a rare occasion when business plans are executed with results occurring exactly as anticipated. The best use of the business plan is to identify and address weaknesses, give the partners a reasonable estimate of future expectations, determine capitalization requirements, and establish a foundation for the joint venture agreement that will allow the partners to proceed and commence development.

Step 5. Develop a joint venture agreement

The business plan should articulate very clearly the responsibilities of all parties, including investment requirements and operating roles and responsibilities. This document, plus the initial term sheet, is the foundation for a binding joint venture agreement between the primary partners. An attorney familiar with utility issues and municipal law should draft the agreement. The municipality's legal counsel plays a primary role in the development of this agreement.

Concurrent with the development of the joint venture agreement, contracts should be developed for relationships with lenders, builders, equipment suppliers and other consultants. Since most of the information that comprises these agreements was developed for the business plan, it should not be difficult to develop these agreements.

Usually, the legal contracts and agreements are contingent upon the execution of all required documents. This ensures that all of the required pieces are in place before investment capital is provided.

Common mistakes to avoid

There are a number of common mistakes that people and organizations may make when attempting to establish a joint venture. Here are just a few.

Fixating on a specific solution.

This mistake takes many forms, but it usually revolves around being wedded to a specific solution (i.e.-a specific technology, funding source or partner) to the extent that the solution becomes the single focus. Once this happens, other alternatives are not considered and sometimes, the situation changes to the extent that the solution is no longer relevant.

Inability to walk away from a poor project.

Sometimes the partnership is no longer fair to one of the parties, but the party feels he cannot back away after so much invested in the process. The cost of being involved in an unfair project over the long term is much more expensive than the initial development costs. If a project does not seem fair, it is best to encourage all parties to take a step back and reconsider how it is structured or, if absolutely necessary, to walk away.

Municipal ISPs

Beginning a project before all of the necessary pieces are in place.

Sometimes, a project is undertaken under the “build it as you have money” plan, in which a project is phased in based on a predetermined scenario. This is fine as long as you do not depend on a completed project to generate adequate revenue to pay for the investment in a partially completed project. Each part of the project must stand alone or pay for itself.

You should not rely on future revenues to pay for existing debt, as future revenues will not be generated if the capital resources needed to pay for them do not materialize. Another version of this mistake is that a project is initiated early to capture a specific opportunity that will not be available in the future, such as cheaper equipment or installation costs. Any “buy now” scenarios should be carefully scrutinized.

The “Reality Check”

If you have successfully reached this stage, it is important to conduct a final “reality check” before committing public resources. While these questions seem obvious, they occasionally are forgotten.

- *Does the outcome of the joint venture provide results that are consistent with the community objectives and goals identified at the beginning of the market analysis and development process? If not, is it because the goals are no longer valid or because other agendas became more important?*
- *Have all identified weaknesses in the project been addressed?*
- *Have you achieved a “coincidence of interest?” Will all parties succeed or fail together?*
- *If you were to do this project again, what would you do differently? Is it really too late to go back and do it differently?*

If you have conducted viable market assessment and development projects, engaged potential ISP partners, sought joint venture partners and still do not have a viable plan to make broadband services available in your community, you may choose to establish a municipal broadband service. On the one hand, this means that the community must bear all of the risks and costs of establishing this operation. On the other hand, you likely have already done the work necessary to design and develop a successful project. For example:

- *The demand for broadband services has already been established (and increased).*
- *The interest of ISP partners has been sought, and the reasons for their lack of participation have been identified.*
- *The public purpose for developing broadband services (increasing community economic vitality) has been identified, and public support for municipal services has been established.*
- *Basic familiarity with broadband technologies, services and challenges has been obtained.*

At this stage, you should be prepared to answer the fundamental questions, “why is a public entity entering into a business that competes with the private sector?” and “isn’t it unfair for a public entity to compete with private businesses when it has access to cheaper capital and does not pay taxes?” The most frequent answer to these legitimate questions is “the public benefit of broadband service is so great and so critical to our community’s economic future that we will develop this service.”

A more challenging situation arises when some level of service is already present, but the provider is not willing to upgrade the service to meet the community’s objectives. This could occur in situations where:

- *The broadband service is relatively slow (256K maximum speed) and the provider is unwilling to invest in equipment that will allow speeds up to 1 MB (soon to be the minimum standard to provide high quality video).*
- *The broadband service is available, but at a cost that is unattainable by most of the community. Furthermore, the provider is unwilling to consider any strategies or partnerships that will reduce the cost.*

Public criticism may be mitigated by the mere fact that you have already completed a market assessment and explored joint venture opportunities. The essential question becomes, “is the level of available broadband service (cost, speed, quality) so different from our needs that we need to develop broadband as a public project and competing with a private entity?” You must be willing to answer this question affirmatively if you are to proceed with the development of a private ISP.

In many ways, the development of a municipal ISP is very similar to the development of a joint venture (assessment of strengths and weaknesses, identification of key partners, development of a business plan.) with a few key differences:

- *The municipality owns the entire enterprise.*
- *The municipality provides all of the equity and raises the remaining funds through debt.*
- *The other players are subcontractors or employees, not real “partners” sharing authority, investment and risk.*

Determining the Scope of the Enterprise

Before the development of a business plan, a number of key questions must be answered to frame or “scope” the proposed enterprise. These questions overlap with similar questions in the previous chapter that relate to the development of a business plan for a joint venture. The “scoping questions” need to be answered because, unlike a joint venture between two partners, the range of options available to a community looking at a municipal ISP is greater.

What are the primary services that will be offered?

What is the technology platform that will provide the broadband service? If this service is delivered through a “pipe” (fiber to the home, coaxial cable, power lines), does that pipe have the ability to deliver other services that can provide additional revenue with a modest increase in the investment? The current trend toward offering multiple services reflects these new efficiencies (Cable TV companies provide modems and basic telephone service; telephone companies are providing DSL via telephone lines). Companies also

respond to customer preferences for a single bill, even when there is no overlapping technology, such as joint marketing and billing between telephone companies and satellite television companies.

As part of the consideration of the addition of telephone or television service, the community may need to conduct another market assessment. Since customers are already familiar with these services, questions will address price points and satisfaction with existing service.

If the community wishes to provide television service via the new “overbuilt” infrastructure, no state or federal regulatory requirements exist. If the community wishes to provide basic telephone services, it must secure the approval of the Minnesota Public Utilities Commission. Furthermore, a Minnesota community must approve a public referendum with a 65 percent approval rate before they may operate a municipal telephone company. The operation of a television or Internet service is not considered a municipal telephone company. At this time, the Minnesota Public Utilities Commission is considering whether providing telephone services over the Internet (where voice is transmitted much like other data over the Internet) is considered a “telephone service” regulated like other conventional telephone services. Its position on this issue, as well as similar interpretations by the Office of the Attorney General related to the referendum requirement, will have a major impact of the ability of municipalities to consider the inclusion of telephone service with broadband and television.

What technology platform will be used?

An ever-increasing array of technologies is becoming available for broadband service. Some technologies have higher equipment costs at the “head end” or on the customer’s premise, while other technologies have higher costs in the pipeline infrastructure. Some technologies have greater ability to increase the bandwidth in the future. Some technologies are relatively inexpensive, but have minimally acceptable speeds. Some technologies are emerging and show considerable promise, but have yet to be deployed and observed in a real life, full-scale application. The evaluation of broadband technologies is beyond the scope of this guide. The technology evaluation is a critical activity and should involve the use of an independent technology consultant (not an equipment vendor) if the community does not possess the internal expertise.

Could existing municipal operations be expanded to provide the additional services?

Expanding a successful municipal enterprise is easier and less risky than establishing a new enterprise. Can municipal operations (telephone, cable television, municipal power) be expanded to provide broadband service?

What is the legal authority for undertaking the development of a municipal ISP?

Has the municipality addressed all federal and state regulatory requirements for the development of a municipal telecommunications authority? While too complex to address completely in this guide, legal information is available. Each step that the community takes beyond the transmission of data (television, telephony) will increase the regulatory and legal issues significantly.

Developing a Business Plan

The business plan represents the final step in the business design process that occurs before attainment of financial resources and commencement of construction and operations.

1. Market Analysis and Preliminary Considerations

- *Conduct Business and residential surveys*
- *Complete interviews*
- *Review existing local market data*
- *Compare it with analogous markets*
- *Confirm legal authority*

2. Technology Design

- *Review technology platforms*
- *Layout preliminary system*
- *Estimate preliminary costs*

3. Economic modeling

- *Reconcile revenues, operating expenses and capital costs*
- *Calculate debt capacity and debt payment resources*
- *Review municipal equity investment resources*

4. Business Plan

- *Develop managerial and operational plans*
- *Develop marketing plan*
- *Confirm capital costs and capital resources*
- *Finalize financial model*

5. Business Commencement

- *Secure and close on financing agreements*
- *Initiate and complete construction/installation*
- *Train sales and operational staff*
- *Commence operations*

Increasing Economic Vitality:

*A Community Guide to
Broadband Development*

T H E R E S O U R C E S

Chapter 9 Case Studies

Chapter 10 Broadband Tools and References

Chapter 11 Broadband Resources

“Marketing is the key to success. Be sure of your support – and know your critics. These factors can lead to a successful telecommunications venture.”

— Michael Nitchals
General Manager
Willmar Municipal Utilities



Case Studies

Minnesota has entrepreneurial communities that have demonstrated how they can successfully increase local broadband use to make their communities more economically competitive. With apologies to the successful communities whose stories were not recognized in this guide, we are proud to offer excellent examples below. They are grouped according to their unique features, keeping in mind that many of developments included broader accomplishments than described below.

These pioneering projects have some consistent characteristics and qualities, including:

- *One tenacious person who served as a catalyst*
- *Involvement of senior leaders representing the community institutions and sectors*
- *Significant support from the business community*

Market Development

Luminet, Winona, MN

NetPlan, Pine City, MN

Strategic Technology Planning Team, Luverne, MN

PrarieNet Consortium, Marshall, MN

Joint Venture

Conduit Leasing, St. Peter – Hickory Tech, Inc., St. Peter, MN

ISP Partnership, REA-ALP, Alexandria, MN

Equity Investment, En-Tel Communications, Willmar, MN

Municipal Utility

Broadband, Telephone and Cable Television Utility, Barnesville, MN

Municipal Broadband Service, Buffalo, MN

Municipal Internet Service Provider, LakesNet, Detroit Lakes, MN

Windom Cable Communications, Windom, MN

Market Development

Luminet

Winona, MN

Winona, MN (population 27,069), is the home of Fastenal, a large distributor of industrial and construction supplies. When Fastenal became publicly held in 1987, its founders used much of the financial gain to establish the Hiawatha Foundation to support educational institutions in Winona. In 1992, the foundation conducted a study of the feasibility of providing state-of-the-art telecommunications services to support all of the educational institutions in the city.

The first phase of the project involved installing fiber-optic cable to all of the public and private schools and primary governmental and health care facilities. Luminet conducted a series of town hall meetings to present the benefits of advanced telecommunications technologies as well as other uses of technology. They formed eight user groups to promote and shepherd the use of data, video and educational content on the new infrastructure. The user groups held a conference to demonstrate their specific applications. Luminet also established a \$200,000 budget for content development for the local schools. Luminet eventually expanded into a local Internet Service Provider providing dial-up access to all Winona residents.

In 1997, the assets of Luminet were acquired by Hiawatha Broadband Communications, which has become the largest provider of data, video and telephone services in Winona. HBC is a private company, but more than 50 percent of the company's stock is held by Winona educational institutions. Stockholders want the company to provide benefits to the community as well as a financial return on investment. HBC is known throughout Minnesota as providing high quality services at very low costs. As a result of the market development and public education by Luminet, they have one of the highest broadband subscription rates (approximately 70 percent) in Minnesota.

Gary Evans, president and CEO of Hiawatha Broadband and a founder of Luminet, advises communities to “find good marketing people who can help generate the enthusiasm and optimism about broadband in the community.” He also thinks it would be useful to have a person available to assist in developing applications from the ideas that are generated by user groups.

For more information see <http://www.luminet.net/>

Market Development

NetPlan

Pine City, MN

Pine City, Minnesota (population 3,043) is one of the few communities in Minnesota that has used the NetPlan process. NetPlan was developed during the Ventura Administration by the Minnesota Department of Administration, the Department of Transportation and Minnesota Planning as a planning guide for advanced telecommunications services. The NetPlan process included an outline to help create a community vision and a preliminary survey to quantify the demand for local telecommunications service.

In August, 1999, Pine City established a telecommunications planning committee and conducted a survey of local residents. The NetPlan committee included local leaders representing government, business, media, telecommunications, education and health care institutions. The NetPlan committee conducted a visioning exercise that included more than 60 public and private sector leaders to raise awareness about broadband telecommunications.

The NetPlan Committee held a series of public events to increase the understanding of broadband services and new technologies in the community. These activities included two StarTech Expos, where demonstrations were conducted that displayed the different applications available via the Internet. They sponsored an Advance Technology Career Day in the high school. They joined with the Chamber of Commerce to hold multiple training sessions to demonstrate business broadband applications.

These activities helped the City Council decide to bring advanced telecommunications to Pine City. There, during the reconstruction of Highway 61 in 2001, the city installed fiber optic cable to connect the downtown and primary governmental, health care and educational institutions. Since 2001, the city contacted many ISPs to use the fiber optic cable to provide the telecommunications services to the private sector. The urgency for new services has been increased by local businesses that have committed to subscribing for new services when available, as well as the loss of business prospects that relocated in other communities when they discovered that broadband services were not available in the city. To date, a private ISP has not been willing to provide the telecommunications services.

The region has recently created a joint powers board comprised of the city, county and Pine Technical College, which will manage broadband services provided via the newly installed fiber optic cable. The public sector traffic will be routed to the Minnesota Department of Administration's network, with the private traffic routed through a separate path. Retail services are expected to begin in early 2004. The city is now seeking funds to extend the fiber optic cable to its industrial park, where current tenants await broadband service.

Market Development

Strategic Technology Planning Team

Luverne, Minnesota

Luverne, MN (population 4,617) Finance Director Barbara Berghorst says "broadband is my passion, not my mission." That passion has helped to create a technologically advanced and vibrant community. Back in 1993, Luverne initiated efforts to examine and expand its telecommunications capacity. They formed a committee, called the Strategic Technology Planning Team (STPT) that included representatives from the city, county, schools, the Chamber of Commerce and technical resources that met monthly. Its first step was to conduct an assessment to define the immediate broadband needs.

The team's efforts attracted the attention of multiple telecommunication service providers. The first investment was a \$3.4 million fiber investment in the region. Luverne and surrounding Rock County and are now served by at least five telecommunication service providers, with broadband residential rates as low as \$40 a month. They are served by cable, DSL and wireless providers.

The STPT continues to meet quarterly to plan broadband development efforts. They host community luncheons for business people, hold demonstrations in senior centers, and meet regularly with students and educators to plan events.

In 2002, the city and county began to develop a Community Strategic Technology Plan to help guide the budget, direction and adaptation for technology use in the community. The "technology road map" is intended to guide the community for the next five years. Some of its goals include the

development of Telework Center/Business Incubator; implementation of a training plan for public employees, creation of a citywide wide area network, and the development of a high-technology corridor in the central business district. They would also like to establish a video conferencing facility that could be utilized by private and public sector users.

Berghorst adds, “sometimes one institution wants to develop its own technology solution. In small communities like Luverne, it is important to get the institutions to work together to get the critical mass that you need. You discover that there are many common interests when you get people working together. Now we have ISPs that provide services to large businesses down to individual telecommuters working for companies 500 miles away”

For more information see www.cityofluverne.org

Market Development PrairieNet Consortium Marshall, Minnesota

Marshall Community Development Director Harry Weilage looks for “leaders that are not intimidated by new and competing thoughts” when he helped to form the PrairieNet Consortium (PNC). The PNC was formed in 1996 in an effort to meet the increasing demand for knowledge about telecommunications and new technologies in the Marshall (population 12,735) community and region when community leaders recognized that high-speed telecommunications technology were essential to their community’s economic future. The PNC included representatives of the community’s large employers, small businesses, ISPs, the City of Marshall, Marshall Municipal Utilities, colleges and schools.

The goals are:

- *To improve accessibility within the community*
- *To improve ISP services at reasonable prices*
- *To capitalize on the assets of the partners*
- *To work cooperatively in the development of the network to benefit the citizens of the region*

The leadership of PNC, through the public and private sector partners associated with the organization, has assisted Marshall in attracting and retaining multiple telecommunication providers for the community and the surrounding region. For several years Marshall and the surrounding area has had duplicative high bandwidth, privately owned infrastructure, an accomplishment unparalleled in rural communities its size. The emergence of competition was partially accomplished through PNC’s assistance in helping the city of Marshall to enact a change in the city charter allowing the local municipal utilities to become providers of telecommunication services. Once these changes were established, telecommunication providers recognized the availability of competition within the community and began taking the steps necessary to deploy and upgrade the technology infrastructure within the community.

Recognizing the need to develop awareness for an emerging digital economy and global competition, PNC conducted three annual conferences entitled Rural Evolution, Telecommunications in Southwest Minnesota. Each conference addressed an important aspect for emerging technologies within the community and region.

Future initiatives on the part of PNC involve the development of a joint-powers agreement between the governmental agencies within the community of Marshall (city, municipal utilities, school district, and county) to work collaboratively in an effort to reduce the costs associated with the purchase and operation of technology systems.

For more information see www.marshall-mn.org/PrairieNet/PNWeb.htm

Joint Venture Conduit Leasing St. Peter — Hickory Tech St. Peter, Minnesota

St. Peter’s (population 9,747) venture into telecommunications has been a combination of luck and disaster. In 1998, a lunchtime conversation between the St. Peter city administrator, Todd Prafke, and two bankers at a fast food restaurant evolved into a discussion about broadband services. The two bankers realized that their banks would need broadband service for

check processing to remain competitive. This started an extended conversation with St. Peter's businesses. Soon thereafter, disaster struck, when they experienced a devastating tornado. During the recovery efforts, the city municipal electrical utility began investigating the possibility of replacing above ground power lines with buried electrical lines. The city looked at installing conduit for fiber optic cable at the same time. The city had been in discussions with the incumbent telephone and cable television providers for upgraded broadband service since 1997, so this appeared to be an optimal time to explore the development of a new telecommunication partnership.

The city issued a Request for Proposal for a telecommunication partnership that would include infrastructure and operations. Hickory Tech, Inc., based in Mankato, responded with a proposal and committed to installing fiber optic cable in the conduit, and also providing twisted pair wiring from the curb to the residence. The city retained the ability to require Hickory Tech to bring fiber optic cable directly into any business in the city. The cost of the conduit was \$492,000. The project was financed by the city's electric fund. The city receives \$4.25 per customer as a lease payment for the conduit. Hickory Tech provides a variety of residential and business broadband services as well as video services.

The business community has led much of the city's broadband effort, and the strategy is closely integrated with the city's economic development strategy. The city is focused on attracting high quality, knowledge based businesses and stresses its broadband connectivity, highly educated workforce and community amenities in its promotional literature.

The city is very satisfied with the partnership with Hickory Tech. Todd Prafke says, "we structured a relationship that allows us to succeed or fail together. Thus far, this has been a win-win situation." His advice to other cities considering telecommunication service is "talk to your current partner. Establish goals about what you want." Prafke has been pleased with the success of the partnership. In hindsight, he says the city might have considered taking on additional risk and establishing telephone service.

For more information see www.saintpeteradvantage.com

Joint Venture ISP Partnership REA-ALP Internet Services Alexandria, Minnesota

Alexandria Light and Power is a 100- year old municipal electrical utility in Alexandria, MN, (population approximately 10,000). It began offering dial-up Internet services in 1996 in response to a community effort that was led by its Economic Development Commission. They have partnered with Runestone Electric Association, the local electrical cooperative, to expand into a wide variety of Internet access technologies, including dial-up, wireless (non line of sight), and DSL (through leased capacity from Sprint). ALP also provides fiber point-to-point and fiber-Internet services directly to local customers.

REA-ALP was the first service provider to successfully offer local Internet access and has achieved a high level of market penetration, now having approximately 475 wireless broadband customers and 5,000 dial-up customers. Its marketing strategy has focused primarily on providing high quality service in their community. They provide a support desk that operates seven days per week from 7 a.m. to 9 p.m. In the last year, the local cable TV company and Sprint have offered broadband access.

ALP has utilized a debt-free development strategy. They reinvested the margins from the initial dial-up service into broadband infrastructure. They have invested more than \$1 million in broadband infrastructure that includes 15-20 miles of fiber optic cable. They are planning to increase the availability of fiber to high volume business and residential users at office and residential complexes.

REA-ALP has successfully led the introduction and availability of broadband services in Alexandria, a community that continues to grow a strong core of technology-based businesses. Al Crowser, ALP General Manager, suggests to other communities starting out, "form a partnership, start small, and add service. Don't be afraid to consider going it alone if you need to."

For more information see www.alputilities.com.

**Joint Venture
Equity Investment
En-Tel Communications
Willmar, Minnesota**

In 1998, business, economic development and municipal leaders in Willmar and Kandiyohi County formed an informal organization called KandiLink, whose mission is to “assure that the Kandiyohi County area continually receives state of the art telecommunications services that meet our citizen’s needs and keeps our businesses competitive.” It has provided great local leadership in educating the public about the need for expanded telecommunications services. Its membership included Willmar Municipal Utilities, whom they asked to play an active role in developing vital broadband services.

In 2000, the City of Willmar, acting through the Willmar Municipal Utilities and its joint venture company, Allied Power LLC (itself a joint venture with Kandiyohi Power Coop), were invited to become a partner in En-Tel Communications, a Competitive Local Exchange Carrier CLEC. In 2001, En-Tel initiated a full line of telecommunications services, including local and long distance, DSL and dial-up Internet, and video service. The city’s investment, along with that of other investors, was used to overbuild the city with a new hybrid fiber-copper system.

With an attractive office located in Willmar including both customer service and technical support personnel, En-Tel has been able to respond to competitive challenges with an aggressive marketing and community relations program. After many initial challenges, En-Tel has been able to attract a strong and growing customer base by offering superior services and competitive pricing.

En-Tel Communications has a bright future. Part of their success is because of the involvement of local entities, such as the Willmar Municipal Utilities and Kandiyohi Power Coop. Michael Nitchals, Willmar Municipal Utilities general manager, suggests, “marketing is the key to success. Be sure of your support – and know your critics. These factors can lead to a successful telecommunications venture.” Nitchals believes that En-Tel will be able to

provide a financial return to the city, state-of-the-art telecommunication services and be a model for other public-private ventures.

For more information see www.en-tel.com and www.kandilink.org/html/index.html

**Municipal Utility
Barnesville Municipal Telephone
Barnesville, Minnesota**

Barnesville Municipal Utility (BMU) is the 100-year old utility in Barnesville, Minnesota (population 2,200). It provides water, sewer, electrical, telephone, cable television and Internet access services to its community. BMU is an excellent example of a municipal utility that has achieved the economy of scale to provide broadband service by expanding from an existing base of other services.

The Barnesville Municipal Telephone division of BMU has offered broadband Internet access since 2001. It began offering dial-up service in 1995 in a joint venture with Red River Telephone Cooperative, and is now transferring the dial-up operations to BMU. After an initial investment of \$120,000 (including customer premises equipment), they now have 400 dial-up customers and 80 DSL customers. Their residential broadband rates range from \$55 to \$85 and their business broadband rates are \$99 a month. They are seeking ways to reduce their costs to achieve a target rate of \$40 a month for broadband and \$15 a month for unlimited dial-up service.

BMU has the challenge of being a small operation in a relatively small market. It has met this challenge by choosing technologies that are easy to learn and that may be supported by a small staff. In planning for future capacity and bandwidth, BMU now installs conduit with every street project in their community. It is considering changing from ADSL to VDSL in the next 3 to 5 years to be able to offer improved video services. It is also looking at wireless technologies that may be able to add additional service where it is more cost effective. It’s shifting its broadband and Internet operations into a municipal revenue fund, which will give them more options for pricing their services.

Its marketing strategy has included some 90-day promotional rates and short-term free modem rentals. This has helped to introduce new customers to broadband service. The anticipated reduction in dial-up rates is intended to expand the pool of Internet users above their current 45 percent rate. The dial-up customers will be targeted for promotional upgrades to broadband service. They also participate in a Community Showcase program, where all Barnesville businesses demonstrate their services at a public venue. Thus far, customer retention has been excellent.

Gerry Dow, BMU Manager, advises his peers in small communities, "remember you are risking public funds. Be wary of a competitive arena."

For more information see www.barnesvillemn.com/index.html.

Municipal Broadband Service **Buffalo Wireless Internet Group** **Buffalo, MN**

Buffalo, MN (population 10,097) provides wireless and fiber broadband service to its businesses and residences. This activity grew out of a community technology committee that included local business and education leaders. The business leaders asked the city to be a broadband service provider, as local broadband service was not available.

The service, called Buffalo Wireless Internet Group (BWIG) began in 1997 when city electrical utility was installing a fiber loop to its electrical stations. This loop was extended to provide service to large business and government telecommunication customers. In 2001, the community issued a Request for Proposals to expand services to residential and small business customers. They decided to install a non-line of sight wireless technology. The city invested \$1 million in the initial fiber system and \$750,000 in the wireless system. It now has 35 commercial fiber users and 640 wireless users.

When commercial data service was initially provided, Buffalo requested the approval of the Minnesota Public Utilities Authority to provide service as a niche data carrier. While it appeared to city that the approval was not required, they chose to proceed with the short process and receive PUC approval.

The city did not conduct a formal marketing effort, but does hold community seminars that demonstrate broadband services and value. Recent classes include Internet security, home networking and system configuration. They also distribute literature with local utility bills and conduct some promotions with local youth hockey teams, local realtors, coffee shops and the Chamber of Commerce.

The initial efforts by the community technology committee have raised business and residential awareness about the benefits of broadband service. In 2002, the local private cable provider initiated cable modem service. Another ISP recently added service. BWIG has focused on retaining customers through responsive local service. It offers residential service at \$16, \$30 and \$40 per month for 125K, 256K and 364K services respectively. Fiber services are offered at \$149 per month for dark fiber and \$500 per month for switched fiber.

BWIG is now looking at expanding wireless service to adjacent rural areas. Merton Auger, Buffalo city administrator, advises, "get the support of the local business community behind you." He adds, "this type of system is perfect for rural Minnesota. You can start an operation with as little as \$15,000."

For more information about the Buffalo Wireless Internet Group, see www.bwig.net.

Municipal Internet Service Provider **LakesNet** **Detroit Lakes, MN**

Detroit Lakes Public Utilities provides electrical, water and Internet service in Detroit Lakes, MN. (population 7,348). In 1996, it started discussions with the local institutions about the installation of a fiber loop to provide broadband service. They conducted an informal survey and then contacted some of their local ISPs to explore potential partnerships, but they were not interested in providing new services. In 1998, they installed a nine-mile fiber loop and initiated broadband and dial-up service. The initial investment in the fiber loop was approximately \$1.2 million.

LakesNet now has approximately 1,300 dial-up users and 150 wireless broadband services in a community with 4,600 homes. It provides

broadband service to institutions (fiber) and businesses and residences through a wireless system. There are now at least five other ISPs in Detroit Lakes, including DSL and cable providers. The dial-up service costs between \$10 or \$20 per month, and the wireless broadband service ranges from \$46 to \$95 per month.

The marketing strategy was informal. Initially, it was the first local provider, and as competition emerged, it focused on providing good service. It has been successful hiring local youth to staff Help Desk operations during after-school hours and on Saturday mornings.

One of its first challenges was to determine the right technology to use. With hindsight, it would have made some different decisions (such as installing more fiber optic cable and fewer ATM switches), but over 90 percent of its initial investment is viable and operating. It intends to install a 900 MZ wireless system over the next few years to improve the quality of service over its existing 2.4 GHZ system. Its future challenge is to find the right scale of operations in a market with multiple competitors.

For more information see <http://www.lakesnet.net>

Municipal ISP

Windom Cable Communications

Windom, Minnesota

Dennis Nelson, Windom city administrator, is a mild mannered, soft spoken and methodical manager. You would never guess that he has charted a Windom initiative that has put them in the national spotlight. Through his efforts and the involvement of many community leaders, Windom is progressing from an underserved community to one with state- of- the -art telecommunications capacity.

Windom Cable Communications (WCC), a municipal enterprise, began offering video cable services to Windom (population 4,490) residents in 1985. In the late 90s, the city began conversations with ISPs to encourage the offering of broadband services, but was unable to attract any providers. The city held a referendum in 1999 to obtain local approval to operate a telephone exchange, which would enable WCC to offer voice, video and data services. The referendum failed to achieve the 65 percent approval needed. The city held another referendum in 2000 and achieved a 70 percent approval.

In 2001, the City Council appointed a Telecommunications Committee comprising representatives of the private and public sectors that had information technology experience. The committee was charged with developing a plan for establishing a state- of- the- art telecommunications infrastructure in the city. It spent the next 30 months developing an implementation plan. It engaged a marketing consultant to hold focus groups in the community. They developed a feasibility study and business plan to scale their technology options. They developed a design and engineering study. The city incurred approximately \$150,000 in predevelopment expenses and in July 2003, the City Council approved an \$8 million investment in a telecommunications system that will provide fiber to the premises and carry voice, video and data services for every business and residence in Windom. The system will be deployed by the end of 2004.

WCC faces competitive challenges in multiple areas. It will be a new provider of telephone services, but its market analysis suggests that it will be competitive. Satellite television services compete strongly with cable providers. A private ISP has just announced it will deploy DSL service in Windom. WCC also looked at its aging physical infrastructure and had to choose between investing in maintenance and upgrading to the full spectrum of telecommunication services. The investment they will make will keep them competitive far into the future.

Nelson, WCC Manager, advises other communities, “talk to your local media. Our newspaper and radio station were among the first to realize that broadband service was a major part of the city’s economic future. They were great allies in our efforts to educate the public about our future telecommunication needs.” He adds, “look for a telco partner before beginning the development of a municipal operation.”

For more information see www.windom-mn.com/cable.htm

Tools and References

This chapter includes a variety of tools and references that communities may use for broadband development, including:

- *Blandin Community Broadband Survey*
- *Select Minnesota Statutes for Municipal Service Providers*
- *CSPP Readiness Guide*
- *Other Publications*

Community Broadband Survey

Blandin Foundation Rural Broadband Initiative

Version 1.1

The attached survey is intended to assist communities in establishing the level of current broadband services and to quantify and qualify the demand for additional broadband services. The results of the survey will help facilitate discussions with broadband service providers and accelerate the expansion of broadband services.

The survey consists of three parts:

- I. **Business component** – *for mail distribution to businesses*
- II. **Residential component** – *for mail distribution to residences*
- III. **Broadband service provider component** – *a telephone interview survey to be used with the existing local broadband service provider(s).*

I. Blandin Broadband Survey Business Component

1. General demographic information

- | | | |
|--------------------|-------------|-----------|
| a. Sex (check one) | 1. Male | 2. Female |
| b. Age (check one) | 1. Under 20 | 2. 20-30 |
| | 3. 31-50 | 4. > 50 |

2. Your business title is: (check one)

1. Owner/Manager
2. IT Administrator
3. Other (specify) _____

3. How many computers are networking in your business. (Check one)

1. 1
2. 2-10
3. > 10

4. How often do you use email? (Check one.)

- a. Daily, on a regular basis.
- b. Often (once or twice a week)
- c. Occasionally (once or twice a month)
- d. Rarely (less than once a month)
- e. Never

5. How often do you connect to the Internet? (Check one)

- a. Daily, on a regular basis
- b. Often (once or twice a week)
- c. Occasionally (once or twice a month)
- d. Rarely
- e. Never

6. How do you connect to the Internet?

- a. Cable Modem
- b. DSL (Digital Subscriber Line)
- c. Frame Relay
- d. ISDN (Integrated Services Digital Network)
- e. Leased Line (Fractional T1)
- f. Leased Line (Full T1)
- g. Leased Line (Fractional T3)
- h. Leased Line (Full T3)
- i. Satellite
- j. Telephone Line - Dedicated Dial-Up
- k. Telephone Line - Share with Voice Line (Dial-up)
- i. Wireless
- j. Other (Specify)
- k. Unknown

7. For what business purposes do you use the Internet? (Check all that apply.)

- a. Education & training
- b. Finding customers
- c. Finding suppliers
- d. Finding economic development organizations
- e. Finding City government information
- f. Tax information or filings
- g. Travel information
- h. Weather information
- i. News
- j. Banking and investment
- k. Science or technical information
- l. Computer and Software
- m. General Research (Service or Product)
- n. Investigating competition
- o. Other (Specify) _____

8. Using the Internet has made a difference in my business in the following ways: (Check all that apply.)

- a. I perform better at my job
- b. I have achieved greater efficiency for my business
- c. I have received a promotion or new responsibilities at my job
- d. I have access to better information related to my work
- e. I have closer contact with colleagues
- f. I have closer contact with community
- g. I have closer contact with friends and family
- h. I have found new employment opportunities
- i. Other (Specify) _____

9. How much do you pay per month for Internet access at your business?

- a. Under \$20
- b. \$20 - 39
- c. \$40-59
- d. \$60-79
- e. \$80-200
- f. > \$200

10. Does your business utilize a Content Filtering Service to limit employee online access?

- 1. Yes
- 2. No

11. If No, would your business be interested in such a service if it was available?

- 1. Yes
- 2. No

12. Does your business utilize a Junk Email (known as SPAM) Filtering Service?

- 1. Yes
- 2. No

13. If No, would your business be interested in such a service if it was available?

- 1. Yes
- 2. No

14. Is there formal commitment toward building capacity in information and communication technology in your organization?

- a. Yes
- b. No
- c. Not Sure

15. Has your organization made a commitment in providing an Internet application (such as electronic purchasing, service support, etc.) for your customers? (Check only one response.)

- a. Yes
- b. Not at this time, maybe in the next year
- c. No, my organization doesn't want to take on this responsibility
- d. I am not sure

16. How satisfied are you with the following characteristics of your current Internet access? (Provide answers for a, b, c, & d)

Dissatisfied Somewhat Satisfied Satisfied

- a. Speed of connection
- b. Price of services
- c. Reliability (system is "up")
- d. Choice of providers (competition)

17. How willing or unwilling would you be to switch to a service that offers an increased connection speed while being on-line all the time for: (Provide answers for a, b, c & d)

Not Willing Somewhat Willing Very Willing

- a. the same price?
- b. a 10% monthly price increase
- c. a 20% monthly price increase?
- d. a 50% monthly price increase?

18. What is the likelihood that your business will use the Internet in the following ways in the next two years? (Provide answers for a-m)

Unlikely Possible Likely Today Utilize

- a. Create/maintain a Web site to provide information about company products/services
- b. Access information (suppliers, competitors, other)
- c. Engage in business-to-business (order & supply) electronic commerce
- d. Engage in retail electronic commerce (to consumers)
- e. Develop new products via the Internet (i.e. CAD/CAM, E-engineering)
- f. Market new products via the Internet
- g. Inventory management
- h. Recruit employees
- i. Provide technical support and service to customers
- j. Develop ability for employees to work from their homes
- k. Order supplies online (E-Commerce)
- l. Research
- m. Train employees
- n. Manage health care
- o. Other (please list) _____

19. What is your future Internet capacity need? (Provide answers for a-c)
Same as now 5 times 10 times or more Don't know

- a. One year from now
- b. Two years from now
- c. Three years from now and later

20. If high-speed connections were available to employees from home, would your organization allow telecommuting?

- a. Already allow
- b. Yes
- c. No
- d. Maybe

21. Are you interested in a fiber optic (high capacity dedicated connection) interconnection (lease fiber strands) within your community?

- a. Already allow
- b. Yes
- c. No
- d. Maybe

22. How interested would you be in purchasing or receiving the following services? (Provide answers for a-e)

Use Today Not Interested Somewhat Interested Very Interested

- a. Distance learning (non-interactive)
- b. Distance learning (interactive)
- c. Premises management/security?
- d. Video Conferencing for meetings with other office locations of your company?
- e. Video Conferencing for meetings with your customers and/or suppliers?

18. How long has your business been in the community?

- a. Less than 1 year
- b. 1-5 years
- c. 6 -10 years
- d. More than 10 years

19. How many employees work at this location?

- a. 1-5
- b. 5-10
- c. 10-20
- d. More than 20

20. Where are telecommunication decisions made in this organization?

- a. Non-local
- b. Local
- c. A combination of local and non-local

II. Blandin Broadband Survey Residential Component

1. General demographic information

- a. Sex (check one) 1. Male 2. Female
- b. Age (check one) 1. Under 20 2. 20-30 3. 31-50 4. > 50
- c. Are you the head of your household? 1. Yes 2. No

2. Do you have a personal computer in your home?

- a. Yes
- b. No

3. Do you have Internet access at home, at work, or at both?

- a. Home
- b. Work
- c. Both

4. If you do not have Internet access, what is the primary reason?

- a. Do not have a computer
- b. Not worth the price
- c. Can access the Internet at work, school, library or elsewhere
- d. Do not know how to use the Internet
- e. Content and parental control concerns
- f. Cannot afford

If you do not have Internet access, you have completed the survey. Thank you.

5. Including yourself, how many people in your household go online from home?

- a. How many are children ages 5 to 12 _____
- b. How many are teens ages 13 to 19 _____
- c. How many are adults ages 20-40 _____
- d. How many are adults over 40 _____

6. What are your five most frequent activities on the Internet? (Check up to 5)

- a. Education
- b. Reference/Libraries
- c. Business
- d. Employment
- e. City government
- f. Health care
- g. Local community events
- h. Agriculture
- i. News
- j. Entertainment
- k. Games
- l. Recreation
- m. Travel destinations
- n. Environment
- o. Science
- p. Computer and Software
- q. On-line banking
- r. Weather
- s. Consumer Research
- t. Shopping
- u. Real Estate
- v. Other (Specify) _____

7. On the average, approximately how many hours per week does your household spend on the Internet at home?

- a. 1 hour
- b. 2-5
- c. 6-10
- d. 11-15
- e. 26-50
- f. > 50

8. How do you connect to the Internet?

- a. Cable Modem
- b. DSL (Digital Subscriber Line)
- c. ISDN (Integrated Services Digital Network)
- d. Satellite (DirecTV/DirecWay, DishNetwork)
- e. Dial-up Telephone Line - Dedicated Separate Line or second line
- f. Dial-up Telephone Line - Share with Single Voice Line
- g. Wireless
- h. Other (Specify) _____

9. Using the Internet has made a difference in my life in the following ways:

(Check all that apply.)

- a. I perform better at my job
- b. I have received a promotion or new responsibilities at my job
- c. I have access to better information related to my work
- d. I have closer contact with colleagues
- e. I have closer contact with community
- f. I have closer contact with friends and family
- g. I have found new employment opportunities
- h. I have freed up time for more valuable activities
- i. I am making wiser consumer purchases.
- j. Other (Specify) _____

10. How often do you and other members of your household use the following Internet applications at home? Circle the response under each heading that best reflects how often you access the Internet for each use. If you do not use an application, check the response under "Never".

Daily Weekly Monthly Never

- a. Email friends and family
- b. Participate in online chats
- c. Online research
- d. Distance education
- e. Search classified advertisements
- f. Obtain news
- g. Purchase products
- i. Download software
- j. Day trading
- k. Listen to music
- l. Obtain government forms
- m. Find local information.
- n. Banking/paying bills.
- o. Travel Planning.
- p. Find local information.
- q. Obtain directions/maps.
- r. Other (Specify) _____

11. What are the barriers of using email and accessing the Internet?

Check all that apply.

- a. No local ISP, going online is a long distance call
- b. Software is too difficult to install.
- c. I don't know how to use an Internet Browser (e.g., Netscape or MS Explorer).
- d. Access is too expensive
- e. When dialing in, I always get a busy signal.
- f. Low bandwidth
- g. No local training opportunities
- i. My computer is too slow
- j. Other (specify)

12. How much do you pay per month for Internet access at home?

- a. Under \$20 b. \$20 to \$25 c. \$26 to \$30 d. \$31 to \$35
- e. \$36 to \$40 f. \$41 to \$50 g. \$51 to \$60 h. > \$61

13. Would you be willing to pay more for better quality, high speed, "always-on" Internet access to your home?

- a. Yes b. No c. I'm not sure

14. If "Yes" or "I'm not sure", how willing or unwilling would you be to switch to an Internet service that offers an increased connection speed while being on-line all the time for: (Provide answers for a, b, c, and d)

Not Willing At All Possibly Acceptable

- a. the same price?
- b. a \$10 monthly price increase?
- c. a \$20 monthly price increase?
- d. a \$30 monthly price increase?

15. If you have children in school, what school information would you like to access from your home via the internet? (Check all that apply)

- a. Attendance records
- b. Class outlines and resource material
- c. Communicate with school staff and/or bus company
- d. Grade reports (semester/quarter)
- e. Homework assignments
- f. Homework grades
- g. Lunch menus
- h. School activity announcements
- i. Other (Please Specify) _____

16. What types of communication uses might be of interest to you in the FUTURE? (Please provide an answer for a-f)

Not Interested Somewhat Interested Very Interested Use Today

- a. Telecommunicating for work
- b. Two-way (Interactive) video connection to family and friends
- c. Taking classes from schools and colleges at home
- d. Listen to audio of sporting and other events not available from local radio
- e. View video of sporting and other events not available from local radio/television
- f. Other interested use _____

17. Do you or someone in your household plan to start a home-based business in the next 1 to 3 years?

- a. Already have a home-based business
- b. Yes
- c. No (skip next question)

18. If your answer to question 16 is (a) or (b), how important will be/is a high speed data or Internet connection for your planned/existing home-based business?

- a. Not important b. Somewhat important c. Very important

19. If the following information from your city, county or other sources were provided electronically over the Internet, which ones would you be likely to access from home. (Check all that apply.)

- a. Meeting notices, agendas, minutes
- b. Community library catalogs and electronic library resources
- c. Special interest group (e.g. seniors, youth) bulletin boards
- d. Property tax records
- e. Maps (GIS, landuse, directions, street maps)
- f. Business listings in the community
- g. Job opportunities in the community
- h. Rules, regulations and ordinances (e.g. building code)
- i. Weather and road conditions
- j. Submit license applications
- k. Make utility payments
- l. Monitor utilities
- m. Other _____

III. Blandin Broadband Survey Internet Service Provider Component

Community Question:

1. How many Internet Service Providers do you have in your community?
 a. One b. Two c. Three d. Four e. Five or more

Questions for the Community Survey person to ask each ISP:

1. What types of technologies does the ISP sell?
- a. Cable Modem
 - b. DSL (Digital Subscriber Line)
 - c. Frame Relay
 - d. ISDN (Integrated Services Digital Network)
 - e. Leased Line (Fractional T1)
 - f. Leased Line (Full T1)
 - g. Leased Line (Fractional T3)
 - h. Leased Line (Full T3)
 - i. Satellite
 - j. Telephone Line - Dial-Up
 - k. Wireless
 - l. Other (Specify)

2. How much do the following services cost per month at different bandwidths?

	Cost	Bandwidth	Cost	Bandwidth
a. Cable Modem				
b. DSL				
c. Frame Relay				
d. ISDN				
e. Leased Line (Fract. T1)				
f. Leased Line (Full T1)				
g. Leased Line (Fract. T3)				
h. Leased Line (Full T3)				
i. Satellite				
j. Telephone Line-Dial-Up				
k. Wireless				
l. Other				

(Specify) _____

3. What is the percentage of capacity utilization during the period from 4-8 pm?

- a. Cable Modem
- b. DSL (Digital Subscriber Line)
- c. Frame Relay
- d. ISDN (Integrated Services Digital Network)
- e. Leased Line (Fractional T1)
- f. Leased Line (Full T1)
- g. Leased Line (Fractional T3)
- h. Leased Line (Full T3)
- i. Satellite
- j. Telephone Line - Dial-Up
- k. Wireless
- l. Other (Specify) _____

4. Does the ISP sell a Content Filtering Service to limit online access?

- 1. Yes
- 2. No

5. Does the ISP sell a Junk Email (known as SPAM) Filtering Service?

- 1. Yes
- 2. No

Minnesota Statute for Municipal Telco's

237.19 Municipal telecommunications services.

Any municipality shall have the right to own and operate a telephone exchange within its own borders, subject to the provisions of this chapter. It may construct such plant, or purchase an existing plant by agreement with the owner, or where it cannot agree with the owner on price, it may acquire an existing plant by condemnation, as hereinafter provided, but in no case shall a municipality construct or purchase such a plant or proceed to acquire an existing plant by condemnation until such action by it is authorized by a majority of the electors voting upon the proposition at a general election or a special election called for that purpose, and if the proposal is to construct a new exchange where an exchange already exists, it shall not be authorized to do so unless 65 percent of those voting thereon vote in favor of the undertaking. A municipality that owns and operates a telephone exchange may enter into a joint venture as a partner or shareholder with a telecommunications organization to provide telecommunications services within its service area.

HIST: (5302) 1915 c 152 s 16; 1991 c 79 s 1

for Living in the Networked World

A Self-Assessment Tool for Communities

Founded in 1989

CSPP'S Members Include:

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Please visit www.cspp.org for CSPP's online assessment, companion glossary to this assessment tool, *Living in the Networked World* report, and additional information.

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How to Use the Readiness Guide

The Guide is scalable from small town to major city, county, region, state or nation. Each community is encouraged to adapt the Guide to meet its needs. The goal is to engage the community in a discussion about where it stands and where it wants to be.

1. **Call a meeting of leaders** from all of the key sectors in your community, including business, government, education, and health leaders.
2. **Use the online assessment** at www.cspp.org to attract people to the meeting.
3. **Discuss the importance of connectedness** to your community, using the Guide as a focus.
4. **Informally benchmark your community** by polling the participants on the criteria of connectedness outlined in the Guide. Enhance the Guide with criteria specific to your community.
5. **Agree to launch a more formal assessment**, with the intention of using the results to develop and implement an action plan for your community to improve its connectedness.
6. **Look to other communities** who have performed Readiness Assessments for best practices (See WWW.CSPP.ORG)

The Computer Systems Policy Project (CSPP), a public policy advocacy group, is comprised of the Chairman and Chief executive Officers from America's leading information technology companies. Louis V. Gerstner, Jr., Chairman and Chief Executive Officer of IBM, serves as CSPP's Chairman. Currently, CSPP is focused on public policy issues including export controls, international trade, internet privacy, encryption and electronic commerce.

Welcome

Welcome to the CSPP Readiness Guide for Living in the Networked World. This self-assessment tool is designed to help you and your community determine how prepared you are to participate in the Networked World. It facilitates the first step of understanding where you are and provides a vision of where you need to be to reap the benefits of being connected in a Networked World. Most importantly, it prepares you to take actions that will enable your community—government, businesses, schools, community groups, and citizens—to benefit from being as connected as possible.

The Networked World

Our world has been changed by the proliferation of the Internet, mobile phones, communication devices, e-commerce, and networks. These changes, however, mark only the very beginning of a new age of anytime/anywhere “connectedness.” The emergence of the Networked World and establishment of true connectedness will entail a dramatic transformation in the very nature of our economies, societies and governments, as well as interpersonal and international relations.

At its very core, the Networked World is an evolution in perspective. Today, when we think of connecting with others, we think in terms of telecommunications based on voice transmission and computing based on isolated desktop PCs. These impressions are becoming insufficient. We are evolving to a networking model based on connectedness that will transform the Internet into an expansive and pervasive framework that touches every aspect of our lives. The convergence of voice, data and video, the growth of communication bandwidth, and the low cost of access devices (both fixed and mobile) are paving the way for a new, inclusive model of connectedness.

A Self-Assessment Tool

The Guide is a self-assessment tool that can be used to determine how ready a town, city, county, state, country—or any community—is for the Networked World. The Guide provides a snapshot of where communities fall along a continuum of readiness. From the stage-one community with a minimum of the necessary technology and applications, to the stage-four

Introduction

community that has very advanced technology and ubiquitous applications, the Guide provides a framework that can help guide discussions, drive decisions and produce results. Using the Guide effectively requires the collection and analysis of a substantial amount of information. We believe it will be most useful for a community when used collaboratively by a coalition of community members concerned about the area’s technological and economic development. Working together, community members can pool knowledge, data, and experience to produce a shared strategic plan.

There are hundreds of criteria that you could use to assess readiness for the Networked World. In the enclosed matrix, we selected five key categories that we believe best represent the elements that need to be in place to capture the benefits of the Networked World.

1. The Network (Infrastructure) — *the backbone technologies and infrastructure that connect you to the Network.*

There is an ever-expanding communications network infrastructure that spans the globe, connecting people and devices to all sorts of voice, video, and data services. However, there is tremendous variability in the speed, quality, affordability, and range of services that are available where people actually connect to the Network: in homes, schools, businesses, cars, trains, etc.

What do the Stages Mean?

The stages are meant to provide a benchmark for communities to determine how far along they are in achieving and using connectedness. Communities are likely to be at a variety of stages as each criteria is assessed. For example, a community might have advanced infrastructure (Stage 4) but little actual use of the network for providing government services (Stage 2). An overall “score” for the community can be estimated by simply averaging the scores across the criteria.

2. Networked Places (Access) — *where you spend your time and need to be connected.*

Infrastructure alone does not ensure connectedness. The Network must extend to the places where people spend their time. Mobile technologies will soon make the Network available everywhere, but wired access will remain important for higher speed connections and fixed access devices.

3. Networked Applications and Services — *how you use your connectedness to make it meaningful and purposeful.*

The Networked World is all about how we are able to use the Network to make our lives better, jobs more meaningful, time more well spent, people smarter, and communities stronger, healthier, and safer.

4. Networked Economy — *the role of the Network in driving the economy.*

The Internet has started to change the economy—the Networked World will revolutionize it. There are three key factors that indicate an economy, whether at the macro or micro level, is well grounded to benefit from the change: 1) are the ingredients in

place to promote innovation; 2) is the workforce trained and skilled enough to adapt to an ever-changing environment; and 3) are consumers plugged into the networked economy.

5. Networked World Enablers — *key levers to expediting the Networked World.*

The Networked World is happening all around us in fits and starts. Most of us still operate in a duplicative online and physical mode because we are not yet at a level of reliability and ubiquity to do many of the things possible on the Network alone. Many people are concerned that online interactions are not adequately secure and private. Policies are still maturing that will ensure that a viable legal framework is in place and that promote connectedness everywhere and for everyone. If these key issues are addressed expeditiously, communities will be better enabled to benefit from the Networked World.

Additional information on the benchmarks for these criteria can be found at www.cspp.org/readiness

1. The Network (Infrastructure)

Speed and Availability

Competition

Residential	Commercial	Wired/Fixed	Wireless	Mobile Wireless
<p>56k dial-up available to 100% of homes.</p> <p>Only analog mobile wireless services offered.</p>	<p>56k dial-up available to 100% of businesses.</p> <p>Only analog mobile wireless services offered.</p>	<p>1 high-speed data provider for residential and business markets.</p> <p>Installation takes 2 weeks.</p>		<p>1 mobile voice/data wireless provider.</p> <p>Monthly contracts available on per-minute basis.</p>
<p>DSL/Cable or fixed wireless equivalent available to 20% of homes.</p> <p>Mobile digital wireless data service covers 30% of the community at 12kbps.</p>	<p>High-speed (DSL/Cable or dedicated T1+) access available to 40% of businesses.</p> <p>Mobile digital wireless data service covers 30% of the community at 12kbps.</p>	<p>2 residential high-speed data providers servicing more than 50% of the community.</p> <p>3 high-speed data providers for the business market.</p> <p>Installation takes less than 2 weeks.</p>		<p>3 mobile voice/ data wireless providers.</p> <p>Mobile wireless long distance flat rates available on per-minute basis.</p>
<p>DSL/Cable or fixed wireless equivalent available to 80% of homes.</p> <p>Mobile digital wireless data services covers 50% of the community at 12kbps.</p>	<p>High-speed access available to 80% of businesses.</p> <p>Mobile digital wireless data service covers 50% of the community at 56kbps.</p>	<p>3 residential high-speed data providers servicing more than 75% of the community.</p> <p>5 high-speed providers for the business market.</p> <p>Installation takes 1 week.</p>		<p>5 mobile voice/ data wireless providers.</p> <p>Mobile wireless data flat rate available on per-minute basis.</p>
<p>Every home has access to high-speed connections and people can access the Network wirelessly from anywhere in the community.</p>	<p>Every business has access to high-speed connections and employees can access the Network wirelessly from anywhere in the community.</p>	<p>High-speed data services for the residential and business markets are highly competitive for price, innovation, and quality of service.</p>		<p>Mobile wireless services are highly competitive for price, innovation, and quality of service.</p>

Stage 1

Stage 2

Stage 3

Stage 4

2. Networked Places (Access)

Business	Government	K-12	Higher Ed.	Health	Home
Employees Dial up for Internet access. 25% of employees have email accounts.	50% of government buildings have always-on connection 25% of employees have email accounts	10% of classrooms have always-on connection to the Internet 25% of teachers have email accounts	100% of offices, libraries and labs have always-on connection to the Internet. 25% of dorm rooms have always-on connection to the Internet.	25% of providers have dial-up Internet access. 25% of providers have email accounts for external communication.	25% of homes have a computer/ access device. 15% of homes use the Internet
30% of employees have access to an always-on connection to the Internet. 50% of employees have email accounts. 50% of mobile employees use wireless devices.	100% of government buildings have always-on connection to the Internet. 100% of employees have email. 50% of mobile employees use wireless devices.	50% of classrooms have always-on connection to the Internet. 100% of teachers have email accounts. 25% of campuses have a wireless network.	100% of students, faculty and staff have email accounts. 50% of dorm rooms have always-on connection to the Internet.	25% of providers have always-on connection to the Internet. 50% of providers have email accounts for external communication.	50% of homes have a computer/ access device. 30% of homes use the Internet.
60% of employees have access to an always-on connection to the Internet. 75% of employees have email accounts. 100% of mobile employees use wireless devices.	100% of mobile employees use wireless devices. Public terminals are available in 50% of buildings that are accessible to the public.	75% of classrooms have always-on connection to the Internet. 100% of students have email accounts. Public ports and terminals are available in some common areas.	100% of dorm room have always-on connection to the Internet. 50% of campuses have a wireless network.	50% of providers have always-on connection to the Internet. 100% of providers have email accounts for external communication.	80% of homes have a computer/ access device. 80% of homes use the Internet.
All businesses of all sizes and in all sectors are always connected to the Network and every employee is able to access the Net-work when it is needed to perform their job, even when mobile.	Governments make the Network always available to employees and become a point of Network access for the public when they are in a public building.	All K-12 campuses are highly networked environments where the Network is available to students, faculty, and staff from anywhere on campus.	All higher ed campuses are highly networked environments where the Networks is available to students, faculty, and staff from anywhere on campus.	All health care providers have high-speed communication and telemedicine purposes.	All homes are connected to the Network and enable people and devices to access the Network from multiple sites in the home.

3. Networked Applications and Services

Business	Government	K-12	Higher Ed.	Health	Home
10% order goods online. 10% transact with customers online. 10% manage HR/administrative information online.	50% of agencies have informational websites 25% of agencies manage HR/administrative information online.	100% of schools have an informational website. 25% of teachers trained to use digital content and web-based learning for instruction. 25% of classes use digital content and/or web-based learning.	25% of campuses offer online registration. 25% of classes use digital content and/or web-based learning.	10% of providers have an informational website.	25% of community based organizations have an informational website.
25% order goods online 25% transact with customers online. 25% manage HR/administrative information online.	25% of agencies have transactional websites for citizens and suppliers 50% of agencies share data electronically 50% of agencies manage HR/administrative information online	25% of schools have an interactive website including access to homework assignments and email contact with teachers and administrators 50% of teachers trained to use digital content and web-based learning for instruction. 50% of classes use digital content and/or web-based learning.	50% of campuses offer online registration. 50% of faculty trained to use digital content and web-based learning for instruction.	25% of providers have an informational website 10% of providers store records electronically	50% of community based organizations have an informational website.
50% order goods online. 50% transact with customers online. 50% manage HR/administrative information online.	75% of agencies have transactional websites for citizens and suppliers 75% of agencies share data electronically 74% of agencies manage HR/administrative information online	75% of schools have an interactive website including access to homework assignments and email contact with teachers and administrators. 100% of teachers trained to use digital content and web-based learning for instruction. 100% of classes use digital content and/or web-based learning.	75% of campuses offer online registration. 75% of faculty trained to use digital content and web-based learning for instruction. 100% of classes use digital content and/or web-based learning.	75% of providers have an informational website 25% of providers have an interactive website for scheduling and basic questions. 50% of providers store records electronically.	75% of community based organizations have an informational website. A unified community portal provides access to a broad range of community information and services.
Businesses incorporate the Network into every aspect of their operations, creating greater efficiencies, spurring innovation and connecting on-line to everyone that is part of the business, both internally and externally.	Governments use the Network to run operations more efficiently internally and to serve constituents 24x7 externally.	Schools use the Network to connect students, teachers and parents; improve learning using digital content and manage administrative responsibilities more efficiently.	All aspects of higher ed are available through the Network including instruction, content and administration.	Providers interact with their patients online and perform some consultations and procedures remotely.	Community based organizations are able to use the Network to engage people in the community and make their services available to everyone.

4. Networked Economy

Innovation	Workforce	Consumer
<p>Business permits and licenses take up to 3 months to secure</p> <p>25% of existing businesses have transformed their internal and external practices due to the Internet.</p>	<p>10% of the workforce participates in training/ education programs either online or in person every 5 years.</p> <p>10% of employers post job openings on online job listing services</p>	<p>10% of households purchase goods or use services online.</p>
<p>Business permits and licenses take up to 1 month to secure.</p> <p>50% of existing businesses have transformed their internal and external practices due to the Internet.</p>	<p>25% of the workforce participates in training/education programs either online or in person every 5 years.</p> <p>25% of employers post job openings on online job listing services.</p> <p>5% of the workforce telecommutes at least once a week.</p>	<p>33% of households purchase goods or use services online.</p>
<p>Business permits and licenses take less than 2 weeks to secure.</p> <p>75% of existing businesses have transformed their internal and external practices due to the Internet.</p>	<p>50% of the workforce participates in training/education programs either online or in person every 5 years.</p> <p>75% of employers post job openings on online job listing services.</p> <p>15% of the workforce telecommutes at least once a week.</p>	<p>75% of households purchase goods or use services online.</p>
<p>Starting a new business has minimal bureaucratic and economic barriers and support mechanisms are in place to assist and encourage new business development. Existing businesses are embracing new technologies and best practices.</p>	<p>People are continually upgrading their skills to adjust to new technologies and best practices. Online job banks are able to dynamically match employees with openings and connect to training/education programs to identify changing workforce skill requirements. Telework becomes a standard operating procedure in most work environments.</p>	<p>Consumers can find information about, compare and buy and good or service located anywhere in the world online.</p>

5. Networked World Enabler

Ubiquity	Security	Privacy	Policy
<p>A visitor can find high-speed access to the Network within a 20 minute drive from the center of the community on a 24 x 7 basis.</p>	<p>10% of always-on connections have firewalls.</p> <p>Sensitive business and personal e-mail never encrypted.</p> <p>Virus software updated annually.</p>	<p>75% public and private sector websites post privacy policies</p>	<p>Policy makers and business leaders are familiar with key connectedness policy issues such as privacy, telecommunications competition, taxation, authentication, intellectual property, security and online criminal activity.</p>
<p>A visitor can find high-speed access to the Network within a 10 minute drive from the center of the community on a 24 x 7 basis.</p>	<p>50% of always-on connections have firewalls.</p> <p>Sensitive business and personal e-mail sometimes encrypted.</p> <p>Virus software updated monthly.</p>	<p>25% of public and private sector websites meet the privacy guidelines of BBBOnline or TRUSTe.</p> <p>25% of people feel they understand how to protect their privacy when online.</p>	<p>Policy makers and business leaders are working to ensure that new policies are in place to encourage and support the emergence of connectedness. Policy makers and business leaders are working to eliminate barriers to connectedness, such as requirements for physical signatures.</p>
<p>A visitor can find high-speed access to the Network within a 10-minute walk from the center of the community on a 24 x 7 basis.</p>	<p>100% of always-on connections have firewalls. Sensitive business and personal e-mail always encrypted. Virus software updated weekly. Digital signature or equivalent authentication technology used by 50% of users.</p>	<p>50% of public and private sector websites meet the privacy guidelines of BBBOnline or TRUSTe.</p> <p>75% of people feel they understand how to protect their privacy when online.</p>	<p>Regular assessments of connectedness are made as well as the effect policies are having on connectedness.</p>
<p>High-speed access terminals are available everywhere in the community and getting on the Network wherever you are does not require much effort.</p>	<p>Organizations and individual users use tools to protect online security and are prepared to make themselves "well" again when security is breached.</p>	<p>Users are enabled to easily protect their privacy through a combination of technology tools and best practices. Public and private sector organizations make it easy for users to understand how information is collected and used.</p>	<p>Policies related to privacy, telecommunications competition, taxation, authentication, intellectual property, and criminal conduct for disrupting networks are clearly established are favorable to promoting connectedness and use of the Network.</p>

Other Publications

Community Broadband Guidebook (formerly the APPA Utility Telecommunications Guidebook, American Public Power Association, Washington, DC

Market Development Strategies and Resources – a Guide for Communities and Broadband Providers, Minnesota Rural Partners, (publication available at <http://www.communitytechnologyadvisors.com>)

accessE-Info is a resource sponsored by the University of Minnesota Extension Service that provides a variety of electronic commerce, government and general broadband tutorials at <http://www.accesse.info>

Utilities Telecommunications Checklist, American Public Power Association, Washington, DC

Getting Online 2.0 – A small town guide to creating 21st Century Communities, National Center for Small Communities, Washington, DC (publication available at <http://www.natat.org/ncsc/Pubs/Getting%20Online/GettingOnline2.pdf>)

Broadband Resources

The following professional and technical resources are listed below solely for the convenience of the reader. The Blandin Foundation doesn't make any representations about the firms and organizations. Communities are encouraged to contact these or other firms and seek their individual references.

Market Analysis and Development

Community Technology Advisors Corp.

1533 Grantham Street
St. Paul, MN 55108

Jane Leonard and Bill Coleman

Phone: 651-645-9403

Fax: 651-646-3818

Email: jane@communitytechnologyadvisors.com

Web: <http://www.communitytechnologyadvisors.com/contact.htm>

The Shpigler Group

15 North Mill Street
Nyack, NY 10960

David Shpigler, President

Phone: 845-348-3181

Fax: 845-348-3184

Email: shpigler@shpigler.com

Web: www.shpigler.com

Vectren Communications Services

421 John Street
Evansville, IN 47113

Doris Kelley

Phone: 319-287-3956

Email: dkelley@vectrencom.com

Virchow, Krause and Company, LLP

7900 Xerxes Avenue South
Suite 2400

Minneapolis, MN 55431

Brandon Andries

Regional Managing Partner

Phone: 952-835-1344

Web: www.virchowkrause.com

Legal Assistance

Baller Herbst Law Group

2014 P Street, N.W. Suite 200
Washington, D.C. 20036

Jim Baller

Phone: (202) 833-5300

Fax: (202) 833-1180

Email: info@baller.com

Web: www.baller.com

Adrian Herbst

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400 South Fourth Street

Minneapolis, MN 55415-1413

Phone: 612) 339-2026

Fax (612) 339-4789

Kennedy & Graven

470 Pillsbury Center
200 South Sixth Street
Minneapolis, MN 55402

Bob Vose

Phone: 612.337.9300

Fax: 612.337.9310

Email: rvose@Kennedy-Graven.com

Web: www.kennedy-graven.com

Moss and Barnett

4800 Well Fargo Center
90 South Seventh Street
Minneapolis, MN 55402-4129

Cecilia Ray

Phone: 612-347-0289

Fax: 612-339-6686

Email: rayc@moss-barnett.com

Web: www.moss-barnett.com

Spiegel & McDiarmid
1333 New Hampshire Avenue N.W.
Washington, DC 20036
Phone: 202-879-4002
Fax: (202) 393-2866
James Horwood
Email: james.horwood@spiegel
mcd.com
Web: www.spiegelmcd.com

Engineering

**Burns and McDonnell Navpoint Internet
/ Byte Support, Inc.**
600 Bethlehem Pike
Erdenheim, PA 19038
Russ Trimble
Phone: 816-822-4205
Email: rtrimble@burnsmcd.com
Web: www.burnsmcd.com

Finley Engineering Company
PO Box 259
1961 Engebretson
Slayton, MN 56172
Ken Knuth
Phone: 507-777-2201
Fax: 507-777-2200
Email: k.knuth@fecinc.com
Web: www.fecinc.com

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