PLACE IN RETURN BOX
to remove this checkout from your record.
TO AVOID FINES return on or before date due.
MAY BE RECALLED with earlier due date if requested.

DATE DUE	DATE DUE

3/06 p:/CIRC/DateDue.indd-p.7

MICHIGAN STATE UNIVERSITY

Urban and Regional Planning Program

An Examination of Government-Led Broadband Infrastructure Initiatives in Michigan

Plan B Research Paper

James C. Breuckman

May 2002

An Examination of Government-Led Broadband Infrastructure Initiatives in Michigan

By:

James C. Breuckman

Plan B Research Paper

Submitted to the Urban and Regional Planning Program
Michigan State University

In partial fulfillment of the requirements for the degree of

MASTER OF URBAN AND REGIONAL PLANNING

Table of Contents

1.0 Introduction

As it becomes increasingly clear that the quality of telecommunications infrastructure within a community has an impact upon economic development, the provision of technology infrastructure is gaining increased importance at all levels of government. The rise of the digital economy and the networked world is changing how we communicate and do business. In order for communities to participate in the digital economy, high-speed broadband network infrastructure must be available.[1] Statewide technology initiatives such as LinkMichigan have been created to support high-speed telecommunications infrastructure to facilitate economic development. Statements such as "improving access to high-speed telecommunications services is the most important state economic infrastructure issue for the new century"[2] are helping to get state, county, and local governments increasingly involved in efforts to provide broadband access for their states and communities.

The provision of broadband infrastructure has to date mainly been accomplished by the private sector, and much of the privately built technology infrastructure has been located in areas where returns on investment can be expected to be highest, and at this point in time, many smaller, rural, and low-income communities lack access to high-speed Internet access. These locations are usually the areas where local governments take an active role in building broadband infrastructure themselves, as they do not want their communities to be underserved or left behind. Communities without sufficient broadband access will be left behind in the coming years as citizens are disadvantaged by lack of skills, and businesses increasingly consider broadband access as a key component in making location choices. To date, different communities have taken many different approaches in providing broadband infrastructure. Some

---

[1] CSPP Readiness Guide, p. 1.
[2] Michigan Economic Development Corporation, LinkMichigan Plan, p. 2.

of these approaches have drawn criticism because they are public enterprises competing directly against the private sector.[3]

1.1 Purpose

The purpose of this paper is threefold: first, to examine justifications for and arguments against municipal involvement in providing telecommunications services (e.g. acting as an Internet Service Provider and/or cable television provider); second, to interpret the results of an eReadiness survey of Michigan's 14 regional planning councils; and third, to examine five case study examples - three unique initiatives at the local or municipal scale where local governments have been proactive in the provision of broadband infrastructure and two county-level initiatives.

This study will allow us to better understand the legality, costs and benefits of various proactive approaches to providing and planning for information and communications technologies. The purpose of this examination is not to declare which government initiative is best, but rather to highlight the strengths and weaknesses of each approach. The eReadiness survey will provide some idea of how ready Michigan's regions are to participate in the digital economy. The five case studies are included as "best practices" examples for communities, counties or regions engaged in planning for information and communications technologies. The ultimate goal is to stimulate active planning for information and communication technologies.

---

[3] Tongue, available online.

2.0 The Place of Government in Providing Telecommunications Services

"A social vision cannot simply be declared; it must be socially enacted...and given a political embodiment. This requires...supporting institutions, treatises, technology projects and leadership."[4] This statement attests to the need for action in addressing problems. In this case, the problem has been identified as the digital divide. While the digital divide does not have one single, steadfast definition, it generally refers to a dichotomy between those with and those without access and the ability to utilize technology and the Internet. In many places where planners are taking the lead in efforts to provide information technology infrastructure and services, efforts to bridge the digital divide are an integral justification for and component of initiatives.[5]

Early formulations of the digital divide were focused solely on issues of access to technology, but more recent formulations hold that it is more than a simple issue of access; it is an issue of "those who use Internet technologies to improve their lives, and those who do not."[6] There are four basic activities that enable the Internet to improve one's quality of life: access, finding information related to a need or problem, retrieving it, and using it. People who are able to complete all four of these activities benefit from the Internet. Those who are unable to complete any one of these tasks do not benefit from the Internet. In the past, the problem of gaining access to the Internet posed the greatest challenge in bridging the digital divide, however, with computer prices falling access is becoming less of a problem. A caveat is that many websites are becoming more sophisticated, requiring faster connection speeds to adequately browse the Internet. Thus, dial-in access is often inadequate, and broadband access is

---

[4] Widmayer, p.31.
[5] Quay, p.16-17.
[6] Quay, p.12.

often required – broadband access that usually costs upwards of $35 a month compared to $10 a month for dial-in access.[7]

2.1 Broadband Internet Access

There is no universal definition of what constitutes "broadband" Internet access. The FCC defines a broadband connection as having connection speeds of at least 200Kbps. Typical dial-in modems are 56Kbps, although in reality connection speeds are usually much lower than this, often in the 30-33Kbps range. There are three primary methods of providing broadband connections: 1) telephone network connections (DSL and ISDN); 2) wireless systems; and 3) cable modems. There are, of course, advantages and disadvantages to each option. For instance, DSL is available over existing copper telephone wires, but the customer must live within 3 miles of a telephone switching station. Wireless systems do not require the in-ground infrastructure that cable modems do, but direct line-of-sight connections are required, reducing reliability. Finally, cable modem systems offer reliable access over hybrid coaxial/fiber optic cable systems. However, these connections are expensive because they require large amounts of in-ground infrastructure, and they include some significant security risks. Currently, 75% of broadband connections are in the form of cable modems due to faster transmission times than DSL, the fact that DSL may never reach rural areas, and the current unreliable nature of satellite wireless systems.[8]

The provision of broadband infrastructure requires laying fiber-optic backbones to provide long-distance transmission of information. Local access is provided by local loops that connect into these large backbones. A useful analogy is to think of information technology

---

[7] Quay, p.12-13.
[8] Tongue, available online.

infrastructure as a series of pipes. The largest pipes are the national or international backbones. Intermediate backbone pipes carry data to and from the national or international backbones to various nodes, such as universities or major cities. Finally, the smallest pipes are the local backbones that serve smaller areas. The smallest pipes that serve smaller cities or portions of larger cities are the subjects of municipal planning efforts, as these are the pipes responsible for bringing the information to neighborhoods and businesses – they are the on-ramps to the Internet.[9]

Two factors are especially important in determining who has broadband access to the Internet and who does not: income and geography. To date, private investment in broadband infrastructure has naturally occurred in areas where the greatest return on investments can be expected. The Federal Communications Commission (FCC) is currently debating how private sector providers of broadband will be regulated – as providers of telecommunications or information services – and what the best method of regulation is for promoting competition and universal access. Under to the Telecommunications Act of 1996, DSL lines are currently regulated as telecommunications services and as such the owners of the networks are compelled to make DSL services available to competitors at bulk rates for resale. This fact has led to competition in the DSL market. However, Cable Modem services are considered information services, and as such the owners of the networks are not compelled to provide competitors access. Public interest advocates are calling for more regulation of broadband to compel the owners of all networks – Cable Modem and DSL – to provide access to competitors. In this way competition would be increased as smaller local Internet Service Providers could lease bandwidth on the proprietary networks of the larger incumbent telecommunications or cable companies (such as SBC Ameritech for DSL or AT&T Broadband for Cable Modem) to offer

---

[9] Michigan Economic Development Corporation, LinkMichigan Plan, p.5.

their own services. At the same time, industry advocates argue that deregulation (including the abolition of open-access requirements) will lead to greater growth of networks and lower prices.[10]

The FCC will decide on a new regulatory structure for broadband later this year, but they are proposing that all broadband via wireline be classified as information services, which would eliminate the open-access requirement for DSL.[11] This will likely reduce competition in local markets, and also that rural areas, smaller cities, and low-income or older portions of larger cities may continue to be underserved.[12] It is these areas that are particularly worrisome to many. An analogy that is often used is to compare places that are bypassed by broadband access to places that were passed by railroads in the 19th century or places that were bypassed by highways in the middle of the 20th century. It is assumed that cities that lack broadband access will not be viable and will fade away.[13]

2.2 Municipal Entry into the Broadband Market

Due to the combined issues of bridging the digital divide, ensuring economic vitality through universal service, and providing competition as a way of lowering access costs, many municipalities have entered the telecom and cable TV markets – currently:

- 109 municipal utilities provide cable television services
- 61 act as Internet Service Providers
- 58 lease fiber to private-sector companies
- 32 provide high-speed data services
- 18 provide local telephone services
- 10 provide long distance telephone service[14]

---

[10] Bonnett, p. 4.
[11] Bonnett, p. 3.
[12] Quay, p. 13-14.
[13] Widmayer, p.23; LinkMichigan, p.5.
[14] Eisenach, p.2.

Five main justifications have been offered to support this kind of action by municipalities. They are: 1) Fear that they will be left behind; 2) economic development; 3) creation of competition; 4) economic efficiency; and 5) preservation of the quality of city streets.[15]

1. The fear of smaller communities that they will be left behind when it comes to technology is a powerful motivating force for municipal entry into the telecom market. Often these rural or small communities see the establishment of a municipal provider as necessary because they doubt private carriers will offer service.

2. Broadband is seen as a magnet for attracting new businesses, and retaining current ones. For instance, in Michigan the Big Three carmakers are increasingly demanding that suppliers be capable of doing cooperative online engineering. This requires sending very large (up to 2GB) files back and forth. As such, these suppliers will need broadband access simply to do business within the next two years.[16]

3. The creation of competition in markets where there is one or a few private sector providers is expected to increase the quality of service from private service providers, as well as reduce costs for consumers. For an example of this, see the Coldwater case below.

4. Municipal cable networks are often overbuilt on top of electric utility fiber optic lines. The marginal cost to add communications capability to these utility networks is relatively low, making this a popular way for municipalities to provide cable television and Internet services. See the Coldwater and Holland cases below for examples of this.

5. If the municipality builds a fiber network and then leases space on it, it will reduce the number of times streets need to be torn up in order to put fiber in the ground, which is

---

[15] Tongue, available online.
[16] Example given by Robert Filka of the MEDC at the LinkMichigan Regional Telecommunications Planning Program Statewide Kickoff Meeting, December 4, 2001.

more time and cost efficient. This also serves as one way to help solve a related current

debate – the debate over telecoms using public rights-of-way.[17]

Adding addressing the digital divide as a 6th justification will add significantly to the arguments

in favor of municipal entry into the telecom and cable markets. Municipal networks generally

serve entire communities, where private service providers might not. Municipal networks can,

and usually are, run as non-profit enterprises, meaning that municipal networks can have social

functions as well as economic ones. Finally, by increasing competition, service rates usually fall,

which leads to greater equity in terms of affordability.

2.3 Challenges Against Municipal Entry into the Broadband Market

When municipalities enter the telecom market, they often have advantages over private

companies already offering services or private startups. Some of these include:

1. Local Operation – this provides a strong selling point, especially when the utilities are competing against a large national corporation
2. Bundling of Services – local telecom and cable providers are also utility providers. In this case, the municipal service provider can bundle their services, even charging one monthly bill.
3. Market Penetration – when local utilities move into the telecom business, they usually already have relationships with customers, making the introduction of new services easier and provide economy of scale.
4. Existing Infrastructure – it is often cost-effective for local utilities to offer services as they already have infrastructure, or can use new infrastructure for multiple purposes.
5. Rights-of-Way – local utilities do not have to deal with the permitting process to use rights-of-way.
6. Financial advantages – one example of this is the ability to use government bonds to help finance new projects.[18]

The private sector contends that these advantages are unfair, and that competition with the public

sector in the telecom business is unwarranted, unwise, or even illegal.

---

[17] See Bridges for a detailed look at these issues.
[18] McDermott, available online.

Three main arguments against the entry of government into the telecom business have been identified: 1) public sector competition with the private sector is unfair because of the substantial advantages afforded public enterprises; 2) it is illegal for municipalities to act as regulator and provider; and 3) municipal networks will be inefficient and therefore the costs will outweigh the benefits.[19]

The first argument claims that municipal entities can engage in cross-subsidization, where they can subsidize telecom rates with revenues from other municipal utilities allowing the telecom service to be priced below its cost. For instance, a municipal utility may increase natural gas rates in order to compensate for losses in cable and telecom enterprises. The real complication here is that state public utility commissions exist to regulate private utilities, but not public utilities. Thus, the private utilities are prevented from cross subsidization practices in the private sector, but not the public. Another concern is that municipal utilities with monopolies over gas, water, and/or electric will engage in predatory pricing practices, artificially inflating the charges for gas, water or electric in order to subsidize lower prices charged for cable or telecom services.[20]

The second argument claims that municipal telecoms receive special tax treatment. Municipal utilities are often exempt from Federal, state, and local taxes. In addition, these public entities have the advantage of issuing tax-exempt bonds to finance publicly owned communications systems. This creates a system where the public entities are exempt from many of the tax burdens placed on private competitors. This issue has existed for quite a while, but until municipal entities started entering the cable and telecom business, it was less pronounced. Municipal utilities did not formerly compete against private interests for gas and electric service,

_____

[19] Tongue, available online.
[20] Tongue, available online.

9

however, with the recent deregulation of the electric industry, it is likely that the tax advantages public utilities enjoy will be addressed.[21]

The final advantage enjoyed by the public utilities is their ability to exempt themselves from franchise and rights-of-way fees. The 1996 telecom deregulation act gives municipalities the power to regulate franchises and rights-of-way, which leads to a situation where the public entity has the power to directly regulate its competitors. This can easily lead to an unfair situation if public entities unfairly limit rights-of-way access to competitors when they enjoy complete access themselves.[22]

The legality of public entities offering cable and telecommunications services has also been questioned. At least ten states have enacted laws that limit or prohibit publicly owned telecommunications services.[23] The legal controversy stems from two pieces of legislation, the 1984 Cable Act and the 1996 Telecommunications Act. The 1984 act gave municipalities the right to enter the cable TV market, while the 1996 act served to increase competition in the telecom market, thus allowing municipal services to enter this market also.[24] The major questions of legality stem from the 1996 act, which sought to increase competition in the telecom market; however, the act also seeks to ensure that there is competitive neutrality. Two sections of the act in particular aim to ensure that this competitive neutrality ideal is upheld. Section 253(a) states that "no State or local statute or regulation, or other State or local legal requirement, may prohibit or have the effect of prohibiting the ability of any entity to provide any interstate or intrastate telecommunications service." Section 253(c) allows state and local governments to "require fair and reasonable compensation from telecommunications providers, on a completely

---

[21] Tongue, available online.
[22] Tongue, available online.
[23] Armstrong and Berman, p. A1.
[24] McDermott, available online.

neutral and nondiscriminatory basis, for use of public rights-of-way on a nondiscriminatory basis."[25] These two provide the major justification for arguments that support limiting municipal entry into the telecom market. Many of the advantages enjoyed by the municipal telecom services can be said to violate either section 253(a), 253(c), or both, making municipal telecoms illegal at this time.

Finally, it has been argued that government should not provide telecom services because of the inherent inefficiencies of government operations. It has been suggested that municipally owned telecommunications networks are an aberration; while privatization programs are becoming increasingly popular, municipally owned telecoms also are increasing in number. For some, this is a bad situation since government enterprises will often suffer from inefficiencies that only the market can correct.[26] Public telecom enterprises are still too new to have generated many results, but public cable TV services have been available in many communities for some time. The experiences from these enterprises are less then encouraging, according to some. They contend that these public cable TV services have consistently lost money. The Glasgow, Kentucky[27] cable and communications system (which provided the inspiration for many of the utility overbuild projects) is reported to have sustained consistent losses: "Even with the inclusion of net cable rate savings benefits, Electric Plant Board's cable investment, with joint cost allocations, has generated a negative 9.75% rate of return for the 1989-1997 period."[28]

Thus, it is yet unclear what exactly the place of municipalities is in providing telecommunications services. Issues of digital divide must be addressed, but depending on the stage of local IT development or local conditions, municipally owned networks might not be the

---

[25] Tongue, available online.
[26] Eisenach, p.12.
[27] For more information: http://www.glasgow-ky.com/gii/.
[28] Rizzuto and Wirth, p.42.

best way of accomplishing this goal. Competition is generally regarded as a positive, but is it a positive when a possibly advantaged public sector competes against the private sector? These are questions that remain to be resolved, but must be kept in mind as we examine the results of an eReadiness survey and five case studies where local governments have been proactive in providing broadband infrastructure and access for their citizens.

3.0 Michigan eReadiness Survey

It is becoming clear that the quality of a state, county, or municipality's telecommunication infrastructure has a significant impact on economic development. In addition to technology infrastructure, other factors impact a community's readiness to participate in the digital economy – its eReadiness. In a geographic area as large as Michigan, eReadiness will vary greatly from area to area. A survey was developed in order to assess eReadiness across the various regions of Michigan. In order to facilitate the survey, we chose to approach the 14 regional planning councils of the Michigan Association of Regions (MAR)(see Figure 1).
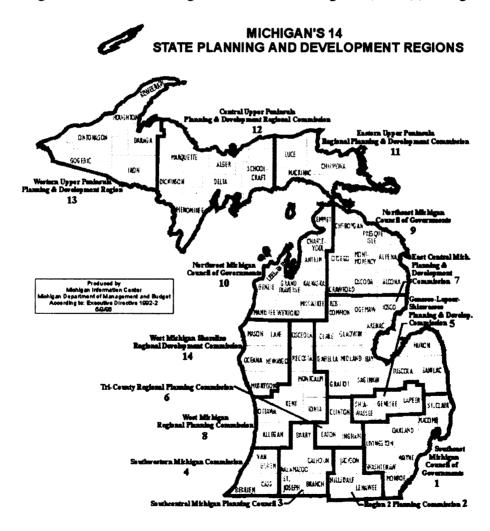

MICHIGAN'S 14 STATE PLANNING AND DEVELOPMENT REGIONS

Figure 1. Michigan Regional Planning Councils

The regional councils were chosen for study due to their involvement in regional economic development planning. MAR promotional material states that "regional councils play a vital role in facilitating cooperation among localities so that they may better respond to the challenges of an increasingly global economy,"[29] which makes them likely candidates to be involved in eReadiness related planning and therefore our survey population.

The survey was developed based on the Computer Systems Policy Project's (CSPP) Readiness Guide. This guide is a tool to assess a region's eReadiness along a four stage continuum or readiness. By using this framework we hope to be able to assess the preparedness of each region of Michigan to take advantage of the networked world. The framework also enables comparison with other regions outside Michigan. This survey should reveal which parts of Michigan are leaders and which ones are in the other stages of development. There are five key categories included in this framework that represent the elements that need to be in place to benefit from the networked world:

> **The Network Infrastructure** – The backbone technologies and infrastructure that connect you to the network. Infrastructure can vary widely in quality, speed, availability and affordability.

> **Networked Places** – Refers to accessing the network. Infrastructure must extend to the places where people need access for it to be truly useful.

> **Networked Applications and Services** – How connectedness to the network is used.

> **Networked Economy** – The role of the network in driving the economy. Relies on 1) ingredients in place to promote innovation; 2) a skilled workforce able to adapt to new technologies and paradigms; and 3) consumers who are plugged into and ready to use the networked economy.

> **Networked World Enablers** – Key levers such as policies and a legal framework necessary to expedite the networked world and overcome barriers such as privacy and security issues.[30]

---

[29] www.miregions.org.
[30] CSPP Readiness Guide, p. 2.

A complete assessment of a community or region's eReadiness following the CSPP

Readiness Guide requires a great deal of input and data collection from many varied sources.

We adapted the categories and the benchmarks included within the Readiness Guide framework

into an eReadiness survey (see Appendix A) that could be filled out relatively quickly. Each

question on the survey has five answers, one for each stage of development per the CSPP

framework, and one "don't know" choice. By asking the 14 regional planning councils to fill out

the survey, we hoped to gain a better understanding of the eReadiness of Michigan's 14 regions,

and also how the regional councils are approaching and integrating information and

communication technologies into the economic development planning process.

3.1 Survey Results

Completed surveys were obtained from 6 regions: Region 1, South East Michigan

Council of Governments (SEMCOG); Region 3, Southcentral Michigan Planning Council;

Region 6, Tri-County Regional Planning Commission; Region 8, West Michigan Regional

Planning Commission; Region 10, Northwest Michigan Council of Governments; and Region

14, West Michigan Shoreline Regional Development Commission. A matrix combining the

survey responses of the 6 councils is included as Appendix B. The stage of development in the

five key categories for each of the six responding regions has been indicated in table 1. There

are at least 5 survey questions within each key category. In summarizing the results for table 1, a

value is indicated only where the respondent has answered at least two questions within a given

section with other than a "don't know" answer. If a "don't know" was given for all (or all but

one) answers within a given category, a – is indicated in the table to signify that there is

insufficient data to make any generalization about what stage of development a particular region

falls into in that category.

Table 1. Summarized Results of eReadiness Survey

Region	Stage of Development				
	Network Infrastructure	Networked Places/Access	Network Applications	Networked Economy	Network Enablers
1. SEMCOG	3	-	-	-	3
4. SW Mi Com	3	-	1	-	2
6. Tri-County	-	-	1	-	3
8. West Mi RPC	-	-	-	-	-
10. NWMCOG	3	2	2	2	3
11. East UP RDC	1	2	2	1.5	2
14. West MI Shoreline	2	2	2	2	2

This table reveals that the Networked Places/Access and Networked Economy categories

were difficult for the respondents to provide data for. This is likely due to the fact that in

following the CSPP framework, the Networked Places/Access category demands data on K-12

and higher education and health care providers, while the Networked Economy category

demands data on the business practices of retailers and consumer online purchasing habits.

Regional planning councils will probably not have this information without conducting

specialized surveying or other data collection methods. From the survey results, regional

planning commissions more readily possess data required to successfully answer the Network

Infrastructure, Network Applications and Network Enablers categories. These categories are

concerned with availability of infrastructure and access, usage, security, and policy issues. In

addition to the 5 key categories, a question was included on the survey on how much of a priority

information and communication technologies should be in the future development of regions –

Big Priority, Somewhat of a Priority, Not a Priority, or Don't Know. Finally, we asked the

respondents to indicate if they or any organizations in their region were applying for Regional

Telecommunications Planning Program grants through the LinkMichigan program of the MEDC.

It is important to realize that in choosing the regional councils as our level of study we have chosen a fairly broad categorization. Just as there is likely great variance in eReadiness between regions, there is likely great variance in eReadiness within regions. The results reported in this study should not be considered a fine-cut representation of eReadiness, and that there is likely eReadiness related activity at lower levels of study that is not represented in the survey results. If anything, these survey results can be interpreted as a representation of to what extent the regions have concerned themselves or thought about information technology issues. A region that has already conducted data collection or completed other activities related to eReadiness issues will be better prepared respond to this survey.

3.2 Interpretation of Survey Results

3.21 Region 1 – Southeast Michigan Council of Governments (SEMCOG)

Network Infrastructure: 3
Networked Places/Access: -
Network Applications: -
Networked Economy: -
Network Enablers: 3

SEMCOG displays stage 3 development for Network Infrastructure and Network Enablers. This indicates that broadband access is becoming widespread, and that certain key levers are present to facilitate the utilization of network applications. These scores for broadband infrastructure and network enablers are not surprising, as SEMCOG includes the Metropolitan Detroit area. The incomplete nature of the Places, Applications and Economy categories likely stems from the large number of school districts, businesses, and municipalities that are located within SEMCOG's jurisdiction. Two of the following case studies are located within SEMCOG's jurisdiction, and both display a high level of sophistication in planning for

and using information and communication technologies. It is probable that information and communication technologies planning issues in Region 1 will involve assuring uniform service across the region. SEMCOG indicates that planning for information technologies in the future should be a big priority. No indication was made of and applications to the LinkMichigan program.

3.22 Region 4 – Southwestern Michigan Commission

Network Infrastructure: 3
Networked Places/Access: -
Network Applications: 1
Networked Economy: -
Network Enablers: 2

The Southwestern Michigan Commission, Region 4, displays characteristics of being in stage 3 of Network Infrastructure development indicating growing broadband availability; stage 1 for Networked Applications, indicating that business, government, K-12, higher education and health care providers are beginning to utilize network applications; and stage 2 for Network Enablers, indicating developing security measures and policy sophistication. The stage 3 Network Infrastructure development is encouraging as it indicates that the foundation is there for future utilization of information technologies. The survey also indicates that area policymakers are aware of information technology issues, but not familiar with them.

The survey indicates that a big priority should be placed on the use of information and communication technologies in the future development of the region. Two LinkMichigan applications have been filed from organizations within the region - Cass County, and a joint application between Berrien and Van Buren Counties.

3.23 Region 6 – Tri-County Regional Planning Commission

Network Infrastructure: -
Networked Places/Access: -
Network Applications: -
Networked Economy: -
Network Enablers: 2

It is difficult to make generalizations about Tri-County's stages of development, as there is not enough information contained in the survey. For the Network Enablers category the survey indicates stage 2 development – that area policymakers are somewhat familiar with information technology issues, and that a big priority should be placed on utilizing information and communication technologies in the future development of the region. Finally, a LinkMichigan planning grant application has been submitted through the Regional Economic Development Team.

3.24 Region 8 – West Michigan Regional Planning Commission

Network Infrastructure: -
Networked Places/Access: -
Network Applications: -
Networked Economy: -
Network Enablers: -

No interpretation can be made regarding stages of development for Region 8. The survey indicates that the inclusion of information technology issues should be a big priority in the future development of the region, and there are organizations in the region applying for LinkMichigan grants.

3.25 Region 10 – Northwest Michigan Council of Governments

Network Infrastructure: 3
Networked Places/Access: 2
Network Applications: 2
Networked Economy: 2
Network Enablers: 3

The Northwest Michigan Council of Governments, Region 10, displays stage 2 or 3 development for all categories. Network Infrastructure displays stage 3 development, which is characterized by a majority of the population having access to broadband infrastructure. The stage 2 development in Networked Places/Access indicates a growing network presence in the region. For instance, 50-100% of government buildings and schools have always-on connections to the network. The stage 2 development in Network Applications indicates that businesses, government, K-12, higher education, and health care providers are growing in sophistication and utilization of the network. Stage 2 for the Networked Economy indicates that more households are purchasing goods online and that workforce training programs are in place. Stage 3 Network Enablers development indicates that strong network security measures are in place and that information technologies development is a priority.

The survey indicates that region 10 policymakers are aware, but not familiar with information technology issues, while information and communication technologies should be somewhat of a priority in the future development of the region. Finally, organizations within the region have completed LinkMichigan grant applications.

3.26 Region 11 – Eastern Upper Peninsula Regional Planning & Development Commission

Network Infrastructure: 1
Networked Places/Access: 2
Network Applications: 2
Networked Economy: 1.5
Network Enablers: 2

Region 11 is in stage 1 or 2 development for all categories. Network Infrastructure – this indicates that 56K dial in access is currently available, while broadband access is not yet available for most of the region. Residences currently have no broadband access, while 1 broadband provider serves businesses. The survey response notes that currently the business web presence is very weak due to the lack of quality broadband access. Networked Places/Access – government buildings and places are increasingly becoming connected to the network. 50-100% of Health Care providers have broadband access, which is a leader in this category. Network Applications – businesses, schools, government buildings, and health care providers are beginning to grow in the sophistication of their use of the network. Businesses and schools are particular leaders in this region. Networked Economy – the region is developing its ability to take advantage of the networked world. The survey indicated a score of exactly 1.5 in this category. 10-33% of households purchase goods or services online, while less than 10% of retailers offer goods or services over the Internet. Network Enablers – region policymakers are aware of information and communication technology related issues. 25-50% of always-on connections have firewalls and virus software is updated monthly, indicating that there is an awareness of the need for security measures in the region.

The survey indicates that the use of information and communication technologies to enhance the future development of the region should be a big priority. All three counties in the region are participating in the LinkMichigan initiative. Finally, the survey response included a

notable example of a business connecting with customers via the Internet. A local coffee shop

has set up a Yahoo! Web group for persons in the community, current residents and former.

3.27 Region 14 – West Michigan Shoreline Regional Development Commission

Network Infrastructure: 2
Networked Places/Access: 2
Network Applications: 2
Networked Economy: 2
Network Enablers: 2

Region 14 displays stage 2 development for all categories. Network Infrastructure - this

indicates that broadband access is beginning to become available to homes and businesses in the

region. Networked Places/Accesss - government buildings and places are increasingly becoming

connected to the network via always-on connections. Network Applications – businesses,

schools, government buildings and health care providers are beginning to grow in the

sophistication of their use of the network and the Internet to transact with customers, provide

information, and instruct. Networked Economy – this indicates that a growing number of

customers utilize the Internet to purchase goods or services and 25% of the workforce

participates in training or education programs every 5 years. Network Enablers – Security

measures are growing in the region, while policymakers are somewhat familiar with Internet and

network issues.

The survey indicates that a big priority should be placed on the use of information and

communication technologies in the future development of the region, and that there are

organizations within the region that have applied to the LinkMichigan grant program.

4.0 Michigan Information Technology Case Studies

Five case studies have been selected as examples of infrastructure provision and information and communication technologies utilization. Two Michigan counties – Oakland and Washtenaw – were selected for study by virtue of their notable efforts in providing information and communication technologies infrastructure and services for municipalities located within their jurisdiction. Successful incorporation of Information and Communication Technologies into planning at the county level should entail more than one isolated initiative; it should include a bundle of projects and programs. Oakland County is notable for its varied technology related projects and programs. Washtenaw County was selected for its strong e-government efforts. CyberState.org, a Michigan organization committed to driving IT advancement in the state, annually evaluates the websites of Michigan counties, townships, and cities and villages. Washtenaw County's website achieved the highest score in CyberState.org's 2001 and 2002 survey.[31] The case studies will examine the various ways these counties have planned for and implemented broadband infrastructure, and how they are promoting e-government and integrating technology issues into the greater planning process.

Three local or municipal examples were selected by virtue of their differing approaches to providing broadband infrastructure – Coldwater, Michigan, Holland, Michigan, and Evanston, Illinois. Coldwater owns a fiber optic network and acts as a full-service Internet Service Provider. Holland owns a fiber optic network and leases bandwidth to private sector companies. Evanston is a partner in the eTropolis Evanston project, a public-private venture that provides broadband Internet access to every resident of the city.

---

[31] http://www.cyber-state.org/1_0/govt2001/mi_counties.pdf

In order to assess the three selected infrastructure initiatives, some way of comparing and evaluating the three initiatives must be derived. The point of this comparison will not be to identify the best or worst method or way of doing things, but rather to better codify the strengths and weaknesses of each approach. The points of comparison I have chosen to use in conducting this preliminary examination are:

    i. Cost of construction
    ii. Ownership of the network
    iii. Party responsible for providing ISP service to public
    iv. Type of customer served by network (all citizens, businesses, public buildings, etc.)
    v. Percentage of community served by infrastructure
    vi. Details of available services to customers (dial-in, cable modem, DSL, etc.)
    vii. Rates charged to customers
    viii. Is the network profitable? Will revenues or savings pay for the cost of construction?
    ix. Method of financing construction (see Table 2)

These points of comparison should provide a beginning understanding of the differences and similarities between the different initiatives.

4.1 Oakland County – OAKNet & Automation Alley

Oakland County conceived the OAKNet Metropolitan Area Network (MAN) in 1998 when it began examining the feasibility of creating a fiber optic network to improve communications and data sharing between cities, villages and towns and agencies located in the county. Towards this end, the county had installed nearly 400 miles of fiber as the backbone of the network by July of 2000. A survey of the municipalities located within Oakland county conducted in the early part of 2000 had revealed that only half had Internet access (and most of those with access relied on dial-in services), so the mission of OAKNet was expanded, and the county became the ISP for its cities, towns and villages. The county now provides free

broadband Internet access as well as email service to all municipalities within its boundaries. In order to take advantage of the network, communities must construct their own Local Area Networks and "last mile" connections from the network points of presence to desktop computers, however, this is a small cost compared to the construction of the MAN as a whole. If municipalities were to install their own T-1 lines it would cost them up to $8,000 per year,[32] and total savings for municipalities participating in OAKNet are estimated to be $10-12,000 annually.[33] The project construction cost is estimated to be $8 million, with $650,000 funded by the federal government. Yearly operating costs for OAKNet are expected to be about $2 million annually.[34]

The availability of low-cost broadband access for communities within Oakland county allows municipalities the chance to offer better e-government services and to save money. For instance, access to broadband can allow residents to pay utility bills or parking fines online. OAKNet will also allow municipalities to share and access information much more efficiently and quickly. Accessing public works data, census data, property taxes and assessments, and GIS data over the network will facilitate information sharing and utilization between governmental agencies and municipalities. @ccess Oakland is an Internet tool that allows users to access records such as residential property profiles, residential property analyzer (which allows the user to search parcels by property characteristics), tax profiles, the register of deeds, and facilitates credit card payments online.[35] @ccess Oakland greatly enhances the utility of the Internet as a tool for disseminating information, and is made possible by the existence of OAKNet.

---

[32] Sarkar, p. 31.
[33] http://www.naco.org/pubs/cnews/00-12-4/newsfrom.htm.
[34] Sarkar, p. 32.
[35] http://www.co.oakland.mi.us/exec/initiatives/access_oak.html.

In addition to @ccess Oakland, the Courts and Law Enforcement Management

Information System (CLEMIS)[36] utilizes OAKNet. The greater network capacity benefits law-

enforcement activities from on-board computers in police cars, dispatchers of emergency

vehicles, and the court system. Eventually citizens may be able to report crimes and

communicate with officers via the Internet.[37]

Oakland County also supports Automation Alley.[38] Located along the I-75 and I-696

corridors, Automation Alley is a consortium of more than 350 technology-oriented companies,

representatives of K-12 and higher education, and Oakland County. Over 1,800 companies are

located within Automation Alley, and the Consortium was established to develop programs to

support members in their efforts to attract world-class high-tech workers to Oakland County.[39]

The consortium supports programs in workforce development, business development, and

Internet services, among others. Automation Alley consciously associates itself with other

nationally known technology clusters: "Automation Alley's 1,800 progressive businesses

compete head-to-head and brain-to-brain with other technology centers such as California's

Silicon Valley and Boston's Route 128 for the world's best employment prospects."[40]

---

[36] http://www.co.oakland.mi.us/clemis/.
[37] Sarkar, p. 32.
[38] www.automationalley.com.
[39] http://www.automationalley.com/pages/AboutUs.asp?area=au.
[40] http://www.automationalley.com/pages/AboutUs.asp?area=au.
 For a comparison on how Automation Alley compares with Silicon Valley, see:
 http://www.automationalley.com/pages/countyCompar.asp?area=au.

4.2 Washtenaw County – Strategic Planning & e-Government

Washtenaw County believes that e-government represents a new model for service delivery, and is building a complete e-government presence on the Internet through the eWashtenaw website.[41] In order to implement the e-government vision, Washtenaw County has created the Washtenaw County E-Government Strategic Plan. This plan was developed in response to growing demand for electronic access to government services and information. Six strategic goals are provided in the plan which will guide all future technology decisions:

1. *Be responsive to the needs of Washtenaw County constituencies* – Defining services that matter is one of the challenges facing the development of successful and efficient e-government
2. *Re-engineer/reinvent organizational processes* – Service processes must be streamlined before inclusion as part of e-government
3. *Implement business improvement process program management* – Proposed technology initiatives must be compatible with Washtenaw County's Business Improvement Process (BIP) and with specific departmental business plans
4. *Improve data collection and storage* – This will allow Washtenaw County to better analyze and report on its collected data
5. *Build a scaleable, reliable network infrastructure* – A network capable of handling high-speed, secure transactions is a cornerstone of e-government
6. *Define e-government services* – E-government is more than a collection of applications and services, it is a framework that orders and guides how constituents and government interact[42]

Three key strategies are outlined to implement the e-government vision. The first strategy is community engagement, which consists of insuring that e-government efforts are responsive to community needs.

The second strategy is phased implementation. Three functions of e-government are defined: phase 1 – e-information; phase 2 – e-commerce; and phase 3 – e-democracy. The first stage is the presentation of information via the e-government website, which Washtenaw County is already doing. The second phase is e-commerce, which entails facilitating online transactions

---

[41] www.eWashtenaw.org.
[42] Washtenaw County, p. 4-5.

27

with government. Washtenaw County is currently working to implement this phase of development. The final phase of development occurs when e-democracy is feasible. The goal of e-democracy is to engage the public in the political process by establishing and implementing cost free applications. Key e-democracy services include notification and web casting of the Board of Commissioners' (BOC) meetings, electronic polling and voting, and communication with the BOC.[43]

The final strategy is portal access to e-government. This refers to the ordering of how information is presented through the www.eWashtenaw.org website. Emphasis is placed on what the information is rather than where it is located. Three portals are suggested in the Strategic Plan:

- Payment/Bill Portal – This will allow citizens and businesses to conduct business with the government.
- Public Participation Portal – This portal will unify the applications and services that seek to engage public participation in government.
- Intranet Portal – A portal for County employees. Information on benefits, policies, procedures, and emergency announcements will be included here.[44]

Currently Washtenaw County has no county government-led broadband infrastructure projects. However, the strategic plan includes an assessment of the county government's internal infrastructure. The infrastructure assessment is focused solely on the connectivity of government buildings and sites, and includes planned future network improvements.

The source of funding for the e-government initiative to this point is unclear, however the strategic plan contains a short discussion on future financing of e-government. One option for funding e-government is to include it as part of the yearly budget process. This is referred to as the Traditional Approach. A second proposed approach is the Modified Traditional Approach.

---

[43] Washtenaw County, p. 6-10.
[44] Washtenaw County, p.10-11.

Using this method, departments are asked to examine how they benefit from the e-government program and reallocate part of their funding towards implementation of e-government. These departmental analyses should consider cost savings and cost efficiencies realized through e-government. The final financing method is the Self-Funding Approach. This often entails the government partnering with a commercial provider. Fees are assessed using various methods. Convenience fees can be charged on online transactions. Subscription fees can be charged to customers who wish to benefit from the convenience of e-government. Finally, Advertising is another method through which e-government can be financed. Much like advertising on the sides of city buses, e-government websites can contain advertisements that help defray the costs. Each of these approaches must be carefully considered when putting together an e-government financing plan.[45]

4.3 Coldwater, Michigan – Fiber Overbuild/Full Service Municipal ISP

Coldwater, Michigan created the Coldwater Board of Public Utilities (CBPU),[46] a municipally owned operating agency that provides electric, water, wastewater, and communications services. The CBPU currently provides cable television service to all residents of the city. In addition, in 1997 the CBPU became a full service Internet Service Provider, offering dial-up and high-speed cable modem access to citizens. The network is available anywhere within the city limits, but service does not yet extend into the surrounding township. In addition to dial-in and broadband access, the CBPU offers web hosting, domain housing, Domain Name Service, and domain registration. Thus, the city of Coldwater is the ISP and cable

---

[45] Washtenaw County, p. 17-18.
[46] http://www.cbpu.com/.

television provider for its residents, and the public entity competes against the private cable-television provider that also services the city.

The efforts of Glasgow, Kentucky to provide cable television and Internet services to its residents are one of the first examples of a municipality engaging in such an activity. Glasgow began its Info-Highway initiative in 1989 as a way to improve how the local electric utility sells electricity, to provide a competitive cable television and telephone marketplace, and to institute a city- wide computer network of networks. These goals have been accomplished through the construction of 120 miles of bi-directional broadband plant which touches each home and business within the City.[47] The data network reaches all K-12 classrooms, city agencies, and utilities in the city. These efforts were familiar to members of the Coldwater City Commission, and provided an important inspiration for the decision to construct a similar network in Coldwater.[48]

The CBPU was upgrading its internal fiber optic network to improve monitoring capabilities between its power stations when the city commission decided to build a more robust network that is capable of carrying communications. The overall cost of the project was $7.5 million dollars. The CBPU provided the funding for the backbone out of its operating budget. In order to fund the additions to the network necessary to bring service to all residents of the city a revenue bond was floated. In total, the network includes 46 miles of fiber.

The communications network is run as a non-profit organization. User fees are set to make enough revenue to cover operating expenses. The municipal network charges a $26.15 monthly fee for residential cable modem service. Once the municipal network began offering Internet services, the private competitor's rates dropped by 25% to a comparable level. Finally,

---

[47] http://www.glasgow-ky.com/gii/.
[48] Information gathered from a phone interview with Lindy Cox of the CBPU conducted on 11/20/01.

30

there are currently 150 businesses that subscribe to the commercial cable modem services offered by the network.[49]

4.4 Holland, Michigan – Fiber Overbuild for Bandwidth Lease

The Holland, Michigan Holland Board of Public Works (HBPW) has built a 17-mile fiber optic backbone to support internal communication links between all HBPW facilities, as well as the community's public services such as hospitals, schools, and local government agencies. Similar to the Coldwater example, when building the network the HBPW included a significant amount of excess capacity for other services. This additional capacity is leased by the HBPW to individuals or private companies for their own internal communication. The HBPW is not an ISP to the citizens of the community, but instead hopes to entice private companies to lease excess capacity on existing infrastructure and provide those services to the public.

If a company wishes to utilize the network for its own internal communications, it must be physically located within a certain distance from the fiber itself. EagleNet – an ISP located in Holland – provides Internet services over the backbone. At this time there are plans to extend the reach of the network into Holland's neighborhoods, with the eventual goal being to extend the network to serve the entire city of Holland.[50] However, at this time, the only customers that are able to utilize the network are the businesses located close enough to the network to tie into it physically. These direct fiber connections to the network are expensive, making it cost effective only for businesses to connect to the network. Once the connection to the fiber backbone is made, EagleNet provides access to the Internet.[51]

---

[49] Information gathered from a phone interview with Lindy Cox of the CBPU conducted on 11/20/01.
[50] http://www.egl.net/about/prfiber.shtml.
[51] http://www.egl.net/broadband/fiber.shtml.

31

The Holland example contains some similarities to the Coldwater case. The fiber

network is actually the same system in both cases (SCADA – a utilities monitoring system). In

both cases, the utilities network has been significantly upgraded to allow it to serve as a

communications network. However, the method by which each city intends Internet services to

be delivered is the main difference.

4.5 Evanston, Illinois – Public/Private Technology Partnership

Evanston is a suburb of Chicago with a population of 75,000. In order to keep Evanston

a desirable and competitive place to live and work, the eTropolis Evanston project was created in

1999. eTropolis Evanston is a collaborative public/private venture working to offer affordable,

high-speed fiber-optic network connections and bundled telecommunications services (video,

voice, and data) to every residence, business, institution and government office in the city.

Representatives of the city, Northwestern University, local school districts, the Chamber of

Commerce, Evmark, the Evanston Research Park companies, the local business Incubator,

Evanston Library and other entities are collaborating to make Evanston a next generation "cyber

center." Northwestern University has played a key role in providing office space, technical

assistance, and funding.[52] Affordable broadband access available to all residents of Evanston

was and is the ultimate goal of the initiative. In fact, the city of Evanston has mandated

eTropolis to make bridging the digital divide one of its primary goals.

This project is a public-private partnership with the network and services ultimately being

provided by private companies. The public sector mainly provides the incentives and oversight

of the construction and deployment of broadband services in the community. As part of its

initial strategy, eTropolis started working with smaller companies to provide Internet services.

---

[52] Crockett, p.87.

These companies agreed to provide discounted broadband services in Evanston. For their part, they were eager to gain a foothold in the Chicago market. However, the later slowing of the economy led to these smaller companies either failing or being bought out by larger corporations, which left eTropolis without service providers. In response, eTropolis began working with larger companies such as AT&T and Ameritech. In addition to AT&T now being able to offer broadband access to every residence in the city through its cable network, eTropolis persuaded AT&T broadband to extend its network to a local community center. The community center can now offer Internet access to the residents of the city who might not otherwise have access.[53]

Part of the eTropolis initiative is to provide access, but beyond ensuring that every resident of the city merely has access to Internet services, the eTropolis initiative also intends to provide extensive education, training and support services, as well as an aggressive e-commerce effort.[54] In this way, eTropolis hopes to not only address the access aspects of the digital divide, but also the related issue of skills and utilization of the Internet. Nonetheless, since the collapse of the small, independent ISPs and the subsequent partnership with AT&T and Ameritech, costs for broadband access in Evanston have risen by 25% to around $50 a month.[55] This means that while the training and education programs are vitally important, providing universal affordable broadband access to all citizens remains one of eTropolis' greatest challenges.

---

[53] Crockett. p.88-9.
[54] Widmayer, p.32.
[55] Crockett, p.88.

Table 2. Summary of Comparison Points for Infrastructure Initiatives

Community	Cost of Construction	Network Ownership	Internet Service Provider	Target Customers	Percent of Community Served	Infrastructure Backbone	Available Services	Rates Charged	Profitable?	Financing Method
Coldwater, MI	$7.5 million	Municipal	Coldwater Board of Public Utilities	Residents, businesses	100%	46 mile Fiber Optic network	Dial-in, Cable Modem, Cable TV, Commercial Cable Modem	$26.90/ month (residential cable modem)	Not-for-profit	Operating Budget and revenue bonds
Evanston, IL	>$500,000	Private	Private ISPs	Residents, businesses	100%	Private	Dial-in, DSL, Cable Modem, Commercial Cable Modem	~ $50/mo. Varies	Private sector services for profit	Private sector
Holland, MI	-	Municipal	Private Companies	Private companies (for internal communications, or to act as ISP's)	Within specified distance of Fiber ring	17 mile Fiber Optic Network	Internal communications over network, Internet access through private ISP	N/A	N/A	Revenues from Existing Services
Oakland County, MI	$8 Million	County	Oakland County	Cities, Towns and Villages within Oakland County	100% of municipalities	400 mile Fiber Optic Network	Fractional T-3	Free	No	Federal, State and County Funds
Washtenaw County, MI	N/A	County	N/A	County Residents	100%	N/A	E-Government	Free	No	Operating Budget

5.0 Conclusion

Statewide efforts have been launched across the nation that seek to ensure that broadband infrastructure is available; examples of this include the LinkMichigan initiative, the Iowa Communications Network, and VirginiaLink, among others. In a trickle-down effect, the provision of broadband infrastructure is quickly gaining the attention of local governments. Recently, the Michigan Economic Development Corporation launched its LinkMichigan initiative in an effort to ensure that Michigan becomes an information technology leader. The LinkMichigan report states that "improving access to high-speed telecommunications services is the most important state economic infrastructure issue for the new century."[56] In order to realize this vision, LinkMichigan has recently begun offering planning grants ranging from $40,000 to $100,000 for the development of county or multi-county telecommunications plans. This should increase the interest in planning for broadband infrastructure.

It is evident that communities that engage in strong strategic planning for issues of technology better enjoy the benefits of information and communication technologies. The Washtenaw County case study serves as an example of what a strong strategic vision and plan can accomplish. It will be beneficial for other communities and organizations to follow the lead of Washtenaw County and include technology issues in strategic and economic development planning. However, it is apparent that organizations still regard planning for technology as a fringe or special interest issue. A survey was made of various regions' Comprehensive Economic Development Strategies (CEDS). CEDS reports are funded by the Economic Devlopment Authority (EDA) and are usually a prerequisite to be eligible for funds under most EDA programs. The three CEDS that were analyzed contained little or no mention of

---

[56] Michigan Economic Development Corporation, LinkMichigan Report, p.2

information technology issues, and no strategic planning process related to information technology.[57] A CEDS exists to promote economic development, and as information and communication technologies are becoming a vital part of economic development, the CEDS may be a likely and useful place for future technology-related strategic planning to occur.

There have already been many examples set by communities in Michigan that have sought to provide broadband access for their citizens. As other communities begin their individual infrastructure planning processes they have a wealth of examples available to them. These examples can serve as guides, or even blueprints for communities beginning the information and communication technology planning process. It remains to be seen if the Coldwater/Glasgow, Kentucky model of public utility overbuilding is a viable method of providing broadband services over the long-term, or if public-private efforts such as Evanston's can truly address issues of digital divide. Public attempts to provide information technology infrastructure need to address issues related to the digital divide – access, as well as programs to ensure that users possess the skills to utilize the Internet efficiently.

---

[57] CEDS analyzed were: Eastern Upper Peninsula Regional Planning and Devlelopment Commission, the Sault Ste. Marie Tribe of Chippewa Indians, and the Tri-County Regional Planning Commission

Appendix A. eReadiness Survey Cover Letter

Dear Sir or Madam,

"What role are information and communication technologies playing in the regional planning of Michigan's communities?" This is the overriding question being asked by a project of MSU's Michigan Partnership for Economic Development Assistance program. This is an invitation to join this effort to insure that communities of Michigan's regions are planning for engagement with the expanding networked world.

Telecommunications infrastructure, access, and utilization are becoming increasingly important for the economic development of local communities. Reliable, fast broadband access benefits business, government, health care, and education, and is becoming a necessity. Recently there has been much interest in strengthening the presence of technology in the state of Michigan. Policy initiatives such as LinkMichigan[58] seek to ensure that Michigan becomes a national leader in advanced telecommunications services and infrastructure.

This survey aims to assess the electronic readiness of the various regions of Michigan. Electronic readiness assessment is focused on how communities access and utilize information technologies. We are contacting the 14 executive directors of Michigan's planning and development regions as our principal respondents for this survey.

We ask you or someone you designate to fill out the attached survey to assist us in assessing the state of information and communication technology infrastructure and utilization in Michigan's regions. Answering all of the questions on the survey can take as little as half an hour. We are aware that information necessary to answer some questions will be difficult to come by or not available to you. In this case we would ask you to refer this survey to others in your organization or region who might be able to respond, or to provide us with their information so that we may contact them directly. We have provided space for you to include this contact information at the end of the survey. For some questions the information necessary to respond simply may not be available. If this is the case we feel that "Don't Know" answers are valuable indicators, and we ask that you not be shy in answering this way. You also have the option of not answering all questions.

Finally, we ask that you complete and return the questionnaire in the stamped addressed envelope by April 15. We will be attending the MAR meeting on April 9 to introduce and answer questions about the survey. If you would prefer, we are willing to administer this survey over the phone. If you would like to respond in this way, please check the box on the first page of the enclosed survey and return it to us.

Your responses will be held strictly confidential; only the two primary investigators will have access to the completed surveys. However, we will share the results of the survey with each executive director. Thank you for your time.

---

[58] http://linkmichigan.michigan.org

If you have any questions regarding the survey, please contact us at:

Email: breuckma@msu.edu
Phone: (517) 974-0373

If you have questions regarding your rights as a survey respondent, please contact the University Committee on Research Involving Human Subjects at:

202 Olds Hall

E. Lansing, MI 48823
Email: UCRIHS@msu.edu
Phone: (517) 355-2180

Michigan State University

Sincerely

Dr. Ken Corey   Jim Breuckman

Attachment: survey questionnaire

Appendix B. eReadiness Survey

Michigan Regional Planning Information Technology Readiness Survey
3-26-02

We have chosen to use the Computer Systems Policy Project's Readiness Guide as a framework for our survey.[59] By using this framework we hope to be able to assess the preparedness of each region of Michigan to take advantage of the networked world. The framework also enables comparison with other regions outside Michigan. This survey should reveal which parts of Michigan are leaders and which ones are in the other stages of development. Once this information has been collected, if asked, we will be willing to work with selected regions to address the area's concerns over telecommunications services and infrastructure. The survey contains six major categories:

The Network Infrastructure – The backbone technologies and infrastructure that connect you to the network. Infrastructure can vary widely in quality, speed, availability and affordability.

Networked Places – Refers to accessing the network. Infrastructure must extend to the places where people need access.

Networked Applications and Services – How connectedness to the network is used.

Networked Economy – The role of the network in driving the economy. Relies on 1) ingredients in place to promote innovation; 2) a skilled workforce able to adapt to new technologies and paradigms; and 3) consumers who are plugged into and ready to use the networked economy.

Networked World Enablers – Key levers such as policies and a legal framework necessary to expedite the networked world and overcome barriers such as privacy and security issues.

Regional Planning Issues for Information and Communication Technologies – Best practices examples from the state of Michigan.

Space is provided on the last page of the questionnaire for you to list others in your region who we might contact in order to complete the survey. If you would prefer to respond to this survey over the phone, please contact us to set up an appointment. Thank you.

---

[59] http://www.cspp.org/projects/readiness

I. Network Infrastructure

What is the speed and availability of residential Internet services?

- ❑ 1. 56K dial-in services available to all homes
- ❑ 2. DSL/Cable Modem services available to 0 - 20% of homes
- ❑ 3. DSL/Cable Modem services available to 20 - 80% of homes
- ❑ 4. DSL/Cable Modem services available to all homes
- ❑ 5. Don't know/not sure

What is the availability of mobile digital wireless services?

- ❑ 1. Analog mobile wireless services available
- ❑ 2. Digital wireless data service covers 30% of community at 12kbps
- ❑ 3. Digital wireless data service covers 50% of community at 12kbps
- ❑ 4. Digital wireless data service covers 100% of community
- ❑ 5. Don't know/not sure

What is the speed and availability of Internet services to businesses?

- ❑ 1. 56K dial-in available to 100% of businesses
- ❑ 2. DSL/Cable/Dedicated T1 lines available to 40% of businesses
- ❑ 3. DSL/Cable/T1 available to 80% of businesses
- ❑ 4. DSL/Cable/T1 available to 100% of businesses
- ❑ 5. Don't know/not sure

How many broadband[60] data providers are there for residential markets?

- ❑ 1. 1 provider
- ❑ 2. 2 providers covering at least 50% of community
- ❑ 3. 3 providers covering at least 75% of community
- ❑ 4. 4 or more providers
- ❑ 5. Don't know/not sure

---

[60] Broadband – what constitutes "broadband" varies in popular usage. The FCC definition is anything that exceeds 200K bits per second (bps). DSL lines can range from 130K bps to 1 million bps. Cable modems range from 200K bps to 10 million bps. For the purposes of this survey we will define broadband as any kind of always-on Internet connection (see footnote 2 on the next page).

How many broadband data providers are there for business markets?

- ❑ 1. 1 provider
- ❑ 2. 3 providers
- ❑ 3. 5 providers
- ❑ 4. 6 or more providers
- ❑ 5. Don't know/not sure

What are installation times for broadband access?

- ❑ 1. 3 weeks or more
- ❑ 2. 2 weeks or more
- ❑ 3. Less than 2 weeks
- ❑ 4. 1 week or less
- ❑ 5. Don't know/not sure

II. Networked Places/Access

Government

- ❑ 1. 0-50% of government buildings have always-on[61] connections & 0-25% of employees have email
- ❑ 2. 50-100% of buildings have always-on connections; 25-100% of employees have email; 0-50% of mobile employees use wireless devices.
- ❑ 3. 50-100% of mobile employees use wireless devices; Internet access terminals are available in 50% of buildings that are accessible to the public.
- ❑ 4. Network is always available to employees; the Internet is available to the public in all accessible buildings
- ❑ 5. Don't know/not sure

---

[61] Always-On Connection – This refers to Internet connections that you do not have to dial into over phone lines. These connections are always on, like cable TV, you simply must turn on your computer, and your Internet connection is active. DSL lines, Cable modems, and EtherNet hookups are examples of always-on connections.

K-12 Schools

□ 1. 0-10% of classrooms have broadband access; 0-25% of teachers have email accounts

□ 2. 10-50% of classrooms have broadband access; 25-100% of teachers have email access

□ 3. 50-75% of classrooms have broadband access; 100% of students have broadband access; public ports and terminals are available in some school common areas

□ 4. All K-12 schools make the network available to students, faculty and staff from anywhere in the school

□ 5. Don't know/not sure

Higher Education

□ 1. All offices, libraries and labs have broadband access. All students, faculty and staff have email accounts. 0-25% of dorm rooms have broadband access.

□ 2. 25-50 % of dorm rooms have broadband access.

□ 3. 50-100% of dorm rooms have broadband access; up to 50% of campuses have a wireless network.

□ 4. All higher education campuses make the network available anywhere on campus.

□ 5. Don't know/not sure

Health

Health Care Provider access.

Note: "Health care provider" refers to private practices and public health care clinics and facilities.

□ 1. 0-100% of providers have dial-in access

□ 2. <50% of providers have broadband access

□ 3. 50-100% of providers have broadband access

□ 4. 100% of providers have broadband access

□ 5. Don't know/not sure

Home

What percent of homes have a computer or other device to access the Internet?

□ 1. <25%

□ 2. <50%

□ 3. <80%

□ 4. >80%

□ 5. Don't know/not sure

What percent of homes use the Internet?

- ❑ 1. <15%
- ❑ 2. <40%
- ❑ 3. <80%
- ❑ 4. 80% or more
- ❑ 5. Don't know/not sure

III. Network Applications & Services

<u>Business</u>

What percent of businesses order goods online?

- ❑ 1. <10%
- ❑ 2. <25%
- ❑ 3. <50%
- ❑ 4. 50% or more
- ❑ 5. Don't know/not sure

What percent of businesses transact with customers online?

- ❑ 1. <10%
- ❑ 2. <25%
- ❑ 3. <50%
- ❑ 4. 50% or more
- ❑ 5. Don't know/not sure

What percent of businesses manage human resources management/administration issues online?

- ❑ 1. <10%
- ❑ 2. <25%
- ❑ 3. <50%
- ❑ 4. 50% or more
- ❑ 5. Don't know/not sure

Government

What % of local and regional government agencies have informational websites?

- ❑ 1. <50%
- ❑ 2. <75%
- ❑ 3. <90%
- ❑ 4. 90% or more
- ❑ 5. Don't know/not sure

What % of local and regional government agencies share data electronically?

- ❑ 1. <25%
- ❑ 2. <50%
- ❑ 3. <75%
- ❑ 4. 75% or more
- ❑ 5. Don't know/not sure

What % of government agencies have transactional websites for citizens and suppliers?

- ❑ 1. <25%
- ❑ 2. <50%
- ❑ 3. <75%
- ❑ 4. 75% or more
- ❑ 5. Don't know/not sure

K-12 Schools

What % of teachers are trained to use digital content and web-based learning for instruction?

- ❑ 1. <25%
- ❑ 2. <50%
- ❑ 3. <75%
- ❑ 4. 75% or more
- ❑ 5. Don't know/not sure

What % of classes use digital content and web-based learning for instruction?

- ❑ 1. <25%
- ❑ 2. <50%
- ❑ 3. <75%
- ❑ 4. 75% or more
- ❑ 5. Don't know/not sure

School websites

- [ ] 1. 100% of schools have an informational website
- [ ] 2. <25% of schools have an interactive website (including access to homework assignments and email contact with teachers and administrators.)
- [ ] 3. <75% of schools have an interactive website (including access to homework assignments and email contact with teachers and administrators.)
- [ ] 4. 75% or more of schools have an interactive website (including access to homework assignments and email contact with teachers and administrators.)
- [ ] 5. Don't know/ not sure

Higher Education

What % of campuses offer online registration?

- [ ] 1. <25%
- [ ] 2. <50%
- [ ] 3. <75%
- [ ] 4. 75% or more
- [ ] 5. Don't know/not sure

What % of faculty are trained to use digital content and web-based learning for education?

- [ ] 1. <25%
- [ ] 2. <50%
- [ ] 3. <75%
- [ ] 4. 75% or more
- [ ] 5. Don't know/not sure

What % of classes use digital content and/or web-based learning?

- [ ] 1. <25%
- [ ] 2. <50%
- [ ] 3. <75%
- [ ] 4. 75% or more
- [ ] 5. Don't know/not sure

Health

What % of providers have an informational website?

- ❑ 1. <10%
- ❑ 2. <25%
- ❑ 3. <75%
- ❑ 4. 75% or more
- ❑ 5. Don't know/not sure

What % of providers store records electronically?

- ❑ 1. 0%
- ❑ 2. <10%
- ❑ 3. <25%
- ❑ 4. 25% or more
- ❑ 5. Don't know/not sure

Home

What % of community-based organizations have an informational website?

- ❑ 1. <25%
- ❑ 2. <50%
- ❑ 3. <75%
- ❑ 4. 75% or more
- ❑ 5. Don't know/not sure

Are there communities in your area that have unified community portals[62] that provide access to a broad range of community information and services online?

- ❑ 1. Yes
- ❑ 2. No
- ❑ 3. Don't know/not sure

---

[62] Portal - Usually used as a marketing term to described a Web site that is or is intended to be the first place people see when using the Web. Typically a "Portal site" has a catalog of web sites, a search engine, or both. A Portal site may also offer email and other service to entice people to use that site as their main "point of entry" (hence "portal") to the Web. **www.Michigan.org** is an example of a government Internet portal.

IV. Networked Economy

Consumer

What percent of households purchase goods or services online?

- ❑ 1. <10%
- ❑ 2. <33%
- ❑ 3. <75%
- ❑ 4. 75% or more
- ❑ 5. Don't know/not sure

Business

How long do business permits and licenses take to secure?

- ❑ 1. Up to 3 months
- ❑ 2. Up to 1 month
- ❑ 3. Less than 2 weeks
- ❑ 4. Less than 1 week
- ❑ 5. Don't know/not sure

What % of businesses have transformed their internal and external business practices due to the Internet?

- ❑ 1. <25%
- ❑ 2. <50%
- ❑ 3. <75%
- ❑ 4. 75% or more
- ❑ 5. Don't know/not sure

What % of retailers offer goods or services directly to consumers over the Internet?

- ❑ 1. <10%
- ❑ 2. <20%
- ❑ 3. <35%
- ❑ 4. 35% or more
- ❑ 5. Don't know/not sure

Workforce

What % of the workforce participates in training/education programs online or in person every 5 years?

- ❑ 1. <10%
- ❑ 2. <25%
- ❑ 3. <50%
- ❑ 4. 50% or more
- ❑ 5. Don't know/not sure

V. Networked World Enablers

Security

What % of always-on connections have firewalls[63]?

- ❑ 1. <10%
- ❑ 2. <25%
- ❑ 3. <50%
- ❑ 4. 50% or more
- ❑ 5. Don't know/not sure

How often is virus software updated? (Referring to Government, e.g. your organization?)

- ❑ 1. Annually
- ❑ 2. Monthly
- ❑ 3. Bi-Weekly
- ❑ 4. Weekly
- ❑ 5. Don't know/not sure

How familiar are public policymakers in your area with issues of electronic privacy, connectedness, telecommunications competition, taxation, authentication, intellectual property, security, and online criminal activity?

- ❑ 1. Not at all familiar
- ❑ 2. Aware of the issues, but not familiar with them
- ❑ 3. Somewhat familiar
- ❑ 4. Well versed
- ❑ 5. Don't know/not sure

---

[63] Firewall - A mechanism (software program) that isolates a network from the rest of the Internet, permitting only specific traffic to pass in and out.

VI. Regional Planning Issues for Information and Communication Technologies and Science and Technology Development

What policies or programs are in place in cities or counties in your region (jurisdiction?) that encourage electronic connectedness and science and technology based economic development, e.g.life sciences, biotechnologies, electronics? Please describe in 25-50 words, or attach separate information.

_____

_____

_____

_____

How much of a priority should the use of information and communication technology be for the future development of your region? (Check one)

____ Big Priority ____ Somewhat of a priority ____ Not a priority ____ Don't Know

Are you or any organizations in your region going to apply to the Regional Telecommunications Planning Program grants being offered by the Michigan Economic Development Corporation?[64] (check one)

_____ Yes _____ No

Are you aware of any prevalent trends or notable examples of retail businesses in your area connecting with customers via the Internet for the purposes of conducting online retailing? If so, please describe in 25-50 words, or attach separate information.

_____

_____

_____

_____

---

[64] http://linkmichigan.michigan.org/regional.html

Distressed Communities

Are there initiatives under way in your region designed to facilitate economically distressed communities to bridge the digital divide? If so, please describe examples in 25-50 words, or attach separate information.

_____

_____

_____

_____

Outside Contact Information

If there are others we should contact in your region who can help complete this survey, please list their information.

Name _____

Organization _____

Phone _____

Email _____

Name _____

Organization _____

Phone _____

Email _____

Name _____

Organization _____

Phone _____

Email _____

Please return completed questionnaire to:

Jim Breuckman
201 Urban Planning & Landscape Architecture Building
East Lansing, MI 48824-1221

If you have any questions, or wish to set up a phone interview, please contact Jim Breuckman at:

Email: breuckma@msu.edu
Phone: (517) 974-0373

Appendix C. Compiled Survey Results

I. Network Infrastructure

Region	Speed & Availability of residential Internet Services				
	56K all homes	DSL/CM <20%	DSL/CM 20-80%	DSL/CM >80%	Don't Know
SEMCOG		2			
SW Mi Com			3		
Tri-County					o
W Mi RPC					o
NWMCOG			3		
W MI SRDC			3		
E UP RPDC	1				

Region	Availability of Mobile Digital Wireless				
	Analog	Digital covers 30%	Digital covers 50%	Digital covers 100%	Don't Know
SEMCOG			3		
SW Mi Com			3		
Tri-County					o
W Mi RPC					o
NWMCOG			3		
W MI SRDC	1				
E UP RPDC	1				

Region	Speed & Availability of Internet Services to Businesses				
	56K all Businesses	DSL/CM/T1 40%	DSL/CM/T1 80%	DSL/CM/T1 100%	Don't Know
SEMCOG				4	
SW Mi Com				4	
Tri-County					o
W Mi RPC					o
NWMCOG			3		
W MI SRDC		2			
E UP RPDC		2			

Region	Broadband Service Providers for Residential Markets				
	1 Provider	2 Providers for 50% of comm.	3 Providers for 75% of comm.	4 or more Providers	Don't Know
SEMCOG			3		
SW Mi Com				4	
Tri-County					o
W Mi RPC					o
NWMCOG		2			
W MI SRDC		2			
E UP RPDC					o

Region	Broadband Service Providers for Business Markets				
	1 Provider	3 Providers	5 Providers	6 or more Providers	Don't Know
SEMCOG					o
SW Mi Com		2			
Tri-County					o
W Mi RPC					o
NWMCOG		2			
W MI SRDC					o
E UP RPDC	1				

Region	Installation Times for Broadband Access				
	>3 Weeks	2-3 Weeks	1-2 Weeks	<1 Week	Don't Know
SEMCOG					o
SW Mi Com					o
Tri-County					o
W Mi RPC					o
NWMCOG				4	
W MI SRDC					o
E UP RPDC	1				

II. Networked Places/Access

Region	Government Bldg w/always on; % of Employees w/email				
	0-50%; 0-25%	50-100%; 25-100%	50-100% mob; Internet avail.	100% Network; Internet ubiquity	Don't Know
SEMCOG					o
SW Mi Com		2			
Tri-County					o
W Mi RPC					o
NWMCOG		2			
W MI SRDC		2			
E UP RPDC	1				

Region	Classrooms w/Broadband Access; Teachers w/email Accounts				
	0-10%; 0-25%	10-50%; 25-100%	50-75%; 100% broadband	Network Ubiquity	Don't Know
SEMCOG					o
SW Mi Com					o
Tri-County					o
W Mi RPC					o
NWMCOG		2			
W MI SRDC		2			
E UP RPDC		2			

Region	Higher Education				
	1	2	3	4	Don't Know
SEMCOG	1				o
SW Mi Com					o
Tri-County					o
W Mi RPC					o
NWMCOG		2			
W MI SRDC					o
E UP RPDC	1				

Region	Internet Access for Health Care Providers				
	0-100% Dial-In	< 50% Broadband	50-100% Broadband	100% Broadband	Don't Know
SEMCOG					o
SW Mi Com					o
Tri-County					o
W Mi RPC					o
NWMCOG	1				
W MI SRDC					o
E UP RPDC			3		

Region	Homes With A Computer or Other Internet Access Device				
	< 25%	< 50%	< 80%	> 80%	Don't Know
SEMCOG					o
SW Mi Com					o
Tri-County					o
W Mi RPC					o
NWMCOG			3		
W MI SRDC		2			
E UP RPDC		2			

Region	Percentage of Homes that Use the Internet				
	< 15%	< 40%	< 80%	> 80%	Don't Know
SEMCOG					o
SW Mi Com					o
Tri-County					o
W Mi RPC					o
NWMCOG		2			
W MI SRDC		2			
E UP RPDC		2			

III. Network Applications & Services

Region	What % of Businesses Order Goods Online				
	< 10%	< 25%	< 50%	> 50%	Don't Know
SEMCOG					o
SW Mi Com					o
Tri-County					o
W Mi RPC					o
NWMCOG		2			
W MI SRDC					o
E UP RPDC			3		

Region	What % of Businesses Transact with Customers Online				
	< 10%	< 25%	< 50%	> 50%	Don't Know
SEMCOG					o
SW Mi Com					o
Tri-County					o
W Mi RPC					o
NWMCOG		2			
W MI SRDC					o
E UP RPDC	1				

Region	What % of Businesses Manage HR/Administration Issues Online				
	< 10%	< 25%	< 50%	> 50%	Don't Know
SEMCOG					o
SW Mi Com					o
Tri-County					o
W Mi RPC					o
NWMCOG		2			
W MI SRDC					o
E UP RPDC		2			

Region	What % of Local and Regional Government Agencies Have Informational Websites				
	< 50%	< 75%	< 90 %	> 90%	Don't Know
SEMCOG				4	
SW Mi Com	1				
Tri-County					o
W Mi RPC					o
NWMCOG		2			
W MI SRDC	1				
E UP RPDC	1				

Region	What % of Local and Regional Government Agencies Share Data Electronically				
	< 25%	< 50%	< 75%	> 75%	Don't Know
SEMCOG					o
SW Mi Com	1				
Tri-County					o
W Mi RPC					o
NWMCOG		2			
W MI SRDC		2			
E UP RPDC	1				

Region	What % of Government Agencies Have Transactional Websites				
	< 25%	< 50%	< 75%	> 75%	Don't Know
SEMCOG					o
SW Mi Com	1				
Tri-County					o
W Mi RPC					o
NWMCOG	1				
W MI SRDC					o
E UP RPDC		2			

Region	What % of Teachers are Trained to Use Digital Content and Web-Based Teaching				
	< 25%	< 50%	< 75%	> 75%	Don't Know
SEMCOG					o
SW Mi Com					o
Tri-County	1				
W Mi RPC					o
NWMCOG		2			
W MI SRDC		2			
E UP RPDC		2			

Region	What % of Classes Use Digital Content and Web-Based Learning				
	< 25%	< 50%	< 75%	> 75%	Don't Know
SEMCOG					o
SW Mi Com					o
Tri-County	1				
W Mi RPC					o
NWMCOG		2			
W MI SRDC					o
E UP RPDC		2			

Region	School With Interactive Websites				
	100% information site	< 25%	< 75%	> 75%	Don't Know
SEMCOG					o
SW Mi Com					o
Tri-County					o
W Mi RPC					o
NWMCOG	1				
W MI SRDC	1				
E UP RPDC	1				

Region	What % of Higher Education Campuses Offer Online Registration				
	< 25%	< 50%	< 75%	> 75%	Don't Know
SEMCOG					o
SW Mi Com					o
Tri-County	1				
W Mi RPC					o
NWMCOG		2			
W MI SRDC					o
E UP RPDC				4	
Region	What % of Faculty are Trained to use Digital Content and Web-Based Learning				
	< 25%	< 50%	< 75%	> 75%	Don't Know
SEMCOG					o
SW Mi Com					o
Tri-County	1				
W Mi RPC					o
NWMCOG			3		
W MI SRDC					o
E UP RPDC		2			

Region	What % of Classes use Digital Content and Web-Based Learning				
	< 25%	< 50%	< 75%	> 75%	Don't Know
SEMCOG					o
SW Mi Com					o
Tri-County	1				
W Mi RPC					o
NWMCOG		2			
W MI SRDC					o
E UP RPDC		2			

Region	What % of Health Care Providers Have an Informational Website				
	< 10%	< 25%	< 75%	> 75%	Don't Know
SEMCOG					o
SW Mi Com					o
Tri-County					o
W Mi RPC					o
NWMCOG		2			
W MI SRDC					o
E UP RPDC		2			

Region	What % of Health Care Providers Store Records Electronically				
	0%	< 10%	< 25%	> 25%	Don't Know
SEMCOG					o
SW Mi Com					o
Tri-County					o
W Mi RPC					o
NWMCOG			3		
W MI SRDC					o
E UP RPDC			3		

Region	What % of Community-Based Organizations Have an Informational Website				
	< 25%	< 50%	<75%	> 75%	Don't Know
SEMCOG					o
SW Mi Com					o
Tri-County					o
W Mi RPC					o
NWMCOG		2			
W MI SRDC			3		
E UP RPDC		2			

Region	Are There Communities that Have Unified Community Portals				
	Yes	No			Don't Know
SEMCOG					o
SW Mi Com					o
Tri-County					o
W Mi RPC	1				
NWMCOG	1				
W MI SRDC	1				
E UP RPDC		1			

IV. Networked Economy

Region	What % of Households Purchase Goods or Services Online				
	< 10%	< 33%	< 75%	> 75%	Don't Know
SEMCOG					o
SW Mi Com					o
Tri-County					o
W Mi RPC					o
NWMCOG		2			
W MI SRDC		2			
E UP RPDC		2			

Region	How Long Do Business Permits Take to Secure				
	1-3 months	2 - 4 weeks	1 - 2 weeks	< 1 week	Don't Know
SEMCOG					o
SW Mi Com					o
Tri-County					o
W Mi RPC					o
NWMCOG		2			
W MI SRDC					o
E UP RPDC					o

Region	What % of Businesses Have Changed Internal Practice via the Internet				
	< 25%	< 50%	< 75%	> 75%	Don't Know
SEMCOG					o
SW Mi Com					o
Tri-County					o
W Mi RPC					o
NWMCOG		2			
W MI SRDC					o
E UP RPDC	1				

Region	What % of Retailers Offer Goods or Services to Consumers via the Internet				
	< 10%	< 20%	< 35%	> 35%	Don't Know
SEMCOG					o
SW Mi Com					o
Tri-County					o
W Mi RPC					o
NWMCOG			3		
W MI SRDC		2			
E UP RPDC	1				

	What % of Workforce Receives Internet Training Every 5 Years				
Region	< 10%	< 25%	< 50%	> 50%	Don't Know
SEMCOG					o
SW Mi Com					o
Tri-County					o
W Mi RPC					o
NWMCOG			3		
W MI SRDC					o
E UP RPDC		2			

V. Networked World Enablers

	What % of Always-On Connections Have Firewalls				
Region	< 10%	< 25%	< 50%	> 50%	Don't Know
SEMCOG					o
SW Mi Com					o
Tri-County					o
W Mi RPC					o
NWMCOG		2			
W MI SRDC			3		
E UP RPDC			3		

	How Often Is Virus Software Updated				
Region	Annually	Monthly	Bi-Weekly	Daily - Weekly	Don't Know
SEMCOG				4	
SW Mi Com		2			
Tri-County				4	
W Mi RPC				4	
NWMCOG				4	
W MI SRDC	1				
E UP RPDC		2			

	How Familiar Are Policymakers With Internet and Network Issues				
Region	Not at All	Aware, but not Familiar	Somewhat Familiar	Well Versed	Don't Know
SEMCOG			3		
SW Mi Com		2			
Tri-County			3		
W Mi RPC					o
NWMCOG		2			
W MI SRDC			3		
E UP RPDC		2			

Region	What Priority Should Be Placed on ICT for Future Development of Your Region				
	Big Priority	Somewhat of a Priority	Not a Priority		Don't Know
SEMCOG	o				
SW Mi Com	o				
Tri-County	o				
W Mi RPC	o				
NWMCOG		o			
W MI SRDC	o				
E UP RPDC	o				

Region	Are You or Anyone in Your Region Applying for LinkMichigan Grants				
	Yes	No			Don't Know
SEMCOG					
SW Mi Com	o				
Tri-County	o				
W Mi RPC	o				
NWMCOG	o				
W MI SRDC	o				
E UP RPDC	o				

References

Armstrong, David and Dennis Berman. August 17, 2001. "High in Fiber: Telecom Companies Confront New Rival: The Municipal Network." *Wall Street Journal*, p. A1.

Automation Alley. Available online at: www.automationalley.com Last accessed May 2, 2002.

Bonnett, Tom. Unpublished. "Telecommunications Issues in 2002 and Beyond: Convergance, Broadband, & Non-Discriminatory Access."

Bridges, Jessica. 1999. "The Fight Over Rights of Way." *Rural Telecommunications*; May/June 1999; p. 24-28.

Coldwater Board of Public Utilities. "Homepage." Available online at http://www.cbpu.com Last accessed May 2, 2002.

Computer Systems Policy Project. 1998. "Readiness Guide for Living in the Networked World." Available online at www.cspp.org. Last accessed April 30, 2002.

County News Online. December 4, 2000. "News from the Nation's Countys." Available online at: http://www.naco.org/pubs/cnews/00-12-4/newsfrom.htm Last accessed May 2, 2002.

Crockett, Roger. 2001. "Broadband and Main: A Determined Illinois Town Brings Speedy Net Access Home." *BusinessWeek*, October 8, 2001; p. 86-91.

CyberState.org. 2002. "2002 Local Government and Community Initiative." Available online at: http://www.cyber-state.org/1_0/1_4_1.html Last accessed May 2, 2002.

Eisenach, Jeffery. 2001. "Does Government Belong in the Telecom Business?" *The Progress and Freedom Foundation*, Available online at www.pff.org Last accessed May 2, 2002.

Glasgow, Kentucky. "Glasgow's Info-Highway Project." Available online at: http://www.glasgow-ky.com/gii/ Last accessed April 27 2002.

McDermott, Robert. 2000. "Utility Players: Telecom is the New Game." *The American City & Country*. June 2000; p.30-34. Available online at: http://www.networkeng.com/News.asp?NewsID=31 Last accessed May 2, 2002.

Michigan Association of Regions. Available online at: www.miregions.org Last accessed May 2, 2002.

Michigan Economic Development Corporation. 2001. *LinkMichiganPlan*. MEDC, May 14, 2001.

_____. 2001. "LinkMichigan Regional Telecommunications Planning Program: Program Statement." MEDC, December 4, 2001.

_____. 2001. "LinkMichigan Regional Telecommunications Planning Program Resource Book." MEDC, December 4, 2001.

Oakland County, Michigan. "About @ccess Oakland." Available online at: http://www.co.oakland.mi.us/exec/initiatives/access_oak.html Last accessed May 2, 2002.

Oakland County, Michigan. "About CLEMIS." Available online at: http://www.co.oakland.mi.us/clemis/ Last accessed May 2, 2002.

Rizzuto, Ronald J, and Michael O. Wirth 1998. *Costs, Benefits, and Long-Term Sustainability of Municipal Cable Television Overbuilds.* Denver: GSA Press.

Sarkar, Dibya. 2001. "Sharing the Wealth." *Civic.com*, February 2001: p. 30-32. Available online at: http://www.fcw.com/civic/articles/2001/feb/civ-wealth-02-01.asp Last accessed April 28, 2002.

Tongue, Kathryn A. 2001. "Municipal Entry Into the Broadband Cable Market: Recognizing the Inequities Inherent in Allowing Publicly Owned Cable Systems to Compete Directly Against Private Providers." *Northwestern Law Review.* Spring, 2001; p.1099-1139. Available online at: http://www.lexis.com/research/xlink?searchtype=lxe&search=95%20Nw.%20U.%20L.%20Rev.%201099 Last accessed May 2, 2002.

Quay, Ray. 2001. "Bridging the Digital Divide." *Planning*, July 2001; p.12-17.

Washtenaw County. 2001. "E-government Strategic Plan." Available online at http://www-personal.si.umich.edu/~kinneymc/egov/plan.shtml Last accessed April 28, 2002.

Washtenaw County Internet Portal. Available online at: www.eWashtenaw.org Last accessed May 2, 2002.

Widmayer, Patricia. 2000. "Transforming A Global City for the Information Society: Metropolitan Chicago at the Crossroads." *Journal of Urban Technology*, Vol. 7, No. 2; p. 23-42.